**Database Design Coursework Template**

Student Name: Liam Patel

Student ID: adgz519

Student Number: 240005269

**Scenario Topic Name** School Timetable Database

**Scenario** (100 words maximum)

This is a timetable used by a school to track lessons for students and teachers. It tracks what time the lessons are, what classroom they are in, the department and the teacher. Teachers, classrooms and students have their own entities. Departments are also an entity, with a recurring relationship that allows a department to have a parent (e.g. the biology department might be a child of the science department). It also distinguishes normal classrooms from computer classrooms using sub entities.

**Example queries** (Minimum 5 – list, who, which, how many, most, fewest etc. - check that your models have the attributes needed to answer the queries)

Show all lessons a teacher with ID 5 has on Tuesday:

SELECT Classroom\_ID, Start\_Time, End\_Time, Lesson\_Name

FROM Lesson

WHERE Day = “Tuesday” AND Teacher\_ID = 5;

Find out which classrooms have the most computers

SELECT Classroom\_ID

FROM Computer Classroom

ORDER BY Computer\_Count DESC;

Find all lessons that a student with name “Liam Patel” has on Thursday

SELECT Classroom\_ID, Start\_Time, Teacher\_ID, Lesson\_Name

FROM Lesson

INNER JOIN Student\_Lesson

ON Lesson.Lesson\_ID = Student\_Lesson.Lesson\_ID

INNER JOIN Student

ON Student\_Lesson.Student\_ID = Student.Student\_ID

WHERE Student.Student\_Name = “Liam Patel”;

Return how many teachers are in the school

SELECT COUNT(\*)

FROM Teachers;

Find the names of all students that were in Classroom with ID 24 on Friday

SELECT Student\_Name

FROM Student

INNER JOIN Student\_Lesson

ON Student.Student\_ID = Student\_Lesson.Student\_ID

INNER JOIN Lesson

ON Student\_Lesson.Lesson\_ID = Lesson.Lesson\_ID

INNER JOIN Classroom

ON Lesson.Classroom\_ID = Classroom.Classroom\_ID

WHERE Lesson.Day = “Friday” AND Classroom.Classroom\_ID = 24

**Entity Relationship Model** (insert a jpg image of your model exported from Visual Paradigm in the space below).

Insert your jpg image here

A screenshot of a computer

Description automatically generated

**Relational Model Tables**

* Copy and paste the table below for as many relational tables as you need
* Replace the placeholder names (table-name1, attribute-name5 etc) with the table and attribute names you derived from your ER model
* List primary key attributes first
* Add new rows to the tables (in the correct place) as needed
* Delete any unnecessary rows (attribute rows and foreign key rows if not used)
* Primary keys are to be specified in the format PRIMARY KEY (attribute-name1, attribute-name2, etc)
* Foreign keys are to be specified in the format ‘FOREIGN KEY (attribute-name) REFERENCES table-name (attribute-name)

|  |  |
| --- | --- |
| **Relational table specification** | **Marker’s corrections (Do not write in this column)** |
| **Table name:** Department |  |
| **Attributes** |  |
| PRIMARY KEY (Department\_Name) |  |
| FOREIGN KEY (Teacher\_ID) REFERENCES Teacher (Teacher\_ID) |  |
| FOREIGN KEY (Parent\_Department\_Name) REFERENCES Department (Department\_Name) |  |

|  |  |
| --- | --- |
| **Relational table specification** | **Marker’s corrections (Do not write in this column)** |
| **Table name:** Classroom |  |
| **Attributes** |  |
| PRIMARY KEY (Classroom\_ID) |  |
| Building\_Name |  |
| Capacity |  |
|  |  |

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| --- | --- |
| **Relational table specification** | **Marker’s corrections (Do not write in this column)** |
| **Table name:** Lesson |  |
| **Attributes** |  |
| PRIMARY KEY (Lesson\_ID) |  |
| FOREIGN KEY (Classroom\_ID) REFERENCES Classroom (Classroom\_ID) |  |
| Day |  |
| Start\_Time |  |
| End\_Time |  |
| FOREIGN KEY (Teacher\_ID) REFERENCES Teacher (Teacher\_ID) |  |
| FOREIGN KEY (Department\_Name) REFERENCES Department (Department\_Name) |  |
| Lesson\_Name |  |

|  |  |
| --- | --- |
| **Relational table specification** | **Marker’s corrections (Do not write in this column)** |
| **Table name:** Teacher |  |
| **Attributes** |  |
| PRIMARY KEY (Teacher\_ID) |  |
| Name |  |
| Teacher\_Email |  |

|  |  |
| --- | --- |
| **Relational table specification** | **Marker’s corrections (Do not write in this column)** |
| **Table name:** Computer Classroom |  |
| **Attributes** |  |
| FOREIGN KEY (Classroom\_ID) REFERENCES Classroom (Classroom\_ID) |  |
| Computer Count |  |

|  |  |
| --- | --- |
| **Relational table specification** | **Marker’s corrections (Do not write in this column)** |
| **Table name:** Student\_Lesson |  |
| **Attributes** |  |
| FOREIGN KEY (Lesson\_ID) REFERENCES Lesson (Lesson\_ID) |  |
| FOREIGN KEY (Student\_ID) REFERENCES Student (Student\_ID) |  |

|  |  |
| --- | --- |
| **Relational table specification** | **Marker’s corrections (Do not write in this column)** |
| **Table name:** Student |  |
| **Attributes** |  |
| PRIMARY KEY (Student\_ID) |  |
| Name |  |

**Marker’s Comments** (Do not write in this section)

**Important:** Please note that marker’s corrections to your relational tables are there to help you construct a working database for the second coursework. They are not the determinant of your mark. For more information on how your work is assessed see the coursework specification and grade related criteria.

**Coursework Mark** (100 marks available):