

Leeds Beckett University

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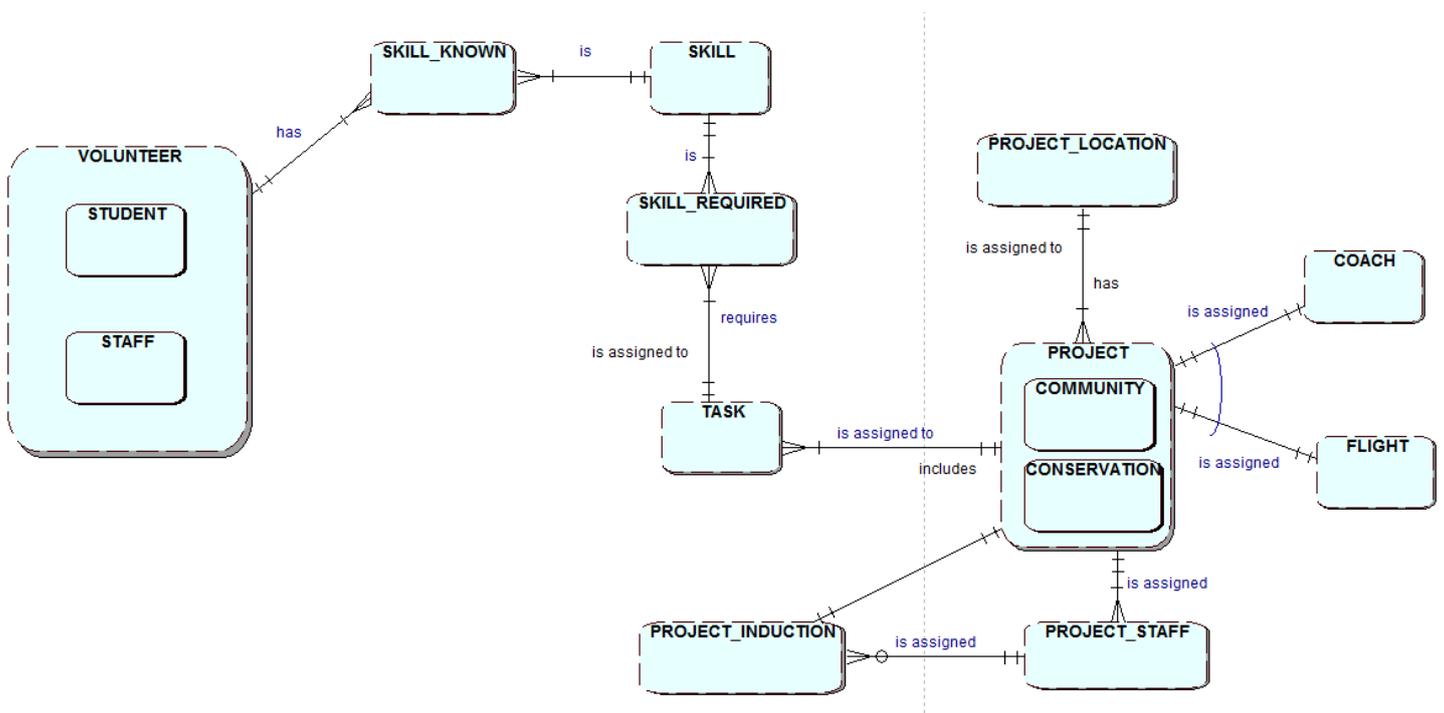
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Article I. Database Design

Section 1.01 Assumptions

- Each volunteer is a student or a member of staff
- Each volunteer can volunteer on many projects
- Each Project is a community or a conservation project
- Each project is located at home or abroad
- Each project can have many volunteers
- Each project has many tasks
- Each task requires one or many skills
- Each project has an induction course
- Each project has project staff
- Each project staff is assigned to one project
- Each induction course has a presenter
- Each volunteer has 2 emergency contacts
- Each volunteer has doctors contact details
- Each volunteer must complete an application form
- Each volunteer must provide 2 references

Section 1.02 Extended Entity Relationship Diagram



Section 1.03 Attributes and Identifiers

- Volunteer(volunteerID, gender, name, address, phone, DOB, email, doctor_name, doctor_tel)
- Student(volunteerID, studentID)
- Staff(volunteerID, staffID)
- Skill(skill_no, skill_name, skill_description)
- Skill_Known(volunteerID, skill_no)
- Task(taskID, task_name, task_description)
- Skill_Required(taskID, skill_no)
- Project(projectID, duration_in_weeks, project_start, project_end, hours_per_week)
- Project_Location(locationID, country, county, town_city, post_code)
- Project_Induction(ID, name, date, time)
- Project_Staff(pstaffID, gender, name, address, phone, DOB, email, doctor_name, doctor_tel)
- Coach(coachID, depart_date, depart_time, depart_pickup, return_date, return_time, return_dropoff)
- Flight(flightID, depart_date, depart_time, depart_airport, return_date, return_time, return_airport)

Section 1.04 Entity Definitions

- Volunteer: is a student or a member of staff and has multiple contact details and has a known skill
- Student: is a volunteer
- Staff: is a volunteer
- Skill: is a required skill of a task and a skill is a known skill of a volunteer
- Skill_Known: is a skill and a skill of a volunteer
- Task: required skills and is assigned to a project
- Skill_Required: is a skill and is required for a task

- Project: is a community or a conservation project which has a location and can require a coach of a flight as a means of transport, a project has one or more project staff, and an induction course
- Project_Location: can hold many projects
- Project_Induction: is assigned to every project and it is assigned a member of staff to present
- Project_Staff: are assigned to a project and can be assigned to a project induction
- Coach: can be a means of travel for a project
- Flight: can be a means of travel for a project

Section 1.05 Entity Occurrences

Volunteer	volunteerID	gender	name	address	phone	DOB	email	doctor_name	doctor_tel	Em_name_1	Em_tel_1	Em_name_2	Em_tel_2
	1	Female	Joanne Kennedy	16 poplar grove Harrogate	07807674864	25.04.94	joannekennedy123@gmail.com	Dr Moss	01423530830	Julie Kennedy	07545855333	Jean Simpson	07127895364
	2	Male	Josh Smith	72 sand hill drive Harrogate	07124585425	06.07.93	joshsmith123@gmail.com	Dr Grey	01423555135	John Smith	07965698563	Jane Smith	07362123596
	3	Female	Matthew Doe	60 Bridgegate Road Leeds	07458952458	22.07.80	Matt.d@gmail.com	Dr Couse	01133654523	Carol Doe	07854589987	Rita Doe	07425414784

Student	volunteerID	studentID
	1	C3369865
	2	C3367453

Staff	volunteerID	staffID
	3	S3369777

Skill	Skill_no	Skill_name	Skill_description
	1	Gardening	Working with plants and agriculture
	2	Baking	Working with food and hygiene

Skill_Known	volunteerID	Skill_no
	1	2
	2	1

Task	taskID	task_name	task_description
	1	Re-plant	Re-planting trees and taking care of the gardens
	2	Sous Chef	Working in a homeless shelter as a sous chef, helping out the head chef to make lunch and dessert.

Skill_Required	taskID	Skill_no
	1	1
	2	2

Project	projectID	duration_in_weeks	project_start	project_end	hours_per_week
	1	4	14.11.15	12.12.15	15
	2	1	16.11.15	23.11.15	10

Project_Location	locationID	country	county	town_city	post_code
	1	France	Aquitaine	Bordeaux	33063
	2	UK	West Yorkshire	Leeds	LS2 1LA

Project_Induction	ID	name	date	time
	1	Help for Homeless	13.11.15	12:00
	2	Agricultural Experience	14.11.15	11:00

Project_Staff	pstaffID	gender	name	address	phone	DOB	email	doctor_name	doctor_tel	Em_name_1	Em_tel_1	Em_name_2	Em_tel_2
	1	Female	Joanne Kennedy	16 poplar grove Harrogate	07807674864	25.04.94	joannekennedy123@gmail.com	Dr Moss	01423530830	Julie Kennedy	07545855333	Jean Simpson	07127895364
	2	Male	Josh Smith	72 sand hill drive Harrogate	07124585425	06.07.93	joshsmith123@gmail.com	Dr Grey	01423555135	John Smith	07965698563	Jane Smith	07362123596
	3	Female	Matthew Doe	60 Bridgegate Road Leeds	07458952458	22.07.80	Matt.d@gmail.com	Dr Couse	01133654523	Carol Doe	07854589987	Rita Doe	07425414784

Flight	FlightID	Depart_date	Depart_time	Depart_airport	Return_date	Return_time	Return_airport
	LS232	16-11-15	10:00	LBA	02-12-15	11:00	DUB

Coach	coachID	depart_date	depart_time	depart_pickup	return_date	return_time	return_dropoff
	1	16.11.15	9.30am	Headingley Campus	23.12.15	6:00pm	Headingley Campus

Section 1.06 Validation Questions

- List students that are volunteering abroad
- List the means of travel for each project
- List the skills required for each project
- List all volunteers simultaneously in one table
- List a projects length
- List volunteers emergency contact details
- List presenter for project induction
- List tasks for each project
- List staff assigned to a project
- List volunteers skills

Section 1.07 Normalisation

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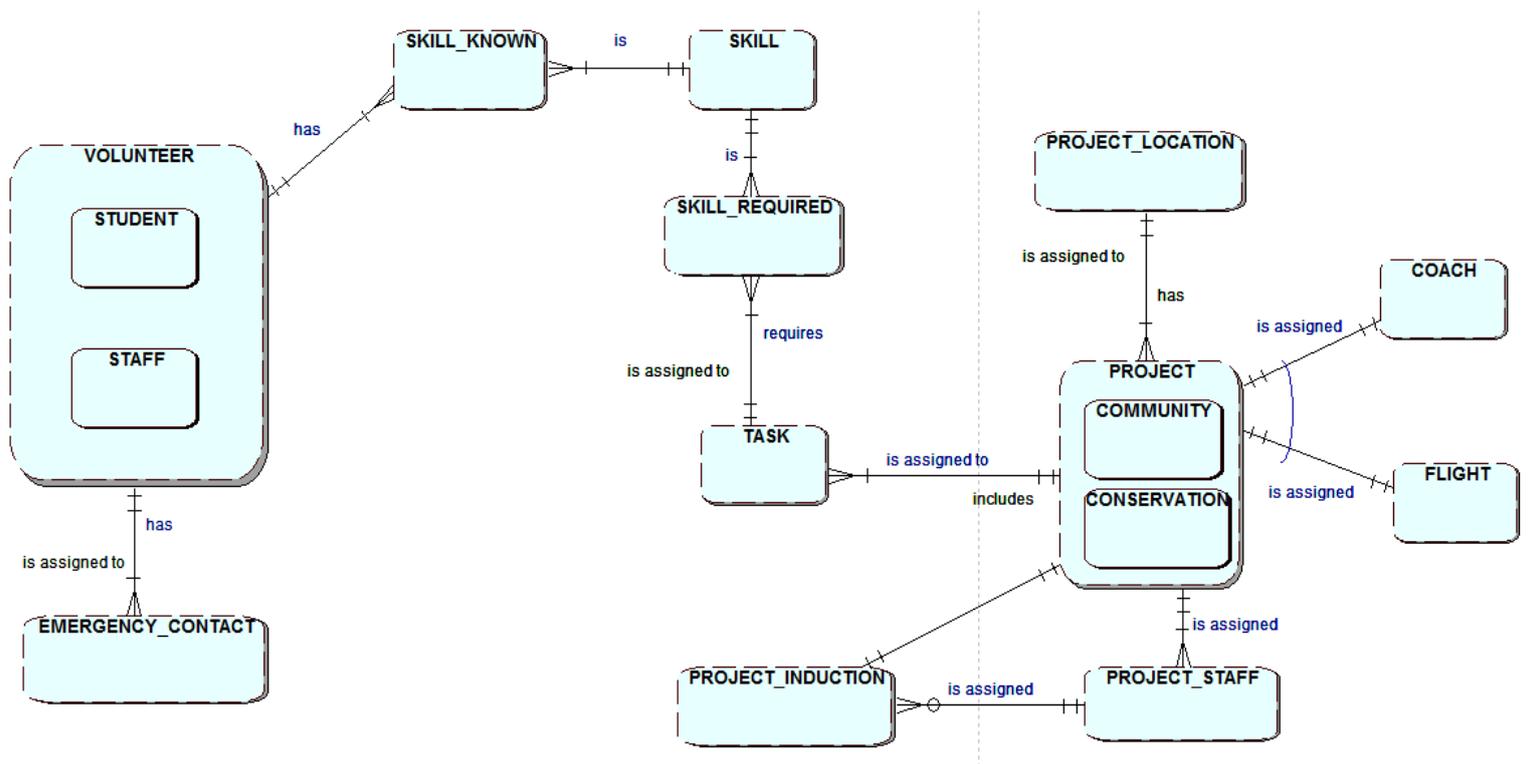
2NF

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TABLE

title		passport_no		passport_no		passport_no		VOLUNTEER
name		title		title		title		
course		name		name		name		
year_of_study		course		phone_no		phone_no		
studentID		year_of_study		Leeds_Beckett_email		Leeds_Beckett_email		
area_of_work		studentID		passport_expiry		passport_expiry		
staffID		area_of_work		DOB		DOB		
address		staffID		gender		gender		
in_term_address		address		ethnic_group		ethnic_group		
out_term_address		in_term_address		registered_disabled		registered_disabled		
phone_no		out_term_address		motivations_for_volunteering		motivations_for_volunteering		
Leeds_Beckett_email		phone_no		first_aid_qualifications		first_aid_qualifications		
passport_no		Leeds_Beckett_email		skill_name		skill_name		
passport_expiry		passport_expiry		interests		interests		
DOB		DOB		GP_name		GP_name		
gender	M/F	gender		GP_phone		GP_phone		
ethnic_group		ethnic_group						
registered_disabled	Y/N	registered_disabled		passport_no		passport_no		STUDENT
motivations_for_volunteering		motivations_for_volunteering		course		course		
first_aid_qualifications	Y/N	first_aid_qualifications		year_of_study		year_of_study		
skill_name		skill_name		studentID		studentID		
interests		interests		in_term_address		in_term_address		
referee_name		referee_name		out_term_address		out_term_address		
referee_address		referee_addresses		referee_name		referee_name		
referee_phone		manager_name		referee_address		referee_address		
manager_name		manager_email		area_of_work		area_of_work		
manager_email		manager_phone		staffID		passport_no		STAFF
manager_phone		GP_name		address		area_of_work		
GP_name		GP_phone		manager_name		staffID		
GP_phone				manager_email		address		
emergency_contact_name		emergency_contact_no		manager_phone		manager_name		
emergency_contact_address		emergency_contact_name				manager_email		
emergency_contact_post_code		emergency_contact_address		emergency_contact_no		manager_phone		
emergency_contact_relationship		emergency_contact_post_code		emergency_contact_name				
emergency_contact_no		emergency_contact_relationship		emergency_contact_address		emergency_contact_no		EMERGENCY CONTACT
				emergency_contact_post_code		emergency_contact_name		
				emergency_contact_relationship		emergency_contact_address		
						emergency_contact_post_code		
						emergency_contact_relationship		

Section 1.08 Composite Extended Entity Relationship Diagram



Section 1.09 Key Changes

After the normalisation/decomposition of the application form was complete, a composite EERD was produced. However there was not much change from the initial model, which was due to the case study being very clear about what the database needed to achieve in order to succeed.

