```java
// Lab05
// The Federal Tax Rate Program
// This is the student, starting version of Lab05.
import java.lang.Math;
import java.util.Scanner;
import java.lang.String;

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/Qualifying Widow
        String inputtedMaritalStatus = scan.nextLine();
        String letterStatus = inputtedMaritalStatus.substring(0, 1).toLowerCase();

        System.out.println("What is your 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, "m" for married, "q" or "w" for qualifying wi
     * @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")) {

            if (income <= 9950.0) tax = 0.10 * (income);
            else if (income <= 40525.0) tax = 995.00 + 0.12 * (income - 9950);
            else if (income <= 86375.0) tax = 4664.00 + 0.22 * (income - 40525);
            else if (income <= 164925.0) tax = 14751.00 + 0.24 * (income - 86375);
            else if (income <= 209425.0) tax = 33603.00 + 0.32 * (income - 164925);
            else if (income <= 523600.0) tax = 47843.00 + 0.35 * (income - 209425);
            else tax = 157804.00 + 0.37 * (income - 523600);
        } else if (maritalStatus.equals("w") || maritalStatus.equals("q") || maritalStatus.ec

            if (income <= 19900.0) tax = 0.10 * (income);
            else if (income <= 81050.0) tax = 1990.00 + 0.12 * (income - 19900);
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            else if (income <= 172750.0) tax = 9328.00 + 0.22 * (income - 81050);
            else if (income <= 329850.0) tax = 29502.00 + 0.24 * (income - 172750);
            else if (income <= 418850.0) tax = 67206.00 + 0.32 * (income - 329850);
            else if (income <= 628300.0) tax = 95686.00 + 0.35 * (income - 418850);
            else tax = 168994.00 + 0.37 * (income - 628300);
        } else {
            System.out.println("ERROR:  No tax table found.");
            return -1; // Decide on a sentinel value; I'll use -1
        }

        return (Math.round(tax * 100) / 100.00);

    }
}
```
