

COMP219-2017 Project Deliverable 1 (group work)

I. Introduction

In this project, you will build a small database application for a *driving instruction academy*. The project will consist of: specifying the system requirements, designing a database, creating and populating its tables, writing queries to retrieve information, and designing and implementing an interface to perform the tasks. The database side will be implemented with **SQL Server, and the interface with Visual Studio.NET using C#**. If you do not have experience in using C# at all, please contact the tutor now.

The project has four deliverables D1, D2, D3, and D4. For D1 you will work in groups of three people. For the remaining deliverables you will work on your own (group work is not allowed). You will be in an assigned group for D1: you will be able to locate your group members via the moodle forums (each group will have a private group forum in moodle). It is highly recommended that each student participate in the requirements specification and design phase of D1.

You should also record minutes of the group's meetings for D1 and post these on Moodle each week.

The project is broken down in four deliverables:

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

- Deliverable 1: is your design report which shows your conceptual database design and assumptions.
- Deliverable 2: will contain the SQL code you have used to create your database (excluding any stored procedures or triggers) and the code for specific application functionalities.
- Deliverable 3: will be a beta (preview) of your application with selected functionalities to be demonstrated.
- Deliverable 4: will be the completed, fully functioning application which performs the tasks described in this specification document. You will also hand in a summary of your implementation, a demonstration plan and perform a live demonstration of your application.

This document contains the details concerning Deliverable 1 only. You will receive additional information concerning each of the remaining deliverables at a later date.

II. The scenario

You have been engaged to build a database and application for an about-to-be-established driving instruction academy (DIA). In the future the system is supposed to be online, you are asked to implement a stand-alone software version.

This is the description you receive from the client:

The DIA is a premier driving instruction company. It caters to new drivers and experienced drivers. New drivers are coached through the practical driving process to facilitate obtaining full drivers (car) licence. Experienced drivers come in for driving assessments for feedback on their current driving skills and their knowledge of the current road-rules.

Prospective **clients** can register online and book **appointment(s)**. All appointments are for 1 hour, starting on the hour. Appointments can be up to 30 days in the future. The client may elect to have all appointments with one **instructor** or have different instructors depending on the client's availability.

At the end of the block of sessions (5 x 1 hour for new drivers, 2 x 1 hr for experienced) the driver is given a completion certificate from DIA.

The DIA has a fleet of 5 **vehicles**, of which 4 are used daily with the other one designated as 'spare'. Each vehicle becomes the 'spare' on a monthly basis. It is out for a week for maintenance (as required). Assigning cars to instructors, and looking after the spare is done by administrators.

DIA has a number of managers and administrative staff. There are 4 permanent instructors plus their **department manager** and **two administrators**.

Each instructor is assigned a vehicle for a week. DIA working hours are Monday – Saturday, 7:00am to 8:00pm. Only one instructor is rostered for Saturday. Each Instructor may have a maximum of 40 appointments per week (Health and Safety). There must be at least 3 instructors on duty Mon – Fri

Instructors can block out non-available times. Example: instructor blocks out 7-11am, and works from 11-8pm (last appointment starting at 7:00pm), or 10am – 2pm, working either side. In order to assist with bookings, this is usually done at least 45 days ahead.

The system will need to:

1. Allow instructors and office staff to log in.
2. Allow instructors access to the schedule to make changes to their availability
3. Ensure that there are instructors available during the main hours of the day.
4. Allow clients to register and log in.
5. Help clients to select instructors and particular appointments.
6. Help instructors confirm that they saw a client and produce a bill for that driving hour.
7. Automatically create the correct completion certificate for the driver after 5 or 2 hours, respectively, and make it available to the client.
8. Allow managers and instructors to see who is using which car and which one is spare.
9. Allow managers to assign a spare car to an appointment
10. Produce and visualise statistics for the Driving Instruction Academy

The scope of the system is still being explored and the list above is the bare minimum of what needs to be done and they are looking for you to provide some additional research and guidance about what other functionality the system should provide.

III. What you need to do (Deliverable 1)

Provide your clients with a report listing the high-level requirements and conceptual design of your application. The report should be word processed and printed on an ink jet or laser printer. No SQL statements are required for this report; it is purely a design report. This report will include:

1. Cover page with names, table of contents, page numbers etc.
2. Introduction which briefly describes the purpose of the report for the client
3. A short list of the project requirements (e.g., who, what, how many, functions). Indicate which ones are inferred and may need client confirmation.
4. An ER diagram of your database showing entities, relationships, cardinalities, attributes and key attributes. This may be hand drawn as long as it is neat and readable.
5. Alternatives: If there are any elements that might be modelled as either separate entity or an attribute of an entity (or other options), please briefly describe the options and explain why you decided to model it the way you did. What are the trade-offs?
6. For each entity and relationship, please provide a brief description of their purpose. Indicate which attributes should be unique.
7. Any assumptions your group has made during the modelling process.
8. The minutes of your group's meetings (i.e. dates you met, what was discussed and decided, etc.). These must be submitted to Moodle each week.

Attach your report to the Project Deliverable 1 coversheet which can be found in the Resources section in Moodle. **Any reports handed in without a coversheet will have points deducted.**

Please note, Deliverable 1 is due on Friday 17 March 4:00pm. You should hand Deliverable 1 into the comp219 hand-in box on the first floor of G Block.

IV. Additional Information

The project is worth 30% of your final grade. Each of the deliverables will contribute to the total grade (i.e., D1 & D2 & D3 are each worth 6%, with D4 worth 12% of your final project grade). To pass the course, you need to achieve at least 50% of the project overall.

We recommend that you start early (i.e. don't leave everything to the last minute, when the labs are most crowded!) and prioritize your work (i.e. get the basics going first, and embellish later).

Although the group will be marked as a whole for D1, we reserve the right to change an individual mark (up or down) if it is felt the workload was not shared properly. This will be determined from the minutes of the meetings, and from the demonstration.

Late submissions will not be graded without a medical certificate. If you know you cannot meet the deadline ahead of time, please get in contact with the tutor coordinator, Niles, as soon as possible.