



## 10 Computing Technology

### Task 2: Game Project

**Due Date:** Thursday 5 Jun 2025 Week 6B Term 2

<b>Task Distributed:</b> 6/05/2024	<b>Unit:</b> Creating Games and Simulations
<b>Task Type:</b> Project	<b>Task Weighting:</b> 25%
<b>Outcomes:</b> <ul style="list-style-type: none"><li>● <b>CT5-SAF-01:</b> selects and applies safe, secure and responsible practices in the ethical use of data and computing technology</li><li>● <b>CT5-DPM-01:</b> applies iterative processes to define problems and plan, design, develop and evaluate computing solutions</li><li>● <b>CT5-COL-01:</b> manages, documents and explains individual and collaborative work practices</li><li>● <b>CT5-COM-01:</b> communicates ideas, processes and solutions using appropriate media</li><li>● <b>CT5-OPL-01:</b> designs, produces and evaluates algorithms and implements them in a general-purpose and/or object-oriented programming language</li><li>● <b>CT5-DES-01:</b> designs and creates user interfaces and the user experience</li></ul>	

### Task Description

In this project, you will design and develop a 2D arcade style game using Python and the PyGame library to demonstrate the producing and implementing stages.

Students base their game off one from the 2D Python game options below or create your own game:

- [Chase game](#)
- [Maze game](#)
- [Race game](#)

## Part A - Folio:

You are required to complete a project portfolio which addresses the following:

### Identifying and defining:

- Identify the need for the 2D arcade game.
- Define the problem and requirements of your 2D arcade game.
- Propose a solution for your 2D arcade game

### Researching and planning:

- Research 2 existing arcade games focusing on game elements that are included in these games that can be implemented into your game.
- Detail the logic for part of your game using either a flowchart or pseudocode.

### Gantt chart:

- Create and implement a Gantt chart to show actual work over the project/time frame.

### Record of project development:

- A detailed record of work done showing times and dates (log book) which includes screenshots of the development of your Python game clearly demonstrating iterative design and evaluation.

### Testing:

- Produce evidence, in the form of screenshots, to show that you have checked your product for errors, utilised error correction and are confident that it functions correctly under different circumstances.

### Evaluation:

- Gather feedback from 3 peers, using Google Forms, to gather feedback on your game.
- Evaluate your final product and how well you believe it meets the requirements for your product as set out in the identifying and defining section of your portfolio.

### Film

- Using the built-in Xbox Game Bar to record your game with a voice over explaining gameplay mechanics, graphics and sound you have utilised in your game.

## Part B - Game:

You are required to complete the following practical components:

### Implementing:

- Produce an arcade-style game with a menu, clear objective, score tracker and appropriate screens using the Python programming language.
- Gameplay Mechanics
  - Include player controls (e.g., keyboard or mouse input).
  - Implement at least TWO game mechanics listed below:
    - Scoring system and/or
    - Increasing difficulty levels and/or
    - Collectibles or power-ups and/or
    - Obstacles or enemies.
- Graphics and Sound
  - Use sprites for the player, objects, and background.
  - Incorporate sound effects and background music.
  - Include animations for at least one element (e.g., player movement or an enemy).
- Python Code
  - Using VSCode, Python and the PyGame library create your 2D arcade style game utilising functions and/or classes with appropriate intrinsic and internal documentation.

## Part C - Class Presentation:

After formally submitting **Part A, B and C**. You will need to give a **3 minute** presentation to the class explaining your project and the unique features of your game. Prepare to be asked questions on coding design, elements of the game and key aspects of your folio.

**NOTE: Your folio will be assessed against the Literacy Marking Criteria included in this task.**

## NESA Glossary of Key Words

Understand the verb associated with the task. The verb will provide an understanding of the detail needed to successfully answer the question.

- **Describe:** Provide characteristics and features.
- **Evaluate:** Make a judgement based on criteria. Determine the value of.

