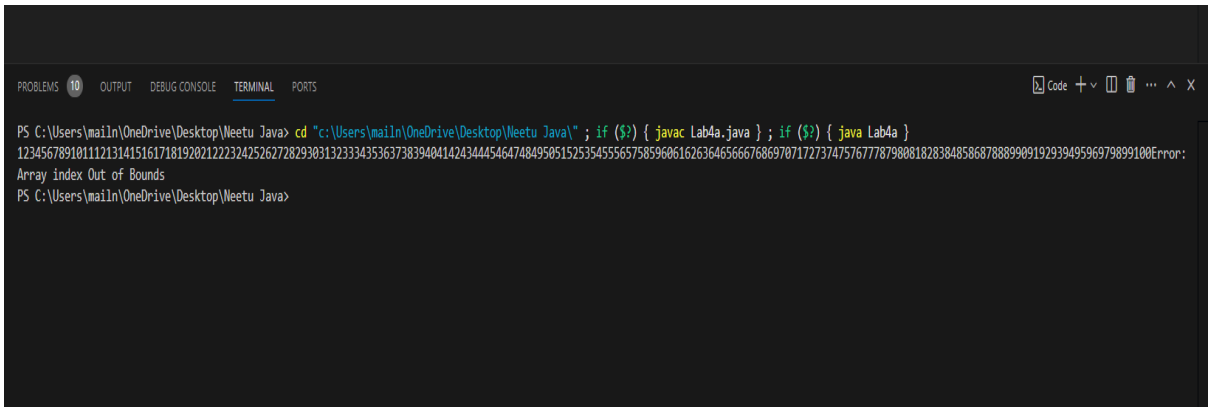
Lab-4

4a.Create a program with a logic that throws the ArrayIndexOutOfBoundsException while accessing elements in an array.[Hint: Use array and loop and try to access the element beyond the last index]

```
import java.util.Scanner;
public class Lab4a{
   public static void main(String args[]){
      int[] arr=new int[100];
for(int i=0; i<=arr.length;i++){
arr[i]=i+1;
}
      try{
         for(int i=0;i<=arr.length;i++){
            System.out.println("element at index" + i +" : " + arr[i]);
         }
      }
      catch (ArrayIndexOutOfBoundsException e){
         System.out.println("Error: Array index Out of Bounds");
      }
   }
}
```



4b.Create a program with a logic that throws the ArrayIndexOutOfBoundsException while accessing elements in an array.

```
class CountryNotValidException extends Exception{
   public CountryNotValidException(String message){
      super(message);
   }
}
class EmployeeNameInvalidException extends Exception{
   public EmployeeNameInvalidException (String message){
      super(message);
   }
}
class TaxNotEligibleException extends Exception{
   public TaxNotEligibleException(String message){
      super(message);
   }
}
public class Lab4TaxCalculator{
   String empName;
   boolean isIndian;
   double empSal;
   double taxAmount;

   public void calculateTax(String empName, double empSal, boolean isIndian)throws
CountryNotValidException,EmployeeNameInvalidException,TaxNotEligibleException{
      if(!isIndian){
         throw new CountryNotValidException("The employee should be Indian citizen for calculating
tax");
      }else if(empName == null){
         throw new EmployeeNameInvalidException("The employee name cannot be empty");
      }else if(empSal>100000 && isIndian){
         taxAmount = empSal*8/100;
```

```
            System.out.println("Tax amount is : "+taxAmount);
        }else if(empSal>50000 && empSal<=100000 && isIndian){
            taxAmount = empSal*6/100;
            System.out.println("Tax amount is : "+taxAmount);
        }else if(empSal>30000 && empSal<=50000 && isIndian){
            taxAmount = empSal*5/100;
            System.out.println("Tax amount is : "+taxAmount);
        }else if(empSal>10000 && empSal<=30000 && isIndian){
            taxAmount = empSal*4/100;
            System.out.println("Tax amount is : "+taxAmount);
        }else{
            throw new TaxNotEligibleException("The employee does not need to pay tax");
        }
    }
    public static void main(String[] args) throws
CountryNotValidException,EmployeeNameInvalidException,TaxNotEligibleException{
        Lab4TaxCalculator tax=new Lab4TaxCalculator();
        try{
            tax.calculateTax("Khushi",1000,true);
        }catch(Exception e){
            System.out.println(e.getMessage());
        }
    }
}
```

```
46              tax.calculateTax( Neetu ,1000,true);
47          }catch(Exception e){
48              System.out.println(e.getMessage());
49          }
```

ROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
S C:\Users\mailn\OneDrive\Desktop\Neetu Java> cd "c:\Users\mailn\OneDrive\Desktop\Neetu Java\" ; if ($?) { javac Lab4b.java } ; if ($?) { java Lab4b }
he employee does not need to pay tax
S C:\Users\mailn\OneDrive\Desktop\Neetu Java>
```