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## Assignment and Project

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### Introduction

The Project designated to this module will stretch across the entire timeframe of the subject. It will be split into two milestones to effectively spread the workload needed to complete the desired outcome. The topics that will be tested in these milestones will cover a wide range of outcomes including, but not limited to the following:

- Data Access (Database management)
- Business Logic
- Windows forms
- File I/O
- Exception Handling

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### Outline

You have been contracted by a Belgium Campus to create an application which will be responsible for managing student information for the campus. The end product must be a fully functioning **Windows Based application** which will capture details of students and details of the modules that the students do and store in an **SQL Relational Database**. In your project, you need to utilize **the Multi Layered Architecture**. Your application must comprise of the following 3-tiers:

- a) **Presentation Layer** [Your Windows Forms GUI]
- b) **Business Logic Layer** [**CRUD** functions that will be necessary to implement a persistent storage application: **Create, Read, Update and Delete, File I/O**]
- c) **Data Access Layer** [**ADO.Net** and **SQL Database**]

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## Requirements from client

- 1) A Data Capturer should be presented with a Login Form which will require their Username and Password. Store sample Usernames and Passwords on a text file [in any format of your choosing]. The login should be verified and authenticated when a Data Capturer attempts to login. If a Data Capturer does not have a Username and Password, they should be able to register as a new user and their login details stored on the text file. Make sure all necessary validations are done for the Login Form.
- 2) Once the Data Capturer logs on the application, they should be presented with a Windows GUI of your design in order to perform all **CRUD operations**. Utilize ADO.Net to achieve this. All information **MUST** be stored on a database using SQL Server.
- 3) When capturing student information, on **Create**, the application should capture the following student information to the database:
  - Student Number
  - Student Name and Surname
  - Student Image
  - DOB
  - Gender
  - Phone
  - Address
  - Module Codes
- 4) On **Read**, make sure student information can be displayed in a ListView or DataGridView. On **Update**, it must be possible to change student's information. On **Delete**, it must be possible to delete student's information. The application must also have a **Search** functionality to search a particular student's information using the Student's ID.
- 5) When capturing module information, on **Create**, the application should capture the following module information to the database:
  - Module Code
  - Module Name
  - Module Description
  - Links to particular online resources (use YouTube videos that relate to each module)
- 6) The rest of the other **CRUD** operations must apply for displaying, updating, deleting and searching for a module to and from the database.

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## Milestone Requirements

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### Milestone One

Milestone one will be you **Assignment 1**. You are required to give a detailed report of how you plan to utilize **Multi Layered Architecture** for your application. Utilize a word processing document like word or pdf for this.

Following list contains but is not limited to the required documents needed:

- A description of your Presentation Layer [upload sample GUI designs].
- A description of your Business Logic Layer [Show classes and class members].
- A description of your Data Access Layer [Show classes and class members].
- A description of your Data Layer [Show classes and class members].

The classes should not have all the code at this stage. Just create dummy methods. Feel free to include diagrams in your report.

**Due date: 2023-11-07**

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### Mark Allocation

Criteria	Weight
Diagram	
Presentation Layer	10
Business Logic Layer	10
Data Access Layer	10
Data Layer	10
Total	[40]

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## Milestone Two

Milestone two will be your **Project**. You are required to submit and present a working prototype which meets all requirements of the client as stated above. Utilize Multi Layered Architecture for your application. Utilize the following technologies to archive this:

- SQL Server
- ADO.Net
- Microsoft Visual Studio
- Text File Handling

**Due date: 2023-11-14**

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## Mark Allocation

Criteria	Weight
Data Layer (Database management)	15
Business Logic Layer	15
Windows forms	5
File Handling	10
Exception Handling	5
Presentation Layer	10
<b>Total</b>	<b>[60]</b>

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## Additional Information

- This is a group project.
- Belgium Campus has of software that can **scan for plagiarism** and a student caught doing this will get 0 for this Project.
- No Project will be marked if not submitted on time. It will be considered as missing a deadline.
- Late Project will not be accepted.
- Missing the deadline is an automatic 0.