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// Lab05
// The Federal Tax Rate Program
// This is the student, starting version of Lab05.

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 (income > 0 && income <= 11600) {
                tax = 0.10*(income - 0);
            } else if (income > 11600 && income <= 47150) {
                tax = 1160.0 + (0.12*(income - 11600));
            } else if (income > 47150 && income <= 100525) {
                tax = 5426.0 + (0.22*(income - 47150));
            } else if (income > 100525 && income <= 191950) {
                tax = 17168.50 + (0.24*(income-100525));
            } else if (income > 191950 && income <= 243725) {
                tax = 39110.50 + (0.32*(income - 191950));
            } else if (income > 243725 && income <= 609350) {
                tax = 55678.50 + (0.35*(income - 243725));
            } else if (income > 609350) {
                tax = 183647.25 + (0.37*(income - 609350));
            } else {
                tax = 0;
            }
        }
    }
}

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}
else if (maritalStatus.equals("m")) {
    // Assign the variable tax according to Schedule Y-1
    if (income>0 && income <=23200) {
        tax = 0.10*(income-0.0);
    } else if (income >23200 && income <= 94300) {
        tax = 2320.0 + (0.12*(income-23200));
    } else if (income > 94300 && income <= 201050) {
        tax = 10852.0 + (0.22*(income -94300));
    } else if (income > 201050 && income <= 383900) {
        tax = 34337.0 + (0.24*(income - 201050));
    } else if (income > 383900 && income <= 487450) {
        tax = 78221.0 + (0.32*(income -383900));
    } else if (income > 487450 && income <= 731200) {
        tax = 111357.0 + (0.35*(income - 487450));
    } else if (income >731200) {
        tax = 196669.50 + (0.37*(income -731200));
    } else {
        tax = 0;
    }
    } else {
        System.out.println("ERROR: No tax table found.");
        return -1; // Decide on a sentinel value; I'll use -1
    }
}

// Round tax to the nearest penny and return the value of tax
return Math.round(tax*100.0)/100.0;
}
}

```