One thing that did change after the normalisation process was the addition of an emergency contact table to store emergency contact details separate from the volunteer details; this is to ensure data integrity.

The normalisation process also provided a stronger set of attributes for tables such as the volunteer table, the student table, the staff table and the skill table; a final list of tables and attributes will be displayed below.

It is important to consider in the design stage which tables need to be implemented first, so in order to correctly do this, all primary and foreign keys will also be derived in the next section.

Section 1.10 Final List of Tables and Attributes

- Volunteer_Type(V_T_ID, V_Type)
- Volunteer(passport_no, title, gender, name, phone_no, DOB, LeedsBeckettEmail, passport_expiry, ethnic_group, registered_disabled, motivations_for_volunteering, first_aid_qualifications, GP_name, GP_phone, volunteer_type_ID)
- Student(passport_no, studentID, course, year_of_study, in_term_address, out_term_address, referee_name, referee_address, referee_phone)
- Staff(passport_no, staffID, area_of_work, address, manager_name, manager_email, manager_phone)
- Emergency_Contact(tel_no, name, address, post_code, relationship, *volunteerID/passport_no*)
- Skill(skill_no, skill_name, skill_description)
- Skill_Known(*volunteerID, skill_no*)
- P_Task(taskID, task_name, task_description, *projectID*)
- Skill_Required(*taskID, skill_no*)
- Project_Location(locationID, country, county, town_city, post_code)
- Project_Type(P_T_ID, P_Type)
- Project(projectID, duration_in_weeks, project_start, project_end, hours_per_week, project_type, *locationID*)
- Project_Induction(ID, name, date, time, *pstaffID*)
- Project_Staff(pstaffID, title, gender, name, address, phone_no, DOB, email, ethnic_group, registered_disabled, first_aid_qualifications, GP_name, GP_phone, *projectID*)
- Coach(coachID, depart_date, depart_time, depart_pickup, return_date, return_time, return_dropoff, *projectID*)
- Flight(flightID, depart_date, depart_time, depart_airport, return_date, return_time, return_airport, *projectID*)

The final list of tables and attributes are displayed above with the primary keys underlined and the foreign keys italicized with a font colour of red. Because of the many to many relationship between the Skill and Volunteer table and the P_Task and Skill table, two junction tables were implemented called Skill_Known and Skill_Required which contain only foreign keys which have been combined to create a combination primary key.

Section 1.11

Final List of Attribute Definitions and Occurrences

Volunteer_Type	V_T_ID(NUMBER)	V_Type(VARCHAR2)
	1	Student
	2	Staff

Volunteer	Passport_no (NUMBER)	Title (VARCHAR2)	Gender (VARCHAR2)	name (VARCHAR2)	Phone_no (NUMBER)	DOB (DATE)	Leeds_Beckett_email (VARCHAR2)	Passport_expiry (DATE)	Ethnic_group (VARCHAR2)	Registered_disabled (VARCHAR2)	motivations_for_volunteering (VARCHAR2)	First_aid_qualifications (VARCHAR2)	GP_name (VARCHAR2)	GP_phone (NUMBER)	Volunteer_ID_type (NUMBER)
	123456789	Miss	Female	Joanne Kennedy	07807674864	25.04.94	joannekennedy123@student.leedsbeckett.ac.uk	25.06.17	White British	No	Jjjyyujymnyunt yutyuntutu	Yes	07127895Dr Moss 364	01423530830	1
	234567890	Mr	Male	Josh Smith	07124585425	06.07.93	joshsmith123@student.leedsbeckett.ac.uk	01.03.16	White British	No	Jjjyyujymnyunt yutyuntutu	No	0736212359Dr Grey 6	01423555135	2
	345678912	Mr	Male	Matthew Doe	07458952458	22.07.80	Matt.d@student.leedsbeckett.ac.uk	14.06.18	White British	Yes	Jjjyyujymnyunt yutyuntutu	Yes	07425414784Dr Couse	01133654523	1

Student	Passport_no (NUMBER)	studentID (VARCHAR2)	course (VARCHAR2)	year_of_study (NUMBER)	In_term_addresses (VARCHAR2)	Out_term_addresses (VARCHAR2)	Referee_name (VARCHAR2)	Referee_addresses (VARCHAR2)	Referee_phone (NUMBER)
	123456789	CCC69865	Business	2	16 poplar grove harrogate	16 poplar grove harrogate	sally	20 brickwater lane leeds	01133245623
	234567890	C6756479	Law	1	72 sand hill drive harrogate	72 sand hill drive harrogate	josh	5 bricker road leeds	01133457896
	345678912	C8875674	Nursing	4	81 bachelor gardens harrogate	81 bachelor gardens harrogate	Matt	23 new forest park <u>rioon</u>	01452316456

Staff	Passport_no (NUMBER)	staffID (VARCHAR2)	Area_of_work (VARCHAR2)	address (VARCHAR2)	Manager_name (VARCHAR2)	Manager_email (VARCHAR2)	Manager_phone (NUMBER)
	123456789	SCC69865	Admin	16 poplar grove Harrogate	Jane Doe	j.d@leedsbeckett.ac.uk	07884545454
	234567890	S6756479	Lecturer	72 sand hill drive Harrogate	John Doe	j.dog@leedsbeckett.ac.uk	07774545898
	345678912	S8875674	Technician	81 bachelor gardens Harrogate	Sally Anne	s.a@leedsbeckett.ac.uk	07412121542

Emergency_Contact	Tel_No(NUMBER)	name(VARCHAR2)	Address (Varchar2)	Post_Code (Varchar2)	Relationship (Varchar2)	VolunteerID/Passport_No (Number)
	07807674864	Billy Smith	60 Church Avenue Harrogate	HG1 ERQ	Brother	123456789
	07445214521	Steve Wayne	13 Duchy Road Harrogate	HG1 6YH	Father	234567890

Skill	Skill_No(NUMBER)	Skill_Name(VARCHAR2)	Skill_Description(Varchar2)	Skill_Knowledge	Skill_No(NUMBER)	VolunteerID(NUMBER)
	1	Gardening	Planting and agricultural activities		1	123456789
	2	Baking	Cooking and hygiene experience		2	234567890

P_Task	TaskID(NUMBER)	Task_Name(NUMBER)	Task_Description (Varchar2)	ProjectID (Varchar2)
	1	Re-Plant	Re-planting trees and taking care of the gardens	1
	2	Sous Chef	Working in a homeless shelter as a sous chef, helping out the head chef to make lunch and dessert	2

Skill_Required	TaskID(NUMBER)	Skill_No(NUMBER)
	1	2
	2	1

Project_Location	LocationID(NUMBER)	Country(Varchar2)	County(Varchar2)	Town_City(Varchar2)	Post_Code (Varchar2)
	1	France	Aquitaine	Bordeaux	33063
	2	UK	West Yorkshire	Leeds	LS2 1LA

Project_Type	P_T_ID(NUMBER)	P_Type(VARCHAR2)
	1	Community
	2	Conservation

Project	ProjectID (NUMBER)	Duration_In_Weeks (NUMBER)	Project_Start (DATE)	Project_End (DATE)	Hours_Per_Week (NUMBER)	Project_Type (NUMBER)	LocationID(NUmber)
	1	2	14.11.15	28.11.15	15	2	1
	2	4	14.11.15	12.12.15	10	1	2

Project_Induction	ID (NUMBER)	Name (VARCHAR2)	Date (DATE)	Time (TIMESTAMP)	pstaffID (NUMBER)
	1	Help for Heroes	13.11.15	12:00	1
	2	Agricultural Experience	14.11.15	11:00	2

Project_Staff	pstaff ID (NUMBER)	Title (VARCHAR2)	Gender (VARCHAR2)	Name (VARCHAR2)	Address (VARCHAR2)	Phone_No (NUMBER)	DOB (DATE)	Email (VARCHAR2)	Ethnic_group (VARCHAR2)	Registered_disabled (VARCHAR2)	First_qualifications (VARCHAR2)	GP_name (VARCHAR2)	GP_phone (NUMBER)	ProjectID (NUMBER)
	1	Mrs	Female	Shelly Smith	16 Poplar Grove Harrogate	07807674864	25.05.90	ss@gmail.com	White British	No	Yes	Dr Moss	01423520360	1
	2	Mr	Male	Colin North	30 Stanhope Drive Harrogate	07854521452	10.02.87	cnother@gmail.com	White British	Yes	Yes	Dr Grey	01423565135	2

Coach	coach ID (NUMBER)	Depart_date (DATE)	Depart_time (TIMESTAMP)	Depart_pickup (VARCHAR2)	Return_date (DATE)	Return_time (TIMESTAMP)	Return_dropoff (VARCHAR2)	projectID (NUMBER)
	1	14.11.15	12:00	Headingley Campus	28.11.15	13:00	Headingley Campus	1
	2	13.11.15	11:00	Headingley Campus	12.12.15	15:00	Headingley Campus	2

Flight	FlightID (VARCHAR2)	Depart_date (DATE)	Depart_time (TIMESTAMP)	Depart_airport (VARCHAR2)	Return_date (DATE)	Return_time (TIMESTAMP)	Return_airport (VARCHAR2)	projectID (NUMBER)
	LS232	16-11-15	10:00	LBA	02-12-15	11:00	DUB	1
	LS453	20-11-15		MAN	01-01-16		BAR	2

Article II. Implementation and Testing

Section 2.01 Tables and Data Implementation

- Volunteer_Type
- Volunteer
- Student
- Staff
- Emergency_Contact
- Skill
- Skill_Known
- P_Task
- Skill_Required
- Project_Location
- Project_Type
- Project
- Project_Staff
- Project_Induction
- Coach
- Flight

Table 1: Volunteer_Type

Schema ⌵ ?

VOLUNTEER_TYPE + ▾									
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies
Add Column					Modify Column				
Rename Column					Drop Column				
Rename					Copy				
Drop					Truncate				
Create Lookup Table									
Column Name	Data Type	Nullable	Default	Primary Key					
V_T_ID	NUMBER(2,0)	No	-	1					
V_TYPE	VARCHAR2(7)	No	-	-					

[Download](#)

A Volunteer_Type table was created to store the type of volunteer in V_TYPE which has a data type of VARCHAR2 with a size of 7, along with an ID under V_T_ID which has a data type of NUMBER and a size of 2, this is the primary key for this table, however neither columns can be NULL.

Schema ⌵ ?

VOLUNTEER_TYPE		
Table	Data	Indexes
Query	Count Rows	Insert Row
Data		
EDIT	V_T_ID	V_TYPE
	1	STAFF
	2	STUDENT
Download		
row(s) 1 - 2 of 2		

There were only two types of volunteers to choose from; STUDENT and STAFF so these two entries have been inserted.

Schema ⌵ ?

VOLUNTEER_TYPE											
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL	
Create	Drop	Enable	Disable								
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid		
SYS_C0034968	Check	"V_TYPE" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-		
SYS_C0034969	Primary	-	-	V_T_ID	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034969	-		
SYS_C0034970	Unique	-	-	V_TYPE	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034970	-		

A **check** constraint on V_TYPE has been used in order to ensure it is NOT NULL and a **unique** constraint has been used to ensure the V_TYPE is unique and is not repeated. The **primary key** constraint is used on the V_T_ID and this means that this column also has to remain **unique** and NOT NULL.

Table 2: Volunteer

Schema C3369865

VOLUNTEER										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
PASSPORT_NO	NUMBER(9,0)	No	-	1						
TITLE	VARCHAR2(4)	Yes	-	-						
NAME	VARCHAR2(40)	Yes	-	-						
PHONE_NO	NUMBER(11,0)	No	-	-						
LEEDS_BECKETT_EMAIL	VARCHAR2(50)	No	-	-						
PASSPORT_EXPIRY	DATE	No	-	-						
DOB	DATE	No	-	-						
GENDER	VARCHAR2(6)	Yes	-	-						
ETHNIC_GROUP	VARCHAR2(15)	Yes	-	-						
REGISTERED_DISABLED	VARCHAR2(3)	Yes	-	-						
MOTIVATIONS_FOR_VOLUNTEERING	VARCHAR2(50)	Yes	-	-						
FIRST_AID_QUALIFICATIONS	VARCHAR2(3)	Yes	-	-						
GP_NAME	VARCHAR2(40)	Yes	-	-						
GP_PHONE	NUMBER(11,0)	No	-	-						
VOLUNTEER_TYPE_ID	NUMBER(2,0)	Yes	-	-						

The volunteer table is a supertype and has 15 columns as planned, these are all the attributes that are relevant to both STUDENT and STAFF volunteers, the PASSPORT_NO attribute is the primary key for this table and this has a data type of NUMBER and a size of 9. Other attributes in this table with a data type of NUMBER are PHONE_NO with a size of 11, VOLUNTEER_TYPE_ID with a size of 2 and GP_PHONE also with a size of 11. There can be an argument that telephone numbers should have the data type of VARCHAR2 however the correct way to store a number would be to store it in a NUMBER value and set up an alert, possibly with a trigger to remind DB users to only insert number values, if for example spaces and letters were used in their first attempt.

The DATE data type has been used on PASSPORT_EXPIRY and DOB to store dates in the format of MM: DD: YYYY. All the other attributes have a data type of VARCHAR2, such as TITLE with a size of 4, NAME with a size of 40, LEEDS_BECKETT_EMAIL with a size of 50, GENDER with a size of 6, ETHNIC_GROUP with a size of 15, REGISTERED_DISABLED with a size of 3, MOTIVATIONS_FOR_VOLUNTEERING with a size of 50, FIRST_AID_QUALIFICATIONS with a size of 3, and GP_NAME with a size of 40.

