**Java Assignment 01**

1. **Logical Coding Question:**

**Que 09 –**

**Draw below pattern-**

1 2 3 4 5

2 3 4 5

3 4 5

4 5

5

4 5

3 4 5

2 3 4 5

1 2 3 4 5

**Ans🡪**

import java.util.Scanner;

public class Pattern\_Question\_09

{

public static void main(String[] args)

{

Scanner sc = new Scanner(System.in);

//Taking rows value from the user

System.out.println("How many rows you want in this pattern?");

int rows = sc.nextInt();

System.out.println("Here is your pattern....!!!");

//Printing upper half of the pattern

for (int i = 1; i <= rows; i++)

{

//Printing i spaces at the beginning of each row

for (int j = 1; j < i; j++)

{

System.out.print(" ");

}

//Printing i to rows value at the end of each row

for (int j = i; j <= rows; j++)

{

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

}

System.out.println();

}

//Printing lower half of the pattern

for (int i = rows-1; i >= 1; i--)

{

//Printing i spaces at the beginning of each row

for (int j = 1; j < i; j++)

{

System.out.print(" ");

}

//Printing i to rows value at the end of each row

for (int j = i; j <= rows; j++)

{

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

}

System.out.println();

}

//Closing the resources

sc.close();

}

}

/\*

**OUTPUT -**

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment>java Pattern\_Question\_09

How many rows you want in this pattern?

5

Here is your pattern....!!!

1 2 3 4 5

2 3 4 5

3 4 5

4 5

5

4 5

3 4 5

2 3 4 5

1 2 3 4 5

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment>

\*/

**Que 10)**

**Draw Pattern**

A

B B

C C C

D D D D

E E E E E

F F F F F F

Ans🡪

/\*

Java Assignment 1

Logical Coding Question: 8

\*/

class Pattern\_Question\_10{

public static void main(String[]args)

{

int c,r;

c=0;

r=6;

char ch='A';

//Outer Loop

for (int i=1; i<=r;i++)

{

// ch='A'

// Inner Loop

for(int j=1;j<=i;j++)

{

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

}

ch++;

System.out.println();

}

System.out.println("Program Finished.");

}

}

**/\***

**OUTPUT-**

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment>java Pattern\_Question\_10

A

B B

C C C

D D D D

E E E E E

F F F F F F

Program Finished.

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment>

\*/

**Que 25)**

**Draw Pattern**

1 2 3 4 5 6 7

2 3 4 5 6 7 1

3 4 5 6 7 1 2

4 5 6 7 1 2 3

5 6 7 1 2 3 4

6 7 1 2 3 4 5

7 1 2 3 4 5 6

**Ans🡪**

class Pattern\_Question\_25{

public static void main(String[]args)

{

int c,r;

c=0;

r=7;

// Outer Loop

for (int i=1; i<=r;i++)

{

// Inner Loop -First Triangle

for(int j=i;j<=r;j++)

{

System.out.print(j+" "); //it prints number from ith to 7

}

// Inner Loop -Second Triangle

for (int k=1;k<i;k++)

{

System.out.print(k+" "); //it prints number from 1 to (i-1)th

}

System.out.println();

}

System.out.println("Program Finished.");

}

}

/\*

**OUTPUT-**

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment>java Pattern\_Question\_25

1 2 3 4 5 6 7

2 3 4 5 6 7 1\*

3 4 5 6 7 1\*2\*

4 5 6 7 1\*2\*3\*

5 6 7 1\*2\*3\*4\*

6 7 1\*2\*3\*4\*5\*

7 1\*2\*3\*4\*5\*6\*

Program Finished.

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment>java Pattern\_Question\_25

1 2 3 4 5 6 7

2 3 4 5 6 7 1

3 4 5 6 7 1 2

4 5 6 7 1 2 3

5 6 7 1 2 3 4

6 7 1 2 3 4 5

7 1 2 3 4 5 6

Program Finished.

