**Hull University in association with**

Surname: Tindall

Forename(s): Kai

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date submitted: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**East Riding College**

**Foundation Degree in Computing**

**ASSIGNMENT COVER SHEET**

**2018/2019 ACADEMIC SESSION**

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| Reception anonymous marking code |  |

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| **Registration University Number:**  **(Starts with year of registration eg. 200199999):**  **College Number: 20278932** | | |
| **Location:**  **St Marys Walk** | **Tutor: Phil Earls** | |
| **Module:**  **Object Orientated Programming** | | |
| **Assignment Title:** | | **Word Count:** |

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| --- |
| **Under the University scheme for anonymous marking, your name will remain concealed until after your assignment has been marked. Please print your name clearly in the box at the top right hand corner, then sign, fold and seal. *Your student registration number from your student card must be entered clearly in the box provided and written on each sheet of your assignment.*** |

**For work submitted by hand**, read the following statement and sign and date in the box above. This signature is understood as compliance with the statement. **For work submitted online** … read the following statement, complete the details required and attach this document to your work. Submission of this completed form as an attachment to your work will be understood to be equivalent to signing the form in person.

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| I declare that the work I am submitting for assessment contains no section copied in whole or in part from any other source unless it is explicitly identified by means of quotation marks, or in the case of very long quotations, by means of wholly indented paragraphs. I declare that I have also acknowledged such quotations by providing detailed references in an approved format. I understand that unidentified and unreferenced copying both constitute plagiarism, which is one of a number of very serious offences under the University of Hull’s Code of Practice on the Use of Unfair Means - www.hull.ac.uk/handbook |

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Object Orientated Programming

Scenario

Kai Tindall

2020

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# Scope

This document will seek to explain the scenario of this assignment and the deliverables I must provide at the point of submission.

# Deliverables

To complete this assignment, I must provide at the point of submission:

* An explanation of the scenario and a reason why it would be a good idea to undertake a modular approach while designing and developing my solution.
* A specification for the scenario.
* A solution design for the scenario, which explains where and why I will be using the following concepts:
  + Encapsulation
  + Inheritance
  + Polymorphism
* A class diagram of my intended solution, this may be attached to the solution design.
* A completed solution that is commented, and where appropriate a higher level of commenting to highlight important concepts, such as core object orientated programming concepts.

# Scenario and Modular Programming Approach

Scenario

The scenario for this assignment is that I need to create a game using the MonoGame framework that is based on three words I pulled from a hat. My words for this assignment are as follows:

* Squirrel
* Crown
* Fire

Advantages of MOdular Programming

The reason why it’s a good idea to use a modular approach to this is that games usually have a lot of similar elements that can benefit from using shared code, this helps with maintainability, such as if you need to change how those elements work then you only need to change the base code and that change will propagate throughout the codebase easily. This helps the programmer hold to the DRY (Don’t Repeat Yourself) principle too, as you only need to write once, and then you can use it again whenever you want.

It also helps with the KISS (Keep It Simple, Stupid) principle as you can use encapsulation to close off aspects of your code to make it easier to use modules in the future as there’s less guessing involved in how new code should interact with existing modules.

Unit testing is also easier with a modular program as it doesn’t rely on environment code, you can literally just plug in values and see if you get the expected result from your module, if not, you know it has a bug in it. This is also useful in debugging from the same reason.