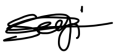
Database Systems Development
M30232

CW Group contribution statement

	UP2197433	UP2199994	UP2198852
ERD Design	☑	☐	☐
Reflective Analysis	☑	☐	☐
Data Dictionary	☐	☐	☑
Document writing	☑	☐	☐
Brainstorming	☑	☑	☑
SQL Coding	☑	☑	☐
Percentage Allocation	**33.3%**	**33.3%**	**33.3%**
Signature			

Contribution Description

UP NUMBER	Description (if not equally counted)	Signature
UP2197433		
UP2199994		
UP2198852		

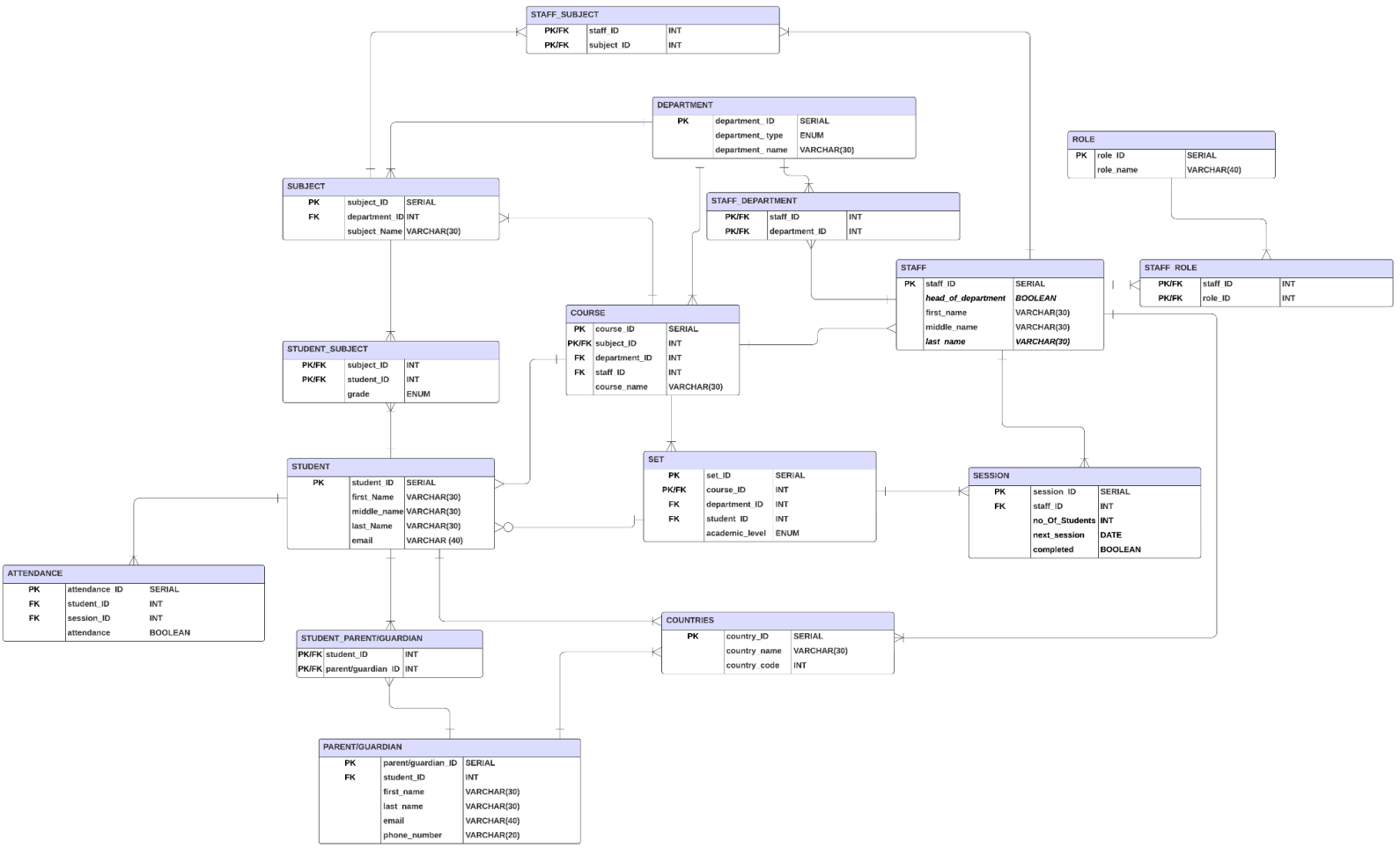
Note[1]: *The contribution is not necessary only "hands on". The contribution can be as research, brainstorming, tests, diagrams etc. For DOCUMENT WRITING one person should write (to maintain the same writing style and general layout) but all members should contribute with ideas, moderation or research.*

