public class One {

    public static void main(String[] args) {

        System.out.print("Odd numbers from 1 to 99:  ");

        for (int i = 1; i <= 99; i += 2) {

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

        }

    }

}

Output:

Code:

Write a Java program to print the odd numbers from 1 to 99.

Question 1:

PS D:\Uni Material\LAB\sem 3\Week 6> javac One.java

PS D:\Uni Material\LAB\sem 3\Week 6> java One

Odd numbers from 1 to 99: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 95 97 99

PS D:\Uni Material\LAB\sem 3\Week 6>

Week 6

Write a Java program to check whether a number is prime or not.

Question 2:

Code:

import java.util.Scanner;

public class Two {

        public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

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

        int num = sc.nextInt();

        sc.close();

        boolean isPrime = true;

        int numsqrt = (int)Math.sqrt(num);

        for(int i = 2; i <= numsqrt; i++){

            if (num % i == 0) {

                isPrime = false; break;

            }

        }

        if(isPrime)

            System.out.println(num + " is a prime number");

        else

            System.out.println(num + " is not a prime number");

    }

}

Code:

import java.util.Scanner;

public class Three {

    public static void printArray(int[] arr, int size) {

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

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

        }

        System.out.println();

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

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

        int n = sc.nextInt();

Code:

Question 3:

Write a Java program to swap the first and last elements of an array.

Output:

PS D:\Uni Material\LAB\sem 3\Week 6> javac Two.java

PS D:\Uni Material\LAB\sem 3\Week 6> java Two

Enter a number: 317

317 is a prime number

PS D:\Uni Material\LAB\sem 3\Week 6>

if (n <= 0) {

            System.out.println("Invalid size! Array size must be at least 1.");

            sc.close(); return;

        }

        int[] arr = new int[n];

        System.out.print("Enter " + n + " elements: ");

        for (int i = 0; i < n; i++)

            arr[i] = sc.nextInt();

        sc.close();

        System.out.print("Original Array: ");

        printArray(arr, n);

        if (n == 1) {

            System.out.println("Only one element, no swap needed.");

        } else {

            int temp = arr[0];

            arr[0] = arr[n - 1];

            arr[n - 1] = temp;

            System.out.print("Array after swapping: ");

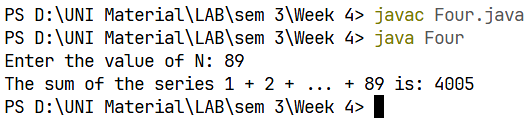
            printArray(arr, n);

        }

    }

}

Code:



Output:

Question 5:

Write a Java program to take a number, divide it by 2 and print the result until the number becomes less than 10

Code:

import java.util.Scanner;

public class Five {

    public static void main(String[] args) {

        try (Scanner scan = new Scanner(System.in)) {

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

            int number = scan.nextInt();

            if(number < 10)

                System.out.println("Number is less than 10, please enter more than 10");

            while (number >= 10) {

                System.out.print(number + " / 2 = " + (number/2) );

                number = number / 2;

            }

        }

    }

}

PS D:\Uni Material\LAB\sem 3\Week 6> javac Three.java

PS D:\Uni Material\LAB\sem 3\Week 6> java Three

Enter size of array: 3

Enter 3 elements: 12 96 65

Original Array: 12 96 65

Array after swapping: 65 96 12

PS D:\Uni Material\LAB\sem 3\Week 6>

Output:

Code:

import java.util.Scanner;

public class Four {

    public static void printArray(int[] arr, int size) {

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

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

        System.out.println();

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

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

        int n = sc.nextInt();

        if (n <= 0) {

            System.out.println("Invalid size! Array size must be at least 1.");

            sc.close(); return;

        }

        int[] arr = new int[n];

        System.out.print("Enter " + n + " elements: ");

        for (int i = 0; i < n; i++)

            arr[i] = sc.nextInt();

        System.out.print("Original Array: ");

        printArray(arr, n);

        int max = arr[0], min = arr[0];

        for(int i = 1; i < n; i++){

            max = (arr[i] > max)? arr[i] : max;

            min = (arr[i] < min)? arr[i] : min;

        } sc.close();

        System.out.println("Maximum Element: " + max + "\nMinimum Element: " + min);

    }

}

Question 4:

Write a Java program to find the maximum and minimum among array elements.

