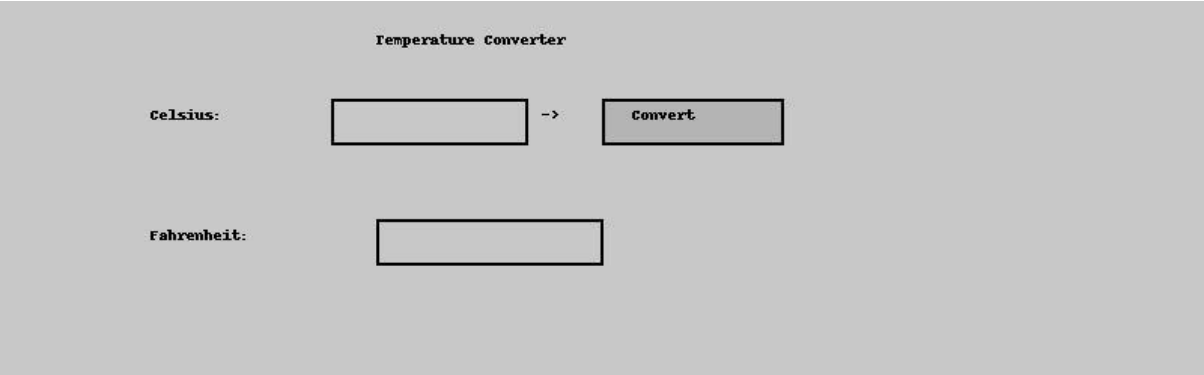
JAVA GUI QUESTIONS

[25 MARKS]

a) Name two differences between AWT and Swing. (2 Marks)

b) List three types of event listeners used in Java GUI programming. (3 Marks)

c) Given the following GUI layout (using Swing), write code snippets for each task:



i. Write a method convertToFahrenheit() that takes a double celsius value and returns the equivalent Fahrenheit value (Formula: F = (C × 9/5) + 32). (4 Marks)

ii. Write a statement to create a label celsiusLabel with the text "Celsius:". (1 Mark)

iii. Write a statement to create a text field celsiusField with a width of 10 columns. (1 Mark)

iv. Write a statement to create a button convertButton with the label "Convert".
(1 Mark)

v. Write a statement to create a read-only text field fahrenheitField to display the result. (2 Marks) vi. Write a statement to create a panel inputPanel using FlowLayout. (1 Mark)

vii. Write statements to add celsiusLabel, celsiusField, and convertButton to inputPanel. (3 Marks)

viii. Write a statement to set the window's default close operation to EXIT_ON_CLOSE. (1 Mark)

ix. Attach an ActionListener to convertButton that:

- Reads the value from celsiusField,
- Calls convertToFahrenheit(),
- Displays the result in fahrenheitField. (6 Marks)

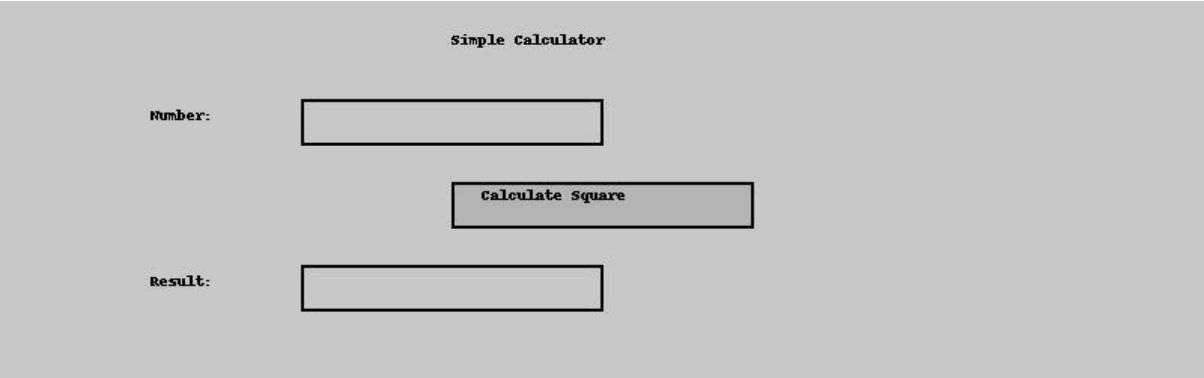
x. Name the layout manager used by default in a JFrame. (1 Mark)

PART TWO

a) List three (3) layout managers used in Java Swing for arranging GUI components. (3 Marks)

b) List four (4) event listener interfaces in Java used for handling user interactions (e.g., buttonclicks). (4 Marks)

c) Assume you are using Swing to create a simple GUI application. Write appropriatecode/statements (NOT A COMPLETE PROGRAM) for each of the following:



i. Write a method called calculateSquare() that takes a String parameter input, converts it to an integer, computes its square, and returns the result as an integer. Handle NumberFormatException by returning -1. (6 Marks)

ii. Write a statement to create a label named numLabel with the text "Number:". (2 Marks)

iii. Write a statement to create a text field named numField with a preferred width of 15 columns. (2 Marks)
iv. Write a statement to create a button named squareButton with the text "Calculate Square". (2Marks)
v. Write a statement to create a panel named mainPanel using BorderLayout. (2 Marks)
vi. Write statements to add numLabel, numField, and squareButton to mainPanel in appropriate positions (e.g., NORTH, CENTER). (3 Marks)
vii. Write a statement to attach an ActionListener to squareButton that calls calculateSquare() when clicked. (3 Marks)
viii. Write a statement to create a non-editable text field named resultField to display the result.