

Patrician Brothers' College Fairfield
Year 10 Information and Software Technology

Task Name: <i>Adobe Flash Program</i> Weighting: 20% Unit: Software Development & Programming Marks: 50 Due Date:	Outcomes to be assessed:	Marks
	5.2.1 Describes and applies problem-solving processes when creating solutions	20
	5.2.2 Designs, produces and evaluates appropriate solutions to a range of challenging problems	20
	5.2.3 Critically analyses decision-making processes in a range of information and software solutions	6
	5.5.2 Communicates ideas, processes and solutions to a targeted audience	4

Task Description:

You are applying for a job at MobiGems as a contracted games developer for mobile phones.

Before you can get the job however, you must submit a prototype game for examination.

MobiGems has stipulated that the prototype **MUST** be one of the following projects:

(These projects are ordered by difficulty and this will be taken into account when your project is assessed)

Maze

A maze is shown on the screen. The user must move their mouse through the maze, without touching the sides. If the user touches the sides, a life is lost. If the user loses all their lives, a game over screen is shown with the option to retry. When a level is completed, a congratulations message is shown and the user is taken to the next level. The game should have at least 3 levels.

Requirements:

- Mouse moves through maze
- If mouse touches a side, a life is lost.
- If a user loses all lives, a game over screen is shown.
- If a level is completed, a new level is loaded.
- **MUST** contain 3 or more levels

Mouse Accuracy Training

The player is shown a background with a variety of targets on display. When a target is clicked, it disappears and the player receives points according to what the target was. When all targets have been clicked, a final score is shown. Points should be a reflection of both speed AND accuracy. The game should have at least 2 **themed** levels.(eg. clicking birds and bottles on a wild west backdrop or clicking space aliens with a starry sky backdrop.)

These levels should be selectable from the title screen.

Requirements:

- A number of targets are shown on the screen
- Player clicks targets and is scored on speed and accuracy
- Two or more themed levels
- Levels should be selectable from the main screen.

Hi-Lo

The computer generates a 'secret' number from 1 to 20 inclusive. The game asks the user for their name and then the user tries to guess the number in as few tries as possible. If a guess is above the 'secret' number, the message *Hi* is printed. If the guess is below the 'secret' number the message *Lo* is printed. The game continues until the correct number is guessed and then a message is printed which tells the user how many tries it took to guess the number along with the secret number.

Requirements:

- Random number generated between 1-20 inclusive
- Player is able to enter a guess
- If the guess is too low, 'LO' is displayed
- If the guess is too high, 'HI' is displayed
- When a player guesses the number, a message displaying how many attempts it took for the to guess it.

Top-Down Racer

A car is controlled by the player using the keyboard and is to be driven around a track through a series of checkpoints. The race is to be timed with each checkpoint recording what time the vehicle passed through it. At the end of the race, a final time is to be shown along with the fastest lap. At least 3 tracks must be playable and selectable from the main menu.

Requirements:

- Controllable car must be drivable around a track
- Each track must have a collection of checkpoints
- Each checkpoint must show what time the player passed through it
- A final time must be displayed at the completion of the race as well as a fastest lap(if applicable)
- At least 3 tracks must be playable and selectable from the main menu

Side-Scroller

A vehicle is controlled by the player using the keyboard or mouse. The background will scroll and targets will be randomly generated from the side of the screen and move in the players direction. When the player presses the action button, the vehicle will launch a projectile. If this projectile touches a target, the target is captured and the player receives points. Each level should go for approximately 30 seconds and there should be 3 or more levels. If a target touches the player, the player loses a life. If all lives are lost, a game over screen is shown with an option to continue or quit.

Requirements:

- A controllable vehicle
- Scrolling background
- Randomly generated targets that move towards the player
- The ability to launch projectiles at the targets
- When a projectile touches a target, it is removed and points are given to the player
- If a target touches a player, a life is lost.
- If a player loses all lives, a game over screen is shown
- At least 3 levels of approximately 30 seconds each

Custom Project

If an applicant wishes to make a prototype that is not from this list, they must first write a proposal of their idea and submit it for approval to an authorised party.

PROJECT-WIDE SPECIFICATIONS

Regardless of which prototype you choose to make, they must ALL follow these rules:

Created using Adobe Flash CS5

Must contain a title or welcome screen

Must contain a screen showing all controls and instructions on how to play the game

Must contain a screen congratulating the user when the game is successfully completed

Must contain **appropriate** music and sound effects

Specific Instructions

1. Define the Problem (Outcome 5.5.2)

- Write a problem statement that outlines the requirements of the game.
- Identify who the target audience is of the prototype and describe how you will cater for this audience.

2. Design the Solution (Outcome 5.2.1)

- Create a Gantt chart for the scheduling of the process to outline all the steps involved in creating the solution.
- Create an IPO chart for the game.
- Write an algorithm(s) for the game using all control structures in pseudocode or flowchart.
- Desk Check the algorithm.
- Create a plan of the interface you anticipate to use and outline all the objects names, positions, text sizes and colour of all objects on the interface including the form.

3. Produce the Solution (Outcome 5.2.2)

- Create the user interface using Adobe Flash CS5.
- Write the code for the game.
- Test your program and document how successful or unsuccessful the testing process was.
- Create a manual for your prototype as well as a cover graphic.

4. Evaluate the Solution (Outcome 5.2.3)

- Write at least two paragraphs about any improvements or modifications you could make.
- Outline any challenges or issues you were faced with during the development process and describe how they were overcome.

