# FUPR POF2

# Assessment Spring 2025 (30% of final grade)

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| Name: |

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| Candidate No: |

**Instructions**

Ensure you answer all the questions.

You must submit the report on Canvas.

**Declaration of originality**

By submitting this work, I declare that:

This assignment is my own original work, except where I have appropriately cited any original sources.

I have not sought help from anyone else, nor have I allowed my work to be copied.

I have not submitted this work as a summative assessment for any other module.

I will participate in academic integrity processes, including any online interviews by video conference, as required to confirm the submitted work is my own.

If you use any generative AI in the programming task you must indicate which AI you used and any prompts you used.

**For the sections where is says ‘In your own words’ generative AI may not be used.**

Students registered with the Disability Advice team and in receipt of reasonable adjustments are still permitted to use other assistive technology as required.

**Task One: Main Class**

The **Main class** is responsible for initializing the application and setting up the necessary components for launching the GUI.

**Tasks:**

1. Initialize the application.
2. Ensure seamless integration with InputForm and OutputForm.

**1.1 Paste your code here:**

Your code must be fully commented in your own words. [10 marks]

**Answer the following questions in your own words:**

* 1. How does the Main class initialize the application?

[5 marks]

* 1. How does the Main class ensure smooth navigation between InputForm and OutputForm?

[5marks]

**Task Two: InputForm Class**

The **InputForm class** presents a random number challenge and accepts user input.

**Tasks:**

1. Load the necessary resources such as the predefined source file containing random numbers (1-20).
2. Display a random number and prompt the user for input.
3. Accept user input via JTextField.
4. Validate user input and trigger the OutputForm.

**2.1 Paste your code here:**

Your code must be fully commented in your own words.

[20 marks]

**2.2 Paste your output here:**

[7 marks]

**Answer the following questions in your own words:**

* 1. Why is it important to load numbers from a predefined source file?

[3 marks]

* 1. What mechanisms are used to validate user input?

[3 marks]

* 1. How does the InputForm handle case-insensitive inputs?

[3 marks]

**Task Three: OutputForm Class**

The **OutputForm class** displays results and allows the user to retry or exit.

**Tasks:**

1. Display feedback based on the user’s input.
2. Provide a **Back or Retry** button to retry.
3. Provide a **Quit** button to exit the application.
4. Display an image if the answer is correct.

**3.1 Paste your code here:**

Your code must be fully commented in your own words.

[20 marks]

**3.2 Paste your output here:**

[7 marks]

**Answer the following questions in your own words:**

* 1. How does the OutputForm provide feedback to the user?

[3 marks]

* 1. How does the application ensure the Quit button properly exits both forms?

[3 marks]

**Testing and Debugging**

* 1. How did you handle form transitions and event handling?

[3 marks]

* 1. What challenges did you encounter, and how did you resolve them?

[3 marks]

* 1. Include sample test cases validating correctness.

[5 marks]