VOLUNTEER

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL					
Query	Count Rows	Insert Row													
EDIT	PASSPORT_NO	TITLE	NAME	PHONE_NO	LEEDS_BECKETT_EMAIL	PASSPORT_EXPIRY	DOB	GENDER	ETHNIC_GROUP	REGISTERED_DISABLED	MOTIVATIONS_FOR_VOLUNTEERING	FIRST_AID_QUALIFICATIONS	GP_NAME	GP_PHONE	VOLUNTEER_TYPE_ID
	823456789	MR	RYAN NICHOLSON	7807674864	R.NICHOLSON5758@STUDENT.LEEDSBECKETT.AC.UK	10/11/2021	02/12/1994	MALE	WHITE BRITISH	NO	-	NO	DR POSSKET	1423567143	1
	23456789	MISS	KATIE STEAD	7807674865	K.STEAD5758@STUDENT.LEEDSBECKETT.AC.UK	04/17/2021	07/23/1994	FEMALE	WHITE BRITISH	NO	-	NO	DR DRAKE	1423580830	1
	723456789	MRS	HANNAH PHILPSON	7807674866	H.PHILPSON5758@STUDENT.LEEDSBECKETT.AC.UK	10/17/2024	07/17/1991	FEMALE	WHITE BRITISH	NO	-	YES	DR JONES	1423502404	1
	823456789	MRS	ALICE COURT	7807674867	A.COURT5758@STUDENT.LEEDSBECKETT.AC.UK	09/17/2017	02/19/1980	FEMALE	WHITE BRITISH	YES	-	NO	DR CLIVE	14235696135	2
	923456789	MS	FRANCESCA WADE	7807674868	F.WADE5758@STUDENT.LEEDSBECKETT.AC.UK	01/18/2021	08/25/1991	FEMALE	WHITE BRITISH	NO	-	YES	DR VAIL	1423555985	2
	123456789	MISS	JOANNE KENNEDY	7807674869	J.KENNEDY5758@STUDENT.LEEDSBECKETT.AC.UK	11/25/2021	04/25/1994	FEMALE	WHITE BRITISH	NO	-	NO	DR MOSS	1423522706	2
	223456789	MRS	NICOLA HAGUE	7807674870	N.HAGUE5758@STUDENT.LEEDSBECKETT.AC.UK	02/26/2021	08/04/1990	FEMALE	WHITE BRITISH	NO	-	NO	DR GREY	1423598221	2
	323456789	MR	LUKE BLACKSTONE	7807674871	L.BLACKSTONE5758@STUDENT.LEEDSBECKETT.AC.UK	12/17/2021	07/25/1994	MALE	WHITE BRITISH	NO	-	NO	DR KIM	1423522708	1
	423456789	MS	FREYA DODDS	7807674872	F.DODDS5758@STUDENT.LEEDSBECKETT.AC.UK	11/02/2021	05/07/1994	FEMALE	WHITE BRITISH	YES	-	NO	DR SMITH	1423522709	2
	523456789	MISS	ABBIE DODSWORTH	7807674873	A.DODSWORTH5758@STUDENT.LEEDSBECKETT.AC.UK	11/12/2021	08/24/1992	FEMALE	WHITE BRITISH	NO	-	NO	DR MOORE	1423502306	1

10 rows of data were inserted to ensure there was a sufficient amount of data to test with. This data was a mixture of male and female volunteers, volunteers who were staff, volunteers who were students, volunteers who have first aid qualifications, and volunteers who are registered disabled.

VOLUNTEER

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Create	Drop	Enable	Disable							
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0034972	Check	"LEEDS_BECKETT_EMAIL" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034975	Check	"GP_PHONE" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034971	Check	"PHONE_NO" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034973	Check	"PASSPORT_EXPIRY" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034974	Check	"DOB" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034976	Primary	-	-	PASSPORT_NO	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034976	-	
SYS_C0034977	Unique	-	-	PHONE_NO	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034977	-	
SYS_C0034978	Unique	-	-	LEEDS_BECKETT_EMAIL	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034978	-	

The PASSPORT_NO was used as the **primary key** so this automatically makes this field unique and NOT NULL. A **check** constraint was used on LEEDS_BACKETT_EMAIL, DOB, PHONE_NO, and PASSPORT_EXPIRY AND GP_PHONE to ensure these fields are not left NULL, because these are all important information that would be required from a volunteer. A **unique** constraint was also used on PHONE_NO and LEEDS_BECKETT_EMAIL because these fields should be unique and entries of this data should not match any previous entries.

Table 3: Student

Schema C3369865

STUDENT										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
PASSPORT_NO	NUMBER(9,0)	No	-	1						
STUDENT_ID	VARCHAR2(8)	No	-	-						
COURSE	VARCHAR2(30)	Yes	-	-						
YEAR_OF_STUDY	NUMBER(1,0)	Yes	-	-						
IN_TERM_ADDRESS	VARCHAR2(50)	Yes	-	-						
OUT_TERM_ADDRESS	VARCHAR2(50)	Yes	-	-						
REFEREE_NAME	VARCHAR2(40)	Yes	-	-						
REFEREE_ADDRESS	VARCHAR2(50)	Yes	-	-						
REFEREE_PHONE	NUMBER(11,0)	No	-	-						

The student table is a sub type of volunteer so the primary key must match that of the volunteer table which is PASSPORT_NO and this also needs to have the same data type and size as the one in the volunteer table, so the data type is specified as NUMBER with a size of 9. Because this is a sub type the primary key also needs to become a foreign key in this table so again that is PASSPORT_NO. This table stores attributes that are only relevant to STUDENT volunteers, such as STUDENT_ID with a data type of VARCHAR2 and a size of 8, COURSE with a data type of VARCHAR2 and a size of 30, YEAR_OF_STUDY with a data type of NUMBER and a size of 1, IN_TERM_ADDRESS with a data type of VARCHAR2 and a size of 50, OUT_TERM_ADDRESS with a data type of VARCHAR2 and a size of 50, REFEREE_NAME with a data type of VARCHAR2 and a size of 40, REFEREE_ADDRESS with a data type of VARCHAR2 and a size of 50 and REFEREE_PHONE with a data type of NUMBER and a size of 11.

Schema C3369865

STUDENT										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Query	Count Rows	Insert Row								
EDIT	PASSPORT_NO	STUDENT_ID	COURSE	YEAR_OF_STUDY	IN_TERM_ADDRESS	OUT_TERM_ADDRESS	REFEREE_NAME	REFEREE_ADDRESS	REFEREE_PHO	
	123456789	C3369865	BUSINESS INTELLIGENCE	1	16 POPLAR GROVE HARROGATE	16 POPLAR GROVE HARROGATE	JONATHAN TRUELOVE	BRIDGEGATE HOUSE FILEY	7958463456	
	223456789	C3366123	NURSING	2	72 SANDHILL DRIVE HARROGATE	72 SANDHILL DRIVE HARROGATE	JANET BARNES	12 EAST PARADE HARROGATE	7959976456	
	423456789	C4569863	BUSINESS MANAGEMENT	1	64 ELECTRIC AVENUE HARROGATE	64 ELECTRIC AVENUE HARROGATE	SANDY CARTER	20 KINGS ROAD HARROGATE	7958230066	
	823456789	C6723495	CRIMINOLOGY	4	KARMGATE FARM BISHOP MONKTON	FLAT 3 NEWWAVE ROAD LEEDS	JIMMY SMITHSON	54 BEULAH STREET HARROGATE	7888663323	
	923456789	C9087231	SOCIAL SCIENCE	3	49 MYROAD RIPON	30 JUPE STREET HEADINGLEY	THOMAS DARLING	20 VILLAGETON AVENUE RIPON	7796453856	

Out of the 10 rows of volunteers it was important to include a mix of STUDENT volunteers as well as SAFF volunteers so 5/10 volunteers are STUDENTS, the test data includes a mix of courses and different year groups to work with.

Schema C3369865

STUDENT										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Create	Drop	Enable	Disable							
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0034979	Check	"STUDENT_ID" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034980	Check	"REFEREE_PHONE" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034981	Primary	-	-	PASSPORT_NO	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034981	-	
SYS_C0034983	Foreign	-	SYS_C0034983 (C3369865.VOLUNTEER)	PASSPORT_NO	NO ACTION	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034982	Unique	-	-	STUDENT_ID	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034982	-	

The constraints for this table as mentioned above is the **primary and foreign key** constraint on the PASSPORT_NO, a **check** constraint on the STUDENT_ID and REFEREE_PHONE due to the important of these fields containing data, and a **unique** constraint on STUDENT_ID because each student should have a different ID.

Table 4: Staff

Schema C3369865

STAFF										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
PASSPORT_NO	NUMBER(9,0)	No	-	1						
STAFF_ID	VARCHAR2(8)	No	-	-						
AREA_OF_WORK	VARCHAR2(15)	Yes	-	-						
ADDRESS	VARCHAR2(50)	Yes	-	-						
MANAGER_NAME	VARCHAR2(40)	Yes	-	-						
MANAGER_EMAIL	VARCHAR2(50)	Yes	-	-						
MANAGER_PHONE	NUMBER(11,0)	No	-	-						

Again like the student table, the staff table is also a sub type of volunteer so the primary key along with its data type and size must match that in the volunteer table and in this table the primary key PASSPORT_NO with a data type of NUMBER and a size of 9 will also become the foreign key. Other column names that this table has are those only relevant to the STAFF volunteers, for example STAFF_ID with a data type of VARCHAR2 and a size of 8, AREA_OF_WORK with a data type of VARCHAR2 and a size of 15, ADDRESS with a data type of VARCHAR2 and a size of 50, MANAGER_NAME with a data type of VARCHAR2 and a size of 40, MANAGER_EMAIL with a data type of VARCHAR2 and a size of 50 and MANAGER_PHONE with a data type of NUMBER and a size of 11.

STAFF										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Query		Count Rows	Insert Row							
EDIT	PASSPORT_NO	STAFF_ID	AREA_OF_WORK	ADDRESS	MANAGER_NAME	MANAGER_EMAIL	MANAGER_PHONE			
	323456789	ST123456	LECTURER	62 GREENGATE ROAD LEEDS	SALLY JOBS	S.JOBS@LEEDSBECKETT.AC.UK	3345877534			
	523456789	ST287458	ADMIN	12 SIM LANE LEEDS	DWIGHT BUTTON	D.BUTTON@LEEDSBECKETT.AC.UK	3345821217			
	623456789	ST985674	LIBRARIAN	24 TAIL AVENUE HARROGATE	JACK DOORS	J.DOORS@LEEDSBECKETT.AC.UK	1423877224			
	723456789	ST123234	TECHNICIAN	90 GREAT STREET LEEDS	VAL EDGER	V.EDGER@LEEDSBECKETT.AC.UK	3345123534			
	23456789	ST078453	COUNCILLOR	52 BOWER ROAD HULL	DOLLY KEPT	D.KEPT@LEEDSBECKETT.AC.UK	3345877666			

Again like the student table 5/10 volunteers have been made into STAFF for testing purposes with unique data.

STAFF										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Create		Drop	Enable	Disable						
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0034984	Check	"STAFF_ID" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034986	Primary	-	-	PASSPORT_NO	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034986	-	
SYS_C0034988	Foreign	-	SYS_C0034988 (C3369865.VOLUNTEER)	PASSPORT_NO	NO ACTION	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034985	Check	"MANAGER_PHONE" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034987	Unique	-	-	STAFF_ID	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034987	-	

Constraints in place on the STAFF table, again like mentioned above there is the **primary and foreign key** constraint on the PASSPORT_NO, there is a **check** constraint on the STAFF_ID and MANAGER_PHONE attributes to ensure they are not left NULL and **unique** constraint on the STAFF_ID attribute because they should be unique.

Table 5: Emergency Contact

EMERGENCY_CONTACT										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column		Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table	
Column Name	Data Type	Nullable	Default	Primary Key						
TEL_NO	NUMBER(11,0)	No	-	1						
NAME	VARCHAR2(40)	Yes	-	-						
ADDRESS	VARCHAR2(50)	Yes	-	-						
POST_CODE	VARCHAR2(10)	Yes	-	-						
RELATIONSHIP	VARCHAR2(15)	Yes	-	-						
VOLUNTEER_ID	NUMBER(9,0)	Yes	-	-						

The emergency contact table has 6 columns which consist of TEL_NO which is a NUMBER data type with a size of 11, NAME which is a VARCHAR2 data type with a size of 40, ADDRESS which is a VARCHAR2 data type with a size of 50, POST_CODE which is a VARCHAR2 data type with a size of 10, RELATIONSHIP which is a VARCHAR2 data type with a size of 15 and VOLUNTEER_ID which is a NUMBER data type with a size of 9.

Schema C3369865

EMERGENCY_CONTACT										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Data										
EDIT	TEL_NO	NAME	ADDRESS	POST_CODE	RELATIONSHIP	VOLUNTEER_ID				
	12345201258	JULIE KENNEDY	16 POPLAR GROVE HARROGATE	HG1 4PL	MOTHER	123456789				
	7542645125	STEPHEN DODSWORTH	12 SIM LANE LEEDS	LS2 1PL	FATHER	523456789				
	7489658965	SHIELA BLACKSTONE	62 GREENGATE ROAD LEEDS	LS1 4LL	WIFE	323456789				
	1425478523	MEL NICHOLSON	24 TAIL AVENUE HARROGATE	HG1 3EL	WIFE	623456789				
	1325468952	DAN PHILIPSON	190 GREAT STREET LEEDS	LS2 56L	HUSBAND	723456789				
	6512478513	NICOLA STEAD	52 BOWER ROAD HULL	HU2 3RE	SISTER	23456789				
	7845245695	PHILIP HAGUE	72 SANDHILL DRIVE HARROGATE	HG2 4FG	HUSBAND	223456789				
	8451245698	SALLY DODDS	64 ELECTRIC AVENUE HARROGATE	HG3 ERA	MOTHER	423456789				
	3521445698	MIKE COURT	FLAT 3 NEWWAVE ROAD LEEDS	LS2 90B	HUSBAND	823456789				
	1474758962	JOHN WADE	49 MYROAD RIPON	R18 4DS	BROTHER	923456789				

10 rows of data has been inserted into the emergency contact table for test purposes, the scenario stated that each volunteer must have 2 emergency contacts but for the purposes of testing, one per person has been included.

Schema C3369865

EMERGENCY_CONTACT										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Create Drop Enable Disable										
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0034990	Foreign	-	SYS_C0034990 (C3369865.VOLUNTEER)	VOLUNTEER_ID	NO ACTION	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034989	Primary	-	-	TEL_NO	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034989	-	

The only constraints related to the emergency contact table are the **primary and foreign key** constraints. The primary key is the TEL_NO because this can be used as a unique identifier and the foreign key is the VOLUNTEER_ID which actually relates to the PASSPORT_NO from the volunteer table and this can then be used to link the two tables together.

Table 6: Skill

Schema C3369865

SKILL										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
SKILL_NO	NUMBER(2,0)	No	-	1						
SKILL_NAME	VARCHAR2(20)	No	-	-						
SKILL_DESCRIPTION	VARCHAR2(40)	Yes	-	-						

The skill table includes three columns, SKILL_NO with a data type of NUMBER and a size of 2, SKILL_NAME with a data type of VARCHAR2 and a size of 40 and SKILL_DESCRIPTION with a data type of VARCHAR2 and a size of 50.

Schema C3369865

SKILL										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Query	Count Rows	Insert Row								
Data										
EDIT	SKILL_NO	SKILL_NAME	SKILL_DESCRIPTION							
	1	BAKING	-							
	2	CHESS	-							
	3	GARDENING	-							
	4	KNITTING/SEWING	-							
	5	PIANO/SINGING	-							
	6	SPORTS	-							
	7	ART	-							
	8	OTHER	-							

The data used in this table was from the application form which was normalised earlier in order to derive attributes, 8 skills have been inserted with their descriptions left blank, in normal circumstances the skill description would be filled in but it is not as important as the skill name so for now it does not matter that this field is left NULL.

