Q: Write a Java program to replace each substring of a given string that matches the given regular expression with the given replacement.

CODE:

```
import java.util.Scanner;

public class substr {
   public static void main(String[] args) {
       System.out.print("Enter the String");
       Scanner s= new Scanner(System.in);
       String str= s.nextLine();
       System.out.print("Enter the substring to be replaced");
       String replac=s.nextLine();
       System.out.print("Enter the substring replacement");
       String other=s.nextLine();
       String nstr=str.replaceAll(replac,other);
       System.out.print("The string is : ");
       System.out.print(nstr);
   }
}
```

OUTPUT:

```
/Library/Java/JavaVirtualMachines/jdk-14.jdk/Contents/Home/bin/java "-javaagent:/Applications/IntelliJ
Enter the String a lazy dog is better than a lazy cat
Enter the substring to be replacedlazy
Enter the substring replacementgood
The string is :  a good dog is better than a good cat
Process finished with exit code 0
```

Q: Write a Java program to get a reverse order view of the keys contained in a given map

CODE:

```
import java.util.Scanner;
import java.util.TreeMap;

public class reverse {
   public static void main(String[] args) {
       TreeMap <String,String> t= new TreeMap<String, String>();
       System.out.print("Enter the tree values  : Press 1 to stop");
       Scanner s= new Scanner(System.in);
       String st="2";
       while(true)
       {
```

```
            st=s.nextLine();
            String temp=s.nextLine();
            System.out.print("Map updated with "+st+" , "+temp);
            t.put(st,temp);
            String t2=s.nextLine();
            if(t2.equals("1"))
                break;

        }
            System.out.println("the original map : "+ t);
            System.out.println("the reverse map : "+t.descendingKeySet());
    }
}
```

Output:

```
/Library/Java/JavaVirtualMachines/jdk-14.jdk/Contents/Home/bin/java "-javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_r
Enter the tree values  : Press 1 to stopc1
hello
Map updated with c1 , hello2
c2
hi
Map updated with c2 , hi3
c3
hey
Map updated with c3 , hey4
c4
hii
Map updated with c4 , hii1
the original map : {c1=hello, c2=hi, c3=hey, c4=hii}
the reverse map : [c4, c3, c2, c1]

Process finished with exit code 0
```

Q3. Write your own unchecked Exception and throw it from you counter programme which counts 1 to 100.When you get Prime no while counting then throw this Exception and catch this to print you exception message.

Code:

```
import java.util.Scanner;

public class primecheck {
    public static void main(String[] args) {

        int n,i=2,j=2;
        Scanner sc = new Scanner(System.in);
        System.out.println("Prime number between 1 to 100");


            prime(100);
```

```
}

  static class myException extends Exception{
      int str1;
      myException(int str2)
      {str1=str2;}
      public String toString(){
          return ("MyException Occurred: "+str1) ;
      }
  }

  static void prime(int a)
  {
      int i=2,j=2;

      while(a>i)
      {

          while(true)
          {
              if(i%2==0)
              {
                  break;
              }

              if(i%j==0)
              {
                  break;
              }
              else
              {
                  j++;

              }

          }
          if(j==i)
          {try{
              throw new myException(i);


          }
          catch (myException e) {
              e.printStackTrace();
              j=2;
          }
          }
          i++;
      }
```

```
}
}
```

OUTPUT:

```
Prime number between 1 to 100
MyException Occurred: 2
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 3
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 5
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 7
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 11
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 13
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 17
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 19
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 23
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 29
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 31
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 37
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 41
```

```
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 43
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 47
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 53
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 59
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 61
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 67
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 71
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 73
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 79
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 83
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 89
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 95
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)
MyException Occurred: 97
        at primecheck.prime(primecheck.java:53)
        at primecheck.main(primecheck.java:11)

Process finished with exit code 0
```

Q4. Write a programme to serialize 3 fields out of 5 and deserialize it. Use UUID to prvent object mutation.

CODE:

```
import java.io.*;
import java.util.UUID;

class Emp implements Serializable {
    UUID serialversionUID = new UUID(100,10);
    transient int a;
    static int b;
    transient int c;
    String name;
    int age;


    public Emp(String name, int age, int a, int b,int c)
    {
        this.name = name;
        this.age = age;
        this.a = a;
        this.b = b;
        this.c=c;
    }

}

public class serial {
    public static void printdata(Emp object1)
    {

        System.out.println("name = " + object1.name);
        System.out.println("age = " + object1.age);
        System.out.println("a = " + object1.a);
        System.out.println("b = " + object1.b);
        System.out.println("c =" + object1.c);
    }

    public static void main(String[] args)
    {
        Emp object = new Emp("Delhi", 300, 300, 1000,200);
        String filename = "NitinMishra.txt";


        try {


            FileOutputStream file = new FileOutputStream
                    (filename);
            ObjectOutputStream out = new ObjectOutputStream
```

```
                    (file);

            out.writeObject(object);

            out.close();
            file.close();

            System.out.println("Object has been serialized\n"
                    + "Data before Deserialization.");
            printdata(object);

            object.b = 2000;
        }

        catch (IOException ex) {
            System.out.println("IOException is caught");
        }

        object = null;

        try {

            FileInputStream file = new FileInputStream
                    (filename);
            ObjectInputStream in = new ObjectInputStream
                    (file);

            object = (Emp) in.readObject();


            in.close();
            file.close();
            System.out.println("Object has been deserialized\n"
                    + "Data after Deserialization.");
            printdata(object);

        }

        catch (IOException ex) {
            System.out.println("IOException is caught");
        }
```

```
        catch (ClassNotFoundException ex) {
            System.out.println("ClassNotFoundException" +
                    " is caught");
        }
    }
}
```

OUTPUT:

```
Object has been serialized
Data before Deserialization.
name = Delhi
age = 300
a = 300
b = 1000
c =200
Object has been deserialized
Data after Deserialization.
name = Delhi
age = 300
a = 0
b = 2000
c =0

Process finished with exit code 0
```