Check the NESA Glossary of Key Words for further guidance  
<https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/hsc-student-guide/glossary-keywords>

## Details of Submission:

### All materials submitted to Moodle:

- Submit the Python script(s) and all required assets (images, sounds, etc.) in a zipped folder.
- Include a README file with instructions on how to run your game.
- Submit the Game Folio as a PDF.
- Record of Production as a PDF

## Teacher Feedback and Student Self-Reflection

- The task will typically be returned to students within 14 Days of the due date.
- At this time feedback including information on how to improve will be provided through Google Classroom for details of feedback.
- Students can clarify or seek further feedback by the speaker with their teacher or the assessment marker.
- You will also receive feedback on your literacy performance based on the criteria in the school's literacy marking rubric. The marks achieved for literacy will account for between 10% – 20% of the maximum task value.

Upon return of the task and teacher feedback, students will also be expected to complete the following self-reflection form, to provide them with the opportunity to reflect on the strength of their performance, as well as areas that have been identified to strengthen in future tasks - <https://forms.gle/oBnPJ8EsGLTQZm7Z8>

## How does this link to my learning?

- Enhanced Understanding: Deepen their comprehension of the subject matter by applying it practically.
- Skill Development: Improve critical thinking, analytical, and problem-solving skills.
- Practical Application: Gain experience in applying classroom theories to real-world contexts.
- Collaboration: Develop teamwork and communication skills if the task involves group work.
- Self-Assessment: Reflect on their learning process and identify areas for improvement.

## Assessment Procedures

All students should be fully aware of the School Assessment Procedures for their year group. These were provided at the beginning of the school year and are available off the school website under the Learning Tab for each year group.

**Part 1 - Folio:**

<b>Criteria</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Identify and defining</b>	Some requirements of the game have been identified.	A basic explanation of the requirements of the game is provided.	An outline of the problem and needs of the user is provided.	A thorough discussion of the problem and requirements of the player is provided.	An extensive identification of the problem and the needs of the player is provided.
<b>Research and planning</b>	Some existing products have been listed but in a very limited way. An attempt has been made to identify aspects of logic in the game.	A basic listing of relevant existing products with some mention of their game design elements. The logic that is trying to be expressed is evident though there are errors in its presentation.	A sound analysis of relevant existing products, outlining their relevance to the intended game. Generally correct and valid representation of a part of the processing.	Effective research into 2 existing products. Mostly correct and valid representation of a significant feature of the game.	Highly effective research into 2 existing and relevant products with evidence of their game design elements and the possible implementation into the game. Correctly presented and methodical outline of logic for a complicated part of the game is provided.
<b>Gantt chart</b>	A limited plan has been provided with some elements of a Gantt chart present.	A general plan for the work to be completed has been provided with some record of actual timings for tasks that are performed.	The Gantt chart is sound and has generally logical timings for the work to be completed. Most timings for actual work are documented.	The Gantt chart is clear and neat and presents a thorough plan for the work and an accurate representation of actual timings for work completed.	The Gantt chart is presented in an easy-to-read manner with a methodical plan for the work and an accurate representation of actual work completed. Additional features are implemented to increase the usefulness of the chart.
<b>Record of project development</b>	Provides an elementary or incomplete record of project development.	Identifies parts of the record of project development. Includes some screenshots.	Outlines the record of project development and includes some evidence of the iterative design process. Provides an outline and dated entries including some screenshots.	Describes record of project development clearly showing the iterative design process and ongoing evaluation. Provides a description and dated entries including screenshots.	Clearly describes the record of project development clearly showing the iterative design process and ongoing evaluation. Provides a clear and detailed description and dated entries including screenshots.
<b>Testing</b>	Elements of testing are present.	Elements of the product that have been tested are identified and an attempt at testing is documented.	The product has been soundly tested, demonstrating that most major errors have been identified and corrected.	Thorough testing of most aspects of the game with broad test data has been documented.	Solid evidence of testing all aspects of the product with cleanly documented results.

