

## Assignment 1: Database Security (10%)

### Objective

The main purpose of the assignment is to raise awareness about the importance of database security when developing and implementing an application. Upon completion of this assignment, the students will be able to understand the potential threats for an application and will be able to apply the knowledge obtained through this class to protect the system against associated threats.

### Grouping

To be done in a **group of 3 students**. Students who cannot form a 3-members group can resort to 2-members group. Groups with less than 2 members are not allowed. Please register yourself into a particular group in eBwise.

### Report Formatting

It is compulsory to use MMU assignment front page with group member's details. Font allowed Times New Roman or Calibri with size 12. All diagrams and figures must be labelled and captioned. **Maximum pages allowed is 10.**

The cover page should be like this:

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## CCS6344 T2510 Assignment 1 Submission

Group Name: Group 1

Name 1	1221101423
Name 2	1221101424
Name 3	1221101425

### Deadline

Submit your deliverables to eBwise on or before 11:59pm, Monday, 19<sup>th</sup> May 2025. Every member of the group must submit their report individually in the Ebwise.

**Assignment Requirements****Task 1 Preparation of the proposal (20 marks)**

Your team have been selected to participate in a web development competition to develop an application. Using the traditional database system, i.e SQL, your team is required to prepare a proposal for the competition. In the proposal, your team is required to analyse and understand the business model for the application and propose an appropriate solution to develop the application.

Your proposal should cover the following topics:

1. Objectives of the project.
2. Proposed design and implementation of the application.
3. Proposed hardware and software to develop the application.
  - a. Please explain what programming language and database programme you are planning to use to develop this application.
  - b. This includes the type of server OS and webserver that you want to use to develop this application.
4. Please include the system design and database design for this application.
5. Please explain how you are planning to secure the database using the SQL database system.

**Task 2 Implementation of the application using SQL Database (20 marks)**

Your team is required to implement the above application. Please implement the above application using the web server that connects to SQL database server.

Your report should cover the following steps:

- 1) Describe your design in detail using both text and diagrams.
- 2) Give a step-by-step description of how you created the application using screen shots.
- 3) Please describe in detail, step by step, the security measures that were implemented to protect your application on the traditional database.
- 4) Test your application with the following:
  - Insert new entry/delete one of the old entries.
  - Insert another new entry

Please capture the screen shot for the above testing activities and record it in your report.

**Task 3 Threat Modeling (10 marks)**

Using the STRIDE and DREAD threat modelling, please explain and provide justification for how your application can pass through these tests.

**Task 4 PDPA 2010 (10 marks)**

Using PDPA2010, refer to

<https://www.pdp.gov.my/jdpdv2/assets/2019/09/Personal-Data-Protection-Act-2010.pdf>

- a) Categorize the personnel described in Task 1 according to the categorization of the PDPA2010.
- b) For each stage of your company's data lifecycle, map it to the requirements of the PDPA2010, how you will achieve compliance and the personnel who will oversee compliance. Also state the penalties for non-compliance accordingly.

You may use additional references to help you interpret the PDPA2010, but state them in your report and reference them in your text accordingly. You may use diagrams where required.

### **Task 5 Security Measures Implementation (30 marks)**

Based on security measures provided in the SQL database, please specify what are the security measures that your teams have implemented to protect your database from internal and external attacks.

### **Task 6 Presentation (10 marks)**

Present your findings for all the tasks in a maximum of 10-minute video. ALL members of your group must participate in the presentation. Upload your video to YouTube and share the link in the First page of the report.

### **Deliverables:**

1. A PDF document of your complete report.
  - Cover page
  - Your design, and why you chose that design.
  - The step-by-step instructions of how you implemented your design.
2. Please submit your final report in the eBwise by the deadline.
3. Please upload all your codes to GIT Hub.
4. Please paste the YouTube link of your presentation on the cover page of your report.

Marks	Rubric Descriptions	Marks
	<b>Task 1 Preparation of the proposal</b>	20
	Give a concise explanation of the business strategy and accurately state the project's goal. Give a precise explanation of the application's design, hardware specifications, and software. Additionally, make sure to clarify the security precautions needed to safeguard the application.	
	<b>Task 2 Implementation of the application using SQL Database</b>	20
	Provide the entire database structure along with the connections between all necessary operations. All process's data requirements are appropriately matched.	
	<b>Task 3 Threat Modelling</b>	10
	Please accurately assess the produced application using the STRIDE and DREAD threat modelling and assign a suitable score to each category.	
	<b>Task 4 PDPA 2010</b>	10
	Describe the act's goals and how it protects end users. The PDPA-compliant data security controls are appropriately documented.	
	<b>Task 5 Security Measures Implementation</b>	30
	Accurately describe every security precaution that was put in place while developing the application and take a screenshot of the security test findings.	
	<b>Task 6 Presentation</b>	10
	The presentation successfully presents every piece of information from the report.	
<b>Total</b>		<b>100</b>
* Total marks will be standardized among group members based on their contribution to complete the assignment.		