Note[2]: *The Percentage Allocation between team members cannot exceed 100%.*

Note[3]*: For submission without Group Contribution Statement (or blank) it will be considered that all members are contributed equally.*

Note[4]*: In case of an EC application only the member applying for EC will receive the extension and NOT ALL GROUP. Ask about EC process.*

Improved Entity-Relationship-Diagram



Improved assumptions

General:

Changes/corrections:

- The connections between each entity, eg;
  - Entities that have '**course_id**' as a foreign key weren't connected to the main entity that has it as a primary key so we fixed that.
- Corrected the 'many to many' relationships.
- Inserted intersection tables between;
  - **Staff** and **Role** (**Role** is a new entity)
  - **Student** and **Parent/Guardian**
  - **Student** and **Subject**
- Deleted the '**GRADE**' table and instead created a grade attribute in the **Student_Subject** entity because it wasn't necessary to have it as an entity of its own.
- Separated link between the **Department** and **Session** entities because **Set** relates more to **Subject/Student.**
- Changed the data types of the foreign keys to, **INT.**
- Deleted the **Headteacher** entity.
- Made a link between **Department** and **Course.**

EXAMPLE

Department
(Technology)
↓
Course
(Computer Science)
↓
Subject
(CCC, DSD, Programming, ect)
↓
Set
(Set 1, Set 2, Set 3)
↓
Session
Period 2 = Computer Science: Programming (Set 2)

Department (Mathematics, Computing, Arts, Humanities, HR, Finance):

Changes:

- Removed the '**size**' attribute because the size of a department isn't relevant or accurately measurable in our diagram.
- Made the data type of **department_type, ENUM** because there's a specific selection of departments.

Subject (e.g. History and Georgraphy are subjects in the Humanities department):

Changes:

- Linked it to an **intersection table** to remove the '**many-to-many**' link.

Staff:

Changes:

- Removed the '**course_ID**' foreign key as it would result in an error to have '**course ID**' and '**staff ID**' as foreign keys in eachothers tables.
- Deleted the '**password**' attribute because it wasn't relevant.

Assumptions:

- A staff member only teaches on one course.

Course (e.g. Computer Science is a course that:

Changes:

- Corrected the '**many-to-many**' link.

Student:

Changes:

- ➢ Made the '**middle_name**' attribute '**null**'.
- ➢ Deleted '**password**' because it wasn't relevant.

Assumption:

- ➢ Not everyone has a middle name.

Parent/Guardian:

Changes:

- ➢ Made '**phone_number**' **VARCHAR(20)** because the length of phone numbers vary from country to country.
- ➢ Deleted '**password**' because it wasn't relevant.
- ➢ Added a primary key.

Assumptions:

- ➢ A student may have 2 or more parents or guardians who each want their own parental view. (**one-to-many**)

Set (e.g. set 1 students will be students who have the highest grade average):

Changes:

- ➢ Created '**set_ID**'.
- ➢ Changed the data tye of **academic level** from **INT** to **ENUM** because there's a finite number of sets.

Session:

Changes:

- ➢ Corrected the '**many-to-many'** link.

Role (e.g. Head of year, teaching assistant, head teacher):

Changes:

- ➢ Was a replacement for the **Headteacher** table.

Assumptions:

- ➢ Each teacher will have a specific role within the school.

Countries (e.g. Many students may be international):

Assumptions:

- ➢ Students can come from all over the world, as are staff and parents, so they'll need to specify.
  - **Code** because if they need to call a parent from home, they may still be in that country.

