

Assessment-5

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Reg. No.: 18BCE2261

Course Name: Java Programming

Course Code: CSE1007

Slot: L9+L10

05-10-2021:

Program Based on Exception Handling:

1) Read the Register Number and Mobile Number of a student. If the Register Number does not contain exactly 9 characters or if the Mobile Number does not contain exactly 10 characters, throw an `IllegalArgumentException`. If the Mobile Number contains any character other than a digit, raise a `NumberFormatException`. If the Register Number contains any character other than digits and alphabets, throw a `NoSuchElementException`. If they are valid, print the message 'valid' else 'invalid'.

1) Program:

```
import java.util.*;
class Numbers
{
    String rn;
    String mn;

    Numbers(String rn, String mn)
    {
        this.rn=rn;
        this.mn=mn;
    }

    public void check()
    {
        boolean flag=true;
        //IllegalArgumentException
        if(rn.length()!=9 || mn.length()!=10)
        {
            flag=false;
            System.out.println("Invlaid");
            throw new IllegalArgumentException("Invalid input length");
        }

        //NumberFormatException
        boolean f1=true;
        for(int i=0;i<10;++i)
        {
            char x=mn.charAt(i);
            if(Character.isDigit(x)==false)
            {
                f1=false;
                break;
            }
        }
    }
}
```

```

    }
    if (f1==false)
    {
        flag=false;
        System.out.println("Invalid");
        throw new NumberFormatException("Invalid Characters Used");
    }

    //NoSuchElementException
    boolean f2=true;
    for(int i=0;i<9;++i)
    {
        char x=rn.charAt(i);
        if(Character.isDigit(x)==false && Character.isLetter(x)==false)
        {
            f2=false;
            break;
        }
    }
    if (f2==false)
    {
        flag=false;
        System.out.println("Invalid");
        throw new NoSuchElementException("Invalid Characters Used");
    }
    if (flag==true)
        System.out.println("Valid");
}

public static void main(String args[])
{
    Scanner sc=new Scanner(System.in);
    System.out.println("Sanjoi Sethi (18BCE2261)");
    System.out.println("Enter your Registration Number:");
    String rn=sc.nextLine();
    System.out.println("Enter your mobile no.:");
    String mn=sc.nextLine();
    Numbers obj=new Numbers(rn,mn);
    obj.check();
}
}

```

Output:

C:\Users\SanJoi\Java Programming Lab\7) 05-10-2021>javac Numbers.java

C:\Users\SanJoi\Java Programming Lab\7) 05-10-2021>java Numbers

Sanjoi Sethi (18BCE2261)

Enter your Registration Number:

18BCE2261

Enter your mobile no.:

8755441705

Valid

C:\Users\SanJoi\Java Programming Lab\7) 05-10-2021>javac Numbers.java

C:\Users\SanJoi\Java Programming Lab\7) 05-10-2021>java Numbers

Sanjoi Sethi (18BCE2261)

Enter your Registration Number:

18!CE2261

Enter your mobile no.:

9876543210

```

Invalid
Exception in thread "main" java.util.NoSuchElementException: Invalid Characters Used
    at Numbers.check(Numbers.java:57)
    at Numbers.main(Numbers.java:72)

C:\Users\SanJoi\Java Programming Lab\7) 05-10-2021>javac Numbers.java

C:\Users\SanJoi\Java Programming Lab\7) 05-10-2021>java Numbers
Sanjoi Sethi (18BCE2261)
Enter your Registration Number:
18BCE2261
Enter your mobile no.:
S987654321
Invalid
Exception in thread "main" java.lang.NumberFormatException: Invalid Characters Used
    at Numbers.check(Numbers.java:39)
    at Numbers.main(Numbers.java:72)

```

2) A bag contains balls of 4 different colours- red, green, blue and yellow. Simulate picking up a ball at random for ten times. If the same-coloured ball is picked more than thrice, throw SameColorBallException and proceed with the simulation once again. After 10 valid picks, print the number of balls chosen from each of these colours.

2) Program:

```

import java.util.*;
import java.lang.*;

class SameColorBallException extends Exception
{
    SameColorBallException(int x)
    {
        System.out.println("Same colour was picked more than thrice.");
    }
}

class Balls
{
    public static void main(String args[])
    {
        System.out.println("Sanjoi Sethi (18BCE2261)");
        int x;
        int r=0,g=0,b=0,y=0;
        for(int i=0;i<10;++i)
        {
            x=(int) ((Math.random() * ((4-1)+1))+1);
            if(x==1)
                ++r;
            else if(x==2)
                ++g;
            else if(x==3)
                ++b;
            else if(x==4)
                ++y;
            try
            {
                if(r>3 || g>3 || b>3 || y>3)
                    throw new SameColorBallException(0);
            }
        }
    }
}

```

```

    }
    catch (SameColorBallException e)
    {
        System.out.println("Error is caught");
    }
}
System.out.println("No.of red balls picked are:"+r);
System.out.println("No.of green balls picked are:"+g);
System.out.println("No.of blue balls picked are:"+b);
System.out.println("No.of yellow balls picked are:"+y);
}
}

```

Output:

```

C:\Users\SanJoi\Java Programming Lab\7) 05-10-2021>javac Balls.java

C:\Users\SanJoi\Java Programming Lab\7) 05-10-2021>java Balls
Sanjoi Sethi (18BCE2261)
No.of red balls picked are:2
No.of green balls picked are:2
No.of blue balls picked are:3
No.of yellow balls picked are:3

C:\Users\SanJoi\Java Programming Lab\7) 05-10-2021>java Balls
Sanjoi Sethi (18BCE2261)
Same colour was picked more than thrice.
Error is caught
Same colour was picked more than thrice.
Error is caught
Same colour was picked more than thrice.
Error is caught
No.of red balls picked are:2
No.of green balls picked are:5
No.of blue balls picked are:0
No.of yellow balls picked are:3

```