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment>

\*/

1. **Class, Objects, Variables, Methods & Constructors Coding Questions**

**Que 09)** Java Program to Implement the Passing and Returning Objects

**Ans🡪**

-->Java Program to Demonstrate Objects Passing to Methods.

class ObjectPassDemo {

int a, b;

// Constructor

ObjectPassDemo(int i, int j)

{

a = i;

b = j;

}

// Method

boolean equalTo(ObjectPassDemo o)

{

// Returns true if o is equal to the invoking

// object notice an object is passed as an

// argument to method

return (o.a == a && o.b == b);

}

}

// Main class

public class Que09 {

// MAin driver method

public static void main(String args[])

{

// Creating object of above class inside main()

ObjectPassDemo ob1 = new ObjectPassDemo(100, 22);

ObjectPassDemo ob2 = new ObjectPassDemo(100, 22);

ObjectPassDemo ob3 = new ObjectPassDemo(-1, -1);

// Checking whether object are equal as custom

// values

// above passed and printing corresponding boolean

// value

System.out.println("ob1 == ob2: "

+ ob1.equalTo(ob2));

System.out.println("ob1 == ob3: "

+ ob1.equalTo(ob3));

}

}

/\*

**OUTPUT -**

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment\Class, Objects, Variables, Methods & Constructors Coding Questions>java Passing\_and\_Returning\_Objects

ob1 == ob2: true

ob1 == ob3: false

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment\Class, Objects, Variables, Methods & Constructors Coding Questions>\*/

**Que10.** Java Program to Swap Objects using Swap() Method

**Ans🡪1**

/\*

--> Java program to demonstrate that we can swap two objects be swapping members

-->Direct Object Swapping - is not swaps all parameters present in any object

\*/

// objects be swapping members

// Where it does not work

// Class 1

// A car with number and name

class Car {

// Attributes of Car class

int no;

String model;

// Constructor

Car()

{

this.model = "No Car";

this.no= 0;

}

Car(String model, int no)

{

// This keyword is used to refer

// current instance itself

this.model = model;

this.no = no;

}

}

// Class 2

// A class that uses Car

class Que10

{

// swap() doesn't swap c1 and c2

public static void swap(Car c1, Car c2)

{

Car temp = c1;

c1 = c2;

c2 = temp;

System.out.println("in swap() method call-");

System.out.println("Obj1 : no = " + c1.no +", model = " + c1.model);

System.out.println("Obj2 : no = " + c2.no +", model = " + c2.model);

}

// Driver method

public static void main(String[] args)

{

Car c1 = new Car("Audi", 1);

Car c2 = new Car("BMW", 2);

System.out.println("Current Objects-");

System.out.println("Obj1 : no = " + c1.no +", model = " + c1.model);

System.out.println("Obj2 : no = " + c2.no +", model = " + c2.model);

// c1.print();

// c2.print();

swap(c1, c2);

System.out.println("After Swapping the Object in main method-");

System.out.println("Obj1 : no = " + c1.no +", model = " + c1.model);

System.out.println("Obj2 : no = " + c2.no +", model = " + c2.model);

// c1.print();

// c2.print();

}

}

/\*

**OUTPUT-** object are not swapped by direct swapping of object using Swap()method.

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment\Class, Objects, Variables>java Que10

Current Objects-

Obj1 : no = 1, model = Audi

Obj2 : no = 2, model = BMW

in swap() method call-

Obj1 : no = 2, model = BMW

Obj2 : no = 1, model = Audi

After Swapping the Object in main method-

Obj1 : no = 1, model = Audi

Obj2 : no = 2, model = BMW

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment\Class, Objects, Variables>

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment\Class, Objects, Variables>

\*/

**Ans🡪A--> Using concepts of OOPS**

\*/

// Java program to demonstrate that we can swap two

// objects be swapping members

class Car {

// Attributes associated with car

int no;

Car(int no) { this.no = no; }

}

// Uses Car objects

class Que10A {

// Method 1

// To swap

public static void swap(Car c1, Car c2)

{

int temp = c1.no;

c1.no = c2.no;

c2.no = temp;

}

// Method 2

// Main driver method

public static void main(String[] args)

{

// Creating car class objects(creating cars)

Car c1 = new Car(1);

