Some Basic DSA Asked In Technical Round, Java Edition For Freshers

@ajay-shankar-k

Counting the vowels:

```java
import java.util.*;

public class Vowels {
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter a word :");
        String word = scan.nextLine();
        char[] arr = word.toCharArray();

        int a = 0;
        int e = 0;
        int i = 0;
        int o = 0;
        int u = 0;

        for(char x:arr){
            if('a'==x){
                a++;
            }else if('e'==x) {
                e++;
            }else if('i'==x){
                i++;
            }else if('o'==x){
                o++;
            }else if('u'==x){
                u++;
            }
        }
        System.out.println("There are "+a+":a "+e+":e "+i+":i "+o+":o "+u+":u");

    }
}

//code by Ajay Shankar
```

count the vowels of the given word if input is ‘apple’ output will be ‘a:1, e:1’.

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Sorting a array:

```java
import java.util.Arrays;
import java.util.Random;
public class SortingAArray {
    public static void main(String[] args) {
        int [] generatedArray = arrayGenerator(5);
        System.out.println(Arrays.toString(sortingArray(generatedArray)));
    }
    public static int[] arrayGenerator(int len){    //generating a random array
        Random rand = new Random();
        int [] numarray = new int[len];
        for(int i = 0 ; i<len ; i++){
            numarray[i] = rand.nextInt(100);
        }
        return numarray;
    }

    public static int[] sortingArray(int[] arr){ //  desc sorting array function
        for(int i = 0; i<arr.length;i++){
            for(int j = 0 ; j<arr.length;j++){
                if(arr[i]>arr[j]){
                    int temp = arr[i];
                    arr[i] = arr[j];
                    arr[j] = temp;
                }
            }
        }
        return arr;
    }

}

//code by Ajay Shankar
```

To sort an array in ascending or decending.

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Reverse join a array:

```java

import java.util.*;
public class RevJoinData {
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter words with ',' :");
        String word = scan.nextLine();
        String[] arr = word.split(",");
        ArrayList<String> rev= new ArrayList<>();
        for(int i=arr.length-1;i>=1;i--){
            rev.add(arr[i]);
        }
        String words = String.join(".",rev);
        System.out.println(words);
    }


}

//code by Ajay Shankar

```

if the input is ‘apple,orange’ , the output is ‘orange.apple’.

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Finding the prime number:

```java
import java.util.*;
public class PrimeNumber {
    public static void main(String[] args){
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int number = scanner.nextInt();

        if (isPrime(number)) {
            System.out.println(number + " is a prime number.");
        } else {
            System.out.println(number + " is not a prime number.");
        }

        scanner.close();
    }

    static boolean isPrime(int num) {
        if (num <= 1) {
            return false;
        }
        for (int i = 2; i <= Math.sqrt(num); i++) {
            if (num % i == 0) {
                return false;
            }
        }
        return true;
    }
}

//code by Ajay Shankar
```

To find whether the given number is prime or not.

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Reversing a number without converting to String:

```java
import java.util.*;
public class ReverseNumber {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter a number :");
        int num = scan.nextInt();
        int rev = 0;
        while(num≠0){
            int digit = num % 10;
            rev = rev * 10 + digit;
            num /= 10;
        }
        System.out.println(rev);
        scan.close();
    }
}

//code by Ajay Shankar
```

if the input is 569 , the output is 965.

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Sum of N natural number:

```java

import java.util.*;

public class SumOfNNumbers {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter a number :");
        int num = scan.nextInt();
        int sum =  num*(num+1)/2;

        System.out.println("Sum of n Natural Number :" + sum);

    }
}

//code by Ajay Shankar
```

To find natural number of a given number.

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Perfect number:

```java
import java.util.*;
public class PerfectNumber {
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter a number :");
        int num = scan.nextInt();

        int perfect = 0;
        for(int i=1;i<num;i++){
            if(num % i ==0){
                perfect = perfect + i;
            }
        }
        if(perfect==num){
            System.out.println(num+" is a perfect number.");
        }else{
            System.out.println(num+" is not a perfect number.");
        }
    }
}

//code by Ajay Shankar
```

To find perfectnumber of a given number.

