# **Module 3 – Case Study 1**

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## Section A – Error Identification / Resolution

### – SQL File

Your answers must be provided in the format below:

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| **Example Error** | |
| **Error** | 'hobby` varchar(1) NOT NULL, |
| **Implications** | An attribute of varchar with length 1 can only store a single letter. |
| **Correction** | `hobby` varchar(100) NOT NULL, |





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| **SQL Error 1** | |
| **Error** | Project: `projectLeader` varchar(100) NOT NULL, |
| **Implications** | Declared as varchar but references Employee.id, which is an int. Causes foreign key constraint errors. |
| **Correction** | `projectLeader` int NOT NULL, |

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| **SQL Error 2** | |
| **Error** | Project: `funding` int NOT NULL, |
| **Implications** | int cannot store decimal values. Funding amounts with decimals will be truncated or cause errors during data import. |
| **Correction** | `funding` decimal(10,2) NOT NULL, |

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| **SQL Error 3** | |
| **Error** | Employee: `id` int, |
| **Implications** | id can be null, undermining the UNIQUE constraint and causing issues with foreign key references requiring non-NULL values. |
| **Correction** | `id` int NOT NULL, |

### – CSV Files

**Note**: You must use the SQL keyword provided for each given problem. Additionally, your SQL query must not cause any additional errors to occur when the CSV import is run.

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| **Example Error** | |
| **Error** | 3039,Jennifer,Robinson,Developer |
| **Explanation** | This employee should have the role “Administration” not “Developer” |
| **SQL Solution** | UPDATE Employee SET role = "Administration" WHERE id = 3039 |
| **When to Run**  **(Highlight Correct)** | Before Employee CSV Import / After Employee CSV Import |



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| **CSV Error 1** | |
| **Error** | 3035,Alex,MDonald,Administration |
| **Explanation** | “Mdonald” should be “McDonald” |
| **SQL Solution** | UPDATE Employee SET lastName = 'McDonald' WHERE id = 3035; |
| **When to Run**  **(Highlight Correct)** | Before Employee CSV Import / After Employee CSV Import |

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| **CSV Error 2** | |
| **Error** | 2020 Marketing,Develop a marketing plan for 2020,43126.78,3009 |
| **Explanation** | Tuple violates referential integrity constraint as no employee exists  with ID 3009 |
| **SQL Solution** | UPDATE Project SET projectLeader = 2020 WHERE name = '2020 Marketing'; |
| **When to Run**  **(Highlight Correct)** | Before Project CSV Import / After Project CSV Import |

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| **CSV Error 3** | |
| **Error** | Office Redesign,Redesign office to increase  productivity,2000.50,3010 |
| **Explanation** | Tuple violates referential integrity constraint as the Builder “Aaron  Smith” with id 3010 is missing from the Employee table. |
| **SQL Solution** | INSERT INTO Employee (id, firstName, lastName, role) VALUES (3010, 'Aaron', 'Smith', 'Builder'); |
| **When to Run**  **(Highlight Correct)** | Before Project CSV Import / After Project CSV Import |

**Section B – SQL DDL (Table Setup)**

**Note**: You must choose suitable data types when generating tables.



* YOUR SQL QUERIES TO GENERATE MISSING TABLES MUST FIT IN HERE NOTE: NO FOREIGN KEY QUERIES SHOULD BE INCLUDED HERE

文本

描述已自动生成

* YOUR SQL QUERIES TO APPLY ANY NEEDED FOREIGN KEYS OR MISSING CONSTRAINTS MUST FIT IN HERE

图形用户界面, 文本, 应用程序

描述已自动生成

**Section C – SQL DDL (Table Modification)**

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| **Schema Query 1** | |
| **Client**  **Specification** | Employee’s middle names (if they have one) will also be stored along with their first name and last name. |
| **SQL**  **Query(s)** |  |

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| **Schema Query 2** | |
| **Client**  **Specification** | The employee’s ‘role’ will be stored as a text datatype to allow for longer descriptions. |
| **SQL**  **Query(s)** |  |

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| **Schema Query 3** | |
| **Client**  **Specification** | The combination of first name and last name for each employee must be unique. |
| **SQL**  **Query(s)** |  |

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| **Schema Query 4 - A** | |
| **Client**  **Specification** | To increase productivity, each employee will be assigned to a “main project,” which they are expected to spend the majority of their time on:  -     Add an attribute called “mainProject” to the employee’s table which can store the main project name. Each employee already in the system should be assigned “Website Setup” as their main project. |
| **SQL**  **Query(s)** |  |



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| **Schema Query 4 - B** | |
| **Client**  **Specification** | To increase productivity, each employee will be assigned to a “main project,” which they are expected to spend the majority of their time on:  -     This new attribute needs to be a foreign key referencing the Project.name attribute. Because each employee must have a valid main project this attribute  should also not be null. |
| **SQL**  **Query(s)** |  |

## Section D – SQL DDL (Data Insertion/Deletion)

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| **Data Query 1** | |
| **Client**  **Specification** | On the 3/5/2020 Annie Fang worked for 4 hours on the “Website Setup” project and this time has been approved. |
| **SQL**  **Query(s)** |  |

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| **Data Query 2** | |
| **Client**  **Specification** | Gabriele Cirulli was fired. |
| **SQL**  **Query(s)** |  |



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| **Data Query 3** | |
| **Client**  **Specification** | Due to the corrupt export, the ProjectExpenditureTimeline table needs to be populated.  (Note: Because we only provided you with a snapshot of our data, we need a query which populates this tables based of the TimeLog table and not just specific insert queries.) |
| **SQL**  **Query(s)** |  |

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| **Data Query 4** | |
| **Client**  **Specification** | The Board of Directors approved a new $8000.00 project called “New Zealand expansion analysis” which is designed to look into the economic and logistical feasibility of setting up a branch of Dirt Road Driving in New Zealand. To lead this project, we have hired a new manager, “Charlie Johnson” and assigned him ID 2930.  Charlie will also be assigned this project as his “main project.” |
| **SQL**  **Query(s)** |  |