Hello world question:

public class HelloWorld {

public static void main(String[] args) {

// Print Hello, World to the console

System.out.println("Hello, World!");

}

}

Print numbers from 1-10 question :

public class PrintNumbers {

public static void main(String[] args) {

System.out.println("Numbers from 1 to 10:");

for (int i = 1; i <= 10; i++) {

System.out.print(i + " ");

}

}

}

Print array elements question :

public class PrintNumbers {

public static void main(String[] args) {

System.out.println("Numbers from 1 to 10:");

for (int i = 1; i <= 10; i++) {

System.out.print(i + " ");

}

}

}

Input array elements:

import java.util.Scanner;

public class InputArrayElements {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the size of the array: ");

int size = scanner.nextInt();

int[] arr = new int[size];

System.out.println("Enter " + size + " elements:");

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

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

arr[i] = scanner.nextInt();

}

System.out.println("You entered:");

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

System.out.print(arr[i] + " ");

}

}

}

Define method to print array elements:

public class MethodPrintArray

{

// Method to print array elements

public static void printArray(int[] arr) {

System.out.println("Array Elements:");

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

System.out.print(arr[i] + " ");

}

}

public static void main(String[] args) {

int[] arr = {3, 6, 9, 12}; // Example array

printArray(arr); // Call the method

}

}

Define method to Input array elements question :

import java.util.Scanner;

public class MethodInputArray {

public static void inputArray(int[] arr) {

Scanner scanner = new Scanner(System.in);

System.out.println("Enter " + arr.length + " elements:");

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

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

arr[i] = scanner.nextInt();

}

}

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the size of the array: ");

int size = scanner.nextInt();

int[] arr = new int[size];

inputArray(arr);

System.out.println("You entered:");

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

System.out.print(arr[i] + " ");

}

}

}

Thirteenth question:

public class CreditCard {

private String cardholderName;

private String cardNumber;

private double balance;

private double creditLimit;

public CreditCard(String cardholderName, String cardNumber, double balance, double creditLimit) {

this.cardholderName = cardholderName;

this.cardNumber = cardNumber;

this.balance = balance;

this.creditLimit = creditLimit; }

public void charge(double amount) {

if (balance + amount <= creditLimit) { balance += amount;

System.out.println("Charge of $" + amount + " successful. New balance: $" + balance);

} else {

System.out.println("Charge of $" + amount + " exceeds credit limit of $" + creditLimit); }}

public double getCreditLimit() { return creditLimit; }

public static void main(String[] args) {

CreditCard card1 = new CreditCard("Alice", "1234-5678", 100.00, 500.00);

CreditCard card2 = new CreditCard("Bob", "9876-5432", 200.00, 300.00);

CreditCard card3 = new CreditCard("Charlie", "1111-2222", 50.00, 150.00);

for (int i = 0; i < 3; i++) {

if (i == 0) { card1.charge(450.00); // Card 1 will NOT exceed its limit (500.00)

} else if (i == 1) {

card2.charge(150.00); // Card 2 will NOT exceed its limit (300.00)

} else if (i == 2) {

card3.charge(200.00); // Card 3 WILL exceed its limit (150.00);}}}}

Array of objects (Students) question :

class Student {

private String name;

private int age;

private double grade;

public Student(String name, int age, double grade) {

this.name = name;

this.age = age;

this.grade = grade;

} public String getName() {

return name;

}

public int getAge() {

return age; }

public double getGrade() { return grade;

} public void displayStudentInfo() {

System.out.println("Name: " + name);

System.out.println("Age: " + age);

System.out.println("Grade: " + grade);

}} System.out.println();

public class Main {

public static void main(String[] args) {

// Create an array of Student objects

Student[] students = new Student[3];

// Initialize the student objects in the array

students[0] = new Student("Alice", 20, 88.5);

students[1] = new Student("Bob", 22, 91.0);

students[2] = new Student("Charlie", 19, 79.5);

// Display details of all students

for (Student student : students) {

}}} student.displayStudentInfo();

Eleventh question:

public void updateCreditLimit(double newLimit) {

if (newLimit > 0) {

creditLimit = newLimit;

System.out.println("Credit limit updated to: $" + newLimit);

} else {

System.out.println("Invalid credit limit!");

}

}

Twelfth question:

public void makePayment(double amount) {

if (amount > 0) {

if (amount <= balance) {

balance -= amount;

