**1.Process a coffee order: take customer size choice, calculate total price based on size and add-ons, and handle a list of 5 drink types.**

import java.util.Scanner;

public class CoffeeOrder {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

// List of drinks

String[] drinks = {"Espresso", "Latte", "Cappuccino", "Americano", "Mocha"};

System.out.println("Welcome to Java Coffee Shop!");

System.out.println("Available drinks:");

for (int i = 0; i < drinks.length; i++) {

System.out.println((i + 1) + ". " + drinks[i]);

}

// Choose drink

System.out.print("Choose your drink (1-5): ");

int drinkChoice = sc.nextInt();

if (drinkChoice < 1 || drinkChoice > 5) {

System.out.println("Invalid choice!");

return;

}

String drink = drinks[drinkChoice - 1];

// Choose size

System.out.println("Choose size: 1. Small ($2) 2. Medium ($3) 3. Large ($4)");

System.out.print("Enter size (1-3): ");

int sizeChoice = sc.nextInt();

int basePrice = 0;

switch (sizeChoice) {

case 1: basePrice = 2; break;

case 2: basePrice = 3; break;

case 3: basePrice = 4; break;

default:

System.out.println("Invalid size!");

return;

}

// Add-ons

System.out.println("Add-ons ($1 each): Whipped Cream, Extra Shot, Syrup");

System.out.print("How many add-ons would you like? ");

int addOns = sc.nextInt();

if (addOns < 0) addOns = 0;

// Calculate total

int totalPrice = basePrice + addOns;

// Display order

System.out.println("Your order: " + drink + ", size " + (sizeChoice == 1 ? "Small" : sizeChoice == 2 ? "Medium" : "Large"));

System.out.println("Add-ons: " + addOns);

System.out.println("Total Price: $" + totalPrice);

}

}

**2.Create a method that accepts two numbers and an operation symbol. Use a switch to perform and return the result of addition, subtraction, multiplication, or division.**

import java.util.Scanner;

public class Calculator {

// Method to perform calculation

public static double calculate(double num1, double num2, char op) {

double result = 0;

switch(op) {

case '+':

result = num1 + num2;

break;

case '-':

result = num1 - num2;

break;

case '\*':

result = num1 \* num2;

break;

case '/':

if (num2 != 0) {

result = num1 / num2;

} else {

System.out.println("Error: Division by zero!");

return Double.NaN; // Return Not-a-Number

}

break;

default:

System.out.println("Invalid operation!");

return Double.NaN;

}

return result;

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter first number: ");

double num1 = sc.nextDouble();

System.out.print("Enter second number: ");

double num2 = sc.nextDouble();

System.out.print("Enter operation (+, -, \*, /): ");

char op = sc.next().charAt(0);

double result = calculate(num1, num2, op);

System.out.println("Result: " + result);

}

}

**3.Input a string and count vowels, consonants, digits, and special characters using loops and conditionals.**

import java.util.Scanner;

public class CharacterCounter {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter a string: ");

String input = sc.nextLine();

int vowels = 0;

int consonants = 0;

int digits = 0;

int specialChars = 0;

// Convert string to lowercase for easier comparison

String str = input.toLowerCase();

for (int i = 0; i < str.length(); i++) {

char ch = str.charAt(i);

if (ch >= 'a' && ch <= 'z') {

// Check if vowel

if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {

vowels++;

} else {

consonants++;

}

} else if (ch >= '0' && ch <= '9') {

digits++;

} else {

specialChars++;

}

}

System.out.println("Vowels: " + vowels);

System.out.println("Consonants: " + consonants);

System.out.println("Digits: " + digits);

System.out.println("Special Characters: " + specialChars);

}

}

**4.For n customers, input name, account type, and balance. Apply 4% interest for savings and 6% for fixed accounts, then display updated balances.**

import java.util.Scanner;

public class BankInterest {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter number of customers: ");

int n = sc.nextInt();

sc.nextLine(); // Consume newline

String[] names = new String[n];

String[] accountTypes = new String[n];

double[] balances = new double[n];

// Input customer details

for (int i = 0; i < n; i++) {

System.out.println("\nCustomer " + (i + 1) + ":");