SKILL										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
<div style="display: flex; gap: 5px;"> Create Drop Enable Disable </div>										
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0034992	Primary	-	-	SKILL_NO	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034992	-	
SYS_C0034991	Check	"SKILL_NAME" IS NOT NULL	-	-	-	ENABLED	11/14/2015 01:19:19 PM	-	-	
SYS_C0034993	Unique	-	-	SKILL_NAME	-	ENABLED	11/14/2015 01:19:19 PM	SYS_C0034993	-	

The only constraints for the skill table is the **primary key** constraint on the skill_no and the **unique** and **check** constraint on the skill_name to ensure it is NOT NULL and it is unique.

Table 7: Skill Known

SKILL_KNOWN										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
<div style="display: flex; gap: 5px;"> Add Column Modify Column Rename Column Drop Column Rename Copy Drop Truncate Create Lookup Table </div>										
Column Name	Data Type	Nullable	Default	Primary Key						
VOLUNTEER_ID	NUMBER(9,0)	No	-	1						
SKILL_NO	NUMBER(2,0)	No	-	2						

The skill_known table was brought in as an associate entity to define the association between the volunteer and skill tables. The two columns it contains are VOLUNTEER_ID with a data type of number and a size of 9 and SKILL_NO with a data type of NUMBER and a size of 2.

SKILL_KNOWN		
Table	Data	Indexes
<div style="display: flex; gap: 5px;"> Query Count Rows Insert Row </div>		
Data		
EDIT	VOLUNTEER_ID	SKILL_NO
	23456789	1
	123456789	1
	223456789	1
	323456789	4
	423456789	6
	523456789	1
	623456789	6
	723456789	7
	823456789	7
	923456789	2

10 rows of data was inserted, one for each volunteer linking them to a skill no.

Schema C33698

SKILL_KNOWN												
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL		
Create	Drop	Enable	Disable									
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid			
SYS_C0035260	Foreign	-	SYS_C0035260 (C3369865.VOLUNTEER)	VOLUNTEER_ID	NO ACTION	ENABLED	11/16/2015 12:31:24 PM	-	-			
SYS_C0035259	Primary	-	-	VOLUNTEER_ID, SKILL_NO	-	ENABLED	11/16/2015 12:31:24 PM	SYS_C0035259	-			
SYS_C0035261	Foreign	-	SYS_C0035261 (C3369865.SKILL)	SKILL_NO	NO ACTION	ENABLED	11/16/2015 12:31:24 PM	-	-			

Both VOLUNTEER_ID and SKILL_NO are **foreign keys**, the VOLUNTEER_ID coming from the PASSPORT_NO in the volunteer table and the SKILL_NO coming from the SKILL_NO in the skill table, both foreign keys are combined together to form a unique key, this unique key also known as a **composite key** was then used as the tables **primary key**.

Table 8: P_Task

Schema C3369865

P_TASK										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
TASK_ID	NUMBER(2,0)	No	-	1						
PROJECT_ID	NUMBER(2,0)	Yes	-	-						
TASK_NAME	VARCHAR2(40)	No	-	-						
TASK_DESCRIPTION	VARCHAR2(60)	Yes	-	-						

The P_Task table has 4 columns, TASK_ID with a data type of NUMBER and a size of 2, PROJECT_ID with a data type of NUMBER and a size of 2, TASK_NAME with a data type of VARCHAR2 and a size of 40 and TASK_DESCRIPTION with a data type of VARCHAR2 and a size of 60.

Schema C3369865

P_TASK										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Query	Count Rows	Insert Row								
EDIT	TASK_ID	PROJECT_ID	TASK_NAME	TASK_DESCRIPTION						
	1	1	MARKETING	-						
	2	2	EVENT SETUP	Prepare the stadium for guests						
	3	1	FOOD AND BEVERAGES	-						
	4	3	NETWORKING	-						
	5	10	GUESTLIST	Guard the door and check names with the guestlist upon entry						

5 rows was inserted into P_Task for testing which included tasks for 4 different projects, some task descriptions was inserted and some was left NULL.

Schema C3369865

P_TASK											
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL	
Create	Drop	Enable	Disable								
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid		
SYS_C0035686	Check	*TASK_NAME* IS NOT NULL	-	-	-	ENABLED	11/16/2015 12:46:25 PM	-	-		
SYS_C0035687	Primary	-	-	TASK_ID	-	ENABLED	11/16/2015 12:46:25 PM	SYS_C0035687	-		
SYS_C0035688	Unique	-	-	TASK_NAME	-	ENABLED	11/16/2015 12:46:25 PM	SYS_C0035688	-		
SYS_C0035689	Foreign	-	SYS_C0035689 (C3369865.PROJECT)	PROJECT_ID	NO ACTION	ENABLED	11/16/2015 12:46:25 PM	-	-		

The constraints used on the P_Task table was the **primary key** constraint which was used on the TASK_ID, the **foreign key** constraint which was used on the PROJECT_ID column linking it to the PROJECT_ID in the project table. It is important to note that the foreign key constraint was not implemented until the project table had been built. A **check** and **unique** constraint was used on the TASK_NAME as this should not be repeated and should not be NULL.

Table 9: Skill Required

Schema C3369865

SKILL_REQUIRED										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
TASK_ID	NUMBER(2,0)	No	-	1						
SKILL_NO	NUMBER(2,0)	No	-	2						

The skill_required table includes only a TASK_ID column with a data type of NUMBER and a size of 2 and a SKILL_NO column with a data type of NUMBER and a size of 2. This table, like skill_known was brought in as an associate entity, only this table is used to define the association between the p_task and skill tables.

SKILL_REQUIRED

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Query	Count Rows	Insert Row								
Data										
EDIT	TASK_ID	SKILL_NO								
	1	6								
	2	7								
	3	1								
	4	4								
	5	2								

5 rows was inserted into this table for test purposes, one for each task, each task was then allocated a skill no which would related to a skill and this skill would be required for completion of the task.

SKILL_REQUIRED

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Create	Drop	Enable	Disable							
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0035781	Foreign	-	SYS_C0035781 (C3369865.P_TASK)	TASK_ID	NO ACTION	ENABLED	11/16/2015 12:51:33 PM	-	-	
SYS_C0035780	Primary	-	-	TASK_ID, SKILL_NO	-	ENABLED	11/16/2015 12:51:33 PM	SYS_C0035780	-	
SYS_C0035782	Foreign	-	SYS_C0035782 (C3369865.SKILL)	SKILL_NO	NO ACTION	ENABLED	11/16/2015 12:51:33 PM	-	-	

Both TASK_ID and SKILL_NO are **foreign keys**, the TASK_ID coming from the TASK_ID in the p_task table and the SKILL_NO coming from the SKILL_NO in the skill table, both foreign keys are combined together to form a unique key, this unique key also known as a **composite key** was then used as the tables **primary key**.

Table 10: Project Location

PROJECT_LOCATION

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
LOCATION_ID	NUMBER(2,0)	No	-	1						
COUNTRY	VARCHAR2(10)	Yes	-	-						
COUNTY	VARCHAR2(40)	Yes	-	-						
TOWN_CITY	VARCHAR2(15)	Yes	-	-						
POST_CODE	VARCHAR2(10)	Yes	-	-						

The project location table includes 5 columns, LOCATION_ID which has a data type of NUMBER and a size of 2, COUNTRY which has a data type of VARCHAR2 and a size of 10, COUNTY which has a data type of VARCHAR2 and a size of 40, TOWN_CITY which has a data type of VARCHAR2 and a size of 15, and POST_CODE which has a data type of VARCHAR2 and a size of 10.

Schema C3369865

PROJECT_LOCATION

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Query	Count Rows	Insert Row								

EDIT	LOCATION_ID	COUNTRY	COUNTY	TOWN_CITY	POST_CODE
	1	ENGLAND	GREATER LONDON	WIMBLEDON	SW197HR
	2	TURKEY	ISTANBUL	ISTANBUL	34000
	3	AMERICA	PALM BEACH	FLORIDA	33480
	4	AMERICA	VIRGINIA	HAMPTONS	10580
	5	AUSTRALIA	VICTORIA	MELBOURNE	3172
	6	DUBAI	UNITED ARAB EMIRATES	DUBAI	23100
	7	SPAIN	BARCELONA	BARCELONA	08042
	8	FRANCE	BOURBON	PARIS	75000
	9	EGYPT	MONTGOMERY	CAIRO	11566
	10	ENGLAND	SOUTH YORKSHIRE	BARNESLEY	M1 J37

10 rows were inserted into the table for test purposes detailing 10 different project locations, 2/10 based at home in England and 8/10 based abroad.

Schema C3369865

PROJECT_LOCATION

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Create	Drop	Enable	Disable							
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0037241	Primary	-	-	LOCATION_ID	-	ENABLED	11/16/2015 02:48:50 PM	SYS_C0037241	-	

The only constraint on the project location table is the **primary key** constraint on the LOCATION_ID because this needs to be the unique identifier and must not be NULL. A check constraint could have been added on the country and post code attributes but a unique key would not have worked on any of the columns in this table.

Table 11:Project Type

Schema C3369865

PROJECT_TYPE				
Table	Data	Indexes	Model	Constraints
Add Column Modify Column Rename Column Drop Column Rename Copy Drop Truncate Create Lookup Table				
Column Name	Data Type	Nullable	Default	Primary Key
P_T_ID	NUMBER(2,0)	No	-	1
P_TYPE	VARCHAR2(15)	No	-	-

A Project_Type table was created to store the type of project in P_TYPE which has a data type of VARCHAR2 with a size of 15, along with an ID under P_T_ID which has a data type of NUMBER and a size of 2, this is the primary key for this table, however neither columns can be NULL.

Schema C3369865

PROJECT_TYPE		
Table	Data	Indexes
Query Count Rows Insert Row		
Data		
EDIT	P_T_ID	P_TYPE
	1	COMMUNITY
	2	CONSERVATION

There were only two types of projects to choose from; COMMUNITY and CONSERVATION so these two entries have been inserted.

Schema C3369865

PROJECT_TYPE										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Create Drop Enable Disable										
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0035768	Primary	-	-	P_T_ID	-	ENABLED	11/16/2015 12:51:32 PM	SYS_C0035768	-	
SYS_C0035767	Check	"P_TYPE" IS NOT NULL	-	-	-	ENABLED	11/16/2015 12:51:32 PM	-	-	
SYS_C0035769	Unique	-	-	P_TYPE	-	ENABLED	11/16/2015 12:51:32 PM	SYS_C0035769	-	

A **check** constraint on P_TYPE has been used in order to ensure it is NOT NULL and a **unique** constraint has been used to ensure the P_TYPE is unique and is not repeated. The **primary key** constraint is used on the P_T_ID and this means that this column also has to remain **unique** and NOT NULL.

Table 12: Project

Schema C3369865

PROJECT										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
PROJECT_ID	NUMBER(2,0)	No	-	1						
DURATION_IN_WEEKS	NUMBER(3,0)	No	-	-						
P_TYPE	NUMBER(2,0)	Yes	-	-						
P_START	DATE	No	-	-						
P_END	DATE	No	-	-						
P_HPW	NUMBER(2,0)	No	-	-						
LOCATION_ID	NUMBER(2,0)	Yes	-	-						

The project table has 7 columns the PROJECT_ID which has a data type of NUMBER and a size of 2, DURATION_IN_WEEKS which has a data type of NUMBER and a size of 3, P_TYPE which has a data type of NUMBER and a size of 2, P_START which has a data type of DATE, P_END which also has a data type of DATE, P_HPW which has a data type of NUMBER and a size of 2 and LOCATION_ID which also has a data type of NUMBER and a size of 2.

Schema C3369865

PROJECT														
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL				
Query	Count Rows	Insert Row												
Data														
EDIT	PROJECT_ID	DURATION_IN_WEEKS	P_TYPE	P_START	P_END	P_HPW	LOCATION_ID							
	1	6	1	05/09/2016	06/20/2016	20	1							
	2	20	1	05/02/2016	09/19/2017	20	3							
	3	4	2	06/06/2016	07/04/2016	20	2							
	4	6	2	06/06/2016	07/18/2016	20	9							
	5	15	1	05/02/2016	08/22/2016	20	6							
	6	10	1	01/11/2016	03/21/2016	20	4							
	7	12	2	01/04/2016	03/05/2016	20	5							
	8	6	2	06/01/2016	07/13/2016	20	7							
	9	4	1	07/04/2016	08/12/2016	20	8							
	10	2	1	11/23/2015	12/07/2015	20	10							

10 rows of project data have been inserted and each project is based at a different location and has different start and end dates etc.

PROJECT										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
<input type="button" value="Create"/> <input type="button" value="Drop"/> <input type="button" value="Enable"/> <input type="button" value="Disable"/>										
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0035771	Check	"P_START" IS NOT NULL	-	-	-	ENABLED	11/16/2015 12:51:32 PM	-	-	
SYS_C0035773	Check	"P_HPW" IS NOT NULL	-	-	-	ENABLED	11/16/2015 12:51:32 PM	-	-	
SYS_C0035775	Foreign	-	SYS_C0035775 (C3369865.PROJECT_LOCATION)	LOCATION_ID	NO ACTION	ENABLED	11/16/2015 12:51:32 PM	-	-	
SYS_C0035770	Check	"DURATION_IN_WEEKS" IS NOT NULL	-	-	-	ENABLED	11/16/2015 12:51:32 PM	-	-	
SYS_C0035772	Check	"P_END" IS NOT NULL	-	-	-	ENABLED	11/16/2015 12:51:32 PM	-	-	
SYS_C0035774	Primary	-	-	PROJECT_ID	-	ENABLED	11/16/2015 12:51:32 PM	SYS_C0035774	-	

The **primary key** constraint is on the PROJECT_ID attribute and the **foreign key** is allocated to the LOCATION_ID which comes from the LOCATION_ID in the Project_Location table. A **check** constraint has also been placed on the P_START, P_END, P_HPW and DURATION_IN_WEEKS.

Table 13:Project Staff

PROJECT_STAFF										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
<input type="button" value="Add Column"/> <input type="button" value="Modify Column"/> <input type="button" value="Rename Column"/> <input type="button" value="Drop Column"/> <input type="button" value="Rename"/> <input type="button" value="Copy"/> <input type="button" value="Drop"/> <input type="button" value="Truncate"/> <input type="button" value="Create Lookup Table"/>										
Column Name	Data Type	Nullable	Default	Primary Key						
PSTAFFID	NUMBER(2,0)	No	-	1						
TITLE	VARCHAR2(4)	Yes	-	-						
GENDER	VARCHAR2(6)	Yes	-	-						
NAME	VARCHAR2(40)	Yes	-	-						
ADDRESS	VARCHAR2(50)	Yes	-	-						
PHONE_NO	NUMBER(11,0)	Yes	-	-						
DOB	DATE	No	-	-						
ETHNIC_GROUP	VARCHAR2(15)	Yes	-	-						
REGISTERED_DISABLED	VARCHAR2(3)	Yes	-	-						
FIRST_AID_QUALIFICATIONS	VARCHAR2(3)	Yes	-	-						
GP_NAME	VARCHAR2(40)	Yes	-	-						
GP_PHONE	NUMBER(11,0)	Yes	-	-						
PROJECT_ID	NUMBER(2,0)	Yes	-	-						

The project staff table includes many columns similar to the volunteer table for example PSTAFFID which has a data type of NUMBER and a size of 2, TITLE which has a data type of VARCHAR2 and a size of 4, GENDER which has a data type of VARCHAR2 and a size of 6, NAME which has a data type of VARCHAR2 and a size of 40, ADDRESS which has a data type of VARCHAR2 and a size of 50, PHONE_NO which has a data type of NUMBER and a size of 11, DOB which has a data type of DATE, ETHNIC_GROUP which has a data type of VARCHAR2 and a size of 15, REGISTERED_DISABLED which has a data type of VARCHAR2 and a

size of 3, FIRST_AID_QUALIFICATIONS which has a data type of VARCHAR2 and a size of 3, GP_NAME which has a data type of VARCHAR2 and a size of 40, GP_PHONE which has a data type of NUMBER and a size of 11, and PROJECT_ID which has a data type of NUMBER and a size of 2.