} else {

System.out.println("Payment exceeds current balance!");

}

} else {

System.out.println("Negative payment amount ignored.");

}

}}

Ninth question:

public class RemovePunctuation {

public static String removePunctuation(String s) {

StringBuilder result = new StringBuilder();

// Iterate through each character in the string

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

char ch = s.charAt(i);

// Add the character to result if it is a letter, digit, or space

if (Character.isLetterOrDigit(ch) || Character.isWhitespace(ch)) {

result.append(ch);

}

}

return result.toString();

}

public static void main(String[] args) {

String input = "Let’s try, Mike!"; // Example input

System.out.println("After removing punctuation: " + removePunctuation(input));

}

}

Tenth question:

public class Flower {

private String name;

private int numberOfPetals;

private float price;

public Flower(String name, int numberOfPetals, float price) {

this.name = name; this.numberOfPetals = numberOfPetals; this.price = price; }

public void setName(String name) { this.name = name; }

public void setNumberOfPetals(int numberOfPetals) { this.numberOfPetals = numberOfPetals; }

public void setPrice(float price) {

this.price = price; }

public String getName() {

return name; }

public int getNumberOfPetals() {

return numberOfPetals; }

public float getPrice() { return price; }

public static void main(String[] args) {

Flower flower = new Flower("Rose", 10, 15.5f);

System.out.println("Flower Name: " + flower.getName());

System.out.println("Number of Petals: " + flower.getNumberOfPetals());

System.out.println("Price: $" + flower.getPrice());

flower.setName("Tulip");

flower.setNumberOfPetals(12);

flower.setPrice(18.0f); System.out.println("\nUpdated Flower Info:");

System.out.println("Flower Name: " + flower.getName());

System.out.println("Number of Petals: " + flower.getNumberOfPetals());

System.out.println("Price: $" + flower.getPrice()); }}

Seventh question:

public class SquareSum {

public static int sumOfSquares(int n) {

int sum = 0;

for (int i = 1; i <= n; i++) {

sum += i \* i;

}

return sum;

}

public static void main(String[] args) {

int n = 5; // Example input

System.out.println("Sum of squares of numbers <= " + n + " is: " + sumOfSquares(n));

}

}

Eighth question:

public class VowelCounter {

public static int countVowels(String str) {

int count = 0;

// Convert the string to lowercase to make the check case-insensitive

str = str.toLowerCase();

// Iterate through each character in the string

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

char ch = str.charAt(i);

// Check if the character is a vowel

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

count++;

}

}

return count;

}

public static void main(String[] args) {

String input = "Hello, how are you?"; // Example input

System.out.println("Number of vowels: " + countVowels(input));

}

}

Fifth question:

public class SumCalculator {

// Method to calculate the sum of all positive integers ≤ n

public static int sumUpTo(int n) {

if (n <= 0) {

return 0; // Return 0 for non-positive n

}

int sum = 0;

for (int i = 1; i <= n; i++) {

sum += i;

}

return sum;

}

public static void main(String[] args) {

System.out.println(sumUpTo(5)); // Output: 15 (1 + 2 + 3 + 4 + 5)

}}

Sixth question:

public class OddSum {

public static int sumOfOdds(int n) {

int sum = 0;

for (int i = 1; i <= n; i += 2) {

sum += i;

}

return sum;

}

public static void main(String[] args) {

int n = 10; // Example input

System.out.println("Sum of odd numbers <= " + n + " is: " + sumOfOdds(n));

}

}

Third question:

public class MultipleChecker {

// Method to check if n is a multiple of m

public static boolean isMultiple(long n, long m) {

if (m == 0) {

throw new IllegalArgumentException("Divider m cannot be zero.");

}

return n % m == 0;

}

public static void main(String[] args) {

// Test the method

System.out.println(isMultiple(10, 2)); // true

System.out.println(isMultiple(10, 3)); // false

System.out.println(isMultiple(0, 5)); // true

System.out.println(isMultiple(10, 0)); // Throws exception

}

}

Fourth question:

public class EvenChecker {

// Method to check if a number is even

public static boolean isEven(int i) {

return (i & 1) == 0; // Checks the least significant bit

}

public static void main(String[] args) {

// Test the method

System.out.println(isEven(4)); // true

System.out.println(isEven(7)); // false

System.out.println(isEven(0)); // true

System.out.println(isEven(-2)); // true

System.out.println(isEven(-3)); // false

}

}

Second question:

class GameEntry {

private int score;

public GameEntry(int score) {

this.score = score; }

public int getScore() {

return score; }

public void setScore(int score) {

this.score = score; }

public String toString() {

return "GameEntry{score=" + score + "}"; }}

public class ArrayCloningDemo {

public static void main(String[] args) {

GameEntry[] A = new GameEntry[5];