ASSESSMENT CRITERIA/MARKING SCHEME

Software Development & Programming

1: Define the Problem (Outcome 5.5.2)

Grade	Mark	Criteria
A	4	Demonstrates extensive knowledge and understanding of the problem by clearly describing the requirements of the game. Selects and appropriately justifies the target audience for the game.
B	3	Demonstrates substantial knowledge and understanding of the problem by clearly describing the requirements of the game. Selects and considerably justifies the target audience for the game.
C	2	Demonstrates satisfactory knowledge and understanding of the problem by clearly describing the requirements of the game. Minimal justification given in regards to the target audience.
D	1	Rough notes outlining some requirements of the problem and the target audience.
E	0	Not attempted

2: Design the Solution (Outcome 5.2.1)

Grade	Mark	Criteria
A	20 - 17	<ul style="list-style-type: none">▪ Develops a well-constructed Gantt chart for the scheduling of the process including ALL necessary steps. (4 marks)▪ Develops a well-constructed IPO chart with ALL inputs, processes and outputs in the correct columns and error free. (4 marks)▪ Writes a well-structured algorithm using all control structures with correct indentations and no logical errors. (6 marks)▪ Effectively Desk checks the algorithm allowing a clear and concise walkthrough of the algorithm.(2 marks)▪ Demonstrates extensive understanding of good screen design and applies meaningful names to objects. (4 marks)
B	16 - 13	<ul style="list-style-type: none">▪ Develops a well-constructed Gantt chart for the scheduling of the process with no more than TWO steps missing or in the incorrect order.▪ Develops a well-constructed IPO chart with MOST inputs, processes and outputs in the correct columns and error free.▪ Writes a well-structured algorithm using all control structures with correct indentations but some minor logical errors.▪ Desk checks the algorithm allowing a clear and concise walkthrough of the algorithm.▪ Demonstrates a thorough understanding of good screen design and applies meaningful names to objects.
C	12 - 9	<ul style="list-style-type: none">▪ Demonstrates a satisfactory understanding of a Gantt chart. The Gantt chart does not document the correct stages of the process.▪ Develops an IPO chart with inconsistencies between the Inputs, process and outputs.▪ Writes an algorithm using at least TWO control structures. Some inconsistency with indentations and logical errors.▪ Demonstrates a satisfactory understanding of good screen design, with inconsistencies in the naming of objects.

D	8 - 5	<ul style="list-style-type: none"> ▪ The Gantt chart does not document the correct stages of the process. ▪ Draws an incorrect IPO chart that does not define the problem. ▪ Attempted algorithm with BEGIN and END but structure incorrect. ▪ Demonstrates an unsatisfactory understanding of screen design and naming conventions for objects.
E	4 -1	<ul style="list-style-type: none"> ▪ Demonstrates a trivial understanding of how to design and plan a solution to meet the needs of problem statements.

3. Produce the Solution (Outcome 5.2.2)

Grade	Mark	Criteria
A	20 - 17	<ul style="list-style-type: none"> ▪ Develops a well-constructed user interface in Adobe Flash that uses good choice of font size, colour and positioning. (4 marks) ▪ Develops a well-constructed Adobe Flash code with extensive use of intrinsic and internal documentation.(10 marks) ▪ Demonstrates an extensive understanding of the testing process through use of tables or paragraphs. (2 marks) ▪ Creates a robust manual and creative cover graphic for the game.(4 marks)
B	16 - 13	<ul style="list-style-type: none"> ▪ Develops a user interface in Adobe Flash that uses good choice of font size, colour and positioning. ▪ Develops a well-constructed Adobe Flash code with substantial use of intrinsic and internal documentation. ▪ Demonstrates a substantial understanding of the testing process through use of tables or paragraphs. ▪ Creates a Robust manual and cover graphic for the game
C	12 - 9	<ul style="list-style-type: none"> ▪ Develops a user interface in Adobe Flash that needs improvements in choice of font size, colour and positioning. ▪ Develops a Adobe Flash code with satisfactory use of intrinsic and internal documentation. ▪ Demonstrates a satisfactory understanding of the testing process through use of tables or paragraphs. ▪ Creates a manual and cover graphic for the game
D	8 - 5	<ul style="list-style-type: none"> ▪ Develops a user interface in Adobe Flash that needs improvements in choice of font size OR colour OR positioning. ▪ Develops a Adobe Flash code with satisfactory use of intrinsic OR internal documentation. ▪ Demonstrates a basic understanding of the testing process through use of tables or paragraphs. ▪ Creates a basic manual for the game.
E	4 -1	<ul style="list-style-type: none"> ▪ Attempts to create a non-functioning user-interface. ▪ Attempts to solve the problem using Adobe Flash code. ▪ No evidence of testing. ▪ Creates a poor manual for the game.

4: Evaluate the Solution (Outcome 5.2.3)

Grade	Mark	Criteria
A	6	Demonstrates extensive knowledge and understanding of the evaluation process by documenting any improvements or modifications that could be made (3 marks), outlines any challenges or issues faced during the development process and describes how they were overcome. (3 marks)
B	5	Demonstrates substantial knowledge and understanding of the evaluation process by documenting any improvements or modifications that could be made, outlines any challenges or issues faced during the development process and describes how they were overcome.
C	4	Demonstrates satisfactory knowledge and understanding of the evaluation process by documenting any improvements or modifications that could be made, outlines any challenges or issues faced during the development process and describes how they were overcome.
D	3 – 2	Demonstrates limited knowledge and understanding of the evaluation process by documenting any improvements or modifications that could be made and outlines any challenges or issues faced.
E	1 - 0	Rough notes regarding the evaluation process including some problems faced.