Car c2 = new Car(2);

System.out.println("Current Objects-");

System.out.println("c1.no = " + c1.no);

System.out.println("c2.no = " + c2.no);

// Calling method 1

swap(c1, c2);

System.out.println("After Swapping the Object-");

// Print and display commands

System.out.println("c1.no = " + c1.no);

System.out.println("c2.no = " + c2.no);

}

}

/\*

**OUTPUT-** by Swaping objects actual parameters ae swapped only with eachparameter swapping and not whole object.

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment\Class, Objects, Variables>java Que10A

Current Objects-

c1.no = 1

c2.no = 2

After Swapping the Object-

c1.no = 2

c2.no = 1

**OUTPUT 2-**

by Swaping objects actual parameters ae not swapped. to overcome this we need Wrapper class of object.

F:\CDAC\CDAC\_Lab\Nov 03 2022>java Que10

Current Objects-

c1.no = 1

c2.no = 2

After Swapping the Object-

c1.no = 2

c2.no = 1

\*/

**Ans🡪B--> Can be Used to Swap two Objects**

class Car {

// Attributes associated with car

int no;

String model;

// Constructor of class 1

Car(String model, int no)

{

// This refers to current instance itself

this.model = model;

this.no = no;

}

}

// Class 2

// Wrapper over class that is used for swapping

class CarWrapper {

Car c;

// Constructor

CarWrapper(Car c) { this.c = c; }

}

// Class 3

// Uses Car class and swaps objects of Car using CarWrapper

class Que10B {

// This method swaps car objects in wrappers cw1 and cw2

public static void swap(CarWrapper cw1, CarWrapper cw2)

{

Car temp = cw1.c;

cw1.c = cw2.c;

cw2.c = temp;

}

// Main driver method

public static void main(String[] args)

{

Car c1 = new Car("Ferrari", 3);

Car c2 = new Car("Bugati", 4);

//C1 and C2 assigned in wrapper class

CarWrapper cw1 = new CarWrapper(c1);

CarWrapper cw2 = new CarWrapper(c2);

System.out.println("Before Swapping the Object in main method-");

System.out.println("Obj1 : no = " + c1.no +", model = " + c1.model);

System.out.println("Obj2 : no = " + c2.no +", model = " + c2.model);

swap(cw1, cw2); //swapping of 2 object of wrapper class.

// assignback wrapper class object to original objects.

c1=cw1.c;

c2=cw2.c;

// printing original object after swapping

System.out.println("After Swapping the Object in main method-");

System.out.println("Obj1 : no = " + c1.no +", model = " + c1.model);

System.out.println("Obj2 : no = " + c2.no +", model = " + c2.model);

}

}

/\*

**OUTPUT -**

F:\CDAC\CDAC\_Lab\Diwali Homework\Pattern Assignment\Class, Objects, Variables>java Que10B

**Before Swapping the Object in main method-**

Obj1 : no = 3, model = Ferrari

Obj2 : no = 4, model = Bugati

**After Swapping the Object in main method-**

Obj1 : no = 4, model = Bugati

Obj2 : no = 3, model = Ferrari

\*/

1. **Arrays Coding Questions:**

**Que11. How to convert a byte array to String?**

**Ans🡪**

public class Que11\_ByteArraytoStringExample

{

// Display funtion to print byte array

static void display(byte arr[])

{

int l=arr.length;

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

{

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

}

System.out.println();

}

public static void main(String args[])

{

try

{

//Given Byte Array

byte[] bytes = "Diwali Homework".getBytes();

System.out.println("Given byte array:");

display(bytes);

//creates a string from the byte array without specifying character encoding

String s = new String(bytes);

System.out.println("Given byte array to String Conversion:");

System.out.println(s);

}

catch(Exception e)

{

e.printStackTrace();

}

}

}

/\***OUTPUT - BYTE ARRAY TO STRING CONVERSION HERE NUMBERS REPRESENTING BYTES ARE ASCII VALUES OF GIVEN CHARACTER**

F:\CDAC\CDAC\_Lab\Diwali Homework\Arrays Coding Questions>java Que11\_ByteArraytoStringExample

