

CSA0979 Java programming

Assignment 3

T.Deekshitha

192011256

```
import java.util.*;

public class Main

{

public static void main(String[] args) {

    try{

        int a[]=new int[5];

        a[5]=30/0; }

        catch(ArithmeticException e) {

            System.out.println("Arithmetic Exception occurs");

        }

        catch(ArrayIndexOutOfBoundsException e)

        {

            System.out.println("ArrayIndexOutOfBoundsException occurs");

        }

        catch(Exception e) {

            System.out.println("Parent Exception occurs");

        }

        System.out.println("rest of the code");

    }

}
```

Output:

```
Main.java
1 import java.util.*;
2 public class Main
3 {
4     public static void main(String[] args) {
5         try{
6             int a[]=new int[5];
7             a[5]=30/0; }
8         catch(ArithmeticException e) {
9             System.out.println("Arithmetic Exception occurs");
10        }
11        catch(ArrayIndexOutOfBoundsException e)
12        {
13            System.out.println("ArrayIndexOutOfBoundsException Exception occurs");
14        }
15        catch(Exception e) {
16            System.out.println("Parent Exception occurs");
17        }
18        System.out.println("rest of the code");
19    }
20 }
```

Arithmetic Exception occurs
rest of the code

2)

Array Index out of Bounds

Program

```
import java.util.*;

public class Main {

    public static void main(String[] args) {

        try{

            int a[]=new int[5];

            System.out.println(a[10]);

        }

        catch(ArithmeticException e)

        {

            System.out.println("Arithmetic Exception occurs");

        }

    }

}
```

```

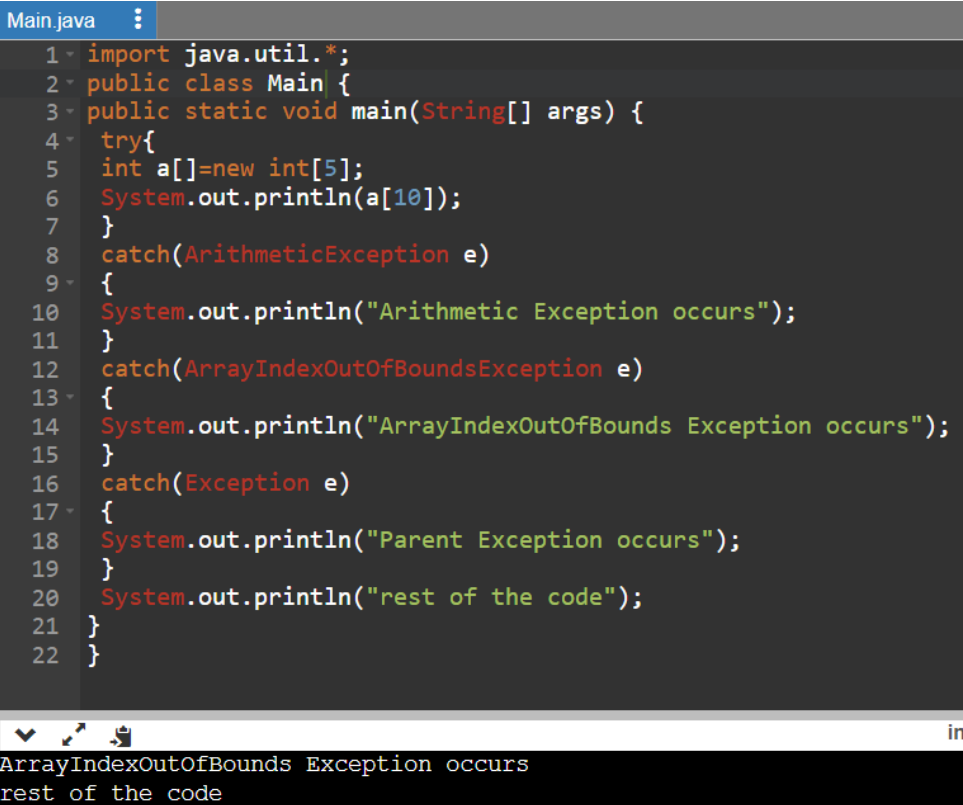
catch(ArrayIndexOutOfBoundsException e)
{
    System.out.println("ArrayIndexOutOfBoundsException occurs");
}

catch(Exception e)
{
    System.out.println("Parent Exception occurs");
}

System.out.println("rest of the code");
}
}

```

Output:



