**Stage 1 Digital Technologies**

**Assessment Type 1: Project Skills**

**Product Design Plan: Advanced Role-Playing Game Features**

**Purpose**

In the previous task, you created a basic game design, which contained the basic elements that make up an RPG. In this task, you will learn additional skills to create a more advanced educational game for children, building on the previous game skeleton.

The purpose of this task is to determine the necessary requirements needed to create a more advanced RPG that takes into consideration randomness and collision detection and avoidance.

**Assessment Description**

* Learn more advanced skills required to extend and improve your RPG. These skills will include the addition of arrays, randomness, collision detection and avoidance, etc. Analyse the algorithms learnt and extensions required in applying them to your product.
* Update your design brief with the additional features that you wish to include.
* Update your original design plan to include:
* modifications and extensions to your original project ideas, flowcharts, relationship/object diagrams, or similar (as appropriate)

*(Note: these diagrams can be created using https://www.draw.io)*

* for each feature/component, identify attributes and algorithms using pseudocode and/or UML diagrams

*(Note: these diagrams can be created using https://www.draw.io)*

* the order features could be developed.
* Create a development portfolio, which includes the design process.

**Assessment Conditions**

* Updated design brief and plan.
* Portfolio containing the design process used and justification of game additions and modifications.

**Assessment Design Criteria**

CT1 Application of computational thinking skills to explore problems and possible solutions

CT3 Analysis of patterns and relationships in data sets and/or algorithms to draw conclusions

DE1 Development and application of program-design skills to create a digital solution or prototype

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|  | **Computational Thinking** | **Development and Evaluation** | **Research and Ethics** |
| **A** | Insightful and sustained application of computational thinking skills to explore problems and possible solutions.  Focused development and strategic application of a wide range of programming skills to create a digital solution or prototype.  In-depth analysis of patterns and relationships in data sets and/or algorithms to draw insightful conclusions. | Purposeful and well-considered development and application of program-design skills to create digital solutions or a prototype that include innovative features.  Insightful evaluation of the effectiveness of a digital solution or prototype.  Insightful and proactive contribution to collaborative work. | In-depth research into and discussion of the ethical considerations in digital solutions and/or data use. |
| **B** | Some insights in the application of computational thinking skills to explore problems and possible solutions.  Thorough development and well-considered application of a range of programming skills to create a digital solution or prototype.  Some depth in analysis of patterns and relationships in data sets and/or algorithms to draw well-informed conclusions. | Well-considered development and application of program-design skills to create digital solutions or a prototype that include one or more innovative features.  Well-considered evaluation of the effectiveness of a digital solution or prototype.  Mostly consistent and effective contribution to collaborative work. | Some depth in research into and discussion of the ethical considerations in digital solutions and/or data use. |
| **C** | Application of computational thinking skills to explore problems and possible solutions.  Competent development and application of programming skills to create a digital solution or prototype.  Description, with some analysis of patterns and relationships in data sets and/or algorithms, to draw generally informed conclusions. | Development and application of program-design skills to create digital solutions or a prototype that may include one or more innovative features.  Description, with some evaluation of the effectiveness, of a digital solution or prototype.  Effective contribution to collaborative work. | Considered research into and discussion of the ethical considerations in digital solutions and/or data use. |
| **D** | Some application of basic computational thinking skills to describe problems and possible solutions.  Basic development and some application of programming skills to create one or more partial solutions or prototypes.  Basic description of patterns and relationships in data sets and/or algorithms to draw one or more basic conclusions. | Some development and application of program-design skills to create one or more partial solutions or prototypes.  Basic description of a digital solution or prototype and one or more aspects of its effectiveness.  Some contribution to collaborative work. | Basic research into and discussion of the ethical considerations in digital solutions and/or data use. |
| **E** | Attempted application of a limited number of simple computational thinking skills to describe a problem and/or possible solution.  Attempted development and/or application of basic programming skills.  Attempted description of one or more patterns and relationships in data sets and/or algorithms. | Attempted development and application of program-design skills.  Attempted description of a digital solution or prototype.  Limited contribution to collaborative work. | Attempted discussion of an ethical consideration in digital solutions and/or data use. |