COMPX223-23A Project Deliverable 2

For this deliverable, you will build a small desktop database application for your client, PrepareAware, a company that sells first aid training and supplies. This deliverable is to be done individually, not as part of a group. You will begin by creating a new database using the provided SQL on Moodle. This SQL creates a simplified version of the database you created for D1 and fills it with mock data. Then, you will create an application using C# in Visual Studio .NET that connects to the database and implements the functionalities described in this document. You will give a live demonstration of your application to a tutor or lecturer on 9th June. A schedule for demonstrations will be made available on Moodle.

The application you are developing for PrepareAware aims to streamline the organisation of first aid training classes. It will facilitate the setup of new classes, allowing staff to select the course, time, and location, and assign qualified instructors. Furthermore, it will enhance the current certification process by eliminating the need for paper forms and automate giving certifications to students upon completion of the class. Additionally, the application will provide comprehensive class data, including statistics and summarised information about the courses being conducted.

Part 1: Starter guide (20 Marks)
In the Project Resources on Moodle you can find a starter guide pdf, a series of pre-recorded tutorials, the starter guide Template Project. Following this guide will show you how to connect to the database, read data, write data, and set up a simple user interface for your application.
Task 1: Complete these tutorials.
Task 2: Show the completed starter guide project to a tutor during the lab times to get it marked off. Note that this should be done before 9th June.

Part 2: PrepareAware Database (4 Marks)
Create a new database and use the provided SQL file to create new tables and insert mock data. You may add additional data when testing your application but be prepared to briefly explain what your dataset includes when presenting.

Part 3: Display Class Data (16 Marks)
Task 1: Your application should show a list of classes. This should allow the user to see important information about the classes, including the course, time, location, and the names of the instructors assigned to each class.
Task 2: Allow users to filter the list of classes to show only upcoming classes, currently running classes, or past classes.

Part 4: Create New Classes (20 Marks)
Task 1: Allow users to create new classes. The user should be able to input relevant information such as the class time and location and other relevant details. The application should validate the input and store the information in the database.
Task 2: Allow users to assign qualified instructors to classes.

Part 5: Certification Process (24 Marks)
During classes, the application should allow the instructors to record students that have attended and received a first aid certificate.

Task 1: Allow instructors to search for a student using their email address.
Task 2: If the student has not yet created an account, register their details including name, contact details, etc.
Task 3: Record that the student has attended the class and the mark they achieved. You can assume that the mark is a value from 0-100, with 50 and above being a passing mark.

Part 6: Summary Report (16 Marks)
Allow users to view statistics and summarised information about the courses.
Task 1: Create a summary report. This report should show a variety of aggregated data including:

- Number of classes run for each course.
- Number of students that have attended each course (note: count repeat students only once).
- Average mark for each course.
- The day(s) (Monday, Tuesday, Wednesday, etc.) that most classes are run on for each course.

The summary report should be part of the application, not a separate document.

Task 2: Interactively produce and visualise statistics about the classes. See C# Chart Demo code for some code to get you started. For example, show how the class sizes are affected by:

- Where the class took place.
- When the class took place (time of day, day of week).
- The instructor assigned to the course.

User interface and error handling
For a passing grade, your application must be able to be demonstrated to the marker without errors and has a reasonable interface. To receive a high grade, you must be able to demonstrate that your application has error handling, is resistant to SQL injection attacks, and has a good interface. To demonstrate SQL injection resistance you should be prepared to show your code to the marker.
Do not use any data grids for displaying or requesting any information.

Bonus mark
A bonus mark will be awarded to any student who can demonstrate any of the following features:

- When assigning instructors, only select available qualified instructors. You can assume that all instructors work from 9am-5pm and they cannot be assigned to two classes with overlapping start and end times.
- Additional statistics showing a greater variety of useful information and allow users to filter the data interactively. For example, selecting a particular course, location, instructor, etc.
- For students who have a certification that is about to expire, prepare a template reminder email that shows details about the certification and course.

Appendix: marking rubrics

Part 1: Starter Guide (20 points)

Complete application, including login, register, browsing user sessions, and error handling. **20 points**	Login, register, and browsing user sessions working **15 points**	Login and register pages working **10 points**	Login page working **5 points**	No application **0 points**

Part 2: PrepareAware Database (4 points)

Database and dummy data are complete. Any additional test data in the database is explained during presentation. **4 points**	Dummy data is complete, but additional test data is included and not explained **3 points**	Dummy data is incomplete **2 points**	Incomplete or incorrect database **1 point**	No PrepareAware database **0 points**

Part 3: Display class data (16 points)

Displays class data (including assigned instructors' names) with good UI and no errors. Can filter the class data to show only past/current/future classes. **16 points**	Displays class data (including assigned instructors' names) with good UI and no errors. **12 points**	Displays class data (including assigned instructors' names) with poor UI or errors. **8 points**	Displays class data without assigned instructors' names, with poor UI, errors, or missing data **4 points**	Cannot display class data **0 points**

Part 4: Create new classes (20 points)

Classes can be created and **qualified** instructors can be assigned. Has good UI, error handling, and can demonstrate resistance to common SQL injection attacks. **20 points**	Classes can be created and instructors can be assigned. Has good UI and error handling. **15 points**	Classes can be created without errors. Cannot assign instructors. **10 points**	Classes can be created with some errors **5 points**	No data inserted into table. **0 points**

Part 5: Certification Process (24 points)

Can find existing students by email. Has good UI, error handling, and can demonstrate resistance to common SQL injection attacks. **8 points**	Can find existing students by email. Has good UI and error handling. **6 points**	Can find existing students without errors. **4 points**	Can find existing students but with some errors. **2 points**	Cannot find existing students. **0 points**
Can register students. Has good UI, error handling, and can demonstrate resistance to common SQL injection attacks. **8 points**	Can register students. Has good UI and error handling. **6 points**	Can register students without errors. **4 points**	Can register students but with some errors. **2 points**	Cannot register new students. **0 points**
Students can be added to a class. Has good UI, error handling, and can demonstrate resistance to common SQL injection attacks. **8 points**	Students can be added to a class. Has good UI and error handling. **6 points**	Students can be added to a class without errors. **4 points**	Students can be added to class with some errors. **2 points**	No data inserted into table. **0 points**

Part 6: Summary Report (16 points)

Complete summary report. Has good UI, no errors, and can explain SQL query used. **8 points**	Summary report missing one query, no errors. **6 points**	Has partial summary report with simple queries or calculations done in C#. **4 points**	Has summary report with some errors. **2 points**	Has no summary report. **0 points**
Can interactively choose statistics to view, not limited to viewing class sizes. **8 points**	Can show all three of the suggested stats **6 points**	Can show two of the three suggested stats with no errors **4 points**	Graph not interactive, can only show one query. **2 points**	Has no statistics. **0 points**

Bonus Mark (One of the following):

Assigning only available qualified instructors	Detailed interactive statistics	Notification for expiring certification