Praktikum 2
PBO

Nama : Billy Achmad Bachrudin
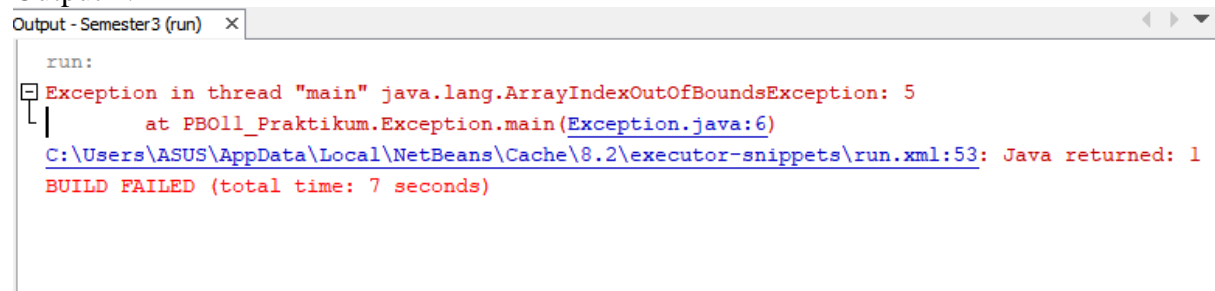
NIM   : 20210040100

Kelas : TI21F

Percobaan 1

```java
public class Exception {

    public static void main(String[] args) {
        int a[]=new int[5];
        try
        {
            a[5]=100;
        }
        catch(Exception e)
        {
          System.out.println("Terjadi pelanggaran memory");
        }
    }

}
```
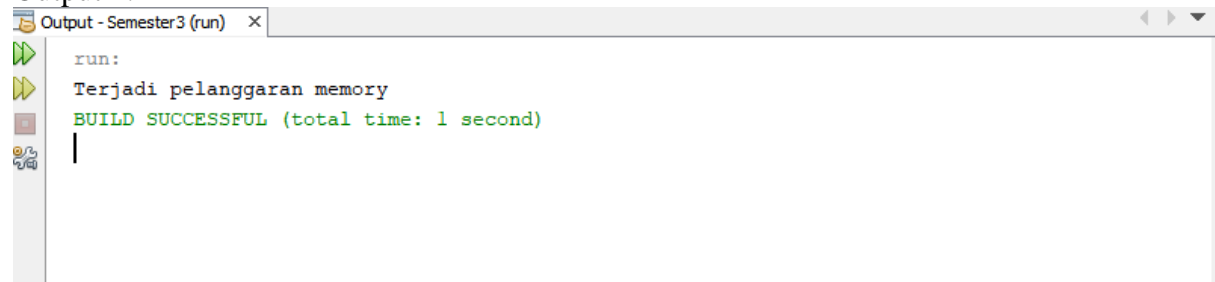
Output 1:


```
run:
Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException: 5
        at PBOll_Praktikum.Exception.main(Exception.java:6)
C:\Users\ASUS\AppData\Local\NetBeans\Cache\8.2\executor-snippets\run.xml:53: Java returned: 1
BUILD FAILED (total time: 7 seconds)
```
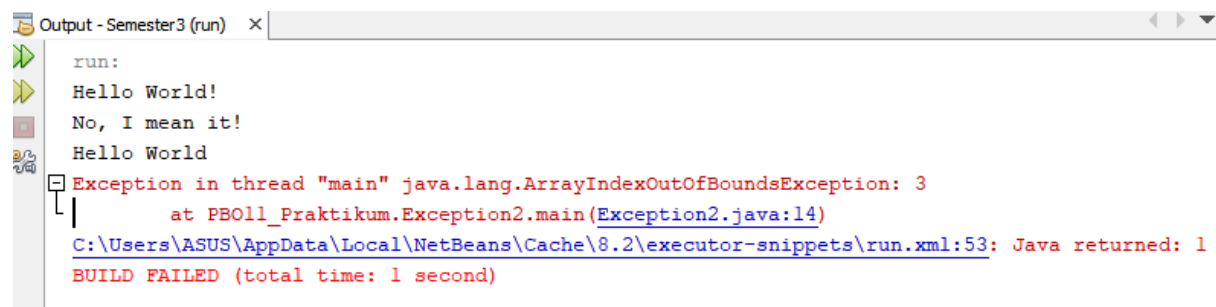
Output 2:


```
run:
Terjadi pelanggaran memory
BUILD SUCCESSFUL (total time: 1 second)
```

