**Assignment Details:**

This assessment is used to examine your ability to appraise critically and apply the concepts and principles of secure object-oriented design to facilitate business security-based decisions.

The word limit is **2000 words.** Ensure you also consider the feedback provided on your formative outline submission.

The aim of this deliverable is to apply the Cyber Security methods and techniques studied during the module to develop a solution to a business problem. The details of the business problem are as follows:

You have just setup an IT consultancy firm specialising in cyber security. You are looking to expand your client base. One of the ways to achieve this is to develop proposals to companies demonstrating the benefits of introducing IT systems in their business.

There is a local grocery shop which serves the catchment area and expanding rapidly. The shop owner is looking for an IT solution to that will enable them to operate efficiently to be able to respond to the rate of growth of the community population. An online shopping system (OSS) could be an option. However, the shop owner is concerned about the recent high rate of cybercrime and the government’s policy on customer data protection.

As director of the consultancy firm, you are looking to develop a proposal to the shop owner detailing the benefits of the OSS as well as the potential problems including potential cyber threats to the system.

**Instructions**

* The proposal must include two UML diagrams showing aspects of the system and **at least two threat modelling techniques** used to identify potential cyber threats and how these are to be mitigated.
* The report should provide a **background to the UML diagrams and modelling techniques and justifications** for their use with supporting references.

**Outcomes**

* Appraise critically and apply the concepts and principles of secured object-oriented design to facilitate business security-based decisions

**Phase 1:**

Create a Report Outline for the essay.

The outline is few sentences structuring the essay.

You can use Visual Paradigm software for UML diagrams(optional at this phase but recommended)

**Due Date: September 17**

**Phase 2:**

-The outline will be revised, and feedback will be given by the instructor.

-Submitting the 2000-word essay with the this:

* The proposal must include two UML diagrams showing aspects of the system and **at least two threat modelling techniques** used to identify potential cyber threats and how these are to be mitigated.
* The report should provide a **background to the UML diagrams and modelling techniques and justifications** for their use with supporting references.

**Due Date: September 27**

**Phase 3:**

implement a Python code of at least one solution recommended as part of the proposal submitted essay. This should include the cyber security technology being used to address the problem, discussing the strengths and weaknesses of the solutions with references to examples in which the technology has been employed.

**Submission Guidance**

Your work can be carried out on your chosen Jupyter platform. Your work can be carried out in your chosen Jupyter platform, but the final submission should be placed here only.

Submission checklist:

* You should supply evidence of execution, demonstrating how key aspects of your code work (via demos, screenshots and output captures).
* You should submit a README file that documents how the application runs (**600 word count**).

File Submission:

* The source code and applicable documentation (including. comments explaining the code). Good programming principles should be applied throughout the code.
* Output from testing tools and suites.
* A README file containing a description of the solution implemented, and instructions on how to execute the code.

Grading criteria (to be reviewed alongside the criteria grid in the Module Resources page) are:

1. Python code, covering
   * Code elegance – is the appropriate approach (techniques, algorithms etc) used? **and**
   * Meeting your chosen solution requirements **(Knowledge and Understanding weighted at 30%) and**
   * Application of object-oriented programming features **and**
   * Test data used to test the code. **(Application of Knowledge and understanding weighted a 30%)**
2. **Structure and Presentation (weighted at 30%)** focuses on
   * comments on the code explaining it,
   * your README file containing a description of the solution implemented and instructions on how to execute the code (**600 words**), and
   * how well you have organised your code

Please note that academic integrity also applies to codes, where all sources can be placed in the README file and/or as part of the code commentary. **(Academic Integrity weighted at 10%)**

**Learning Outcomes**

* Evaluate critically the solutions developed to solve/mitigate security issues

**Due Date: October 15**