

# LAB-2-YUE CHENGHAO-227154

CCS3104-G4

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227154

```
package com.example.demo1;
import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.scene.control.*;
import javafx.scene.layout.GridPane;
import javafx.geometry.Insets;

public class SpeedFineCalculator extends Application {

    @Override
    public void start(Stage primaryStage) {
        // 车辆类型 (单选按钮)
        Label lblType = new Label("Vehicle Type:");
        RadioButton rbCar = new RadioButton("Car");
        RadioButton rbBike = new RadioButton("Bike");

        // 把两个按钮放进一个组, 只能选一个
        ToggleGroup tgVehicle = new ToggleGroup();
        rbCar.setToggleGroup(tgVehicle);
        rbBike.setToggleGroup(tgVehicle);

        // 默认选中 Car
        rbCar.setSelected(true);

        // 输入框
        Label lblSpeed = new Label("Vehicle Speed (km/h):");
        TextField tfSpeed = new TextField();

        Label lblLimit = new Label("Speed Limit (km/h):");
        TextField tfLimit = new TextField();

        // 按钮与结果
        Button btCalc = new Button("Calculate");
        Label lblResult = new Label("Fine: RM 0.00");

        // 布局
```

```

GridPane pane = new GridPane();
pane.setPadding(new Insets(20));
pane.setHgap(20);
pane.setVgap(20);

pane.add(lblType, 0, 0);
pane.add(rbCar, 1, 0);
pane.add(rbBike, 2, 0);
pane.add(lblSpeed, 0, 1);
pane.add(tfSpeed, 1, 1);
pane.add(lblLimit, 0, 2);
pane.add(tfLimit, 1, 2);
pane.add(btCalc, 0, 3);
pane.add(lblResult, 1, 3);

// 按钮事件
btCalc.setOnAction(e -> {
    try {
        double speed = Double.parseDouble(tfSpeed.getText());
        double limit = Double.parseDouble(tfLimit.getText());
        double fine = 0;

        if (speed > limit) {
            if (rbCar.isSelected())
                fine = 0.5 * Math.pow(speed - limit, 2);
            else if (rbBike.isSelected())
                fine = 30 + (speed - limit);
        }

        lblResult.setText(String.format("Fine: RM %.2f", fine));
    } catch (NumberFormatException ex) {
        lblResult.setText("Please enter valid numbers!");
    }
});

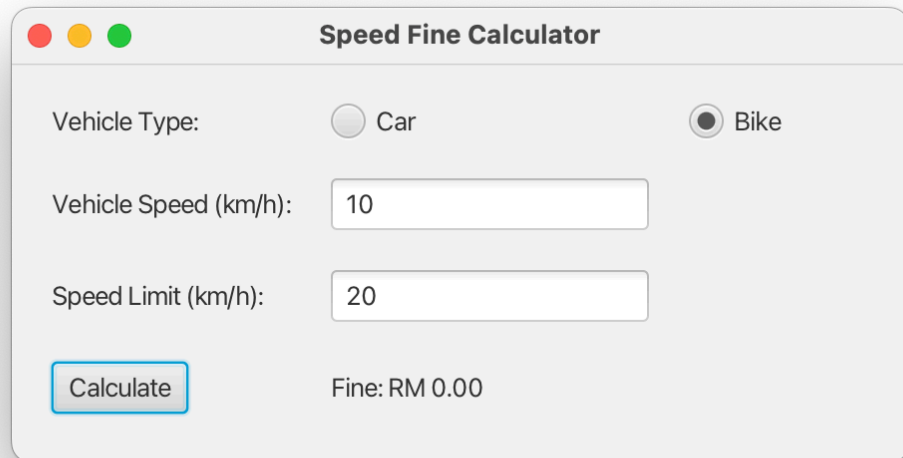
// 场景与显示
Scene scene = new Scene(pane, 450, 200);
primaryStage.setTitle("Speed Fine Calculator");
primaryStage.setScene(scene);
primaryStage.show();
}

public static void main(String[] args) {
    launch(args);
}
}

```

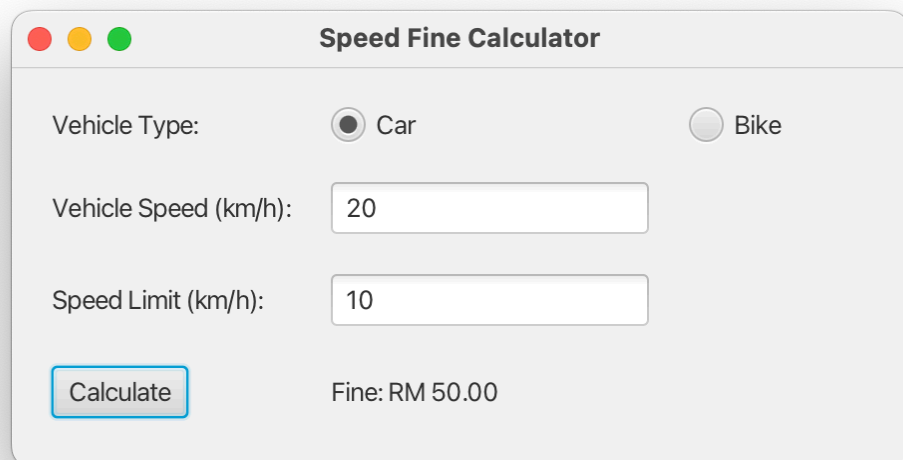
- output

no speeding



A screenshot of a macOS-style window titled "Speed Fine Calculator". The window has three colored window control buttons (red, yellow, green) in the top-left corner. Inside the window, there are two radio buttons for "Vehicle Type": "Car" (unselected) and "Bike" (selected). Below this, there are two text input fields: "Vehicle Speed (km/h):" with the value "10" and "Speed Limit (km/h):" with the value "20". At the bottom left is a blue "Calculate" button. At the bottom right, the text "Fine: RM 0.00" is displayed.

speeding



A screenshot of a macOS-style window titled "Speed Fine Calculator". The window has three colored window control buttons (red, yellow, green) in the top-left corner. Inside the window, there are two radio buttons for "Vehicle Type": "Car" (selected) and "Bike" (unselected). Below this, there are two text input fields: "Vehicle Speed (km/h):" with the value "20" and "Speed Limit (km/h):" with the value "10". At the bottom left is a blue "Calculate" button. At the bottom right, the text "Fine: RM 50.00" is displayed.

A screenshot of a macOS-style window titled "Speed Fine Calculator". It features three window control buttons (red, yellow, green) in the top-left corner. The window contains two radio buttons for "Vehicle Type": "Car" (unselected) and "Bike" (selected). Below these are two text input fields: "Vehicle Speed (km/h):" containing the value "20" and "Speed Limit (km/h):" containing the value "10". At the bottom left is a blue-outlined "Calculate" button. At the bottom right, the text "Fine: RM 40.00" is displayed.

invalid input

A screenshot of the same "Speed Fine Calculator" window. The "Vehicle Type" and "Speed Limit" fields remain the same. However, the "Vehicle Speed (km/h):" field now contains the text "aaa". The "Calculate" button is still present. The text at the bottom right has changed to "Please enter valid numbers!", indicating an error state.

decimal

Speed Fine Calculator

Vehicle Type:

☐ Car

☒ Bike

Vehicle Speed (km/h):

Speed Limit (km/h):

Calculate

Fine: RM 30.50