**RailwayManagementSystem**

**Aim:**

**The TravelPlanner program provides a user-friendly interface for managing travel plans. Users can enter personal details, select destinations, accommodations, and optional services, and calculate total costs, including taxes. It generates a receipt and allows resetting inputs for new entries, making it ideal for travel planning.**

**Coding:**

**import java.awt.\*;**

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

**import javax.swing.\*;**

**import java.util.ArrayList;**

**import java.util.HashMap;**

**public class TravelManagementSystem extends JFrame implements ActionListener {**

**// Declare UI components**

**private JTextField tfFirstName, tfTelephone, tfCost, tfTax, tfSubtotal, tfTotal;**

**private JTextArea taAddress;**

**private JComboBox<String> departureChoice, destinationChoice, accommodationChoice;**

**private JCheckBox cbAirportTax, cbAirMiles, cbInsurance, cbLuggage;**

**private ArrayList<JCheckBox> foodCheckboxes = new ArrayList<>();**

**private HashMap<String, Double> destinationCosts = new HashMap<>();**

**private HashMap<String, Double> accommodationCosts = new HashMap<>();**

**private HashMap<String, Double> foodCosts = new HashMap<>();**

**private ArrayList<String> selectedFoodItems = new ArrayList<>();**

**public TravelManagementSystem() {**

**// Frame properties**

**setTitle("Travel Management System");**

**setSize(700, 800);**

**setLayout(new GridBagLayout());**

**setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);**

**GridBagConstraints gbc = new GridBagConstraints();**

**gbc.insets = new Insets(5, 5, 5, 5);**

**// Customer Details Panel**

**gbc.gridx = 0;**

**gbc.gridy = 0;**

**gbc.gridwidth = 2;**

**add(new JLabel("Customer Details"), gbc);**

**gbc.gridwidth = 1;**

**gbc.gridy++;**

**add(new JLabel("Name:"), gbc);**

**tfFirstName = new JTextField(25);**

**gbc.gridx = 1;**

**add(tfFirstName, gbc);**

**gbc.gridx = 0;**

**gbc.gridy++;**

**add(new JLabel("Address:"), gbc);**

**taAddress = new JTextArea(3, 25);**

**JScrollPane scrollPane = new JScrollPane(taAddress);**

**gbc.gridx = 1;**

**add(scrollPane, gbc);**

**gbc.gridx = 0;**

**gbc.gridy++;**

**add(new JLabel("Telephone:"), gbc);**

**tfTelephone = new JTextField(25);**

**tfTelephone.addKeyListener(new KeyAdapter() {**

**public void keyTyped(KeyEvent e) {**

**if (!Character.isDigit(e.getKeyChar()) || tfTelephone.getText().length() >= 10) {**

**e.consume();**

**}**

**}**

**});**

**gbc.gridx = 1;**

**add(tfTelephone, gbc);**

**// Travel