A[0] = new GameEntry(100);

A[1] = new GameEntry(200);

A[2] = new GameEntry(300);

A[3] = new GameEntry(400);

A[4] = new GameEntry(500);

GameEntry[] B = A.clone();

System.out.println("Scores in array A before modification:");

for (GameEntry entry : A) {

System.out.println(entry); }

System.out.println("\nScores in array B before modification:");

for (GameEntry entry : B) {

System.out.println(entry); }

A[4].setScore(550);

System.out.println("\nScores in array A after modification:");

for (GameEntry entry : A) {

System.out.println(entry);

}

System.out.println("\nScores in array B after modification:");

for (GameEntry entry : B) {

System.out.println(entry);

}

}

}

First question:

import java.util.Scanner;

public class BaseTypeInput {

public static void inputAllBaseTypes() {

Scanner scanner = new Scanner(System.in);

System.out.println("Enter a byte value:");

byte byteValue = scanner.nextByte();

System.out.println("Enter a short value:");

short shortValue = scanner.nextShort();

System.out.println("Enter an int value:");

int intValue = scanner.nextInt();

System.out.println("Enter a long value:");

long longValue = scanner.nextLong();

System.out.println("Enter a float value:");

float floatValue = scanner.nextFloat();

System.out.println("Enter a double value:");

double doubleValue = scanner.nextDouble();

System.out.println("Enter a char value:");

char charValue = scanner.next().charAt(0);

System.out.println("Enter a boolean value (true/false):");

boolean booleanValue = scanner.nextBoolean();

System.out.println("\nYou entered:");

System.out.println("byte: " + byteValue);

System.out.println("short: " + shortValue);

System.out.println("int: " + intValue);

System.out.println("long: " + longValue);

System.out.println("float: " + floatValue);

System.out.println("double: " + doubleValue);

System.out.println("char: " + charValue);

System.out.println("boolean: " + booleanValue);

scanner.close();

}

public static void main(String[] args) {

inputAllBaseTypes();

}

}

Here's the Java method inputAllBaseTypes that takes input for each primitive base type, then prints their values. The method uses the Scanner class for input:

import java.util.Scanner;

public class BaseTypeInput {

public static void inputAllBaseTypes() {

Scanner scanner = new Scanner(System.in);

System.out.println("Enter a byte value:");

byte byteValue = scanner.nextByte();

System.out.println("Enter a short value:");

short shortValue = scanner.nextShort();

System.out.println("Enter an int value:");

int intValue = scanner.nextInt();

System.out.println("Enter a long value:");

long longValue = scanner.nextLong();

System.out.println("Enter a float value:");

float floatValue = scanner.nextFloat();

System.out.println("Enter a double value:");

double doubleValue = scanner.nextDouble();

System.out.println("Enter a char value:");

char charValue = scanner.next().charAt(0);

System.out.println("Enter a boolean value (true/false):");

boolean booleanValue = scanner.nextBoolean();

System.out.println("\nYou entered:");

System.out.println("byte: " + byteValue);

System.out.println("short: " + shortValue);

System.out.println("int: " + intValue);

System.out.println("long: " + longValue);

System.out.println("float: " + floatValue);

System.out.println("double: " + doubleValue);

System.out.println("char: " + charValue);

System.out.println("boolean: " + booleanValue);

scanner.close();

}

public static void main(String[] args) {

inputAllBaseTypes();

}

}

**Explanation:**

1. **Scanner Class:** Used to read user input from the standard input device.
2. **Base Types:** The method asks for a value of each Java primitive type:
   * byte, short, int, long, float, double, char, and boolean.
3. **Printing Values:** After all inputs are taken, the method prints them to the console.
4. **scanner.close():** Closes the Scanner object to free resources.

**How to Run:**

1. Copy the code into a file named BaseTypeInput.java.
2. Compile the file with javac BaseTypeInput.java.
3. Run the program with java BaseTypeInput.
4. Input values as prompted.