Given byte array:

68 , 105 , 119 , 97 , 108 , 105 , 32 , 72 , 111 , 109 , 101 , 119 , 111 , 114 , 107 ,

Given byte array to String Conversion:

Diwali Homework

\*/

/\*ROTATION OF AN ARRAY(LEFT AND RIGHT ROTATION BY k ELEMENTS) \*/

import java.io.\*;

import java.util.Scanner;

class Que12\_Rotation\_Of\_Array {

// Function 01 - Left Rotation of Array by K elements with auxiliary array temp[].(space complexity)

static void leftRotate\_usingTempArray(int arr[], int k)

{

int n=arr.length;

if(k>n) // when k is greater than length of array means iteration ishappening.

{ k=k%n;}

// Storing rotated version of array

int temp[] = new int[n];

// Keeping track of the current index

// of temp[]

int j = 0;

// Storing the n - k elements of

// array arr[] to the front of temp[]

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

temp[j] = arr[i];

j++;

}

// Storing the first d elements of array arr[]

// into temp

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

temp[j] = arr[i];

j++;

}

// Copying the elements of temp[] in arr[]

// to get the final rotated array

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

arr[i] = temp[i];

}

}

// Function 02 - Right Rotation of Array by K elements with auxiliary array temp[].(space complexity)

static void rightRotate\_usingTempArray(int arr[],int k)

{

int n=arr.length;

int j=0;// current index for temp[] array

int temp[] = new int[n]; // defined temp array with lenght n.

if(k>n) // when k is greater than length of array means iteration ishappening.

{ k=k%n;}

//storing k to n elements in temp[] array

for(int i=n-k;i<n;i++)

{

temp[j]=arr[i]; //storing last k elements as first elements

j++;

}

for(int i=0;i<n-k;i++) //Storing first k elemets 0 to k-1 in last k indices of temp array.

{

temp[j]=arr[i];

j++;

}

for(int i=0;i<n;i++) // assign all elements present in temp[] to arr[]

{

arr[i]=temp[i];

}

}

// Function 03 - Left Rotation of Array by K elements without auxiliary array temp[].(space complexity)

static void leftRotate\_usingIteration(int arr[], int k)

{

int n=arr.length;

int j=0; //for counting of loop

while(j<k)

{

int firstelement=arr[0];

for(int i=0;i<n-1;i++)

{

arr[i]=arr[i+1];

}

arr[n-1]=firstelement;

j++;

}

}

// Function 04 - Right Rotation of Array by K elements without auxiliary array temp[].(space complexity)

static void rightRotate\_usingIteration(int arr[], int k)

{

int n=arr.length;

int j=0; //for counting of loop

while(j<k)

{

int lastelement=arr[n-1];

for(int i=n-1;i>0;i--)

{

arr[i]=arr[i-1];

}

arr[0]=lastelement;

j++;

}

}

// Function to print elements of array

static void PrintTheArray(int arr[])

{

int n=arr.length;

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

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

}

System.out.println();

}

public static void main (String[] args) {

Scanner sc = new Scanner(System.in);

int arr[] = {1, 2, 3, 4, 5, 6, 7,8,9,10};

int N = arr.length;

int k;// shift arrayelements to Left or Right posiotion by k

// k = 3;

int ch=0; // choice variable initialization to enter into while loop

while(ch!=5)

{

System.out.println("Original Array");

PrintTheArray(arr);

System.out.println("Press 1: leftRotate\_usingTempArray.");

System.out.println("Press 2: rightRotate\_usingTempArray.");

System.out.println("Press 3: leftRotate\_usingIteration.");

System.out.println("Press 4: rightRotate\_usingIteration.");

System.out.println("Press 5: Quit the Program.");

System.out.println("Enter Your Choice:");

ch=sc.nextInt();

switch(ch)

{

case 1:

System.out.println("Enter the value of k to shift the array by k positions:");

k=sc.nextInt();

System.out.println("Given input of k="+k);

// Function 01 calling

leftRotate\_usingTempArray(arr, k);

System.out.println("leftRotate\_usingTempArray with elements k="+k);