The screenshot shows a Java IDE with a file named 'Main.java'. The code in the editor is as follows:

```

1 import java.util.*;
2 public class Main {
3     public static void main(String[] args) {
4         try{
5             int a[]=new int[5];
6             System.out.println(a[10]);
7         }
8         catch(ArithmeticException e)
9         {
10            System.out.println("Arithmetic Exception occurs");
11        }
12        catch(ArrayIndexOutOfBoundsException e)
13        {
14            System.out.println("ArrayIndexOutOfBoundsException Exception occurs");
15        }
16        catch(Exception e)
17        {
18            System.out.println("Parent Exception occurs");
19        }
20        System.out.println("rest of the code");
21    }
22 }

```

Below the code editor, the output is displayed in a black box with white text:

```

ArrayIndexOutOfBoundsException Exception occurs
rest of the code

```

3) Null pointer Exception

Program

```

import java.io.*;

class Main

```

```
{  
public static void main (String[] args)  
{  
String ptr = null;  
try  
{  
if (ptr.equals("gfg"))  
System.out.print("Same");  
else  
System.out.print("Not Same");  
}  
catch(NullPointerException e)  
{  
System.out.print("NullPointerException Caught");  
}  
}  
}
```

Output:

```
Main.java  ⋮
1  import java.io.*;
2  class Main
3  {
4  public static void main (String[] args)
5  {
6  String ptr = null;
7  try
8  {
9  if (ptr.equals("gfg"))
10 System.out.print("Same");
11 else
12 System.out.print("Not Same");
13 }
14 catch(NullPointerException e)
15 {
16 System.out.print("NullPointerException Caught");
17 }
18 }
19 }
```

NullPointerException Caught

...Program finished with exit code 0
Press ENTER to exit console.

Program-2

```
import java.util.*;

class Main

{

void printTable(int n)

{

synchronized(this)
```

```

{
for(int i=1;i<=5;i++)
{
System.out.println(+n+"*"+i+"="+n*i));
try
{
Thread.sleep(400);
}
catch(Exception e)
{
System.out.println(e);
}
}
}
}
}
}
}
}
}
}
}

```

```

class Mythread1 extends Thread

```

```

{
Table t;
Mythread1(Table t)
{
this.t=t;
}
public void run()
{
t.printTable(5);
}
}
}
}

```

```

class Mythread2 extends Thread

```

```

{
Table t;
Mythread2(Table t)
{
this.t=t;
}
public void run()
{
t.printTable(100);
}
}
class Use
{
public static void main(String args[])
{
Table obj = new Table();
Mythread1 th1 = new Mythread1(obj);
Mythread2 th2 = new Mythread2(obj);
th1.start();
th2.start();
}
}

```

Program-3

```

import java.util.*;
import java.io.*;
public class Main {
public static void main(String args[]) {
int inputNumber;
Scanner sc=new Scanner(System.in);

```

```
System.out.println("Enter the number :");
inputNumber=sc.nextInt();
boolean check = true;
for(int i = 2; i<=inputNumber; i++) {
    if(i!=2&& i!=3&& i!=5) {
        if(inputNumber%i==0&&checkPrime(i)) {
            check = false;
            break;
        }
    }
}
if(check) {
    System.out.println(inputNumber+" is an ugly number");
} else {
    System.out.println(inputNumber+" is Not an ugly number");
}
}

static boolean checkPrime(int number) {
    boolean flag = true;
    for(int i = 2; i<=number/2; i++) {
        if(number%i==0) {
            flag = false;
            break;
        }
    }
    return flag;
}
}
```


Output:

```
Main.java
11  if(inputNumber%2==0) {
12  if(inputNumber%i==0&&checkPrime(i)) {
13  check = false;
14  break;
15  }
16  }
17  }
18  if(check) {
19  System.out.println(inputNumber+" is an ugly number");
20  } else {
21  System.out.println(inputNumber+" is Not an ugly number");
22  }
23  }
24  static boolean checkPrime(int number) {
25  boolean flag = true;
26  for(int i = 2; i<=number/2; i++) {
27  if(number%i==0) {
28  flag = false;
29  break;
30  }
31  }
32  return flag;
33  }
34  }
```

```
Enter the number :
120
120 is an ugly number
```