<b>Evaluating</b>	An attempt at peer feedback was documented. Very limited discussion of the quality of the final product.	Some peer feedback is documented. Links between the final product and the originally stated requirements are provided.	Conducted some peer feedback. The evaluation outlines how the final product generally meets the requirements as originally stated.	Conducted peer feedback with minimal evidence of applied feedback. A final evaluation that makes honest and accurate judgements on how the product meets the originally stated needs.	Conducted and applied peer feedback with the final evaluation being honest with thorough judgements on how effectively the product meets the originally stated requirements and overall quality.
					<b>Total /30</b>

**Part B - Game:**

Criteria	1-2	3-4	5-6	7-8	9-10
<b>Code (Python)</b>	A limited attempt to create a product through coding. Coding does not compile or run.	A game that partly functions. Presents an arcade-style game. Includes poor internal and intrinsic documentation. Code contains some logical errors.	A game that mostly functions. Presents a somewhat engaging arcade-style game that utilises functions. Includes somewhat effective internal and intrinsic documentation.	A game that functions with well written and efficient code, that presents an effective and engaging arcade-style game that utilises appropriate OOP programming concepts as well as effective internal and intrinsic documentation.	A game that functions with well written and highly efficient code, that presents a highly effective and engaging arcade-style game that utilises appropriate OOP programming concepts as well as highly effective internal and intrinsic documentation.
<b>Gameplay Mechanics</b>	Attempts to include ONE of the gameplay mechanics such as scoring system or increasing difficulty levels or collectibles or power-ups or obstacles or enemies.	Includes TWO of the gameplay mechanics that partially function as expected such as scoring system and/or increasing difficulty levels and/or collectibles or power-ups and/or Obstacles or enemies and/or includes player controls that partially function as expected.	Includes TWO of the gameplay mechanics that mostly function as expected such as scoring system and/or increasing difficulty levels and/or collectibles or power-ups and/or Obstacles or enemies and/or includes player controls that mostly function as expected.	Includes TWO of the gameplay mechanics that function as expected such as scoring system and/or increasing difficulty levels and/or collectibles or power-ups and/or Obstacles or enemies and/or includes player controls that function as expected.	Includes more than two of the gameplay mechanics that function as expected such as scoring system and/or increasing difficulty levels and/or collectibles or power-ups and/or Obstacles or enemies and/or includes player controls that function as expected and are smooth and initiative.

<b>Graphics and Sound</b>	Attempts to include ONE graphic or sound element in the game.	Uses a non original sprites for the player, enemy, obstacles, and background. Incorporates some sound effects and/or background music.	Uses a mix of original and non original sprites for the player, enemy, obstacles, and background. Incorporates sound effects and background music. Includes animations for some elements used in the game.	Uses a range of original sprites for the player, enemy, obstacles, and background. Incorporates appropriate sound effects and background music. Includes appropriate animations for most elements used in the game.	Uses a wide range of original sprites for the player, enemy, obstacles, and background. Incorporates highly appropriate sound effects and background music. Includes highly appropriate animations for all elements used in the game.
					<b>TOTAL /30</b>

**Part C - Class Presentation:**

Criteria	1	2	3	4	5
<b>Presentation Delivery</b>	Limited structure, unclear communication, little eye contact or engagement.	Basic structure and effort to explain ideas, limited engagement.	Outlines Clear delivery with logical flow, some use of visual aids, and maintains audience attention.	Thoroughly confident and well-paced delivery, good use of visuals, effective engagement.	Extensive delivery, confident speaking, excellent use of visuals to enhance understanding.
<b>Explanation of Game Concept &amp; Unique Features</b>	Limited explanation of vague or minimal description of the game idea.	Basic description of the game idea with limited detail or clarity.	Outlines a clear explanation of the game concept and identifies some unique features.	Thoroughly outlines the game idea and explains multiple unique or innovative features.	Extensive insightful, creative explanation of the game concept with a strong focus on originality and design thinking.
<b>Understanding of Coding Design</b>	Limited or no explanation of code; unclear understanding.	Basic explanation of some code components; general understanding shown.	Outlines key parts of the code and how they relate to the game; shows sound understanding.	Thoroughly understanding of the coding structure, logic and key functions used.	Extensive understanding of code; clearly explains how design decisions were implemented technically.
<b>Knowledge of Game Elements (graphics, sound, controls, UI etc.)</b>	Limited awareness of game elements or how they were used.	Basics game elements but lacks detail or clarity.	Outlines several elements with clear links to design choices.	Thoroughly explains how game elements support user experience and game function.	Extensive in-depth analysis of how all elements were purposefully integrated to enhance gameplay.
<b>Discussion of Folio and Record of Production (e.g. planning, testing, feedback)</b>	Limited or no reference to folio work and/or record of production	Basic discussion to a few folio and/or the record of production components without depth.	Outlines planning and some testing or feedback with relevant examples.	Thoroughly links folio and record of production work to final game design, including use of feedback and testing.	Extensive understanding and reflection on the folio process; detail on their record of production and clearly connects each stage to the game outcome.
					<b>TOTAL /25</b>

