# Software Development:

**Object Oriented**

**Programming –**

**Advanced Concepts**

# HL9X35

**Assessment**

**LO 2 & 3**

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| **Student** | |  | | | | | | |
| **I.D.** | |  | | | | | | |
| **Date** | |  | | | | | | |
|  | **Pass** | |  | **Fail** |  | **Remediation** |  |  |
| **Tutor** | |  | | | | | | |

**Assessment task 1**

**Outcomes covered - 2 & 3**

**Assessment task instructions**

**Project instructions**

This assessment is an open-book project covering Outcomes 2 and 3. The project is broken down into two stages.

Stage 1 is the program implementation and Stage 2 is the testing of the completed program.

This assessment will be based upon, and extend, design documentation that was created as part of the Unit *H172 35 Systems Development: Object Oriented Analysis and Design*, or will be provided for you.

The instructions that follow are based upon the design documentation that was produced by you for the *Games Portal Project.*

You are required to design and create a simple GUI (Graphical User Interface) prototype.The design and functional requirements for this prototype and also the Evidence Requirements for this unit are detailed on the following pages.

This project will be carried out under supervised and unsupervised conditions, i.e. you may work on this in your own time. The assessor will check the authenticity of any work you have done unsupervised. This may involve methods such as interviews, demonstrations, checking files, etc. and may be carried out at random and prearranged times.

The assessor will specify the various deadline periods for the project. It is up to you to determine your own deadlines within these. You may decide to work on multiple tasks at the same time but you should try to fully complete and achieve one stage before completing the next. Applying this method of working is good preparation for the HND Graded Unit.

You should read all the Evidence Requirements for each stage and clarify any points with the assessor before you commence the project.

**Outcome 2**

Implement a solution from an object oriented design using specified advanced object oriented techniques.

This is a 2 stage process: Design and Testing

**Stage 1 — Implementation**

**Requirements:**

Implement a Game Portal application. A rudimentary design for this application was created in class in the H172 35 Systems Development: Object Oriented Analysis and Design unit, and a number of dice games were also designed and implemented. You may reuse these designs and classes as appropriate.

This project extends this initial, console-based design, using the techniques we have learned in this unit.

The application should:

* Present a simple user interface to the user, allowing them to
  + Login
  + Choose from a selection of dice games
  + After playing a game, choose to play again or logout
* Create a new Player profile if they have not previously played
* Use basic I/O to persist player details, including a history of scores (the decision whether scores are stored in the Player or the Game class is up to you)
* The initial screen should display high scores for each game (this will require pre-populating some data!)
* Use an MVC type design to separate the View and Model parts of the application
* Demonstrate the basic skills of OO design we learned last semester, along with the new skills we have learned this semester
* You do NOT need to submit updated design documentation, though you may well wish to create documentation for your own use. This is a coding assessment only.
* Because this is a prototype, it may not be necessary to implement all aspects of the application fully, as long as the skills listed below are demonstrated in the application. For example, it would be acceptable for some or all of the dice games to remain console-based, as long as the GUI requirements are met elsewhere. If you are doubtful about whether your prototype meets the requirements discuss this with your lecturer.

Within the above requirements the design of the application is up to you. But it is **essential** that the following skills are demonstrated:

1. Creation and use of at least one Custom Java Interface
2. Use of Generics within your solution. This should involve correct use of at least one generic class from the Java API, and also use of a generic class or method for at least one of your classes in the business domain.
3. Implementation of Standard Exception Handling including at least one User-Defined Exception.
4. The use of a Test Driven Development process using Automated Testing Techniques.
5. Use of Basic File I/O to store the required data associated with the application.
6. An appropriate Graphical User Interface.

**Design of the User Interface:**

This aspect of the prototype is left entirely to your own judgement. However, the User Interface of the prototype must be clear and simple for the user to use. The important factor here is that the required functionality of the prototype must be clearly demonstrated and that you also demonstrate a good grasp of the basic components in building a GUI in Java.

**Outcome 3**

Test the completed product using automated testing techniques

**Stage 2 — Testing**

After completing Stage 1 you are required to test the completed product using automated testing techniques.

You are required to produce:

1. Test plan using a defined strategy
2. Test documentation
3. Results of test runs
4. Evaluation of test results

The test data should be sufficient to adequately test the implemented solution in scope and range.

You will be expected to record and evaluate the results of the test runs. Where there are discrepancies between the expected results and the actual results, the coding must be amended and corrected accordingly.

The test log should identify any areas where the program fails, and detail any fixes and retests required. Include the results of the automated testing runs in your test documentation.

**Submissions Deadlines:**

Your lecturer will advise you of the submission deadline(s) for this assessment.