Deliverables:

The project is broken down in two deliverables:

(NB: You are to create the application in Visual Studio.NET using C#.)

Deliverable 1   is for the group to work together to design a relational database, including creating an ER diagram, converting the ERD to a Relational model, and converting the Relational model to database tables. You will also populate the tables with data and run some queries to test the validity of the design. Based on the testing results, you may reconsider or modify the original design to satisfy the requirements. Note, this could be an iterative process that requires several cycles. We encourage you to discuss your design with lecturers or tutors before each iteration. Each group will hand in a database design report which shows the ER diagram, Relation model, SQL for creating database tables, inserting data, and retrieving data, and group member's contribution. Use the report template provided.

Deliverable 2   will be a C# application that connects to the database and implements some of functionalities described in this document. You will hand in a summary of your implementation for the client and give a live demonstration of your application to a tutor or lecturer.

                   Note that SQL for creating tables and inserting data will be provided after Deliverable 1 is complete. These tables can be used for Deliverable 2.

                   This document contains the details concerning Deliverable 1 only. You will receive additional information about Deliverable 2 at a later date.

The scenario:

PrepareAware is a provider of first aid courses and equipment, empowering individuals and organizations with the knowledge and tools necessary to respond effectively in emergency situations. They require a new database to help them manage the following types of data:

1. Customer data: The database should store information about the company's customers, including their names and contact details.

2. Course data: The database should contain information about the first aid courses that the company offers, including the course name, duration, cost, equipment used, and any prerequisites. It should also track course attendance and completion status for each customer.

3. Instructor data: The database should store information about the company's instructors, including their names, contact details, and qualifications. It should also track the courses each instructor is qualified to teach and the dates and times of their scheduled classes.

4. Equipment data: The database should contain information about the first aid equipment that the company offers, including the product name, description, price, and availability.

5. Order data: The database should track customer orders for first aid equipment, including the products ordered, quantities, and delivery details.

6. Payment data: The database should store information about customer payments for course fees and equipment orders, including payment method, date, and amount.

PrepareAware has provided the following information and requirements:

- PrepareAware runs many types of courses. For example, Intro to Health & Safety, Outdoor First Aid, and Hazard Identification & Control. Each course has an expected duration (from 4 hours to 3 days) and an estimated price per person. Some courses will require first aid equipment (e.g. training dummy, bandages).

- Organisations (or individuals) can book a class for a particular course. They provide information about how many people are expected to come and can choose a time based on the availability of the instructors. Only qualified instructors are allowed to teach a class. The person/company that booked the course pays for it. They may be able to get a discount for larger classes. Larger classes may also require more instructors. First aid supplies used during the class are taken from PrepareAware's inventory and need to be tracked.

- Students do not need to register in advance but will need to provide their details during or after the course in order to receive their certification/credits. They will only get certified if they pass the course. They will also be contacted by PrepareAware later once their certification is about to expire. A certification typically lasts two years, depending on the course.

- Only customers with an account can purchase first aid supplies. A customer can buy lots of supplies at once, but not more than is currently in stock. Each item has a standard price (that may change over time) and customers may be able to purchase items at a discount. For example, the current standard price of a first aid kit may be $49 and it is being sold with a 20% discount.

