Java

Q1 WAP in java to reverse a string.

Ans

import java.io.*;

import java.util.Scanner;

class GFG {

       public static void main (String[] args) {

           String str= "Ashi", nstr="";

           char ch;

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

       System.out.println("Ashi"); //Example word

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

       {

           ch= str.charAt(i); //extracts each character

           nstr= ch+nstr; //adds each character in front of the existing string

       }

       System.out.println("Reversed word: "+ nstr);

       }

}

Output : -

```
Original word: Ashi
Reversed word: ishA
```

Q. 2 How to create packages in java. Give an example.

Ans

```
package mypack;
public class Simple{
 public static void main(String args[]){
   System.out.println("Welcome to package");
  }
}
```

Output : -

Welcome to package

Q.3 Write a program in java to illustrate the use of interface in java.

Ans

```
interface Printable{
void print();
}
interface Showable extends Printable{
void show();
}
class TestInterface4 implements Showable{
public void print(){System.out.println("Hello");}
public void show(){System.out.println("Welcome");}

public static void main(String args[]){
TestInterface4 obj = new TestInterface4();
obj.print();
obj.show();
 }
}
```

Output : -

Hello
Welcome

Q.4 Write a java program to show the use of all keywords for exception handling.

Ans

```
public class JavaExceptionExample{
  public static void main(String args[]){
   try{
      //code that may raise exception
      int data=100/0;
   }catch(ArithmeticException e){System.out.println(e);}
   //rest code of the program
   System.out.println("rest of the code...");
  }
}
```

Output :-
Exception in thread main java.lang.ArithmeticException:/ by zero
rest of the code

Q.5 WAP in java for calculating factorial.
Ans

```
class FactorialExample{
 public static void main(String args[]){
  int i,fact=1;
  int number=5;//It is the number to calculate factorial
  for(i=1;i<=number;i++){
     fact=fact*i;
  }
  System.out.println("Factorial of "+number+" is: "+fact);
 }
}
```

Output : -

Factorial of 5 is: 120

Q.6 Write a java program in which total 4 threads should run set different priorities to the thread.

Ans

// Java Program to Illustrate Priorities in Multithreading

// via help of getPriority() and setPriority() method

// Importing required classes

import java.lang.*;

// Main class

class ThreadDemo extends Thread {

        // Method 1

        // run() method for the thread that is called

        // as soon as start() is invoked for thread in main()

        public void run()

        {

                // Print statement

                System.out.println("Inside run method");

        }

        // Main driver method

        public static void main(String[] args)

        {

                // Creating random threads

                // with the help of above class

                ThreadDemo t1 = new ThreadDemo();

                ThreadDemo t2 = new ThreadDemo();

                ThreadDemo t3 = new ThreadDemo();

                ThreadDemo t4 = new ThreadDemo();

```java
// Thread 1
// Display the priority of above thread
// using getPriority() method
System.out.println("t1 thread priority : "
                        + t1.getPriority());


// Thread 2
// Display the priority of above thread
System.out.println("t2 thread priority : "
                        + t2.getPriority());


// Thread 3
System.out.println("t3 thread priority : "
                        + t3.getPriority());
// Thread 4
System.out.println("t4 thread priority : "
                        + t4.getPriority());



// Setting priorities of above threads by
// passing integer arguments
t1.setPriority(2);

t2.setPriority(5);

t3.setPriority(8);

t4.setPriority(10);


// t3.setPriority(21); will throw
// IllegalArgumentException
```

```java
// 2
System.out.println("t1 thread priority : "
                                + t1.getPriority());


// 5
System.out.println("t2 thread priority : "
                                + t2.getPriority());


// 8
System.out.println("t3 thread priority : "
                                + t3.getPriority());


// Main thread

// Displays the name of
// currently executing Thread
System.out.println(
        "Currently Executing Thread : "
        + Thread.currentThread().getName());

System.out.println(
        "Main thread priority : "
        + Thread.currentThread().getPriority());

// Main thread priority is set to 10
Thread.currentThread().setPriority(10);

System.out.println(
```

```
                    "Main thread priority : "

                    + Thread.currentThread().getPriority());

        }

}

Output : -

t1 thread priority : 5

t2 thread priority : 5

t3 thread priority : 5

t4 thread priority : 10

t1 thread priority : 2

t2 thread priority : 5

t3 thread priority : 8

t4 thread priority : 10

Currently Executing Thread : main

Main thread priority : 5

Main thread priority : 10
```

Q.7 Write a java program to replace character or string.