Details Panel**

**gbc.gridx = 0;**

**gbc.gridy++;**

**gbc.gridwidth = 2;**

**add(new JLabel("Travel Details"), gbc);**

**gbc.gridwidth = 1;**

**gbc.gridy++;**

**add(new JLabel("Departure:"), gbc);**

**departureChoice = new JComboBox<>(new String[] {**

**"MM Airport", "YYZ - Toronto Pearson", "LAX - Los Angeles International",**

**"JFK - New York JFK", "LHR - London Heathrow"**

**});**

**gbc.gridx = 1;**

**add(departureChoice, gbc);**

**gbc.gridx = 0;**

**gbc.gridy++;**

**add(new JLabel("Destination:"), gbc);**

**destinationChoice = new JComboBox<>(new String[] {**

**"Canada - 7 Days in Ottawa", "USA - 5 Days in NYC", "France - 4 Days in Paris",**

**"Australia - 10 Days in Sydney", "Japan - 6 Days in Tokyo",**

**"Germany - 8 Days in Berlin", "Brazil - 7 Days in Rio", "South Africa - 5 Days in Cape Town"**

**});**

**gbc.gridx = 1;**

**add(destinationChoice, gbc);**

**gbc.gridx = 0;**

**gbc.gridy++;**

**add(new JLabel("Accommodation:"), gbc);**

**accommodationChoice = new JComboBox<>(new String[] {**

**"Single", "Double", "Family Suite", "Luxury Suite"**

**});**

**gbc.gridx = 1;**

**add(accommodationChoice, gbc);**

**// Additional Services Checkbox Panel**

**JPanel checkboxPanel = new JPanel(new GridLayout(2, 2, 10, 10));**

**cbAirportTax = new JCheckBox("Airport Tax");**

**cbAirMiles = new JCheckBox("Air Miles Over 20000");**

**cbInsurance = new JCheckBox("Traveling Insurance");**

**cbLuggage = new JCheckBox("Extra Luggage");**

**checkboxPanel.add(cbAirportTax);**

**checkboxPanel.add(cbAirMiles);**

**checkboxPanel.add(cbInsurance);**

**checkboxPanel.add(cbLuggage);**

**gbc.gridx = 0;**

**gbc.gridy++;**

**gbc.gridwidth = 2;**

**add(checkboxPanel, gbc);**

**// Food Accommodation Panel**

**gbc.gridy++;**

**gbc.gridwidth = 2;**

**add(new JLabel("Food Accommodation (Select any):"), gbc);**

**JPanel foodPanel = new JPanel(new GridLayout(3, 2, 10, 10));**

**foodCosts.put("Pizza", 10.0);**

**foodCosts.put("Pasta", 15.0);**

**foodCosts.put("Salad", 8.0);**

**foodCosts.put("Sandwich", 12.0);**

**foodCosts.put("Dessert", 5.0);**

**foodCosts.put("Beverage", 3.0);**

**for (String foodItem : foodCosts.keySet()) {**

**JCheckBox foodCheckbox = new JCheckBox(foodItem);**

**foodCheckbox.addItemListener(e -> {**

**if (e.getStateChange() == ItemEvent.SELECTED) {**

**selectedFoodItems.add(foodItem);**

**} else {**

**selectedFoodItems.remove(foodItem);**

**}**

**});**

**foodCheckboxes.add(foodCheckbox);**

**foodPanel.add(foodCheckbox);**

**}**

**gbc.gridy++;**