PrintTheArray(arr);

break;

case 2:

System.out.println("Enter the value of k to shift the array by k positions:");

k=sc.nextInt();

System.out.println("Given input of k="+k);

// Function 02 calling

rightRotate\_usingTempArray(arr, k);

System.out.println("rightRotate\_usingTempArray with elements k="+k);

PrintTheArray(arr);

break;

case 3:

System.out.println("Enter the value of k to shift the array by k positions:");

k=sc.nextInt();

System.out.println("Given input of k="+k);

// Function 03 calling

leftRotate\_usingIteration(arr, k);

System.out.println("leftRotate\_usingIteration with elements k="+k);

PrintTheArray(arr);

break;

case 4:

System.out.println("Enter the value of k to shift the array by k positions:");

k=sc.nextInt();

System.out.println("Given input of k="+k);

// Function 04 calling

rightRotate\_usingIteration(arr, k);

System.out.println("rightRotate\_usingIteration with elements k="+k);

PrintTheArray(arr);

break;

case 5: System.out.println("Your have selected to Quit the program.");

break;

default: System.out.println("Seems entered wrong option.!\nPlease enter correct choice.");

}

System.out.println();

}

}

}

/\*OUTPUT - ARRAY ROTATION BY K element.

F:\CDAC\CDAC\_Lab\Diwali Homework\Arrays Coding Questions>java Que12\_Rotation\_Of\_Array

Original Array

1 2 3 4 5 6 7 8 9 10

Press 1: leftRotate\_usingTempArray.

Press 2: rightRotate\_usingTempArray.

Press 3: leftRotate\_usingIteration.

Press 4: rightRotate\_usingIteration.

Press 5: Quit the Program.

Enter Your Choice:

1

Enter the value of k to shift the array by k positions:

2

Given input of k=2

leftRotate\_usingTempArray with elements k=2

3 4 5 6 7 8 9 10 1 2

Original Array

3 4 5 6 7 8 9 10 1 2

Press 1: leftRotate\_usingTempArray.

Press 2: rightRotate\_usingTempArray.

Press 3: leftRotate\_usingIteration.

Press 4: rightRotate\_usingIteration.

Press 5: Quit the Program.

Enter Your Choice:

2

Enter the value of k to shift the array by k positions:

3

Given input of k=3

rightRotate\_usingTempArray with elements k=3

10 1 2 3 4 5 6 7 8 9

Original Array

10 1 2 3 4 5 6 7 8 9

Press 1: leftRotate\_usingTempArray.

Press 2: rightRotate\_usingTempArray.

Press 3: leftRotate\_usingIteration.

Press 4: rightRotate\_usingIteration.

Press 5: Quit the Program.

Enter Your Choice:

3

Enter the value of k to shift the array by k positions:

4

Given input of k=4

leftRotate\_usingIteration with elements k=4

4 5 6 7 8 9 10 1 2 3

Original Array

4 5 6 7 8 9 10 1 2 3

Press 1: leftRotate\_usingTempArray.

Press 2: rightRotate\_usingTempArray.

Press 3: leftRotate\_usingIteration.

Press 4: rightRotate\_usingIteration.

Press 5: Quit the Program.

Enter Your Choice:

4

Enter the value of k to shift the array by k positions:

5

Given input of k=5

rightRotate\_usingIteration with elements k=5

9 10 1 2 3 4 5 6 7 8

Original Array

9 10 1 2 3 4 5 6 7 8

Press 1: leftRotate\_usingTempArray.

Press 2: rightRotate\_usingTempArray.

Press 3: leftRotate\_usingIteration.

Press 4: rightRotate\_usingIteration.

Press 5: Quit the Program.

Enter Your Choice:

6

Seems entered wrong option.!

Please enter correct choice.

Original Array

9 10 1 2 3 4 5 6 7 8

Press 1: leftRotate\_usingTempArray.

Press 2: rightRotate\_usingTempArray.

Press 3: leftRotate\_usingIteration.

Press 4: rightRotate\_usingIteration.

Press 5: Quit the Program.

Enter Your Choice:

5

Your have selected to Quit the program.