Schema C3369865

PROJECT_STAFF

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL			
Query	Count Rows	Insert Row											
EDIT	PSTAFFID	TITLE	GENDER	NAME	ADDRESS	PHONE_NO	DOB	ETHNIC_GROUP	REGISTERED_DISABLED	FIRST_AID_QUALIFICATIONS	GP_NAME	GP_PHONE	PROJECT_ID
	1	MR	MALE	BILLY TOMP	81 DOOR STREET MANCHESTER	7845454554	02/02/1980	SCOTTISH	NO	NO	DR RJR	2212232699	1
	2	MRS	FEMALE	CAROL WAKE	12 DOWNTOWN LONDON	7845454553	02/02/1981	IRISH	NO	YES	DR FUN	2212232600	1
	3	MR	MALE	BEN VILE	67 GREY STREET ISTANBUL	7845454552	04/02/1980	SCOTTISH	NO	YES	DR FAIR	2212232610	2
	4	MR	MALE	CRAIG SMITH	8 MAIN STREET PALM BEACH	7845454551	02/05/1980	WHITE BRITISH	NO	NO	DR FIELD	2212232612	3
	5	MRS	FEMALE	SHARRON GAIL	SHIP HOUSE GRILL AVENUE PALM BEACH	7845454550	11/02/1980	AMERICAN	NO	YES	DR DO	2212232613	3
	6	MR	MALE	IAN TEEN	9 PLACE ROAD VIRGINIA	7845454549	02/11/1980	SCOTTISH	YES	YES	DR DUNE	2212232614	4
	7	MRS	FEMALE	RITA NICE	10 BRIDE CLOSE MELBOURNE	7845454548	02/12/1980	IRISH	NO	NO	DR DELL	2212232615	5
	8	MR	MALE	SAM SMITH	67 RIDEWATER LAINE MELBOURNE	7845454547	02/01/1980	WHITE BRITISH	NO	YES	DR BO	2212232616	5
	9	MISS	FEMALE	SARAH GARCEL	71 TOP STREET DUBAI	7845454546	02/09/1980	WHITE BRITISH	NO	YES	DR BEE	2212232617	6
	10	MISS	FEMALE	ANNA BEETAN	19 CALLE KENNEDY BARCELONA	7845454545	10/02/1980	SPANISH	NO	YES	DR BIN	2212232618	7

10 rows of test data have been inserted with a mixture of male and female staff with different ethnicity and different information.

Schema C3369865

PROJECT_STAFF

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Create	Drop	Enable	Disable							
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0035912	Primary	-	-	PSTAFFID	-	ENABLED	11/16/2015 01:16:55 PM	SYS_C0035912	-	
SYS_C0035911	Check	"DOB" IS NOT NULL	-	-	-	ENABLED	11/16/2015 01:16:55 PM	-	-	
SYS_C0035913	Foreign	-	SYS_C0035913 (C3369865.PROJECT)	PROJECT_ID	NO ACTION	ENABLED	11/16/2015 01:16:55 PM	-	-	

Constraints that have been implemented on the Project_staff table are a **primary key** constraint on the PSTAFFID column, a **foreign key** constraint on the PROJECT_ID column which links to the PROJECT_ID column in the project table, and a **check** constraint has been inserted on the DOB column to ensure this has not been left NULL. Another constraint which probably should have been added would be another **check** constraint on the GP_PHONE so that every member of staff provides a number for their doctor in case of emergency.

Table 14: Project Induction

Schema C3369865

PROJECT_INDUCTION										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
PI_ID	NUMBER(2,0)	No	-	1						
PI_NAME	VARCHAR2(40)	Yes	-	-						
PI_DATE	DATE	No	-	-						
PI_TIME	TIMESTAMP(6)	Yes	-	-						
PSTAFFID	NUMBER(2,0)	Yes	-	-						

The project induction table includes 5 columns, PI_ID which has a data type of NUMBER and a size of 2, PI_NAME which has a data type of VARCHAR2 and a size of 40, PI_DATE which has a data type of DATE, PI_TIME which has a data type of TIMESTAMP and PSTAFFID which has a data type of NUMBER and a size of 2. Because a TIMESTAMP data type includes the DATE and TIME it would have been a useful idea to remove the DATE column, however for some unknown reason the PI_TIME column with the data type of TIMESTAMP would not let me insert any data so for testing purposes I kept both columns and it would be an area to look at in the future.

Schema C3369865

PROJECT_INDUCTION										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Query	Count Rows	Insert Row								
EDIT	PI_ID	PI_NAME	PI_DATE	PI_TIME	PSTAFFID					
	1	WELCOME TO WIMBLEDON	09/09/2016	-	2					
	2	WELCOME TO BARCA	01/04/2016	-	10					
	3	WELCOME TO PALM BEACH	06/06/2016	-	4					
	4	WELCOME TO MELBOURNE	05/02/2016	-	7					
	5	WELCOME TO DUBAI	01/11/2016	-	9					

5 rows of project inductions were inserted with different members of staff presenting them and different location etc, as mentioned above the time of the inductions is missing for the moment.

PROJECT_INDUCTION										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
<div style="display: flex; gap: 5px;"> Create Drop Enable Disable </div>										
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0036335	Primary	-	-	PI_ID	-	ENABLED	11/16/2015 01:29:45 PM	SYS_C0036335	-	
SYS_C0036334	Check	"PI_DATE" IS NOT NULL	-	-	-	ENABLED	11/16/2015 01:29:45 PM	-	-	
SYS_C0036336	Foreign	-	SYS_C0036336 (C3369865.PROJECT_STAFF)	PSTAFFID	NO ACTION	ENABLED	11/16/2015 01:29:45 PM	-	-	

The constraints for this table include the primary key constraint which is the PI_ID, the foreign key constraint which is on the PSTAFFID and this links to the PSTAFFID column in the Project_staff table. There is also a check constraint on the PI_DATE to ensure this is NOT NULL, usually a check constraint would also be placed on the PI_TIME but as mentioned before an error stopped this from being appropriate.

Table 15: Coach

COACH										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
<div style="display: flex; gap: 5px;"> Add Column Modify Column Rename Column Drop Column Rename Copy Drop Truncate Create Lookup Table </div>										
Column Name	Data Type	Nullable	Default	Primary Key						
COACH_ID	NUMBER(4,0)	No	-	1						
DEPART_DATE	DATE	No	-	-						
DEPART_TIME	TIMESTAMP(6)	Yes	-	-						
DEPART_PICKUP	VARCHAR2(50)	Yes	-	-						
RETURN_DATE	DATE	No	-	-						
RETURN_TIME	TIMESTAMP(6)	Yes	-	-						
RETURN_DROPOFF	VARCHAR2(50)	Yes	-	-						
PROJECT_ID	NUMBER(2,0)	Yes	-	-						

The coach table includes 8 columns COACH_ID which has a NUMBER data type and a size of 2, DEPART_DATE which has a DATE data type, DEPART_TIME which has the TIMESTAMP data type that again is not working correctly, DEPART_PICKUP which has the VARCHAR2 data type with a size of 50, RETURN_DATE which has a data type of DATE, RETURN_TIME again has the TIMESTAMP data type, RETURN_PICKUP which has a VARCHAR2 data type with a size of 50 and PROJECT_ID which has a NUMBER data type with a size of 2.

COACH										
<div style="display: flex; align-items: center;"> ✓ Row updated. </div>										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
<div style="display: flex; gap: 5px;"> Query Count Rows Insert Row </div>										
EDIT	COACH_ID	DEPART_DATE	DEPART_TIME	DEPART_PICKUP	RETURN_DATE	RETURN_TIME	RETURN_DROPOFF	PROJECT_ID		
	12	05/09/2016	-	HEADINGLEY CAMPUS	06/20/2016	-	HEADINGLEY CAMPUS	1		
	13	11/25/2015	-	HEADINGLEY CAMPUS	12/07/2015	-	HEADINGLEY CAMPUS	10		

2 rows of data were inserted because 2 projects are based in England so that gave an indication of how many coaches would have been required.

Schema C3369865

COACH										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Create	Drop	Enable	Disable							
Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid	
SYS_C0037205	Check	"RETURN_DATE" IS NOT NULL	-	-	-	ENABLED	11/16/2015 02:26:19 PM	-	-	
SYS_C0037206	Primary	-	-	COACH_ID	-	ENABLED	11/16/2015 02:26:19 PM	SYS_C0037206	-	
SYS_C0037207	Foreign	-	SYS_C0037207 (C3369865.PROJECT)	PROJECT_ID	NO ACTION	ENABLED	11/16/2015 02:26:19 PM	-	-	
SYS_C0037204	Check	"DEPART_DATE" IS NOT NULL	-	-	-	ENABLED	11/16/2015 02:26:19 PM	-	-	

The constraints implemented on this table include the primary key constraint on the COACH_ID column, the foreign key constraint on the PROJECT_ID column linking to the PROJECT_ID column in the project table and a check constraint on the DEPART_DATE and RETURN_DATE.

Table 16: Flight

Schema C3369865

FLIGHT										
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers	Dependencies	SQL
Add Column	Modify Column	Rename Column	Drop Column	Rename	Copy	Drop	Truncate	Create Lookup Table		
Column Name	Data Type	Nullable	Default	Primary Key						
FLIGHT_ID	VARCHAR2(5)	No	-	1						
DEPART_DATE	DATE	No	-	-						
DEPART_TIME	TIMESTAMP(6)	Yes	-	-						
DEPART_AIRPORT	VARCHAR2(20)	Yes	-	-						
RETURN_DATE	DATE	No	-	-						
RETURN_TIME	TIMESTAMP(6)	Yes	-	-						
RETURN_AIRPORT	VARCHAR2(20)	Yes	-	-						
PROJECT_ID	NUMBER(2,0)	Yes	-	-						

The flight table includes 8 columns FLIGHT_ID which has a VARCHAR2 data type and a size of 5, DEPART_DATE which has a DATE data type, DEPART_TIME which has the TIMESTAMP data type that again is not working correctly, DEPART_AIRPORT which has the VARCHAR2 data type with a size of 20, RETURN_DATE which has a data type of DATE, RETURN_TIME again has the

TIMESTAMP data type, RETURN_AIRPORT which has a VARCHAR2 data type with a size of 20 and PROJECT_ID which has a NUMBER data type with a size of 2.

Schema C3369865

FLIGHT

Table Data Indexes Model Constraints Grants Statistics UI Defaults Triggers Dependencies SQL

Query Count Rows Insert Row

Data

EDIT	FLIGHT_ID	DEPART_DATE	DEPART_TIME	DEPART_AIRPORT	RETURN_DATE	RETURN_TIME	RETURN_AIRPORT	PROJECT_ID
	L5232	05/02/2016	-	LBA	09/19/2016	-	IST	2
	L5239	06/06/2016	-	LBA	07/04/2016	-	IST	3
	L5233	06/06/2016	-	LBA	07/18/2016	-	IST	4
	L5234	05/02/2016	-	LBA	08/22/2016	-	IST	5
	L5235	01/11/2016	-	LBA	03/21/2016	-	IST	6
	L5236	01/04/2016	-	LBA	03/05/2016	-	IST	7
	L5237	06/01/2016	-	LBA	07/13/2016	-	IST	8
	L5238	07/04/2016	-	LBA	08/12/2016	-	IST	9

[Download](#)

8 rows of data were inserted because 8 projects are based abroad so that gave an indication of how many flights would have been required.

Schema C3369865

FLIGHT

Table Data Indexes Model Constraints Grants Statistics UI Defaults Triggers Dependencies SQL

Create Drop Enable Disable

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change	Index	Invalid
SYS_C0037208	Check	"DEPART_DATE" IS NOT NULL	-	-	-	ENABLED	11/16/2015 02:26:19 PM	-	-
SYS_C0037210	Primary	-	-	FLIGHT_ID	-	ENABLED	11/16/2015 02:26:19 PM	SYS_C0037210	-
SYS_C0037211	Foreign	-	SYS_C0037211 (C3369865.PROJECT)	PROJECT_ID	NO ACTION	ENABLED	11/16/2015 02:26:19 PM	-	-
SYS_C0037209	Check	"RETURN_DATE" IS NOT NULL	-	-	-	ENABLED	11/16/2015 02:26:19 PM	-	-

The constraints implemented on this table include the primary key constraint on the FLIGHT_ID column, the foreign key constraint on the PROJECT_ID column linking to the PROJECT_ID column in the project table and a check constraint on the DEPART_DATE and RETURN_DATE.