INTERSECTION TABLES:

- Staff_Subject
- Student_Parent_Guardian
- Staff_Department
  - One department can have many staff members, one staff member can be in many departments.
- Staff_Role

Data Dictionary

Department						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
department_id	PK		SERIAL	NOT NULL		
department_type			ENUM	NOT NULL		

SUBJECT						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
subject_id	PK		SERIAL	NOT NULL		
department_id	FK		INT	NOT NULL	DEPARTMENT	
subject_name			VARCHAR(30)	NOT NULL		

COURSE						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
course_id	PK		SERIAL	NOT NULL		
subject_id	PK/FK		INT	NOT NULL	SUBJECT	
department_id	FK		INT	NOT NULL	DEPARTMENT	
staff_id	FK		INT	NOT NULL	STAFF	
course_name			VARCHAR(30)	NOT NULL		

STAFF						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
staff_id	PK		SERIAL	NOT NULL		
head_of_department			BOOLEAN	NOT NULL		
first_name			VARCHAR(30)	NOT NULL		
middle_name			VARCHAR(30)	NULL		
last_name			VARCHAR(30)	NOT NULL		

ROLE						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
role_id	PK		SERIAL	NOT NULL		
role_name			VARCHAR(40)	NOT NULL		

STAFF_ROLE						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
staff_id	PK/FK		INT	NOT NULL	STAFF	
role_id	PK/FK		INT	NOT NULL	ROLE	

SESSION						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
session_id	PK		SERIAL	NOT NULL		
staff_id	FK		INT	NOT NULL	STAFF	
no_of_students			INT	NOT NULL		
next_session			DATE	NOT NULL		
completed			BOOLEAN	NOT NULL		

SET						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
set_id	PK		SERIAL	NOT NULL		
course_id	PK/FK		INT	NOT NULL	COURSE	
department_id	FK		INT	NOT NULL	DEPARTMENT	
student_id	FK		INT	NOT NULL	STUDENT	
academic_level			ENUM	NOT NULL		

STUDENT						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
student_id	PK		SERIAL	NOT NULL	STUDENT	
first_name			VARCHAR(30)	NOT NULL		
middle_name			VARCHAR(30)	NULL		
last_name			VARCHAR(30)	NOT NULL		
email		Y	VARCHAR(20)	NOT NULL, UNIQUE		

ATTENDANCE						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
attendance_id	PK		SERIAL	NOT NULL		
student_id	FK		INT	NOT NULL	STUDENT	
session_id	FK		INT	NOT NULL	SESSION	
attendance			BOOLEAN	NOT NULL		

PARENT/GUARDIAN						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
parent/guardian_id	PK		SERIAL	NOT NULL		
student_id	FK		INT	NOT NULL	STUDENT	
first_name			VARCHAR(30)	NOT NULL		
last_name			VARCHAR(30)	NOT NULL		
email		Y	VARCHAR(20)	NOT NULL, UNIQUE		
phone_number		Y	VARCHAR(20)	NOT NULL, UNIQUE		

COUNTRIES						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
country_id	PK/FK		SERIAL	NOT NULL	COUNTRY	
country_name	PK/FK		VARCHAR(30)	NOT NULL	COUNTRY	
country_code			INT	NOT NULL		

Staff_Subject						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
staff_id	PK/FK		INT	NOT NULL	STAFF	
subject_id	PK/FK		INT	NOT NULL	SUBJECT	

STAFF DEPARTMENT						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
staff_id	PK/FK		INT	NOT NULL	STAFF	
department_id	PK/FK		INT	NOT NULL	DEPARTMENT	

STUDENT_SUBJECT						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
subject_id	PK/FK		INT	NOT NULL	SUBJECT	
student_id	PK/FK		INT	NOT NULL	STUDENT	
grade			ENUM	NOT NULL		

STUDENT_PARENT/GUARDIAN						
Attribute_Name	***KEY***	***Index***	***Data Type & Size***	***Domains & Constraints***	***FK Reference***	***Description***
student_id	PK/FK		INT	NOT NULL	STUDENT	
parent/guardian_id	PK/FK		INT	NOT NULL	PARENT/GUARDIAN	