System.out.print("Enter name: ");

names[i] = sc.nextLine();

System.out.print("Enter account type (Savings/Fixed): ");

accountTypes[i] = sc.nextLine();

System.out.print("Enter balance: ");

balances[i] = sc.nextDouble();

sc.nextLine(); // Consume newline

}

// Apply interest

for (int i = 0; i < n; i++) {

if (accountTypes[i].equalsIgnoreCase("Savings")) {

balances[i] += balances[i] \* 0.04; // 4% interest

} else if (accountTypes[i].equalsIgnoreCase("Fixed")) {

balances[i] += balances[i] \* 0.06; // 6% interest

}

}

// Display updated balances

System.out.println("\nUpdated Balances:");

for (int i = 0; i < n; i++) {

System.out.println(names[i] + " (" + accountTypes[i] + "): $" + balances[i]);

}

}

}

**5.Read 5 daily temperatures into an array. Use a loop and a method to convert each temperature from Celsius to Fahrenheit, displaying both.**

import java.util.Scanner;

public class TemperatureConverter {

// Method to convert Celsius to Fahrenheit

public static double celsiusToFahrenheit(double celsius) {

return (celsius \* 9 / 5) + 32;

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

double[] celsiusTemps = new double[5];

// Input temperatures

System.out.println("Enter 5 daily temperatures in Celsius:");

for (int i = 0; i < 5; i++) {

System.out.print("Day " + (i + 1) + ": ");

celsiusTemps[i] = sc.nextDouble();

}

// Display Celsius and Fahrenheit

System.out.println("\nTemperatures in Celsius and Fahrenheit:");

for (int i = 0; i < 5; i++) {

double fahrenheit = celsiusToFahrenheit(celsiusTemps[i]);

System.out.println("Day " + (i + 1) + ": " + celsiusTemps[i] + "°C = " + fahrenheit + "°F");

}

}

}

**6.Accept number of units consumed and calculate bill based on slab rates using conditionals and methods.**

import java.util.Scanner;

public class ElectricityBill {

// Method to calculate bill based on units

public static double calculateBill(int units) {

double bill = 0;

if (units <= 100) {

bill = units \* 5; // 5 per unit for first 100 units

} else if (units <= 200) {

bill = 100 \* 5 + (units - 100) \* 7; // 7 per unit for next 100 units

} else {

bill = 100 \* 5 + 100 \* 7 + (units - 200) \* 10; // 10 per unit above 200

}

return bill;

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter number of units consumed: ");

int units = sc.nextInt();

double totalBill = calculateBill(units);

System.out.println("Total electricity bill: $" + totalBill);

}

}

**7.Input a string and check if it’s a palindrome (ignore case and spaces). Use string methods and exception handling.**

import java.util.Scanner;

public class PalindromeChecker {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

try {

System.out.print("Enter a string: ");

String input = sc.nextLine();

// Remove spaces and convert to lowercase

String processed = input.replaceAll("\\s+", "").toLowerCase();

// Check palindrome

boolean isPalindrome = true;

int len = processed.length();

for (int i = 0; i < len / 2; i++) {

if (processed.charAt(i) != processed.charAt(len - 1 - i)) {

isPalindrome = false;

break;

}

}

// Display result

if (isPalindrome) {

System.out.println("The string is a palindrome.");

} else {

System.out.println("The string is not a palindrome.");

}

} catch (Exception e) {

System.out.println("Error: Invalid input. " + e.getMessage());

}

}

}

**8.Read a word (String). Use a loop and a switch on each character to replace 'a' with '4', 'e' with '3', and 'o' with '0'.**

import java.util.Scanner;

public class LeetConverter {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter a word: ");

String word = sc.nextLine();

StringBuilder converted = new StringBuilder();

// Loop through each character

for (int i = 0; i < word.length(); i++) {

char ch = word.charAt(i);

switch (ch) {

case 'a':

case 'A':

converted.append('4');

break;

case 'e':

case 'E':

converted.append('3');

break;

case 'o':

case 'O':

converted.append('0');

break;

default:

converted.append(ch);

}

}

System.out.println("Converted word: " + converted.toString());

}

}