Section 2.02 SQL Queries

- 1) Which volunteers that were born in 1993 or after volunteered on which projects and which member of staff was their presenter for their project induction?

```
SELECT v.name AS "Full Name", p.project_id AS "Project Number",  
pl.town_city AS "Project Location", pi.pi_name AS "Project Induction",  
ps.name AS "Induction Presenter"  
FROM VOLUNTEER v  
INNER JOIN SKILL_KNOWN sk  
ON sk.volunteer_id = v.passport_no  
INNER JOIN SKILL s  
ON s.skill_no = sk.skill_no  
INNER JOIN SKILL_REQUIRED sr  
ON sr.skill_no = s.skill_no  
INNER JOIN P_TASK pt  
ON pt.task_id = sr.task_id  
INNER JOIN PROJECT p  
ON p.project_id = pt.project_id  
INNER JOIN PROJECT_LOCATION pl  
ON pl.location_id = p.location_id  
INNER JOIN PROJECT_STAFF ps  
ON ps.project_id = p.project_id  
INNER JOIN PROJECT_INDUCTION pi  
ON pi.pstaffid = ps.pstaffid  
WHERE v.DOB BETWEEN '01/01/1993' AND to_date(sysdate)  
ORDER BY v.name ASC;
```

Full Name	Project Number	Project Location	Project Induction	Induction Presenter
FREYA DODDS	1	WIMBLEDON	WELCOME TO WIMBLEDON	CAROL WAKE
JOANNE KENNEDY	1	WIMBLEDON	WELCOME TO WIMBLEDON	CAROL WAKE
KATIE STEAD	1	WIMBLEDON	WELCOME TO WIMBLEDON	CAROL WAKE
LUKE BLACKSTONE	3	ISTANBUL	WELCOME TO PALM BEACH	CRAIG SMITH
RYAN NICHOLSON	1	WIMBLEDON	WELCOME TO WIMBLEDON	CAROL WAKE

5 rows returned in 0.02 seconds [Download](#)

- 2) Find the emergency contact details for all volunteers which are volunteering in Turkey.

```
SELECT v.name AS "Volunteer Name", pl.town_city AS "Volunteer Location", em.name AS "Emergency Contact", em.tel_no AS "Emergency Number"
FROM VOLUNTEER v
INNER JOIN EMERGENCY_CONTACT em
ON em.volunteer_id = v.passport_no
INNER JOIN SKILL_KNOWN sk
ON sk.volunteer_id = v.passport_no
INNER JOIN SKILL s
ON s.skill_no = sk.skill_no
INNER JOIN SKILL_REQUIRED sr
ON sr.skill_no = s.skill_no
INNER JOIN P_TASK pt
ON pt.task_id = sr.task_id
INNER JOIN PROJECT p
ON p.project_id = pt.project_id
INNER JOIN PROJECT_LOCATION pl
ON pl.location_id = p.location_id
INNER JOIN PROJECT_STAFF ps
ON ps.project_id = p.project_id
INNER JOIN PROJECT_INDUCTION pi
ON pi.pstaffid = ps.pstaffid
WHERE country IN ('TURKEY');
```

Volunteer Name	Volunteer Location	Emergency Contact	Emergency Number
LUKE BLACKSTONE	ISTANBUL	SHIELA BLACKSTONE	7489658965

1 rows returned in 0.01 seconds [Download](#)

- 3) Perform a check on volunteer's passports to ensure they are not expiring and ready for renewal.

```
SELECT name, passport_expiry, CASE
  WHEN passport_expiry BETWEEN '01/01/2016' AND '01/01/2018' THEN
'Send Reminder'
  WHEN passport_expiry BETWEEN '02/01/2018' AND '01/01/2020' THEN
'Passport Status      Okay'
  ELSE 'Passport Status Great'
END
"Passport Status"
FROM volunteer;
```

NAME	PASSPORT_EXPIRY	Passport Status
RYAN NICHOLSON	10/11/2021	Passport Status Great
KATIE STEAD	04/17/2021	Passport Status Great
HANNAH PHILIPSON	10/17/2024	Passport Status Great
ALICE COURT	09/17/2017	Send Reminder
FRANCESCA WADE	01/18/2021	Passport Status Great
JOANNE KENNEDY	11/25/2021	Passport Status Great
NICOLA HAGUE	02/26/2021	Passport Status Great
LUKE BLACKSTONE	12/17/2021	Passport Status Great
FREYA DODDS	11/02/2021	Passport Status Great
ABBIE DODSWORTH	11/12/2021	Passport Status Great

10 rows returned in 0.00 seconds [Download](#)

- 4) View the telephone numbers for all the volunteers and project staff that are stored in the database.

```
SELECT title, name, phone_no FROM VOLUNTEER
UNION
SELECT title, name, phone_no FROM PROJECT_STAFF
ORDER BY name;
```

TITLE	NAME	PHONE_NO
MISS	ABBIE DODSWORTH	7807674873
MRS	ALICE COURT	7807674867
MISS	ANNA BEETAN	7845454545
MR	BEN VILE	7845454552
MR	BILLY TOMP	7845454554
MRS	CAROL WAKE	7845454553
MR	CRAIG SMITH	7845454551
MS	FRANCESCA WADE	7807674868
MS	FREYA DODDS	7807674872
MRS	HANNAH PHILIPSON	7807674866
MR	IAN TEEN	7845454549
MISS	JOANNE KENNEDY	7807674869
MISS	KATIE STEAD	7807674865
MR	LUKE BLACKSTONE	7807674871
MRS	NICOLA HAGUE	7807674870
MRS	RITA NICE	7845454548
MR	RYAN NICHOLSON	7807674864
MR	SAM SMITH	7845454547
MISS	SARAH GARCEL	7845454546
MRS	SHARRON GAIL	7845454550

20 rows returned in 0.01 seconds [Download](#)

5) Find all the volunteers who are registered disabled

```
SELECT *
FROM volunteer v
WHERE EXISTS
    (SELECT *
    FROM skill_known sk, skill s, skill_required sr, P_TASK PT,
project p, project_location pl, project_staff ps, project_induction pi
    WHERE sk.volunteer_id = v.passport_no
    AND sk.skill_no = s.skill_no
    AND s.skill_no = sr.skill_no
    AND pt.task_id = sr.task_id
    AND p.project_id = pt.project_id
    )

AND v.registered_disabled = 'YES' ;
```

PASSPORT_NO	TITLE	NAME	PHONE_NO	LEEDS_BECKETT_EMAIL	PASSPORT_EXPIRY	DOB	GENDER	ETHNIC_GROUP	REGISTERED_DISABLED	MOTIVATIONS_FOR_VOLUNTEERING	FIRST_AID_QUALIFICATIONS	GP_NAME	GP_PHONE	VOLUNTEER_TYPE_ID
823456789	MRS	ALICE COURT	7807674867	A.COURT5758@STUDENT.LEEDSBECKETT.AC.UK	09/17/2017	02/19/1980	FEMALE	WHITE BRITISH	YES	-	NO	DR CLIVE	14235656135	2
423456789	MS	FREYA DODDS	7807674872	F.DODDS5758@STUDENT.LEEDSBECKETT.AC.UK	11/02/2021	05/07/1994	FEMALE	WHITE BRITISH	YES	-	NO	DR SMITH	1423522709	2

2 rows returned in 0.00 seconds [Download](#)

6) Identify all the academics who have or are due to volunteer in England

```
SELECT v.name AS "Volunteer Name", pl.country AS "Volunteer Country"
, pl.town_city AS "Volunteer Location"
FROM VOLUNTEER v
INNER JOIN SKILL_KNOWN sk
ON sk.volunteer_id = v.passport_no
INNER JOIN SKILL s
ON s.skill_no = sk.skill_no
INNER JOIN SKILL_REQUIRED sr
ON sr.skill_no = s.skill_no
INNER JOIN P_TASK pt
ON pt.task_id = sr.task_id
INNER JOIN PROJECT p
ON p.project_id = pt.project_id
INNER JOIN PROJECT_LOCATION pl
ON pl.location_id = p.location_id

WHERE v.VOLUNTEER_TYPE_ID = 1 AND pl.country = 'ENGLAND';
```

Volunteer Name	Volunteer Country	Volunteer Location
KATIE STEAD	ENGLAND	WIMBLEDON
ABBIE DODSWORTH	ENGLAND	WIMBLEDON

2 rows returned in 0.01 seconds [Download](#)

Section 2.03

Apex Interface / Application Builder

Database Systems
Log Out

Home

- Project Master Detail Form
- Interactive Report on Projects
- Classic Report on projects
- Projects By Location
- Google Maps
- Project Induction Calendar
- Skill Form

Home

Location Id	Country	County	Town City	Post Code
1	ENGLAND	GREATER LONDON	WIMBLEDON	SW197HR
2	TURKEY	ISTANBUL	ISTANBUL	34000
3	AMERICA	PALM BEACH	FLORIDA	33480
4	AMERICA	VIRGINIA	HAMPTONS	10580
5	AUSTRALIA	VICTORIA	MELBOURNE	3172
6	DUBAI	UNITED ARAB EMIRATES	DUBAI	23100
7	SPAIN	BARCELONA	BARCELONA	08042
8	FRANCE	BOURBON	PARIS	75000
9	EGYPT	MONTGOMERY	CAIRO	11566
10	ENGLAND	SOUTH YORKSHIRE	BARNLEY	M1 J37

1 - 10

Project Hours By Location_ID

Pstafid	Title	Gender	Name	Project Id
1	MR	MALE	BILLY TOMP	1
2	MRS	FEMALE	CAROL WAKE	1
3	MR	MALE	BEN VILE	2
4	MR	MALE	CRAIG SMITH	3
5	MRS	FEMALE	SHARRON GAIL	3
6	MR	MALE	IAN TEEN	4
7	MRS	FEMALE	RITA NICE	5
8	MR	MALE	SAM SMITH	5
9	MISS	FEMALE	SARAH GARCEL	6
10	MISS	FEMALE	ANNA BEETAN	7

1 - 10

Project Staff

This is the home page for the application which includes a basic report on project locations and a pie chart on project hours per week by location id, in this case each project currently stands at 20hpw each meaning they are all equal, but that is due to bad test data, realistically they would all differ. Underneath there is a basic report on project staff beside a bar chart which looks at the ethnicity of project staff.

Database Systems
Log Out

Home

- Project Master Detail Form
- Interactive Report on Projects
- Classic Report on projects
- Projects By Location
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- Skill Form

Project Form

Project Id	Duration In Weeks	P Type	P Start	P End	P Hpw	Location Id
		1	09-MAY-2016	20-JUN-2016	20	1
		1	02-MAY-2016	19-SEP-2017	20	3
		2	06-JUN-2016	04-JUL-2016	20	2
		2	06-JUN-2016	18-JUL-2016	20	9
		1	02-MAY-2016	22-AUG-2016	20	6
		1	11-JAN-2016	21-MAR-2016	20	4
		2	04-JAN-2016	05-MAR-2016	20	5
		2	01-JUN-2016	13-JUL-2016	20	7
		1	04-JUL-2016	12-AUG-2016	20	8
		1	23-NOV-2015	07-DEC-2015	20	10

1 - 10

Create

This is the Project Master Detail Form which displays information from the project table.

Database Systems

Home

Project Master Detail Form

Interactive Report on Projects

Classic Report on projects

Projects By Location

Google Maps

Project Induction Calendar

Skill Form

Edit PROJECT

Project Id

Duration In Weeks

P Type

P Start

P End

P Hpw

Location Id

1 of 10

Cancel

Delete Save

PROJECT_STAFF Detail

	Title	Gender	Name	Address	Phone No	Dob	Ethnic Group	Registered Disabled	First Aid Qualifications	Gp Name	Gp Phone
<input type="checkbox"/>	MR	MALE	BILLY TOMP	81 DOOR STREET MA	784545454	02-FEB-1980	SCOTTISH	NO	NO	DR FUR	2212232699
<input type="checkbox"/>	MRS	FEMALE	CAROL WAKE	12 DOWNTOWN LOP	784545453	02-FEB-1981	IRISH	NO	YES	DR FUN	2212232600

1 - 2

Delete Checked Add Row

When the yellow pencil is clicked it allows users to edit an entry and it also displays details of the project staff that are assigned to this project.

Database Systems

Home

Project Master Detail Form

Interactive Report on Projects

Classic Report on projects

Projects By Location

Google Maps

Project Induction Calendar

Skill Form

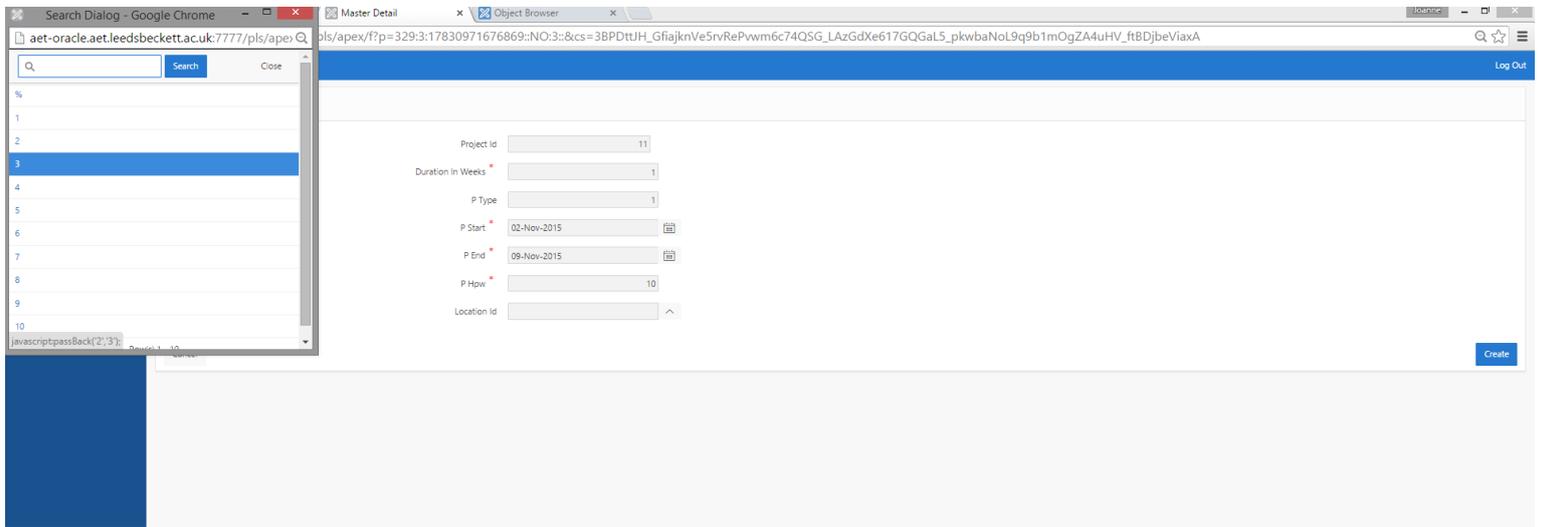
Project Form

Project Id	Duration In Weeks	P Type	P Start	P End	P Hpw	Location Id
		1	09-MAY-2016	20-JUN-2016	15	1
		1	02-MAY-2016	19-SEP-2017	20	3
		2	06-JUN-2016	04-JUL-2016	20	2
		2	06-JUN-2016	18-JUL-2016	20	9
		1	02-MAY-2016	22-AUG-2016	20	6
		1	11-JAN-2016	21-MAR-2016	20	4
		2	04-JAN-2016	05-MAR-2016	20	5
		2	01-JUN-2016	13-JUL-2016	20	7
		1	04-JUL-2016	12-AUG-2016	20	8
		1	23-NOV-2015	07-DEC-2015	20	10

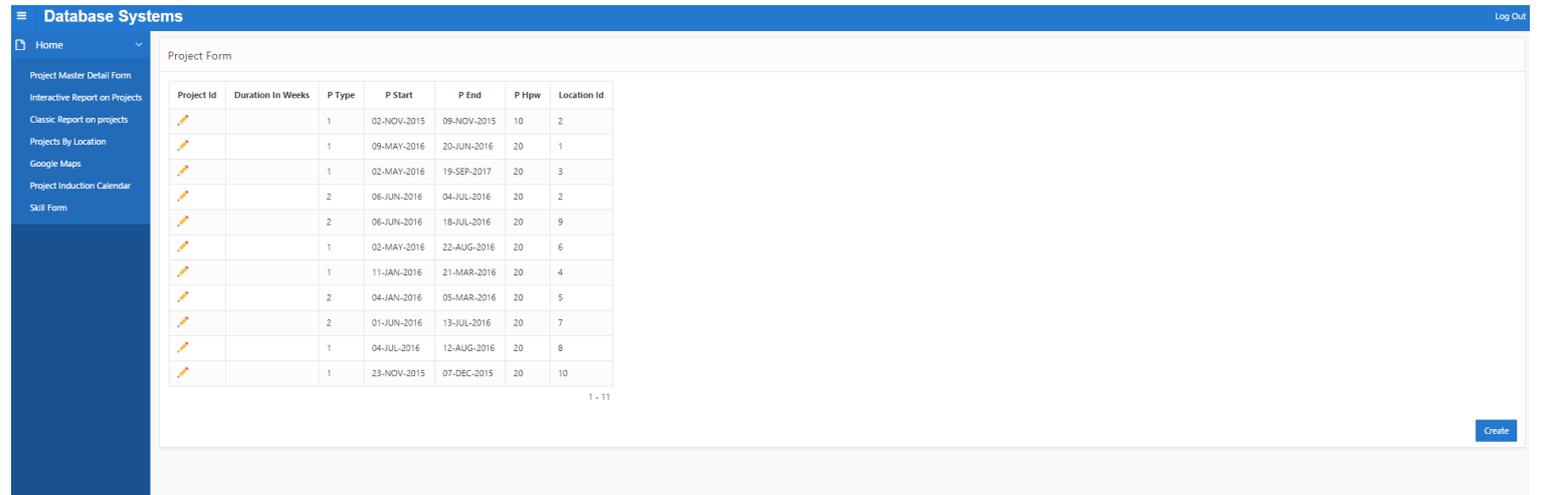
1 - 10

Create

This shows the changes made after the data has been edited, here on the first entry the project hours per week have been changed from 20 to 15.



