

Week02

Relational Database Systems

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Student Exercise

As part of codebase “full stack” course, you will need to complete the following exercise.

CASE STUDY: FBN

Scenario

You have been asked to design a **database** for a **food** franchise called **FastBurgersNow** which currently has 10 **outlets** scattered across Scotland. The **database** proposed is one to cover a specific **part** of their **ordering** and **employee** systems.

So, it must importantly contain a list of the **orders** taken, this is based on the **customers** placing an **order**, however only registered **customers** are able to make an **order** either one **telephone** or **app connection**. The **order** is then passed to the **kitchen area** (i.e., cooks) who will make the various **items** and package them ready for **delivery**. Finally, the **drivers** will deliver these **orders** to the **customer's home address**. The **franchise** is unique in that it does not take over the counter **orders**, and only concentrates on **deliveries** to its current **database** of **customers**.

When first registering the **customer** needs to provide the usual **amount** of personal **information** (e.g., **name**, **address**, **email**, **mobile number** etc.). **Customers** are also able to receive various promotional **information** via an **email** shot by the **company** that occurs every 2-3 months, this is based on a special **menu** that is devised by the local **manager**.

The **staff** that work for FBN also provide a similar **amount** of **information** when they start at the **franchise**, along with the various **training courses** they have completed, and skill set they possess. Certain **information** concerning the **staff** employment **status** is also kept e.g., the **National Insurance number**, scanned copy of their **passport** and a scanned **copy** of their **driving licence** (for drivers). The various **employees** can be either given a **role** as a **driver**, **cook**, **order staff** or **shift-leader**, these are entered into the **system** and updated when necessary. Also, some **details** about the basic **pay rate** for each **member** of **staff** will be kept on the system.

The order system should keep track of the following:

- Which **customer** **places** which order.
- All **items** on that **order**.
- **Customer** paid by **card** or **cash**.
- Which **member** of **staff** took that **order**?
- **Shifts** for all **staff members**.
- Each **item** should relate to a **food/drink product**.
- The **manager** is responsible for keeping the **stock** up to date.
- The **cooks** do not take **orders** directly from **customers**.

Naturally NO CASE STUDY can capture all the details of the operations of the franchise; you are permitted to make any assumptions (provided you write these down).

Development

Use database development strategy to decide the main elements of the database – this will include nominating the:

Fields (also INDICATING the primary keys and foreign keys)

Tables

Links and Cardinalities between the respective tables

Task 2A. Propose an Entity - Relationship diagram that matches the information provided in the case study. Use the appropriate formalism and structure as explained in the theory.

Note: Use io.draw or Microsoft Visio or similar product to develop your ERD

Task 2B. Produce a Data Dictionary – which contains the following information: table, field type, field size and field description.

Note: Use Microsoft Excel or similar product to develop your data dictionary