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//package exersises;

//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().trim();
		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("m")) {
// Assign the variable tax according to Schedule X
			if (income <= 23200) {
				tax = income * 0.1;
			} else if (income > 23200 && income <= 94300) {
				tax = 2320.00 + 0.12 * (income - 23200);
			}
			else if (income > 94300 && income <=201050) {
				tax = 10852.00 +0.22*(income - 94300);
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                        }
                        else if (income > 201050 && income <=383900) {
                                tax = 34337.00 + 0.24*(income - 201050);
                        }
                        else if (income > 383900 && income <=487450) {
                                tax = 78221.00+0.32*(income-383900);
                        }
                        else if (income >487450 && income <=731200) {
                                tax = 111357.00 + 0.35*(income-487450);
                        }
                        else if (income > 731200) {
                                tax = 196669.50 + 0.37*(income-731200);
                        }
                } else if (maritalStatus.equals("s")) {
// Assign the variable tax according to Schedule Y-1
                        if (income <= 11600) {
                                tax = income * 0.1;
                        } else if (income > 11600 && income <= 47150) {
                                tax = 1160.00 + 0.12 * (income - 11600);
                        }
                        else if (income > 47150 && income <= 100525) {
                                tax = 5426.00 +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 {
                        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
                tax = Math.round(tax*100)/(double)100;
                return tax;
        }
}
```