The form also has the ability to create new project entries, in the above screenshot test data has been entered with a project ID of 11 and the use of a LOV (List of Values) has been used on the location ID because there is a choice of 10 locations only.



After the data has been inserted, there is now a new row at the top of the list.

The page at aet-oracle.aet.leedsbeckett.ac.uk:7777 says: Log Out

Database Systems Log Out

Home

Project Master Detail Form

Interactive Report on Projects

Classic Report on projects

Projects By Location

Google Maps

Project Induction Calendar

Skill Form

Edit PROJECT

Project Id

Duration In Weeks

P Type

P Start

P End

P Hpw

Location Id

1 of 10

Cancel Delete Save

PROJECT_STAFF Detail

	Title	Gender	Name	Address	Phone No	Dob	Ethnic Group	Registered Disabled	First Aid Qualifications	Gp Name	Gp Phone
<input type="checkbox"/>	MR	MALE	BILLY TOMP	81 DOOR STREET MA	7845454554	02-FEB-1980	SCOTTISH	NO	NO	DR FUR	2212232699
<input type="checkbox"/>	MRS	FEMALE	CAROL WAKE	12 DOWNTOWN LOH	7845454553	02-FEB-1981	IRISH	NO	YES	DR FUN	2212232600
<input type="checkbox"/>	I	AM	THE	NEW ROW							

1 - 2

Delete Checked Add Row

The form also has the ability to delete records, when the pencil is clicked and the edit screen loads there is also a delete button in the bottom right hand corner, and in this instance the newly inserted record will be deleted, you can also see the delete button prompts a pop up message.

Database Systems Log Out

Home

Project Master Detail Form

Interactive Report on Projects

Classic Report on projects

Projects By Location

Google Maps

Project Induction Calendar

Skill Form

Project Form

✓ Action Processed.

Project Id	Duration In Weeks	P Type	P Start	P End	P Hpw	Location Id
<input type="checkbox"/>		1	09-MAY-2016	20-JUN-2016	20	1
<input type="checkbox"/>		1	02-MAY-2016	19-SEP-2017	20	3
<input type="checkbox"/>		2	06-JUN-2016	04-JUL-2016	20	2
<input type="checkbox"/>		2	06-JUN-2016	18-JUL-2016	20	9
<input type="checkbox"/>		1	02-MAY-2016	22-AUG-2016	20	6
<input type="checkbox"/>		1	11-JAN-2016	21-MAR-2016	20	4
<input type="checkbox"/>		2	04-JAN-2016	05-MAR-2016	20	5
<input type="checkbox"/>		2	01-JUN-2016	13-JUL-2016	20	7
<input type="checkbox"/>		1	04-JUL-2016	12-AUG-2016	20	8
<input type="checkbox"/>		1	23-NOV-2015	07-DEC-2015	20	10

1 - 10

Create

Here you can see the newly inserted data has been deleted.

The page at aet-oracle.aet.leedsbeckett.ac.uk:7777 says: x

Would you like to perform this delete action?
 Prevent this page from creating additional dialogs.

OK Cancel

1 of 10

Cancel Delete Save

PROJECT_STAFF Detail

Title	Gender	Name	Address	Phone No	Dob	Ethnic Group	Registered Disabled	First Aid Qualifications	Gp Name	Gp Phone
MR	MALE	BILLY TOMP	81 DOOR STREET MA	7845454554	02-FEB-1980	SCOTTISH	NO	NO	DR FUR	2212232699
MRS	FEMALE	CAROL WAKE	12 DOWNTOWN LOH	7845454553	02-FEB-1981	IRISH	NO	YES	DR FUN	2212232600
I	AM	THE	NEW ROW							

1 - 2

Delete Checked Add Row

From the edit screen it is also easy to add, edit and delete a member of staff.

Validations

70	PHONE_NO must be numeric	Conditional
80	DOB not null	Conditional
80	DOB must be a valid date	Conditional
130	GP_PHONE must be numeric	Conditional

The validation set in the database tables has automatically implemented itself into the application; above you can see the validation conditions for the project staff.

Database Systems

Home

Project Master Detail Form
 Interactive Report on Projects
 Classic Report on projects
 Projects By Location
 Google Maps
 Project Induction Calendar
 Skill Form

Q Go Actions

Project Id	Duration in Weeks	P Type	P Start	P End	P Hpw	Location Id
1	4	1	09-MAY-2016	20-JUN-2016	20	1
2	20	1	02-MAY-2016	19-SEP-2017	20	3
3	4	2	06-JUN-2016	04-JUL-2016	20	2
4	6	2	06-JUN-2016	18-JUL-2016	20	9
5	15	1	02-MAY-2016	23-AUG-2016	20	6
6	10	1	11-JAN-2016	21-MAR-2016	20	4
7	12	2	04-JAN-2016	05-MAR-2016	20	5
8	6	2	01-JUN-2016	13-JUL-2016	20	7
9	4	1	04-JUL-2016	12-AUG-2016	20	8
10	2	1	23-NOV-2015	07-DEC-2015	20	10

1 - 10

Above is an interactive report on projects which has a number of actions such as select certain columns, filter the data, view so many rows per page, format the data,

give it a flashback to a certain point in time, save the report, reset the report, download the report and help using the report.

Database Systems Log Out

Home

Project Master Detail Form
Interactive Report on Projects
Classic Report on projects
Projects By Location
Google Maps
Project Induction Calendar
Skill Form

Duration In Weeks <= 10

Project Id	Duration In Weeks	P Type	P Start	P End	P Hpw	Location Id
1	4	1	09-MAY-2016	20-JUN-2016	20	1
3	4	2	06-JUN-2016	04-JUL-2016	20	2
4	6	2	06-JUN-2016	18-JUL-2016	20	9
6	10	1	11-JAN-2016	21-MAR-2016	20	4
8	6	2	01-JUN-2016	13-JUL-2016	20	7
9	4	1	04-JUL-2016	12-AUG-2016	20	8
10	2	1	23-NOV-2015	07-DEC-2015	20	10

1 - 7

Here you can see the filter action has been used to only display projects that last for 10 weeks or less, this is useful to advise volunteers which project is right for them as some people may only have a few weeks free, whilst others will want to go for a whole season.

Database Systems Log Out

Home

Project Master Detail Form
Interactive Report on Projects
Classic Report on projects
Projects By Location
Google Maps
Project Induction Calendar
Skill Form

Classic Report on projects

Project Id	Duration In Weeks	P Type	P Start	P End	P Hpw	Location Id
1	4	1	09-MAY-2016	20-JUN-2016	20	1
2	20	1	02-MAY-2016	19-SEP-2017	20	3
3	4	2	06-JUN-2016	04-JUL-2016	20	2
4	6	2	06-JUN-2016	18-JUL-2016	20	9
5	15	1	02-MAY-2016	22-AUG-2016	20	6
6	10	1	11-JAN-2016	21-MAR-2016	20	4
7	12	2	04-JAN-2016	05-MAR-2016	20	5
8	6	2	01-JUN-2016	13-JUL-2016	20	7
9	4	1	04-JUL-2016	12-AUG-2016	20	8
10	2	1	23-NOV-2015	07-DEC-2015	20	10

Download

1 - 10

Above is a classic report on projects which can be created for easy viewing and downloading.

Database Systems Log Out

Home

Projects By Location

Count(*)	Country
1	TURKEY
1	SPAIN
1	AUSTRALIA
1	FRANCE
1	EGYPT
1	DUBAI
2	AMERICA
2	ENGLAND

Download

1 - 8

Region Source: ?

1 SELECT COUNT(*), country FROM project, project_location WHERE project_location.location_id = project.location_id GROUP BY project_location.country

Above is another classic report on projects and locations which can be downloaded, this report uses the SQL query above to count the projects taking place in each country.

Database Systems Log Out

Home

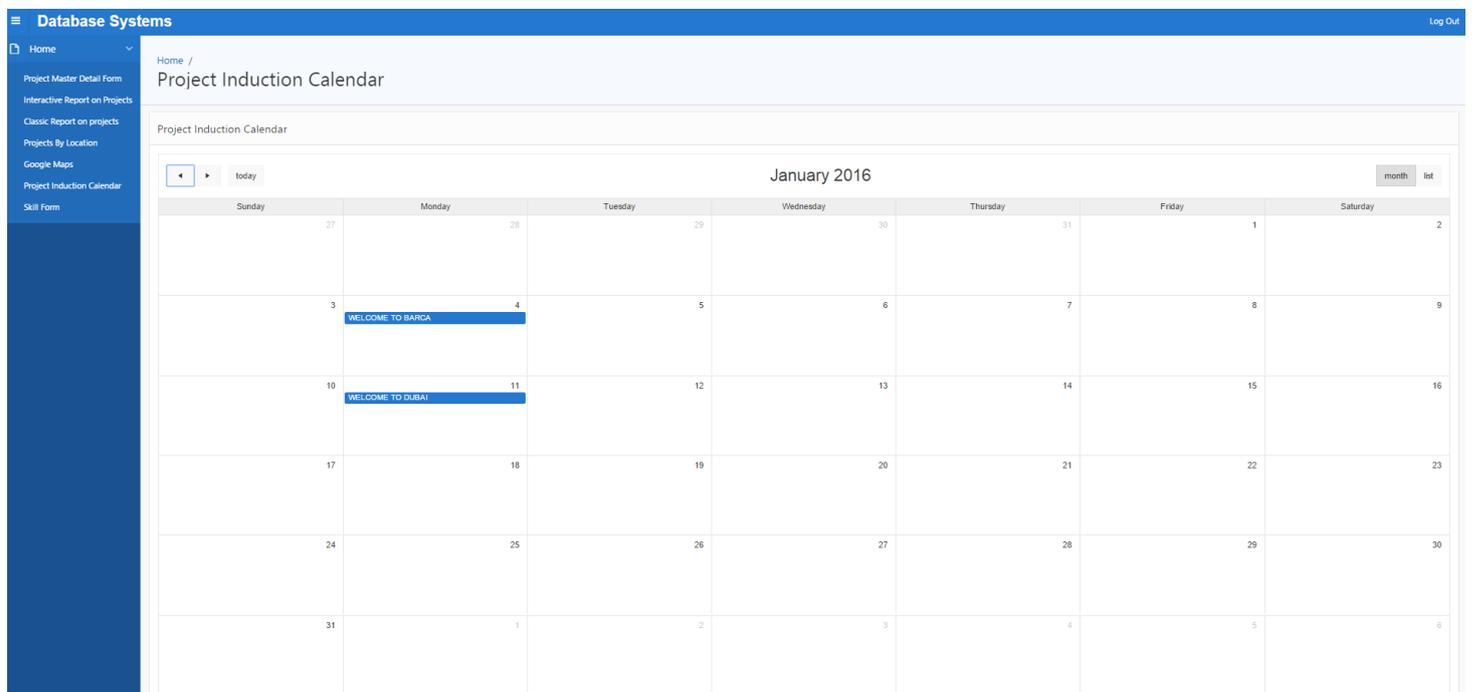
Google Maps

Location: Istanbul

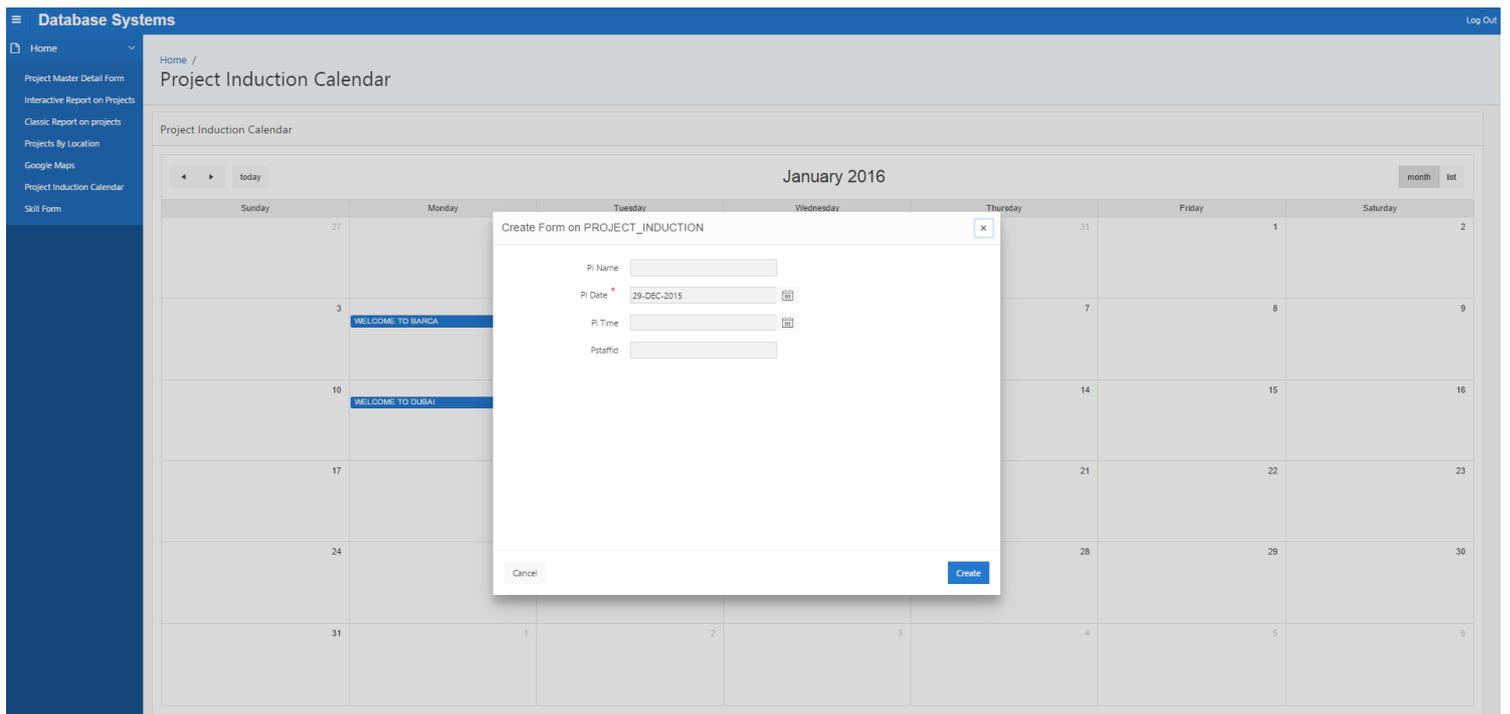
Dynamic Actions

10 Geocode

Above is a Google maps pages which uses the Google maps API to view the location of projects, in this example Istanbul was the search term used.