Program-4

```
import java.io.*;
import java.util.*;
class Main {
static int fib(int n)
{
if (n==0 || n==1)
return 0;
else if(n==2)
return 1;
return fib(n - 1) + fib(n - 2);
}
public static void main(String args[])
{
```

```

int n;

Scanner sc=new Scanner(System.in);

System.out.println("Enter the value of n : ");

n=sc.nextInt();

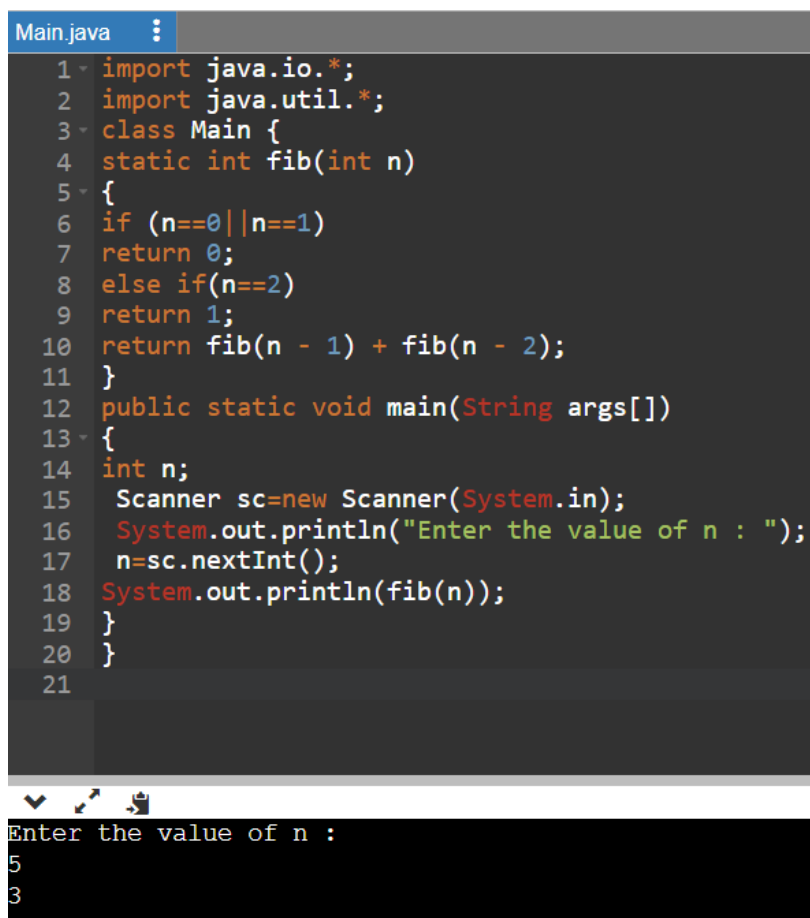
System.out.println(fib(n));

}

}

```

Output:



The screenshot shows a Java IDE with a file named 'Main.java'. The code is as follows:

```

1 import java.io.*;
2 import java.util.*;
3 class Main {
4     static int fib(int n)
5     {
6         if (n==0 || n==1)
7             return 0;
8         else if(n==2)
9             return 1;
10        return fib(n - 1) + fib(n - 2);
11    }
12    public static void main(String args[])
13    {
14        int n;
15        Scanner sc=new Scanner(System.in);
16        System.out.println("Enter the value of n : ");
17        n=sc.nextInt();
18        System.out.println(fib(n));
19    }
20 }
21

```

Below the code editor, the output is displayed in a black console window:

```

Enter the value of n :
5
3

```

Program-5

```

import java.io.*;

import java.util.*;

class Main {

    static int removeDuplicates(int arr[], int n) {

        if (n == 0 || n == 1)

```

```
return n;

int[] temp = new int[n];

int j = 0;

for (int i = 0; i < n-1; i++) {
    if (arr[i] != arr[i+1])
        temp[j++] = arr[i];
}

temp[j++] = arr[n-1];

for (int i = 0; i < j; i++) {
    arr[i] = temp[i];
}

return j;
}

public static void main(String[] args) {
    int arr[] = {10, 20, 20, 30, 40, 40, 40, 50, 50};

    int n = arr.length;

    n = removeDuplicates(arr, n);

    for (int i = 0; i < n; i++) {
        System.out.print(arr[i]+" ");
    }
}
}
```

Output:

```
Main.java  ⋮
1  import java.io.*;
2  import java.util.*;
3  class Main {
4  static int removeDuplicates(int arr[], int n) {
5      if (n == 0 || n == 1)
6          return n;
7      int[] temp = new int[n];
8      int j = 0;
9      for (int i = 0; i < n-1; i++) {
10         if (arr[i] != arr[i+1])
11             temp[j++] = arr[i];
12     }
13     temp[j++] = arr[n-1];
14     for (int i = 0; i < j; i++) {
15         arr[i] = temp[i];
16     }
17     return j;
18 }
19 public static void main(String[] args) {
20     int arr[] = {10, 20, 20, 30, 40, 40, 40, 50, 50};
21     int n = arr.length;
22     n = removeDuplicates(arr, n);
23     for (int i = 0; i < n; i++) {
24         System.out.print(arr[i] + " ");
```

```
✓ ↗ 📄
10 20 30 40 50
```