\*/

1. **String Coding Questions:**

**Que09. How to convert numeric String to an int?**

**Ans🡪**

/\*-->Java Program to Convert a String to Int

-->Variants of parseInt() Method

There are two variants of this method:

1-->parseInt(String s): This function parses the string argument as a signed decimal integer.

Syntax: public static int parseInt(String s) throws NumberFormatException

2-->parseInt(String s, int radix): This function parses the string argument as a signed integer in the radix specified by the second argument.

Syntax: public static int parseInt(String s, int radix) throws NumberFormatException

\*/

public class Que09\_String\_to\_Integer {

// Main driver method

public static void main(String args[])

{

// Custom wide-varied inputs to illustrate usage of valueOf() method

int decimalExample = Integer.parseInt("20");

int signedPositiveExample = Integer.parseInt("+20");

int signedNegativeExample = Integer.parseInt("-20");

int radixExample = Integer.parseInt("20", 16);

int stringExample = Integer.parseInt("geeks", 29);

// Print commands on console

System.out.println("decimalExample:"+decimalExample);

System.out.println("signedPositiveExample: "+signedPositiveExample);

System.out.println("signedNegativeExample:"+signedNegativeExample);

System.out.println("radixExample: "+radixExample);

System.out.println("stringExample "+stringExample);

}

}

**/\*OUTPUT - STRING TO INTEGER CONVERSION**

F:\CDAC\CDAC\_Lab\Diwali Homework\String Coding Questions>java Que09\_String\_to\_Integer

decimalExample:20

signedPositiveExample: 20

signedNegativeExample:-20

radixExample: 32

stringExample 11670324

\*/

1. **Special Coding questions:**

**Que09.** Note: a palindrome is a sequence of characters that reads the same forwards and backwards.

Ex: Given the following strings...

"abcba", return true

"foobof", return true (remove the first 'o', the second 'o', or 'b')

"abccab", return false

**Ans🡪**

import java.util.Scanner;

import java.io.\*;

class Que09\_StringPalindrome {

public static String removeConsecutiveDuplicates(String input)

{

if (input.length() <= 1)

return input;

if (input.charAt(0) == input.charAt(1))

return removeConsecutiveDuplicates(input.substring(1));

else

return input.charAt(0)

+ removeConsecutiveDuplicates(input.substring(1));

}

static void isPalindrome(String s1)

{

String s = removeConsecutiveDuplicates(s1);

int strLength = s.length();

String reverseStr = "";

for (int i = (strLength - 1); i >=0; --i)

{

reverseStr = reverseStr + s.charAt(i);

}

if (s.toLowerCase().equals(reverseStr.toLowerCase())) {

System.out.println(s1 + " is a Palindrome String.");

}

else {

System.out.println(s1 + " is not a Palindrome String.");

}

}

public static void main(String[] args)

{

String str;

// str = "Radar";// reverseStr = "";

str ="abcba";// return true

isPalindrome(str);

str ="foobof";// return true (remove the first 'o', the second 'o', or 'b')

isPalindrome(str);

str ="abccab";// return false

isPalindrome(str);

// System.out.println("Enter the String to check whether it is Palindrome?: ");

// Scanner sc = new Scanner(System.in);

// str = sc.nextLine();

// isPalindrome(str);

}

}

/\***Output - String Palindrom after removing consecutive duplicate characters**

F:\CDAC\CDAC\_Lab\Diwali Homework\Special Coding questions>javac Que09\_StringPalindrome.java

F:\CDAC\CDAC\_Lab\Diwali Homework\Special Coding questions>java Que09\_StringPalindrome

abcba is a Palindrome String.

foobof is a Palindrome String.

abccab is not a Palindrome String.

\*/

**Que10.** Given a string representing your stones and another string representing a list of jewels, return the number of stones that you have that are also jewels.