Above is the use of a calendar to view project inductions, you can see in January two inductions are taking place.



The calendar has the ability to create a new entry of a project induction.

The screenshot shows the 'Project Induction Calendar' interface. A modal window titled 'Edit Form on PROJECT_INDUCTION' is open, displaying the following fields:

- PI Id: 2
- PI Name: WELCOME TO BARCA
- PI Date: 04-JAN-2016
- PI Time: (empty)
- Pstafid: 10

Buttons at the bottom of the modal include 'Delete', 'Cancel', and 'Apply Changes'. The background calendar shows two entries: 'WELCOME TO BARCA' on January 3rd and 'WELCOME TO DUBAI' on January 10th.

It also has the ability to edit an entry.

The screenshot shows the 'Project Induction Calendar' interface after the edit. The 'WELCOME TO BARCA' entry has been moved from January 3rd to January 2nd. The 'WELCOME TO DUBAI' entry remains on January 10th.

Above you can see the 'WELCOME TO BARCA' induction has been moved back a day.

The screenshot shows the 'Project Induction Calendar' interface. A modal dialog titled 'Create Form on PROJECT_INDUCTION' is open, allowing the user to create a new induction. The form fields are as follows:

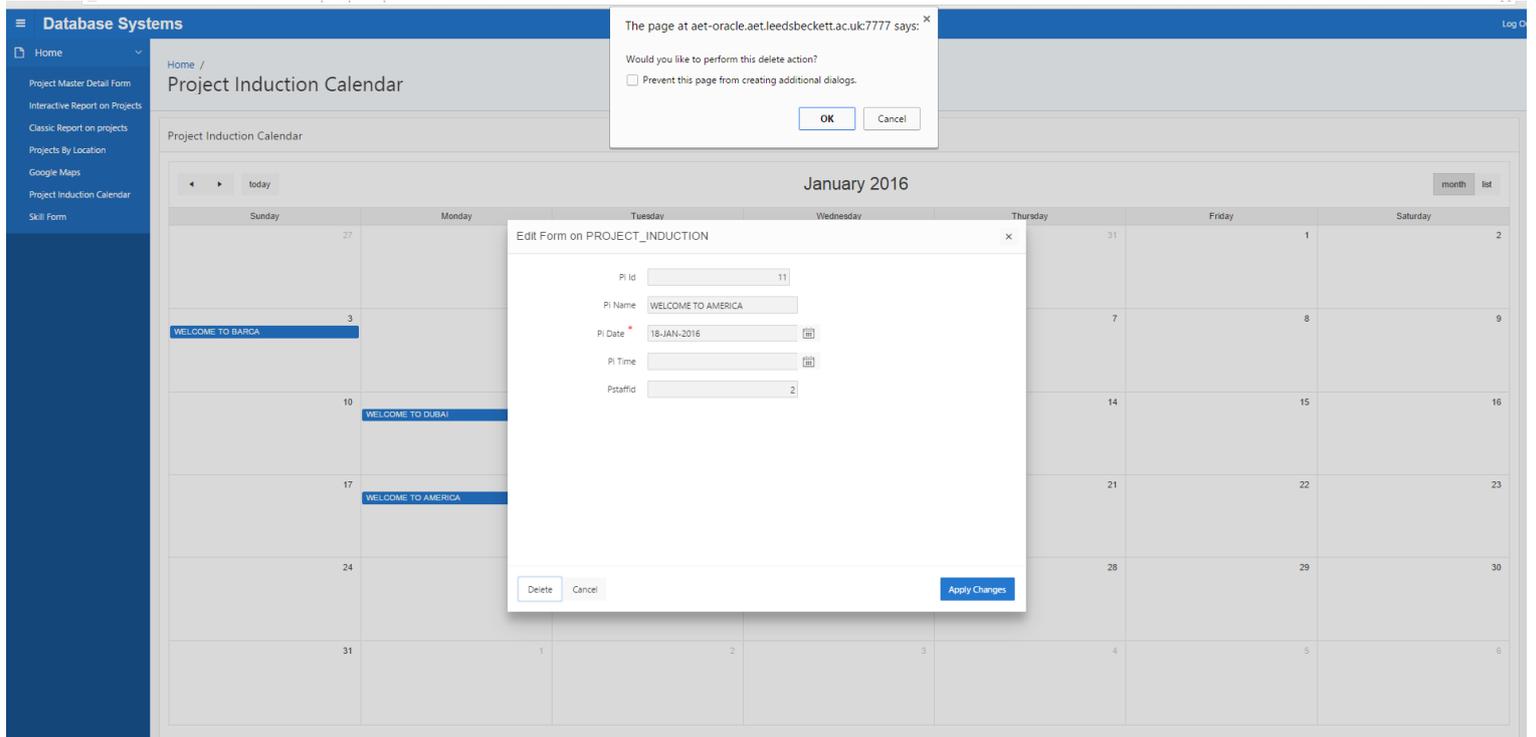
Field	Value
PI Id	11
PI Name	WELCOME TO AMERICA
PI Date	18-JAN-2016
PI Time	
Pstaffid	2

The background calendar for January 2016 shows existing inductions: 'WELCOME TO BARCA' on Jan 3, 'WELCOME TO DUBAI' on Jan 10, and 'WELCOME TO AMERICA' on Jan 18.

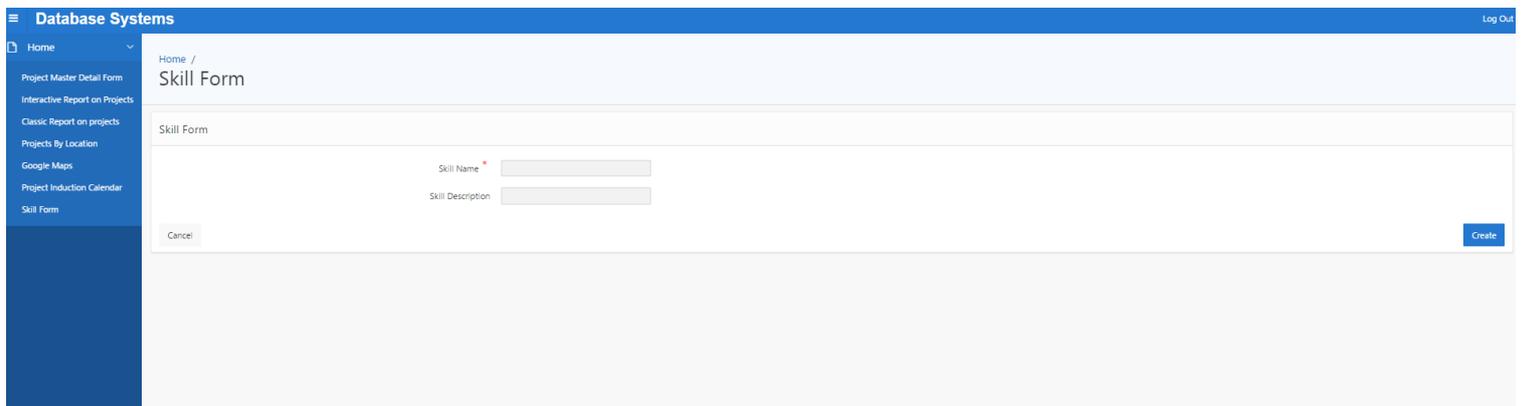
The calendar also lets users create a new induction, for this example a 'WELCOME TO AMERICA' induction has been created on the 18th of January.

This screenshot shows the same 'Project Induction Calendar' interface after the new induction has been saved. The 'WELCOME TO AMERICA' induction is now visible as a blue bar on the calendar for the date January 18, 2016. The other existing inductions remain unchanged.

This shows the newly created project induction has been inserted into the database and displayed on the calendar.



The above screenshot shows the newly inserted data about to be deleted with the use of a delete button on the edit form and the pop up message.



This shows a basic skill form to insert a new skill into the database.

Database Systems

Home / Skill Form

Skill Form

Skill Name * This Field is Required Silly!

Skill Description

Cancel Create

Dynamic Actions

10 Validation

The above two screen shots show the use of a dynamic action which is a validation plug-in, where if the skill name is left blank an error message will be displayed which says “This Field is Required Silly!”

Log In

Username

Password

Log In

This screenshot is of the initial log-in page which is automatically created with the application.

Article III. Reflective Report

A data approach is the way in which data is stored, the two common approaches are the file based approach and the database approach. The file based approach entails users creating the files they require for their application with the use of specific software. However this can lead to the isolation of data due to incompatible file formats because each file may have a different format and these formats cannot be changed which leads to problems in the dependency of the data and application. It can also lead to the redundancy of data as duplicate data may be managed in separate applications requiring more storage and resulting in making the data hard to view, add, edit and delete. (Gitta, 2006)

The use of computers is constantly growing and this has led to a change in the way the data is used and the lifespan required for the data. Because of these factors there has been an increase in depth, an increase in breadth, an increase in integration and an increase in the need for flexibility. (Fenves and Rasdorf, 1982)

The database approach was the chosen approach for this project due to the quick application development, the scalability, the expendability, and the recovery and backup system. This approach, like most does have its disadvantages which include costs, complexity and the danger of overkill but the benefits greatly out way the risks. Other benefits of this approach include the access control, the efficiency of the system operation and development, the standardised and combined features, the concurrent use, the structured and described data, the separation of data and applications, the data integrity, the transactions, the data persistence and the data views. (Gitta, 2006)

A database management system improves data sharing, data security, data integration, decision making, end-user productivity and data access, as well as minimises the risk of data inconsistency. In order to guarantee data integrity and consistency the database management system performs a number of internal functions such as data dictionary management, data storage management, data transformation and presentation, security management, multi-user access control, backup and recovery management and data integrity management. (University of Babylon, 2015)

For this project a relational database was used, although they are a bigger requirement for processing resources due to the number of users per system and due to the complex queries required which can make the system slower. The advantages outweigh the risks as they are flexible, user-friendly, modifiable, and they represent the data in a generalised form. (Healey, 2015)

When developing a database it is important to follow all the necessary design steps on the conceptual level, the logical level and the physical level. The first stage of the process was to derive some initial assumptions from the case study which concluded to be correct.

The next stage required was to define the methodology which would be used for the database design strategy; the two main approaches are the top-down approach which defines the data sets and then identifies the data elements and the bottom-up approach which does the opposite. Usually the approach is chosen based on certain factors such as the scope of the project, and the structure and management style of the company, however for this project a combination of the two approaches was used in order to result in a more pliable and accurate solution. (My Reading Room, 2015)

Using QSEE which is a CASE tool to graphically create an initial EERD was the next stage of the design process, along with deriving attributes, identifiers, entity definitions, entity occurrences and validation questions with the use of the case study in a top-down approach.

Following this a form which had been provided was normalised which demonstrated the use of a bottom-up approach, and from this, a new composite EERD was produced, and any key changes were recorded, along with a final list of tables, attributes, attribute definitions and occurrences.

After the planning and design stages were complete, the implementation process began and the tables and data was implemented, along with the production of some example SQL queries which may be useful for the organisation, and a front end application, which operators can use to add data to the database and view reports and charts on the data collected.

The overall quality of the system is good, It is not perfect but for a quick solution with a rapid development time of less than 3 months, which was the initial time scale, the results have provided a fully implemented system that would prove to be beneficial to the organisation and would definitely improve the conditions that are in place at the moment.

When looking at the list of business requirements, it is clear that the database produced can achieve most of them, if not all. For example the database stores three contacts for each volunteer, two emergency contacts which are stored in a separate table and their doctors contact details in the volunteer table.

Another requirement the database needed was to have the ability to identify student volunteers who have volunteered abroad and where, this can easily be done with query 6 which can be found in article 2, section 2.02 with a small change on the where clause in order to display rows where project location does not equal England.

This query can also be adapted to fulfil another requirement which was to retrieve records of all staff involved and the location for each project, as well as listing all the students who have volunteered and which projects they volunteered on .

The database also needed to record the means of travel for projects taking place abroad, note the projects length, list all induction course details, attendees and presenters as well as list skills required for a particular task on a project, the model created does all of these things, as well as storing the means of travel for projects at home.

A requirement the database doesn't meet is having the ability to identify volunteers with a specific medical condition, this feature could easily be added to the database but with it not being on the application form this attribute was unfortunately bypassed.

Another requirement the database doesn't meet is having the capability to identify common activities that are part of many projects as activities are not stored in this database only specific tasks and skills are stored. The tasks that need to be completed for each project are relatively unique, however if the word skills was to replace activities this requirement would be complete.

A recommendation that could be considered for future database management system implementation is to link the database to the web once it is built rather than use the database application and query tools, although this proves to be useful now and doesn't require the time and funds that designing and building a web application would need, in the long run it may be useful to have a direct link from a website which would allow volunteers to sign up to the different programs as web browser software is very user-friendly and would require less training and knowledge to use than the database application would. (Rispin, 2015)

Another future trend that could be seen is disk-less databases in which the database would only contain current data which would have a great impact on performance and speed, and this would result in an increase in public and private clouds being used. Energy efficiency is also a topic which needs to be looked at in order to provide green eco-friendly databases. (Zicari, 2011)

Database management systems have changed dramatically over the years so it is hard to predict what the future will bring, however one man Burleson (2014) predicts that in 2016 Oracle will introduce a three dimensional data representation within their database management system.

Article IV. Bibliography

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Article V. Resources

1	Website
Description	Oracle Technical support
Creator	Oracle
URL	http://www.oracle.com/technetwork/index.html?ssSourceSiteId=ocome <u>n</u>

2	Website
Description	Oracle Documentation
Creator	Oracle
URL	http://docs.oracle.com/en/

3	Software
Description	QSEE case Tool v1.1.2
URL	http://www.leedsbeckett.ac.uk/qsee/

4	Software
Description	ORACLE Database Management System, APEX 5
URL	http://aet-oracle.aet.leedsbeckett.ac.uk:7777/pls/apex/f?p=4550:1:13901934209355::::

5	Videos
Description	Oracle Apex 5 Application Builder
URL	https://replay.leedsbeckett.ac.uk/Panopto/Pages/EmbeddedList.aspx?embedded=1&folderID=f0ae8abe-4f2b-48ab-a5da-37c23d8b6336

6	Videos
Description	Oracle APEX tutorial

URL	https://www.youtube.com/channel/UCJW1vbhk-mI7rAwUQG9qKIA
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