PS D:\Uni Material\LAB\sem 3\Week 5> javac Four.java

PS D:\Uni Material\LAB\sem 3\Week 5> java Four

Enter the number of terms (n): 89

Sum of series: 5.0715

PS D:\Uni Material\LAB\sem 3\Week 5>

Output:

Output:

PS D:\Uni Material\LAB\sem 3\Week 6> javac Five.java

PS D:\Uni Material\LAB\sem 3\Week 6> java Five

Prime numbers between 0 and 100:

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97

PS D:\Uni Material\LAB\sem 3\Week 6>

public class Five {

    public static void main(String[] args) {

        System.out.println("Prime numbers between 0 and 100:");

        for (int num = 2; num <= 100; num++) {

            boolean isPrime = true;

            for (int i = 2; i \* i <= num; i++) {

                if (num % i == 0) {

                    isPrime = false;

                    break;

                }

            }

            if (isPrime) {

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

            }

        }

    }

}

Code:

Write a Java program to print all prime numbers between 0 to 100.

Question 5:

Code:

import java.util.Scanner;

public class Six {

    public static void printArray(int[] arr, int size) {

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

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

        System.out.println();

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

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

        int n = sc.nextInt();

        if (n <= 0) {

            System.out.println("Invalid size! Array size must be at least 1.");

            sc.close(); return;

        }

        int[] arr = new int[n];

        System.out.print("Enter " + n + " elements: ");

        for (int i = 0; i < n; i++)

            arr[i] = sc.nextInt();

        System.out.print("Original Array: ");

        printArray(arr, n);

        System.out.print("Enter key to search in array: ");

        int key = sc.nextInt();

        boolean flag = false;

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

            if (arr[i] == key) {

                System.out.println("Element found at position: " + (i + 1));

                flag = true; break;

            }

        } sc.close();

Write a Java program to implement linear search.

Question 6:

Code:

if(!flag)

            System.out.println("Element not present in array.");

    }

}

Code:

public class Seven {

    public static void main(String[] args) {

        System.out.println("Prime numbers between 0 and 100:");

        for (int num = 2; num <= 100; num++) {

            boolean isPrime = true;

            for (int i = 2; i \* i <= num; i++) {

                if (num % i == 0) {

                    isPrime = false; break;

                }

            }

            if (isPrime)

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

        }

    }

}

PS D:\Uni Material\LAB\sem 3\Week 6> javac Six.java

PS D:\Uni Material\LAB\sem 3\Week 6> java Six

Enter size of array: 4

Enter 4 elements: 14 57 26 88

Original Array: 14 57 26 88

Enter key to search in array: 26

Element found at position: 3

PS D:\Uni Material\LAB\sem 3\Week 6>

Write a Java program to print all prime numbers between 0 to 100

Question 7:

Optional

Output:

PS D:\Uni Material\LAB\sem 3\Week 6> javac Seven.java

PS D:\Uni Material\LAB\sem 3\Week 6> java Seven

Prime numbers between 0 and 100:

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97

PS D:\Uni Material\LAB\sem 3\Week 6>

Output:

Write a Java program to find the second largest element in an array.

Question 8:

Code:

import java.util.Scanner;

public class Eight {

    public static void printArray(int[] arr, int size) {

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

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

        System.out.println();

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

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

        int n = sc.nextInt();

        if (n < 2) {

            System.out.println("Array must have at least 2 elements.");

            sc.close(); return;

        }

        int[] arr = new int[n];

        System.out.print("Enter " + n + " elements: ");

        for (int i = 0; i < n; i++)

            arr[i] = sc.nextInt();

        System.out.print("Array: ");

        printArray(arr, n);

        int largest = Integer.MIN\_VALUE;

        int secondLargest = Integer.MIN\_VALUE;

        for (int i = 0; i < n; i++) {

            if (arr[i] > largest) {

                secondLargest = largest;

                largest = arr[i];

