

APPENDICES

APPENDIX A – SOURCE CODE

```
import java.awt.*; import java.awt.event.*;

import java.util.Random;

public class MyGame { private Frame frame;
private TextField rangeFieldMin, rangeFieldMax, guessField;
private Label messageLabel, guessLabel, attemptsLabel; private
Button startButton, guessButton, resetButton;
private int targetNumber, attempts, minRange, maxRange;
private boolean isGameRunning;

public MyGame() {
frame = new Frame("Number Guessing Game");
frame.setSize(400, 300);
frame.setLayout(new GridLayout(6, 1));
frame.addWindowListener(new WindowAdapter() { public void
windowClosing(WindowEvent e) {
System.exit(0);
}
});

// Range input panel
Panel rangePanel = new Panel(); rangePanel.setLayout(new
FlowLayout());
```

```
rangePanel.add(new Label("Min Range:")); rangeFieldMin =  
new TextField(5); rangePanel.add(rangeFieldMin);  
rangePanel.add(new Label("Max Range:")); rangeFieldMax =  
new TextField(5); rangePanel.add(rangeFieldMax);  
startButton = new Button("Start Game");  
rangePanel.add(startButton); frame.add(rangePanel);
```

```
// Message label  
messageLabel = new Label("Enter range and click Start Game.");  
messageLabel.setAlignment(Label.CENTER);  
frame.add(messageLabel);
```

```
// Guess input panel  
Panel guessPanel = new Panel(); guessPanel.setLayout(new  
FlowLayout()); guessLabel = new Label("Your Guess:");  
guessPanel.add(guessLabel);  
guessField = new TextField(10); guessPanel.add(guessField);  
guessButton = new Button("Submit Guess");  
guessButton.setEnabled(false); guessPanel.add(guessButton);  
frame.add(guessPanel);
```

```
// Attempts label  
attemptsLabel = new Label("Attempts: 0");  
attemptsLabel.setAlignment(Label.CENTER);
```

```
frame.add(attemptsLabel);
```

```
// Reset button
```

```
resetButton = new Button("Reset Game");
```

```
resetButton.setEnabled(false); frame.add(resetButton);
```

```
// Action listeners startButton.addActionListener(e -> startGame());
```

```
guessButton.addActionListener(e -> submitGuess()); resetButton.addActionListener(e -  
> resetGame());
```

```
frame.setVisible(true);
```

```
}
```

```
private void startGame() { try {
```

```
minRange = Integer.parseInt(rangeFieldMin.getText()); maxRange =
```

```
Integer.parseInt(rangeFieldMax.getText());
```

```
if (minRange >= maxRange) {
```

```
showMessageDialog("Invalid Range", "Min range must be less than Max range.");
```

```
return;
```

```
}
```

```
Random random = new Random();
```

```
targetNumber = random.nextInt(maxRange - minRange + 1) + minRange; attempts = 0;
```

```
isGameRunning = true;
```

```

        messageLabel.setText("Game started! Guess a number between " + minRange + " and " +
maxRange + ".");

        attemptsLabel.setText("Attempts: 0");
        guessButton.setEnabled(true); resetButton.setEnabled(true); guessField.setEnabled(true);

    } catch (NumberFormatException ex) {
        showMessageDialog("Invalid Input", "Please enter valid numbers for the range.");
    }
}

private void submitGuess() {
    if (!isGameRunning) return;

    try {
        int guess = Integer.parseInt(guessField.getText()); attempts++;

        attemptsLabel.setText("Attempts: " + attempts);

        if (guess < targetNumber) { messageLabel.setText("Too low! Try again.");
        } else if (guess > targetNumber) { messageLabel.setText("Too high! Try again.");
        } else {
            messageLabel.setText("Correct! You guessed the number in " + attempts + " attempts.");
            isGameRunning = false;

            guessButton.setEnabled(false);
        }
    } catch (NumberFormatException ex) {
        showMessageDialog("Invalid Input", "Please enter a valid number.");
    }
}

```

```
}
```

```
guessField.setText("");
```

```
}
```

```
private void resetGame() { targetNumber = 0;
```

```
attempts = 0; isGameRunning = false;
```

```
rangeFieldMin.setText(""); rangeFieldMax.setText("");
```

```
guessField.setText(""); guessField.setEnabled(false);
```

```
guessButton.setEnabled(false); resetButton.setEnabled(false);
```

```
messageLabel.setText("Enter range and click Start Game.");
```

```
attemptsLabel.setText("Attempts: 0");
```

```
}
```

```
private void showMessageDialog(String title, String
```

```
message) { Dialog dialog = new Dialog(frame, title, true);
```

```
dialog.setLayout(new FlowLayout());
```

```
dialog.setSize(300, 150);
```

```
Label messageLabel = new Label(message, Label.CENTER);
```

```
dialog.add(messageLabel);
```

```
Button okButton = new Button("OK");
```

```
okButton.addActionListener(e -> dialog.dispose());
```

```
dialog.add(okButton);
```

```
dialog.setVisible(true);
```

```
}
```

```
public static void main(String[]
```

```
args) { new MyGame();
```

```
}
```



Min Range: Max Range:

Too high! Try again.

Your Guess:

Attempts: 1



Min Range: Max Range:

Too low! Try again.

Your Guess:

Attempts: 2



Number Guessing Game



Min Range:

Max Range:

Start Game

Correct! You guessed the number in 3 attempts.

Your Guess:

Submit Guess

Attempts: 3

Reset Game

Min Range:

Max Range:

Start Game

Too low! Try again.

Your Guess:

Submit Guess

Attempts: 1

Reset Game