Ans

```java
public class ReplaceExample3 {
    public static void main(String[] args) {
        String str = "oooooo-hhhh-oooooo";
        String rs = str.replace("h","s"); // Replace 'h' with 's'
        System.out.println(rs);
        rs = rs.replace("s","h"); // Replace 's' with 'h'
        System.out.println(rs);
    }
}
```

Output :-

```
oooooo-ssss-oooooo
oooooo-hhhh-oooooo
```

Q.8 Write a java program to demonstrate use of 'static keyword'.

Ans

// Java program to demonstrate execution
// of static blocks and variables

```java
class Test
{
        // static variable
        static int a = m1();

        // static block
        static {
                System.out.println("Inside static block");
        }

        // static method
        static int m1() {
                System.out.println("from m1");
                return 20;
        }

        // static method(main !!)
        public static void main(String[] args)
        {
        System.out.println("Value of a : "+a);
        System.out.println("from main");
        }
}
```

Output :-

from m1

Inside static block

Value of a : 20

from main

Q.9 WAP in java to implement stack using array.

Ans

```java
import java.util.Scanner;
class Stack
{
    int top;
    int maxsize = 10;
    int[] arr = new int[maxsize];


    boolean isEmpty()
    {
        return (top < 0);
    }
    Stack()
    {
        top = -1;
    }
    boolean push (Scanner sc)
    {
        if(top == maxsize-1)
        {
            System.out.println("Overflow !!");
            return false;
        }
        else
        {
            System.out.println("Enter Value");
            int val = sc.nextInt();
            top++;
            arr[top]=val;
            System.out.println("Item pushed");
            return true;
        }
    }
    boolean pop ()
```

```java
        {
            if (top == -1)
            {
                System.out.println("Underflow !!");
                return false;
            }
            else
            {
                top --;
                System.out.println("Item popped");
                return true;
            }
        }
        void display ()
        {
            System.out.println("Printing stack elements .....");
            for(int i = top; i>=0;i--)
            {
                System.out.println(arr[i]);
            }
        }
    }
    public class Stack_Operations {
    public static void main(String[] args) {
        int choice=0;
        Scanner sc = new Scanner(System.in);
        Stack s = new Stack();
        System.out.println("*********Stack operations using array********\n");
        System.out.println("\n---------------------------------------------\n");
        while(choice != 4)
        {
            System.out.println("\nChose one from the below options...\n");
            System.out.println("\n1.Push\n2.Pop\n3.Show\n4.Exit");
            System.out.println("\n Enter your choice \n");
            choice = sc.nextInt();
            switch(choice)
            {
```

```java
                case 1:
                {
                    s.push(sc);
                    break;
                }
                case 2:
                {
                    s.pop();
                    break;
                }
                case 3:
                {
                    s.display();
                    break;
                }
                case 4:
                {
                    System.out.println("Exiting....");
                    System.exit(0);
                    break;
                }
                default:
                {
                    System.out.println("Please Enter valid choice ");
                }
            }
        }
    }
```

Output :-

Q.10 WAP in java to convert a binary number to decimal and decimal to binary.

Ans

```java
class Main {

  public static void main(String[] args) {

    // binary number
    long num = 110110111;

    // call method by passing the binary number
    int decimal = convertBinaryToDecimal(num);

    System.out.println("Binary to Decimal");
    System.out.println(num + " = " + decimal);
  }

  public static int convertBinaryToDecimal(long num) {
    int decimalNumber = 0, i = 0;
    long remainder;

    while (num != 0) {
      remainder = num % 10;
      num /= 10;
      decimalNumber += remainder * Math.pow(2, i);
      ++i;
    }

    return decimalNumber;
  }
```

}

Output : -

```
110110111 in binary = 439 in decimal
```