Ex: Given the following jewels and stones...

jewels = "abc", stones = "ac", return 2

jewels = "Af", stones = "AaaddfFf", return 3

jewels = "AYOPD", stones = "ayopd", return 0

**Ans🡪**

class Que10\_StringCharOccurenace

{

// Method that return count of the given

// character in the string

public static int count(String s, String j)

{

int res = 0;

for(int k=0;k<j.length();k++)

{

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

{

// checking character in string

if (s.charAt(i) == j.charAt(k))

res++;

}

}

return res;

}

// Driver method

public static void main(String args[])

{

String stones, jewels;

stones= "ab";

jewels= "abc";

System.out.println("Jewels which are also stones are:"+(count(stones,jewels)));

stones= "AaaddfFf";

jewels= "Af";

System.out.println("Jewels which are also stones are:"+(count(stones,jewels)));

stones= "AYOPD";

jewels= "ayopd";

System.out.println("Jewels which are also stones are:"+(count(stones,jewels)));

}

}

/\***OUTPUT - FIND COUNT OF CHAR PRESENT IN DESTINATION STRING AND SOURCE STRING**

F:\CDAC\CDAC\_Lab\Diwali Homework\Special Coding questions>java Que10\_StringCharOccurenace

Jewels which are also stones are:2

Jewels which are also stones are:3

Jewels which are also stones are:0

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**Que11.** Given two strings, s and t, merge the two strings together alternating characters starting with s.

Note: If one string is longer than the other, append the remaining characters of the longer string at the end of the merged string.

test case:

s = "abc", t = "def", return "adbecf".

**Ans🡪**

// Java code to alternatively merge two strings

public class Que11\_StringMerge\_AlternateChar {

// Function for alternatively merging two strings

static String merge(String s1, String s2)

{

// To store the final string

StringBuilder result = new StringBuilder();

// For every index in the strings

for (int i = 0; i < s1.length() || i < s2.length(); i++) {

// First choose the ith character of the

// first string if it exists

if (i < s1.length())

result.append(s1.charAt(i));

// Then choose the ith character of the

// second string if it exists

if (i < s2.length())

result.append(s2.charAt(i));

}

return result.toString();

}

// Driver code

public static void main(String[] args)

{

String s1 = "Sachin";

String s2 = "CDAC";

System.out.println("Input Strings:\n"+s1+"\n"+s2);

System.out.println("Output String:");

System.out.println(merge(s1, s2));

}

}

/\***OUTPUT-**

F:\CDAC\CDAC\_Lab\Diwali Homework\Special Coding questions>java Que11\_StringMerge\_AlternateChar

Input Strings:

Sachin

CDAC

Output String:

SCaDcAhCin

\*/

1. **Collection coding questions:**

**Que11.** Write a Java program to display the elements and their positions in a linked list.

**Ans🡪**

class Que11\_LinkedListElement\_Position

{

static Node head;

static class Node

{

int data;

Node next;

Node ()

{

}

Node(int d)

{

data =d;

next =null;

}

}

static void display(Node head)

{

Node temp = head;

int pos=0;

if(head==null)

System.out.println("List isempty");

while(temp.next!=null)

{

System.out.println("Pos: "+pos+" Data: "+temp.data+"--->");

temp=temp.next;

pos++;

}

System.out.println();

}

public static void main(String[] args)

{

Que11\_LinkedListElement\_Position list = new Que11\_LinkedListElement\_Position();

Node n1= new Node(2);

Node n2= new Node(4);

Node n3= new Node(6);

Node n4= new Node(8);

Node n5= new Node(10);

Node n6= new Node(12);

Node n7= new Node(14);

head=n1;

n1.next=n2;

n2.next=n3;

n3.next=n4;

n4.next=n5;

n5.next=n6;

n6.next=n7;

System.out.println("Current Linked List :- ");

display(list.head);

// System.out.println("Current Linked List :- ");

}

}

/\***OUTPUT - LinkedList Element and its position**

F:\CDAC\CDAC\_Lab\Diwali Homework\Collection coding questions>java Que11\_LinkedListElement\_Position

Current Linked List :-

Pos: 0 Data: 2--->

Pos: 1 Data: 4--->

Pos: 2 Data: 6--->

Pos: 3 Data: 8--->

Pos: 4 Data: 10--->

Pos: 5 Data: 12--->

\*/

**Que12.** Write a Java program to check if a particular element exists in a linked list

**Ans🡪**

import java.util.Scanner;

import java.io.\*;

class Que12\_SLL\_ElementCheck

{

static Node head;

static class Node

{

int data;

