**Name: Date: Excellence / Merit / Achieved / Not Achieved**

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| **Achieved: Use advanced programming techniques to develop a computer program involves:** | | | |
| Writing code for a program that performs a specified task | Game code  Student interview | The game is created.  Achieved level programs deviate in a few small ways from the sample code.  The student can describe the function of all the code submitted.  *(A tick here indicates that when questioned the student described the code and/or has been observed working with the code)* | ⬜  ⬜ |
| Using advanced techniques in a suitable programming language:  Uses variables storing at least two types of data (e.g. numeric, text, Boolean)  Uses sequence, selection and iteration control structures  Takes input from a user, sensors, or other external source  Produces output | Game code | In a working arcade game these will have occured.  The game uses sprites, spritelists and numeric data.  The code has actions, if statements and while or for loops.  The code takes user and responds to user input.  Graphics are displayed on the screen. | ⬜    ⬜    ⬜  ⬜  ⬜ |
| Uses two or more advanced programming techniques.   * Modifying data stored in collections (e.g. lists, arrays, dictionaries) * Responding to events generated by a graphical user interface (GUI) * Using additional non-core libraries. | Game code | In a working arcade game the following will have occured.   * Modifying data stored in collections (e.g. lists, arrays, dictionaries) * Responding to events generated by a graphical user interface (GUI) * Using additional non-core libraries. | ⬜  ⬜  ⬜ |
| Setting out the program code clearly and documenting the program with comments | Game code | The code follows the main features of the PEP-8 python conventions.   * Blank lines are used to visually break up the code. * Class names use the CapWords convention * Function names should be lowercase, with words separated by underscores * Variable names should be lowercase, with words separated by underscores * Constants are written in all capital letters with underscores separating words * Comments have been used * Comments label parts of the code | ⬜  ⬜  ⬜  ⬜  ⬜  ⬜  ⬜ |
| Testing and debugging the program to ensure that it works on a sample of expected cases. | Game code | If the game functions as expected most of the time testing at an achieved level is assumed to have occured.  Sprint documents show incremental testing of the game | ⬜  ⬜ |
| **Notes on Achieved:** | | | |

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| **Merit: Use advanced programming techniques to develop an informed computer program involves:** | | | |
| Advance programming at merit or above | Game code | Code shows some significant changes from the example code.  Game has some new features implemented. | ⬜  ⬜ |
| Documenting the program with appropriate names and comments that describe code function and behaviour | Game code | The code follows most of the features of the PEP-8 python conventions.   * Variable names are well chosen and help with the reading of the code. * Function names are well chosen and help with the reading of the code. * Comments have been used to describe the behaviour of the code. * Comments have been used to remind the coder what is happening. * Comments summarise each function and describe what it does. | ⬜  ⬜  ⬜  ⬜  ⬜  ⬜ |
| Following common conventions for the chosen programming language | Game code | The code follows most of the features of the PEP-8 python conventions. | ⬜ |
| Testing and debugging the program effectively to ensure that it works on a sample of both expected cases and relevant boundary cases. | Testing log and or diary | Sprint documents show incremental creation of the game.  Sprint documents show players testing out the game.  Sprites can move in and out of corners of the map or walls.  Final testing of the game is completed.  Sprint videos show the parts of the game working as tested.. | ⬜  ⬜  ⬜  ⬜  ⬜ |
| **Notes on Merit:** | | | |

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| **Excellence: Use advanced programming techniques to develop a refined computer program involves:** | | | |
| Ensuring that the program is a well-structured, logical response to the specified task | Game code | The game code is well structured  The game code works in a logical way, following the style of the tutorials. | ⬜  ⬜ |
| Making the program flexible and robust   * Using actions, conditions, control structures and methods, functions, or procedures effectively * Checking input data for validity * Correctly handling expected, boundary and invalid cases * Using constants, variables and derived values in place of literals. |  | Functions are well named  Functions have a clear purpose  Functions split the tasks of the code up into discrete areas  Sprites cannot move off the screen or through the walls.  The game finishes at the correct time.  Constants are well named and used.  Variables are well named. | ⬜  ⬜  ⬜  ⬜  ⬜  ⬜  ⬜ |
| Comprehensively testing and debugging the program. | Testing log and or diary | Sprint documents show incremental creation of the game with tests at most increments.  Sprint documents show players testing out the game and responding to feedback  The game functions as expected. | ⬜  ⬜  ⬜ |
| **Notes on Excellence:** | | | |