CPT103 Coursework Report

# Must Read

Your report and database design must be your own work. You should not copy any code from others or let anyone develop this database. Plagiarism and collusion lead to a zero mark for this coursework.

All tables must be in 3NF and the ER diagram should not contain any M: N relationships. Please strictly follow the structure of this template. Remember to double-check grammar and wording errors so that the report could be understood easily. Failing to do so will result in mark deductions. Any language other than English will be ignored when marking the report.

Your ID:

Name:

Email Address:

# Task 1: Normalisation

Please write down the detailed normalisation process. At each normalisation stage, list all functional dependencies and normalise them to the higher normal form. 3NF is required for the final tables and must match your ER diagram. The example process of normalisation is mentioned in the lecture.

**Stage 1: Normalise to 1NF**

**The primary key of current table:**

**Functional dependencies (FD):**

**Tables after the normalisation (You must underline the primary key of these new tables):**

**Stage 2: Normalise to 2NF**

**FDs of the current tables (Indicate which of them are partial dependencies)**:

**Tables after the normalisation (You must underline the primary key of these new tables):**

**Stage 3: Normalise to 3NF**

**FDs of the current tables (Indicate which of them are transitive dependencies)**:

**Tables after the normalisation (You must underline the primary key of these new tables):**

# Task 2 - Database Design Details

## Tables

In this section, you are required to explain all of the tables in your ER diagram. An example is given below. Please make sure you follow the template and everything is clearly explained.

------ The Beginning of the Example ------

[This is only an example. You don’t have to follow the same way I explained this table, but your explanation should be clear and detailed]

Table name: Staff

Table design general explanation:

The staff table is used to store the information of all staff members in the company. The primary key is staff\_id as it is unique for every staff member. [Add more explanations if you made some special considerations. Try to support your assumptions with proofs in real life]

Attributes:

|  |  |  |
| --- | --- | --- |
| Column Definition | Domain | Explanation |
| staff\_age int | 18+ | The age of staff members. The value should be larger than 18 because of the government law. This domain is checked by the domain constraint called XXXX. |
| address varchar(255) | Room *XX*, Building *YY*, *ZZ* Road, *WW* district | The address of the office, the data cannot be checked by the database directly. As a result, manual checking is required when entering data. |
| Staff\_name varchar(100) | All valid names are acceptable. For example, ‘Jun Qi’. | The name of staff members. |
| Branch\_no char(4) | Branch numbers start with B followed by 3 digits. For example, ‘b003’ | The branch number where this staff works in |
| Staff\_email varchar(255) | Valid email addresses  XXX@YYY.ZZZ | The correctness of email addresses cannot be checked directly by the database, so manual checking is required.  This column is not UNIQUE. It is an intentional design because the company sometimes offer shared email addresses for one office to improve communications. |
| Staff\_id int primary key | 2003001 | The staff id must be 7 numbers long and follow the format XXXYYYY, where XXX refers to the branch of that staff and YYYY is the individual unique number of that staff. |

Foreign keys:

The column Branch\_no references branch.branch\_no, this is to make sure that branch\_no are valid numbers that reflect existing branches of the company. It corresponds to the XXX relationship in the ER diagram.

------ The End of the Example ------

Table name:

Table design explanation:

Attributes:

|  |  |  |
| --- | --- | --- |
| Column Definition | Domain | Explanation |
|  |  |  |
|  |  |  |
|  |  |  |

Foreign keys and reasons:

Table name:

Table design explanation:

Attributes:

|  |  |  |
| --- | --- | --- |
| Column Definition | Domain | Explanation |
|  |  |  |
|  |  |  |
|  |  |  |

Foreign keys and reasons:

Table name:

Table design explanation:

Attributes:

|  |  |  |
| --- | --- | --- |
| Column Definition | Domain | Explanation |
|  |  |  |
|  |  |  |
|  |  |  |

Foreign keys and reasons:

[add more blocks if needed]