# Literacy Criteria

Literacy Outcomes	Elementary achievement You have:	Limited achievement You have:	Satisfactory achievement You have:	High achievement You have:	Outstanding achievement You have:
<b>Vocabulary</b> <i>Uses technical vocabulary to explain concepts and/or range of precise and appropriate words for effect</i>	Very limited response. Few content words used.	Only simple words are used.	Some precise and technical words are used.	Sustained use of precise and technical words.	Sustained, consistent and fluent use of precise and technical words.
	0	0.25	0.50	0.75	1
<b>Punctuation</b> <i>Use of correct and appropriate sentence and other punctuation for effect, and to aid in reading of the text</i>	No evidence of correct sentence punctuation.	Sentence punctuation is correctly used in at least one place - <i>one sentence is punctuated correctly.</i>	Some correct sentence level punctuation (at least 50%). May attempt other punctuation where it is required.	Mostly correct sentence level punctuation (80%) and at least two correct examples of other punctuation.	Writing contains accurate use of all applicable punctuation.
	0	0.25	0.50	0.75	1
<b>Sentences &amp; Cohesion</b> <i>The intentional construction of a variety of sentences to match purpose and audience, and the control of multiple sentence threads across the whole text.</i>	No clear evidence of sentences: a list of words OR text fragments.	At least one sentence is used correctly. Some meaning can be construed from the text.	Some correct formation of sentences. Mainly uses simple and compound sentences, but may attempt more complex structures.	Most sentences are correct. Range of sentence types and connectives are evident, but with varied effectiveness.	All sentences are correct, effective and controlled, and include a range of sentence types and connectives (complex sentences and other sophisticated structures)
	0	0.25	0.50	0.75	1
<b>Paragraphs</b> <i>Paragraphs are used to effectively structure information and partition events and ideas</i>	No correct use of paragraphing; may be a block of text or random breaks.	Ideas are separated; paragraphs may contain some unrelated ideas.	At least ONE paragraph is well structured and develops an idea	Writing is organised into paragraphs that assist the reader to digest chunks of the text, but may not be linked or executed effectively.	All components of the paragraphs are evident and paragraphing is consistent and well-developed across the whole text.
	0	0.25	0.50	0.75	1
<b>Text Structure</b> <i>Uses features of the appropriate text type. No attempt to write in the appropriate text type and/or response is off task.</i>	No evidence of the structural features of the appropriate text type. <i>No attempt to write in the appropriate text type and/or response is off task.</i>	Minimal evidence of the structural features - <i>1 component evident</i> - of the appropriate text type.	Some evidence of the structural features - <i>2 components evident</i> - of the appropriate text type.	Substantial evidence of the structural features - <i>all components evident but there may be some lapses</i> - of the appropriate text type.	Coherent and controlled use of <b>all</b> the appropriate structural features of the text type.
	0	0.25	0.50	0.75	1
	Level of response is well below syllabus expectation	Level of response is below syllabus expectation	Level of response is equivalent to syllabus expectation	Level of response is above syllabus expectation	Level of response is well above syllabus expectation
<b>Literacy Criteria Total</b>					<b>/5</b>
<b>GRAND TOTAL</b>					<b>/90</b>