            } else if (arr[i] > secondLargest && arr[i] < largest)

                secondLargest = arr[i];

        } sc.close();

        if (secondLargest == Integer.MIN\_VALUE) {

            System.out.println("No second largest element!");

        } else {

            System.out.println("Largest Element: " + largest);

            System.out.println("Second largest element: " + secondLargest);

        }

    }

}

Code:

PS D:\Uni Material\LAB\sem 3\Week 6> javac Eight.java

PS D:\Uni Material\LAB\sem 3\Week 6> java Eight

Enter size of array: 5

Enter 5 elements: -5 67 12 86 33

Array: -5 67 12 86 33

Largest Element: 86

Second largest element: 67

PS D:\Uni Material\LAB\sem 3\Week 6>

Output:

Write a program to implement Fibonacci series up to N terms (0,1,1,2,3,5....).

Question 9:

Output:

PS D:\Uni Material\LAB\sem 3\Week 6> javac Nine.java

PS D:\Uni Material\LAB\sem 3\Week 6> java Nine

Enter number of terms: 10

0 1 1 2 3 5 8 13 21 34

PS D:\Uni Material\LAB\sem 3\Week 6>

import java.util.Scanner;

public class Nine {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

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

        int n = sc.nextInt();

        if (n <= 0) {

            System.out.println("Invalid input! n must be >= 1.");

        } else {

            int first = 0, second = 1;

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

                int next = first + second;

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

                first = second;

                second = next;

            }

        }

        sc.close();

    }

}

Code:

import java.util.Scanner;

public class Ten {

    public static void printArray(int[] arr, int size) {

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

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

        System.out.println();

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

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

        int n = sc.nextInt();

        if (n <= 0) {

            System.out.println("Invalid size! Array size must be at least 1.");

            sc.close(); return;

        }

        int[] arr = new int[n];

        System.out.print("Enter " + n + " elements: ");

        for (int i = 0; i < n; i++)

            arr[i] = sc.nextInt();

        System.out.print("Original Array: ");

        printArray(arr, n); sc.close();

        System.out.print("Reversed Array: ");

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

            int temp = arr[i];

            arr[i] = arr[n - 1 - i];

            arr[n - 1 - i] = temp;

        } printArray(arr, n);

    }

}

Code:

Write a Java program to reverse all elements of an array.

Question 10:

Output:

PS D:\Uni Material\LAB\sem 3\Week 6> javac Ten.java

PS D:\Uni Material\LAB\sem 3\Week 6> java Ten

Enter size of array: 5

Enter 5 elements: 10 25 78 49 63

Original Array: 10 25 78 49 63

Reversed Array: 63 49 78 25 10

PS D:\Uni Material\LAB\sem 3\Week 6>

Output:

import java.util.Scanner;

public class Eleven {

    public static void main(String[] args) {

        Scanner scan = new Scanner(System.in);

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

        String str = scan.nextLine();

        scan.close();

        int totalUniqueChar = 0;

        int totalChar = 0;

        int[] freq = new int[256];

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

            freq[str.charAt(i)]++;

        for(int i = 0; i < 256; i++){

            if(freq[i] != 0){

                totalUniqueChar++;

                totalChar += freq[i];

                if ( (char)i == ' ')

                    System.out.println("Spaces: " + freq[i]);

                else

                    System.out.println((char)i + ": " + freq[i]);

            }

        }

Code:

Question 11:

Write a Java program to find the frequency of each character in a given string

        System.out.println("Total unique characters: " + totalUniqueChar);

        System.out.println("Total characters: " + totalChar);

    }

}

Code:

PS D:\Uni Material\LAB\sem 3\Week 6> java Eleven

Enter string: Try to count me! 1 2 3....GO !!

Spaces: 7

!: 3

.: 4

1: 1

2: 1

3: 1

G: 1

O: 1

T: 1

c: 1

e: 1

m: 1

n: 1

o: 2

r: 1

t: 2

u: 1

y: 1

Total unique characters: 18

Total characters: 31

Output: