Games and Digital Media – Mount Druitt

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| **Unit code/s** | ICTPRG418  ICTPRG523  ICTPRG509  ICTPRG529 | **Unit name/s and release number** | Apply intermediate programming skills in another language (Release 1)  Apply advanced programming skills in another language(Release 1)  Build using rapid application development (Release 1)  Apply testing techniques for software development(Release 1) |
| **Assessment Name** | Advanced Programming Project | | |

**Please note that TAFE NSW is required to retain copies of all completed assessments, where practical, for a *minimum* period of three (3) years (or in accordance with regulatory/licencing requirements) after the completion of a learner’s studies. *Refer to procedure to determine the retention period required.***

| **Assessment Instructions** | | **This is assessment event number 2 of** 2 |
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| **Assessment overview** | In this scenario you have been contracted to build a graphical game of Connect Four <https://en.wikipedia.org/wiki/Connect_Four> which is playable by two human players across a network. It will also feature an AI to play against where a human player chooses not to participate. Finally, it should enable player options to customise the visualisation aspect of the game, and support the ability to save your progress to a file and resume it at a later stage.  This project must be professionally managed & built using industry standards including modular coding which is developed using a rapid application development supported methodology. You will need to involve your client in the process, debug and test the product and document all relevant information. | |
| **Instructions for Written Assessment** | See detailed instructions below outlining what you must do for each task. | |
| **Submission instructions** | Upload a completed and signed Assessment Cover Sheet to Moodle at [http://wsionline.wsi.tafensw.edu.au](http://wsionline.wsi.tafensw.edu.au/) | |
| **What do I need to do to achieve a satisfactory result?** | All criteria must be addressed to successfully complete this assessment event. | |
| **Due date** | **Week 18** (Refer to Semester Calendar for Week End Date) | |
| **Assessment feedback, review or appeals** | Feedback must be provided to you no later than 10 days after all assessment activities have been conducted.  If you want a review of your results or if you have any concerns about your results, you can contact the teacher/assessor or your Head Teacher.  You have three weeks from the date you receive your results in which to make an appeal and/or request a review.  You should receive a response within ten days of the receipt of the request.  Teachers and their Head Teacher will address any appeal in accordance with [Assessment Guidelines for TAFE NSW.](https://staff.tafensw.edu.au/policies-procedures/student-administration/assessment-guidelines/) | |

# Specific task instructions

In the sections below, are the details of the report, major assignment, workplan, reflection, portfolio or other items this assessment task requires, as well as the criteria for satisfactory completion.

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| **Task 1: Rapid Application Development** |
| Utilising whichever development methodology you choose, integrate Rapid Application Development practices in order to interact with your client and develop prototypes.  You must meet with your client to determine specific requirements and steer and manage their expectations. You must prototype the design and gather feedback from the client.  Develop prototypical code, which is then presented back to the client for refinement of your direction of development. RAD code should be refactored and polished for the completion of feature prototypes. |
| **Task 2: Development** |
| Develop your code base over a period of time, ensuring you conform to the following requirements:   * Utilise source code control systems in an established workflow * Utilise your own in-house libraries (data structures) where appropriate. Your libraries should be complete/functional and at least one should be used within this project. * Build a graphical user interface that allows the user to play the game. The design of this interface is up to you but must:   + use a variety of standard controls   + Enable saving and restoring the game state, in the case of the server   + use 2D graphics routines that draw primitive shapes and images to represent the game state   + Be customisable in some way as a result of user preference, including specifying their chosen name   + Allow the user to set up the program as a server or client, in the server’s case specifying the port number, in the client’s case forming a connection to a specified server IP/port.   + Allow a player to choose whether they will be human or AI controlled (ideally being able to switch this on and off at any time)   + Validate all input from the user * Form a network connect between server and client program using sockets.   **Quality standards** – your code base should follow industry standard coding practice as a result of diligent refactoring efforts including but not limited to naming, formatting, and rules of thumb surrounding code form and function, and internal documentation. Design your application with a mind for change, focusing on modularity and extensibility. |
| **Task 3: Testing** |
| Plan for testing to be performed at regular intervals (per sprint). Each sprint must feature its own test plan which is executed and the results recorded and reported on at the sprint review. Any bugs or other issues found must be documented and managed within a bug tracking support software.  At a minimum, your test plan must address:   * The features which are to be tested * The method of testing that is to be employed * The test cases including the input data, criteria and expected output * A description of the test environment to be used |

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| Make sure you have written your name on each page of your submission before attaching the cover sheet and submitting to your teacher/assessor for marking |