

Progressive Education Society’s

**MODERN COLLEGE OF ENGINEERING, Pune -05.**

(An Autonomous Institute Affiliated to Savitribai Phule Pune University)

**MCA Department**

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| **Class: FYMCA Div: A Semester: II** | **Course Code: MCA01554**  **Course Name: Java Programming Laboratory** | | **Batch: F1** |
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| **CO No: CO515.2** | | **Assignment No: 5** | |

**PRACTICAL SUBMISSION RECORD- A.Y. 2024-25**

**Title**: Create a Java Desktop application to find the area of circle, rectangle, circumference of circle and area of square. Design the IDE and programming logic with two JPanel containers contains the following: - JPanel1. Add three JRadioButtons and set the buttons as: Circle, Rectangle and Square.-JPanel2. Add four JCheckBoxes and set the buttons as Area, Perimeter, Circumference.

When you select an option from JPanel1, it automatically hides the facilities which is not appropriate for selected option. Similarly, apply the same for JTextfield controls.

1. Write the code for circle JRadioButton to make available the display controls which are appropriate for Circle operation.
2. Write the code for Rectangle JRadioButton to make available the display controls which are appropriate for Rectangle operation.
3. Write the code for Square JRadioButton to make available the display controls which are appropriate for Square operation.
4. Write the code for Calculate button to calculate the desired operations which you choose from JRadioButtons.
5. Write the code for Exit button to exit application.

# Code:

import javax.swing.\*; import java.awt.\*; import java.awt.event.\*;

public class ShapeCalculator extends JFrame { JRadioButton circleBtn, rectangleBtn, squareBtn; JCheckBox areaCheck, perimeterCheck, circumCheck; JTextField radiusField, lengthField, widthField, sideField; JTextArea resultArea;

JButton calculateBtn, exitBtn; public ShapeCalculator() {

setTitle("Shape Calculator"); setSize(400, 450);

setDefaultCloseOperation(EXIT\_ON\_CLOSE); setLayout(new FlowLayout());

JPanel panel1 = new JPanel();

panel1.setBorder(BorderFactory.createTitledBorder("Select Shape")); circleBtn = new JRadioButton("Circle");

rectangleBtn = new JRadioButton("Rectangle"); squareBtn = new JRadioButton("Square"); ButtonGroup group = new ButtonGroup(); group.add(circleBtn);

group.add(rectangleBtn); group.add(squareBtn); panel1.add(circleBtn); panel1.add(rectangleBtn); panel1.add(squareBtn); JPanel panel2 = new JPanel();

panel2.setBorder(BorderFactory.createTitledBorder("Select Operations")); areaCheck = new JCheckBox("Area");

perimeterCheck = new JCheckBox("Perimeter"); circumCheck = new JCheckBox("Circumference"); panel2.add(areaCheck); panel2.add(perimeterCheck); panel2.add(circumCheck);

radiusField = new JTextField(10); lengthField = new JTextField(10); widthField = new JTextField(10); sideField = new JTextField(10);

add(new JLabel("Radius:")); add(radiusField); add(new JLabel("Length:")); add(lengthField); add(new JLabel("Width:")); add(widthField); add(new JLabel("Side:")); add(sideField); resultArea = new JTextArea(5, 30); resultArea.setEditable(false);

calculateBtn = new JButton("Calculate"); exitBtn = new JButton("Exit"); add(panel1);

add(panel2); add(calculateBtn); add(exitBtn);

add(new JScrollPane(resultArea)); disableAllFields(); circleBtn.addActionListener(e -> {

disableAllFields(); radiusField.setEnabled(true); circumCheck.setEnabled(true); areaCheck.setEnabled(true); perimeterCheck.setEnabled(false);

});

rectangleBtn.addActionListener(e -> { disableAllFields(); lengthField.setEnabled(true); widthField.setEnabled(true); areaCheck.setEnabled(true); perimeterCheck.setEnabled(true); circumCheck.setEnabled(false);

});

squareBtn.addActionListener(e -> { disableAllFields(); sideField.setEnabled(true); areaCheck.setEnabled(true); perimeterCheck.setEnabled(true); circumCheck.setEnabled(false);

});

calculateBtn.addActionListener(e -> { resultArea.setText("");

if (circleBtn.isSelected()) {

double r = Double.parseDouble(radiusField.getText()); if (areaCheck.isSelected())

resultArea.append("Circle Area: " + (Math.PI \* r \* r) + "\n"); if (circumCheck.isSelected())

resultArea.append("Circle Circumference: " + (2 \* Math.PI \* r) + "\n");

} else if (rectangleBtn.isSelected()) {

double l = Double.parseDouble(lengthField.getText()); double w = Double.parseDouble(widthField.getText()); if (areaCheck.isSelected())

resultArea.append("Rectangle Area: " + (l \* w) + "\n"); if (perimeterCheck.isSelected())

resultArea.append("Rectangle Perimeter: " + (2 \* (l + w)) + "\n");

} else if (squareBtn.isSelected()) {

double s = Double.parseDouble(sideField.getText()); if (areaCheck.isSelected())

resultArea.append("Square Area: " + (s \* s) + "\n"); if (perimeterCheck.isSelected())

resultArea.append("Square Perimeter: " + (4 \* s) + "\n");

} else {

resultArea.append("Please select a shape.");

}

});

exitBtn.addActionListener(e -> System.exit(0)); setVisible(true);

}

private void disableAllFields() { radiusField.setEnabled(false); lengthField.setEnabled(false); widthField.setEnabled(false); sideField.setEnabled(false); areaCheck.setEnabled(false); perimeterCheck.setEnabled(false); circumCheck.setEnabled(false); areaCheck.setSelected(false); perimeterCheck.setSelected(false); circumCheck.setSelected(false);

}

public static void main(String[] args) { new ShapeCalculator();

}

}

# Output:

