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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 = (income*0.10);
            }
            else if (income >= 11600 && income < 47150)

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    {
        tax = ((income-11600)*.12)+1160;
    }
    else if (income >= 47150 && income < 100525)
    {
        tax = ((income-47150)*.22)+5426;
    }
    else if (income >= 100525 && income < 191950)
    {
        tax = ((income-100525)*.24)+17168;
    }
    else if (income >= 191950 && income < 243725)
    {
        tax = ((income-191950)*.32)+39110.5;
    }
    else if (income >= 243725 && income < 609350)
    {
        tax = ((income-243725)*.35)+55678.5;
    }
    else
    {
        tax = ((income-609350)*.37)+183647.25;
    }
}
else if (maritalStatus.equals("m")) {
    // Assign the variable tax according to Schedule Y-1
    if (income >= 0 && income < 23200)
    {
        tax = income*.10;
    }
    else if (income >= 23200 && income < 94300)
    {
        tax = ((income-23200)*.12)+2320;
    }
    else if (income >= 94300 && income < 201050)
    {
        tax = ((income-94300)*.22)+10852;
    }
    else if (income >= 201050 && income < 383900)

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        {
            tax = ((income-201050)*.24)+34337;
        }
        else if (income >= 383900 && income < 487450)
        {
            tax = ((income-383900)*.32)+78221;
        }
        else if (income >= 487450 && income < 731200)
        {
            tax = ((income-487450)*.35)+111357;
        }
        else
        {
            tax = ((income-731200)*.37)+196669.5;
        }
    }
    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;
}
}
```