Node next;

Node(int d)

{

data = d;

next = null;

}

}

static void display(Node head)

{

Node temp=head;

if(head==null)

System.out.println("List is empty");

while(temp.next!=null)

{

System.out.print(temp.data+"--->");

temp=temp.next;

}

System.out.println();

}

static int checkelement(Node head, int key)

{

Node temp=head;

int pos=0;

if(head==null)

System.out.println("List is empty");

while(temp.next!=null)

{

if(temp.data==key)

return pos;

temp=temp.next;

pos++;

}

return -1;

}

public static void main(String[] args)

{

Que12\_SLL\_ElementCheck list= new Que12\_SLL\_ElementCheck();

Node n1= new Node(2);

Node n2= new Node(4);

Node n3= new Node(6);

Node n4= new Node(8);

Node n5= new Node(10);

Node n6= new Node(12);

Node n7= new Node(14);

head=n1;

n1.next=n2;

n2.next=n3;

n3.next=n4;

n4.next=n5;

n5.next=n6;

n6.next=n7;

System.out.println("Current Linked List :- ");

display(list.head);

System.out.println("Enter the element you want to search in the list:- ");

Scanner sc = new Scanner(System.in);

int key=sc.nextInt();

int pos = checkelement(list.head,key);

if(pos==-1)

System.out.println("Given element "+key+" is not present in the linked List.");

else

System.out.println("Given element "+key+" is present in List at position index-"+pos);

System.out.println();

}

}

/\***OUTPUT - SEARCH ELEMENT IN THE LINKED LIST**

F:\CDAC\CDAC\_Lab\Diwali Homework\Collection coding questions>java Que12\_SLL\_ElementCheck

Current Linked List :-

2--->4--->6--->8--->10--->12--->

Enter the element you want to search in the list:-

6

Given element 6 is present in List at position index-2

F:\CDAC\CDAC\_Lab\Diwali Homework\Collection coding questions>java Que12\_SLL\_ElementCheck

Current Linked List :-

2--->4--->6--->8--->10--->12--->

Enter the element you want to search in the list:-

2

Given element 2 is present in List at position index-0

F:\CDAC\CDAC\_Lab\Diwali Homework\Collection coding questions>java Que12\_SLL\_ElementCheck

Current Linked List :-

2--->4--->6--->8--->10--->12--->

Enter the element you want to search in the list:-

3

Given element 3 is not present in the linked List.

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\*/

**Que21.** Write a Java program to remove all the elements from a priority queue.

**Ans🡪**

// Elements are of Integer type

import java.util.\*;

public class Que21\_QueueRemoveElement

{

// Main driver method

public static void main(String args[])

{

// Creating an empty PriorityQueue by

// creating an object of integer type

PriorityQueue<Integer> queue = new PriorityQueue<Integer>();

// Adding custom input elements

// using add() method

queue.add(10);

queue.add(15);

queue.add(30);

queue.add(20);

queue.add(5);

// Displaying the PriorityQueue

System.out.println("Initial PriorityQueue: "+ queue);

// Removing elements from the PriorityQueue

// using remove() method - one element at a time

queue.remove(30);

queue.remove(5);

// Displaying the PriorityQueue elements after removal

System.out.println("PriorityQueue after removing elements: " + queue);

queue.clear(); // method to remove all elements in queue

// Displaying the PriorityQueue elements after all elements removal

System.out.println("PriorityQueue after removing all elements(clear() method use): " + queue);

}

}

/\***OUTPUT - REMOVING ELEMENTS FROM PRIORITY QUEUE**

F:\CDAC\CDAC\_Lab\Diwali Homework\Collection coding questions>java Que21\_QueueRemoveElement

Initial PriorityQueue: [5, 10, 30, 20, 15]

PriorityQueue after removing elements: [10, 20, 15]

PriorityQueue after removing all elements(clear() method use): []

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\*/