**add(foodPanel, gbc);**

**// Cost and Receipt Panel**

**gbc.gridy++;**

**gbc.gridwidth = 2;**

**add(new JLabel("Cost Summary"), gbc);**

**gbc.gridwidth = 1;**

**gbc.gridy++;**

**add(new JLabel("Cost:"), gbc);**

**tfCost = new JTextField("0", 15);**

**tfCost.setEditable(false);**

**gbc.gridx = 1;**

**add(tfCost, gbc);**

**gbc.gridx = 0;**

**gbc.gridy++;**

**add(new JLabel("Tax:"), gbc);**

**tfTax = new JTextField("0", 15);**

**tfTax.setEditable(false);**

**gbc.gridx = 1;**

**add(tfTax, gbc);**

**gbc.gridx = 0;**

**gbc.gridy++;**

**add(new JLabel("Subtotal:"), gbc);**

**tfSubtotal = new JTextField("0", 15);**

**tfSubtotal.setEditable(false);**

**gbc.gridx = 1;**

**add(tfSubtotal, gbc);**

**gbc.gridx = 0;**

**gbc.gridy++;**

**add(new JLabel("Total:"), gbc);**

**tfTotal = new JTextField("0", 15);**

**tfTotal.setEditable(false);**

**gbc.gridx = 1;**

**add(tfTotal, gbc);**

**// Buttons**

**gbc.gridx = 0;**

**gbc.gridy++;**

**gbc.gridwidth = 2;**

**JPanel buttonPanel = new JPanel(new FlowLayout());**

**JButton btnCalculate = new JButton("Calculate");**

**btnCalculate.addActionListener(this);**

**buttonPanel.add(btnCalculate);**

**JButton btnReset = new JButton("Reset");**

**btnReset.addActionListener(this);**

**buttonPanel.add(btnReset);**

**JButton btnReceipt = new JButton("Receipt");**

**btnReceipt.addActionListener(this);**

**buttonPanel.add(btnReceipt);**

**add(buttonPanel, gbc);**

**// Initialize destination and accommodation costs**

**destinationCosts.put("Canada - 7 Days in Ottawa", 500.0);**

**destinationCosts.put("USA - 5 Days in NYC", 600.0);**

**destinationCosts.put("France - 4 Days in Paris", 700.0);**

**destinationCosts.put("Australia - 10 Days in Sydney", 800.0);**

**destinationCosts.put("Japan - 6 Days in Tokyo", 900.0);**

**destinationCosts.put("Germany - 8 Days in Berlin", 850.0);**

**destinationCosts.put("Brazil - 7 Days in Rio", 750.0);**

**destinationCosts.put("South Africa - 5 Days in Cape Town", 780.0);**

**accommodationCosts.put("Single", 100.0);**

**accommodationCosts.put("Double", 150.0);**

**accommodationCosts.put("Family Suite", 200.0);**

**accommodationCosts.put("Luxury Suite", 300.0);**

**setVisible(true);**

**}**

**@Override**

**public void actionPerformed(ActionEvent e) {**

**String command = e.getActionCommand();**

**switch (command) {**

**case "Calculate":**

**calculateCosts();**

**break;**

**case "Reset":**

**resetFields();**

**break;**

**case "Receipt":**

**showReceipt();**

**break;**

**default:**

**break;**

