//  Program Name: Calculate Average Witholding

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//  Class: CSC320-2

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// -------------------------------------------

//  Pseudocode:

// -------------------------------------------

// START

//     SET income = -1

//     WHILE income <= 0 DO

//         PROMPT user to enter weekly income as a positive whole number

//         IF input is an integer THEN

//             READ income

//             IF income <= 0 THEN

//                 DISPLAY "Income must be a positive number"

//             END IF

//         ELSE

//             DISPLAY "Invalid input. Please enter a whole number"

//             DISCARD invalid input

//         END IF

//     END WHILE

//     IF income < 500 THEN

//         taxRate = 0.10

//     ELSE IF income < 1500 THEN

//         taxRate = 0.15

//     ELSE IF income < 2500 THEN

//         taxRate = 0.20

//     ELSE

//         taxRate = 0.30

//     END IF

//     taxWithheld = income \* taxRate

//     DISPLAY "Your weekly tax withholding is: $" + taxWithheld + " (" + (taxRate \* 100) + "% rate)"

// END

import java.util.Scanner;

public class CriticalThinkingMod3Opt1Fritz {

        public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        int income = -1;

        // Input validation loop to ensures the user enters a valid positive integer for income

        while (income <= 0) {

            System.out.print("Enter your weekly income as a positive whole number: ");

            // Check if the next input is an integer

            if (scanner.hasNextInt()) {

                income = scanner.nextInt();

                // Check if the integer is positive

                if (income <= 0) {

                    System.out.println("Income must be a positive number.");

                }

            } else {

                // Handle invalid (non-integer) input

                System.out.println("Invalid input. Please enter a whole number.");

                scanner.next(); // Clear the invalid token if a positive integer was not met earlier from the scanner buffer

            }

        }

        // Determine the appropriate tax rate based on the income brackets

        double taxRate;

        if (income < 500) {

            taxRate = 0.10;

        } else if (income < 1500) {

            taxRate = 0.15;

        } else if (income < 2500) {

            taxRate = 0.20;

        } else {

            taxRate = 0.30;

        }

        // Calculate the tax withholding based on the income and tax rate the income amount falls into

        double taxWithheld = income \* taxRate;

        // Print the final result with proper formatting

        System.out.printf("Your weekly tax withholding is: $%.2f (%.0f%% rate)%n", taxWithheld, taxRate \* 100);

        // Close the scanner

        scanner.close();

    }

}

**Screenshots**  
  
Executing the program  
A black background with blue lines

AI-generated content may be incorrect.

This step checks and validates the user’s input and clears the scanner token if not valid  
  
A computer screen with text on it

AI-generated content may be incorrect.

This step determines the tax rate based on what income was given by the user  
A screenshot of a computer

AI-generated content may be incorrect.

This step calculates the output of the income and the tax rate and prints the results  
A black screen with green and blue text

AI-generated content may be incorrect.

**Github Links**

<https://github.com/gfritzcsu/Programming1/tree/master/Mod3CTOpt1>

<https://github.com/gfritzcsu/Programming1/commits/master/Mod3CTOpt1>