

```

// Lab05
// The Federal Tax Rate Program
// This is the student, starting version of Lab05.
package exercises;
import java.util.Scanner;

public class FederalTaxRate {

    public static void main(String args[]) {

        // Construct a Scanner for user input
        Scanner scan = new Scanner(System.in);
        System.out.println("Which marital status best describes you: Married or Single?");
        String inputtedMaritalStatus = scan.nextLine();
        String letterStatus = inputtedMaritalStatus.substring(0, 1).toLowerCase();

        System.out.println("What is your annual income?");
        double income = scan.nextDouble();
        scan.close();

        double tax = calculateTax(letterStatus, income);
        System.out.println("You must pay " + tax + " in federal income taxes.");

    }

    /**
     * Calculate the federal tax based on a given marital status and yearly income (USD)
     * @param maritalStatus "s" for single, or "m" for married
     * @param income the yearly income in USD
     * @return the amount of federal tax in USD or -1 if an error occurred
     */
    public static double calculateTax(String maritalStatus, double income) {

        double tax = 0.0;

        // Check for negative income
        if (income < 0) return -1; // Decide on a sentinel value; I'll use -1

        if (maritalStatus.equals("s")) {
            // Assign the variable tax according to Schedule X

```

```

    if(0<income && income<=11600) {
        tax += 0.1*income;
    }
    if(11600<income && income<=47150) {
        tax += 0.12*(income-11600)+1160;
    }
    if(47150<income && income<=100525) {
        tax += 0.22*(income-47150)+5426;
    }
    if(100525<income && income<=191950) {
        tax += 0.24*(income-100525)+17168.50;
    }
    if(191950<income && income<=243725) {
        tax += 0.32*(income-191950)+39110.50;
    }
    if(243725<income && income<=609350) {
        tax += 0.35*(income-243725)+55678.50;
    }
    if(609350<income) {
        tax += 0.37*(income-609350)+183647.25;
    }
}
else if (maritalStatus.equals("m")) {
    // Assign the variable tax according to Schedule Y-1
    if(0<income && income<=23200) {
        tax += 0.1*income;
    }
    if(23200<income && income<=94300) {
        tax += 0.12*(income-23200)+2320;
    }
    if(94300<income && income<=201050) {
        tax += 0.22*(income-94300)+10852;
    }
    if(201050<income && income<=383900) {
        tax += 0.24*(income-201050)+34337;
    }
    if(383900<income && income<=487450) {
        tax += 0.32*(income-383900)+78221;
    }
    if(487450<income && income<=731200) {

```

```
        tax += 0.35*(income-487450)+111357;
    }
    if(731200<income) {
        tax += 0.37*(income-609350)+196669.5;
    }
}
else {
    System.out.println("ERROR: No tax table found.");
    return -1; // Decide on a sentinel value; I'll use -1
}
    tax = Math.round(tax * 100.0) / 100.0;
    // Round tax to the nearest penny and return the value of tax
    return tax;

}
}
```