**}**

**}**

**private void calculateCosts() {**

**double baseCost = destinationCosts.get(destinationChoice.getSelectedItem());**

**double accommodationCost = accommodationCosts.get(accommodationChoice.getSelectedItem());**

**double totalCost = baseCost + accommodationCost;**

**if (cbAirportTax.isSelected()) {**

**totalCost += 50;**

**}**

**if (cbAirMiles.isSelected()) {**

**totalCost += 25;**

**}**

**if (cbInsurance.isSelected()) {**

**totalCost += 100;**

**}**

**if (cbLuggage.isSelected()) {**

**totalCost += 30;**

**}**

**// Calculate food costs**

**double foodCost = 0;**

**for (String foodItem : selectedFoodItems) {**

**foodCost += foodCosts.get(foodItem);**

**}**

**totalCost += foodCost;**

**// Update cost fields**

**tfCost.setText(String.valueOf(totalCost));**

**tfTax.setText(String.valueOf(totalCost \* 0.05)); // Assuming 5% tax**

**tfSubtotal.setText(String.valueOf(totalCost));**

**tfTotal.setText(String.valueOf(totalCost + (totalCost \* 0.05)));**

**}**

**private void resetFields() {**

**tfFirstName.setText("");**

**taAddress.setText("");**

**tfTelephone.setText("");**

**tfCost.setText("0");**

**tfTax.setText("0");**

**tfSubtotal.setText("0");**

**tfTotal.setText("0");**

**cbAirportTax.setSelected(false);**

**cbAirMiles.setSelected(false);**

**cbInsurance.setSelected(false);**

**cbLuggage.setSelected(false);**

**departureChoice.setSelectedIndex(0);**

**destinationChoice.setSelectedIndex(0);**

**accommodationChoice.setSelectedIndex(0);**

**selectedFoodItems.clear();**

**for (JCheckBox foodCheckbox : foodCheckboxes) {**

**foodCheckbox.setSelected(false);**

**}**

**}**

**private void showReceipt() {**

**StringBuilder receipt = new StringBuilder("Receipt:\n");**

**receipt.append("Name: ").append(tfFirstName.getText()).append("\n");**

**receipt.append("Address: ").append(taAddress.getText()).append("\n");**

**receipt.append("Telephone: ").append(tfTelephone.getText()).append("\n");**

**receipt.append("Destination: ").append(destinationChoice.getSelectedItem()).append("\n");**

**receipt.append("Accommodation: ").append(accommodationChoice.getSelectedItem()).append("\n");**

**receipt.append("Total Cost: ").append(tfTotal.getText()).append("\n");**

**JOptionPane.showMessageDialog(this, receipt.toString(), "Receipt", JOptionPane.INFORMATION\_MESSAGE);**

**}**

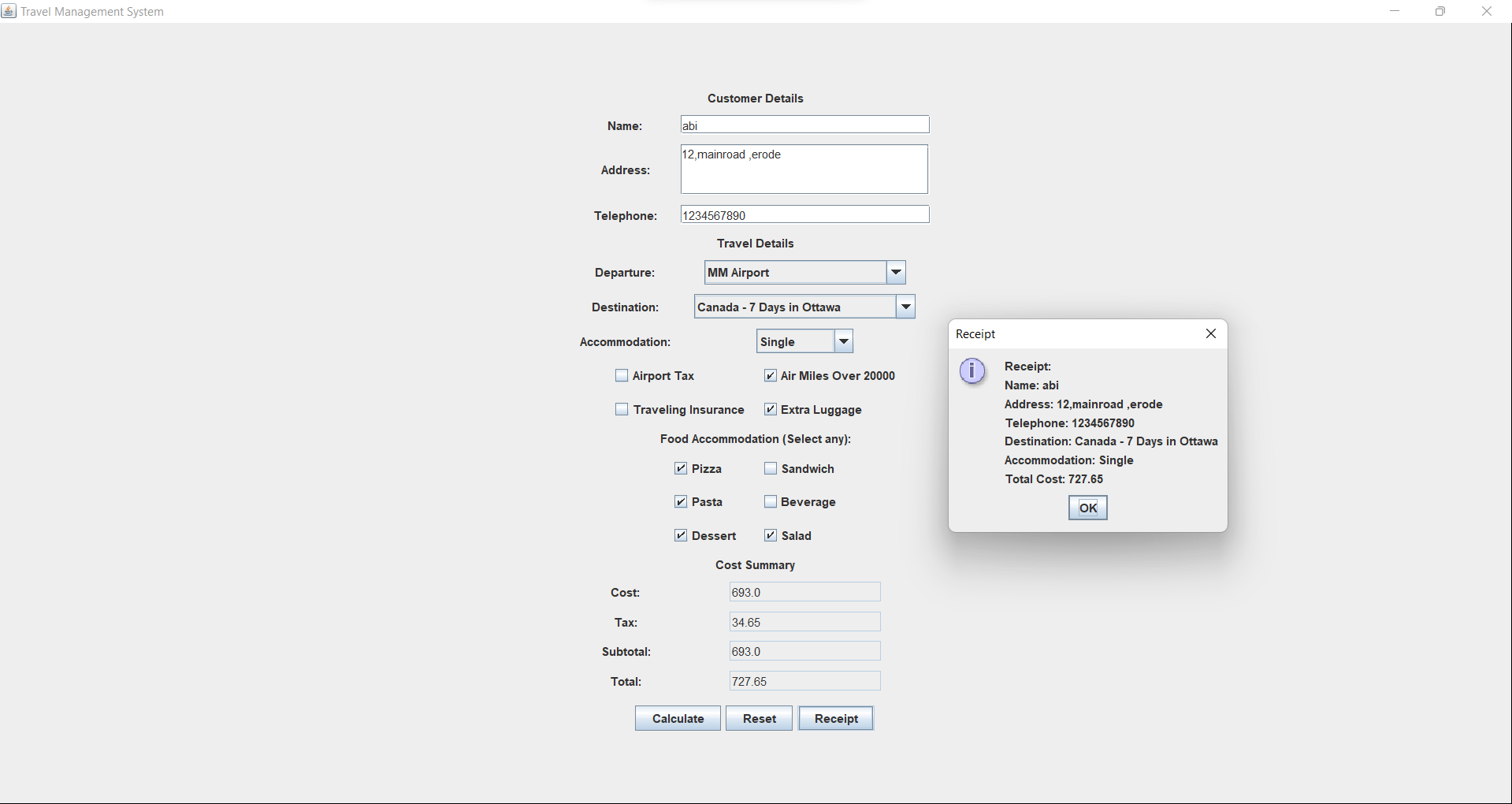
**public static void main(String[] args) {**

**new TravelManagementSystem();**

**}**

**}**

**Output:**

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