PrepareAware has also provided you with some (incomplete) examples of data that should be stored:

```
Course Name: Basic First Aid
Description: A short course that covers essential first aid techniques for common
injuries, such as burns, cuts, and sprains. Suitable for individuals or groups with
no prior first aid training.
Duration: 4 hours
Cost: $200 per person
Prerequisites: None


Course Name: First Aid/CPR/AED
Description: A one-day course that teach individuals how to respond to medical
emergencies. The course covers a variety of topics, including the proper procedures
for providing first aid, cardiopulmonary resuscitation (CPR), and using an automated
external defibrillator (AED).
Suitable for individuals or groups with no prior first aid training.
Duration: 6 hours
Cost: $300 per person
Prerequisites: None


Course Name: Wilderness First Aid
Description: is two-day specialized course designed to teach individuals how to
respond to medical emergencies in remote or wilderness settings. The course covers
the essential skills and techniques needed to assess, stabilize, and manage a
variety of injuries and illnesses that may occur in the outdoors.
Cost: $400 per person
Prerequisites: None



Course Name: Advanced First Aid
Description: A 3-day course that builds on the skills taught in the Basic First Aid
course and covers advanced techniques for managing medical emergencies, such as
heart attacks and strokes.
Duration: 3 days Cost: $400 per person
Prerequisites: Basic First Aid course completion

Customer Name: John Smith
Contact Details: Email - johnsmith@email.com, Phone - (555) 123-4567
Address: 123 Main St, Anytown, NZ

Customer Name: Sarah Johnson
Contact Details: Email - sarahj@email.com, Phone - (555) 987-6543
Address: 456 Elm St, Anytown, NZ

Product Name: First Aid Kit
Description: A portable kit containing a range of essential first aid supplies,
including bandages, gauze, antiseptic wipes, and more.
Price: $50
Stock: 100


Product Name: Automated External Defibrillator (AED)
Description: An easy-to-use device that can analyse the heart's rhythm and deliver
an electric shock to restore normal heartbeat in case of cardiac arrest.
Price: $1,500
Stock: 10
```

```
Product Name: CPR Manikin
Description: A realistic training manikin that simulates a human body for
practicing cardiopulmonary resuscitation (CPR) techniques.
Price: $300
Stock: 50


Instructor Name: Jane Doe
Contact Details: Email - janedoe@email.com, Phone - (555) 555-1212
Certifications: American Heart Association BLS Instructor, Red Cross First
Aid/CPR/AED Instructor Availability: Monday-Friday, 9am-5pm


Instructor Name: Mark Johnson
Contact Details: Email - markjohnson@email.com, Phone - (555) 123-4567
Certifications: Wilderness First Responder Instructor, National Safety Council
First Aid/CPR/AED
Instructor Availability: Weekends, 9am-5pm

Class Booking: First Aid/CPR/AED
Instructor(s): Jane Doe
Booked: John Smith
Start Date: March 1, 2023
End Date: March 1, 2023
Location: Anytown Community Center
Capacity: 20

Class Booking: Wilderness First Aid
Instructor(s): Mark Johnson
Booked: Sarah Johnson
Start Date: April 15, 2023
End Date: April 16, 2023
Location: Anytown State Park
Capacity: 15
```

Later, PrepareAware also asks you to develop a prototype desktop application (written in C#) that allows their staff to

- add new courses/instructors/equipment, and view and update existing ones

- view various statistics about the sales and courses. E.g. viewing sales for each equipment ranked by popularity and price, viewing data about how many people have completed each course, and how many are currently certified (e.g. the certification is valid).

And their customers to

- register their information and contact details

- view available courses and equipment

- book a first aid course

- purchase equipment

What you need to do for Deliverable 1:

1. Attend group meetings at least once a week to discuss the database design.

2. Submit a report that includes

   a. The ER Diagram of the database that consists of entities, attributes, relationships and cardinalities. Please underline the attribute(s) that will be used as primary key. Include any design assumptions

   b. The Relation model with primary key and foreign keys specified

   c. The Database table definitions that contain appropriate data types, primary keys foreign keys, and reasonable check constraints. Include any design assumptions as comments.

   d. SQL for inserting data into each table and retrieving data. Each table should have at least two rows inserted, though you may want to insert more to help test your design. Your report should include at least these two queries and their results:

      i. retrieve the details of each customer including the details of courses they have attended and equipment they have purchased.

      ii. select each class, showing details about the course, attending students and instructors, the first aid supplies used, and if the class has been paid for yet.

      However, it is recommended that additional smaller queries are also written to help test your design.

   e. Group member contribution

Deliverable 1 submission

1. Submit the meeting minutes to your group's Moodle forum after each meeting.

2. Submit the report (.doc or .pdf) to the Deliverable 1 submission page. Hand drawn ER diagrams can be scanned or photographed for submission, just make sure all text is legible.