

# Homework13

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import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.JButton;
import javax.swing.JComboBox;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
import javax.swing.JTextField;

public class View {

    Controller controller;
    JLabel amount;
    JTextField result = new JTextField(10);
    public void setController(Controller controller) {
        this.controller = controller;
    }

    public void show() {
        JFrame frame = new JFrame("currency converter mvc");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        JPanel panel = new JPanel();

        JTextField input1 = new JTextField(10);

        JComboBox < String > cur1 = new JComboBox < String > (new String[] {
            "CNY",
            "USD",
            "EUR"
        });
        JComboBox < String > cur2 = new JComboBox < String > (new String[] {
            "CNY",
            "USD",
            "EUR"
        });

        JButton convbutton = new JButton("convert");
        amount = new JLabel("Amount: ");
        // result.setBorder(BorderFactory.createLineBorder(Color.BLACK));
        convbutton.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
                String s3 = input1.getText();
                String s1 = cur1.getItemAt(cur1.getSelectedIndex());
                String s2 = cur2.getItemAt(cur2.getSelectedIndex());

                controller.handleUserInput(s1, s2, s3);
            }
        });
        panel.add(amount);
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        panel.add(input1);
        panel.add(cur1);
        panel.add(convbutton);

        panel.add(cur2);

        panel.add(result);
        frame.add(panel);

        frame.pack();
        frame.setVisible(true);
    }

    public void setResult(String res) {
        this.result.setText(res);
    }
}

public class Model {

    public Double convert(String from, String to, double amt) {
        String s1 = "CNY";
        String s2 = "USD";
        String s3 = "EUR";
        Double r12 = 0.139575;
        Double r13 = 0.134021;
        Double r21 = 7.16461;
        Double r23 = 0.960211;
        Double r31 = 7.46150;
        Double r32 = 1.04144;
        Double res;
        if (from.equals(s1) && to.equals(s2)) {
            res = r12 * amt;
        } else if (from.equals(s1) && to.equals(s3)) {
            res = r13 * amt;
        } else if (from.equals(s2) && to.equals(s1)) {
            res = r21 * amt;
        } else if (from.equals(s2) && to.equals(s3)) {
            res = r23 * amt;
        } else if (from.equals(s3) && to.equals(s1)) {
            res = r31 * amt;
        } else if (from.equals(s3) && to.equals(s2)) {
            res = r32 * amt;
        } else {
            res = amt;
        }

        return res;
    }
}

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    }

}

public class Controller {

    Model model;
    View view;

    public Controller(Model model, View view) {
        this.model = model;
        this.view = view;
    }

    public void handleUserInput(String from, String to, String amt) {
        double amount = Double.parseDouble(amt);

        double res = this.model.convert(from, to, amount);
        this.view.setResult(String.valueOf(res));
    }

    public void start() {
        this.view.show();
    }

}

public class Main {

    public static void main(String[] args) {
        Model model = new Model();
        View view = new View();
        Controller controller = new Controller(model, view);
        view.setController(controller);
        controller.start();
    }

}

```



currency converter mvc

Amount: 10    CNY    convert    USD    1.39575