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Palindrome:

```java
import java.util.*;

public class Palindrome {
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter a word :");
        String word = scan.nextLine();
        char[] arr = word.toCharArray();
        String palindrome = "";
        for(int i=arr.length-1;i>=1;i--){
            palindrome += arr[i];
        }
        if(word.equals(palindrome)){
            System.out.println(palindrome+" is a palindrome");
        }else{
            System.out.println(palindrome+" is not a palindrome");
        }
        scan.close();
    }
}

// code by Ajay Shankar
```

If the input is ‘mam’ then the output is ‘mam’ is a palindrome.

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Linear search:

```java
import java.util.*;
public class LinearSearch {
    public static void main(String[] args){
        int[] x = {11,45,65,84,56};
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter a number to find index of :"+Arrays.toString(x));
        int search = scan.nextInt();
        boolean found = false;

        for(int i=0;i<x.length;i++){
            if(search==x[i]){
                System.out.println("The index of "+x[i]+" is "+i);
                found = true;
            }
        }
        if (!found){
            System.out.println("Data not found");
        }
    }
}

// code by Ajay Shankar
```

To find the given number in a array.

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Bonus:

```java
import java.util.*;

// Excercise using exceptional handling and asking input again and again using do while loop
public class GuessNumberGame {
    public static void main(String[] args) {
        boolean act = false;
        int guess = 6;
        int counter = 3;
        do{
            if (counter==0) {
                System.out.println("Game Over you have " + counter + " Life!!");
                act = true;
                break;
            }

            Scanner scan = new Scanner(System.in);
            System.out.println("Guess the number 1-10 :");

            //Exception handling
            try {
                int num = scan.nextInt();
                if (guess == num) {
                    System.out.println("Correct You Win!!");
                    act = true;
                } else {
                    counter--;
                    if (counter != 0) {
                        System.out.println("Incorrect you have " + counter + " Life left");
                    }
                }
            }catch (InputMismatchException nfe){
                System.out.println("Enter numbers only!!!");
                break;
            }
        }while (!act);


    }

}

// code by Ajay Shankar

```

Bonus Give Away Code For a small Guessing Game🎉🎉.

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Fibonacci Series:

```java
import java.util.*;
public class Fibonacci {
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter a number");

        int n = scan.nextInt();
        int first = 0, second = 1;

        System.out.println("Fibonacci Series:");
        System.out.print(first + " " + second);

        for (int i = 2; i < n; i++) {
            int next = first + second;
            System.out.print(" " + next);
            first = second;
            second = next;
        }

    }
}

//code by Ajay Shankar
```

To find the fibonacci series of a given number.

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Factorial:

```java
import java.util.*;
public class Factorial {
    public static void main(String[] args){
        System.out.println("Enter a number :");
        Scanner scan = new Scanner(System.in);
        Factorial fun = new Factorial();
        int y = scan.nextInt();
        System.out.println("Factorial of "+y+" is "+fun.func(y));
    }
    public int func(int x){
        int a = 1;
        for(int i=1;i<=x;i++){
            a *= i;
        }
        return a;
    }
}

//code by Ajay Shankar
```

To find the factorial of a given number.

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Finding Average:

```java
import java.util.*;
public class AvgOfAGivenNumber {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter numbers in ',' :");
        String num = scan.nextLine();
        String[] numbers = num.split(",");
        ArrayList<Integer> saved= new ArrayList<>();

        for(String i:numbers){
            int number = Integer.parseInt(i);
            saved.add(number);
        }

        int avg = 0;
        int div = 0;
        for(int x:saved){
            avg = avg+x;
            div++;
        }

        int last = avg/div;
        System.out.println("Average of given numbers :"+last);


    }
}

// code by Ajay Shankar
```

To find the Average of the given numbers inside of a array.

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Adding Number Itself without converting into String:

```java

import java.util.*;

public class AddNumberItself {
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter a number :");
        int x = scan.nextInt();
        int add = 0;

        while(x≠0){
            int dig = x % 10;
            add = add + dig;
            x /= 10;
        }
        System.out.println("Added number :"+add);

    }
}

// code by Ajay Shankar
```

if the input is 123 then the output is 6

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