Percobaan 2

```java
public class Exception2 {
    public static void main(String[] args) {
        int i=0;
        String greetings[]={
            "Hello World!",
            "No,I mean it!",
            "HELLO WORLD!"
        };
        while(i<4)
        {
            try
            {
                System.out.println(greetings[i]);
                i++;
            }
            catch(ArrayIndexOutOfBoundsException e)
            {
                System.out.println("Resetting index value");
                i=0;
            }
        }
    }
}
```

Output 1:

Hal ini terjadi karena nilai i akan menjadi = 0 ketika terjadi error
IndexOutOfBoundsException.
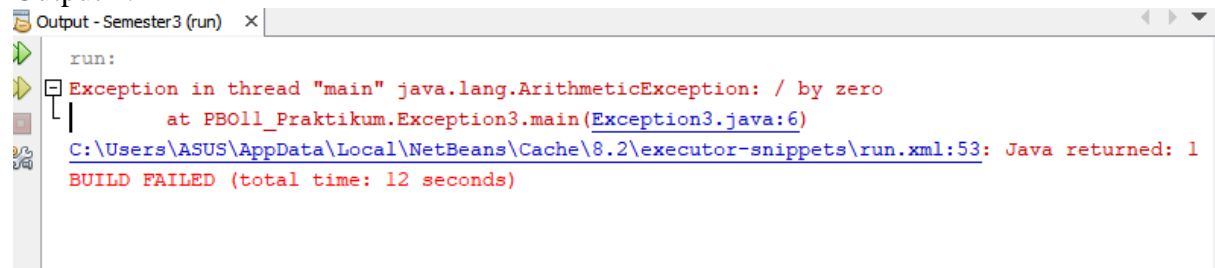Bila nilai i menjadi >= 4 maka akan menghasilkan output:

Output 2:

Percobaan 3

```java
public class Exception3 {

    public static void main(String[] args) {
        int bil=10;
        try
        {
            System.out.println(bil/0);
        }
        catch(Exception e)
        {
            System.out.println("Ini menghandle error yang terjadi");
        }
    }
}
```
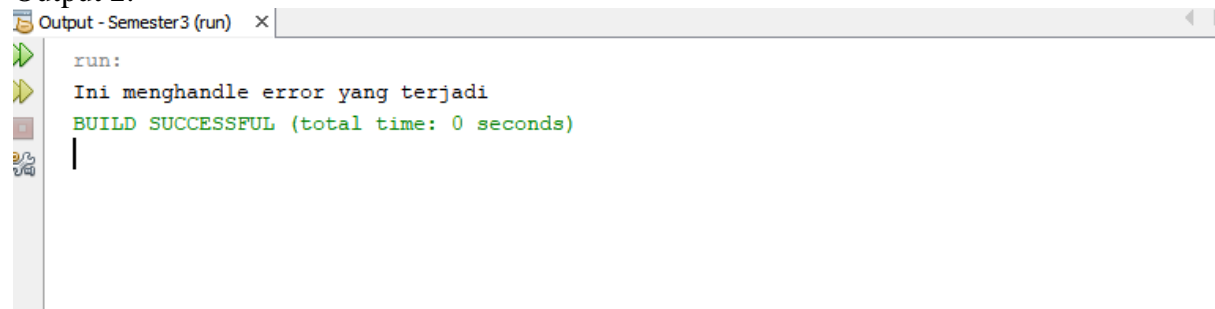
Output 1:

```
run:
Exception in thread "main" java.lang.ArithmeticException: / by zero
        at PBO11_Praktikum.Exception3.main(Exception3.java:6)
C:\Users\ASUS\AppData\Local\NetBeans\Cache\8.2\executor-snippets\run.xml:53: Java returned: 1
BUILD FAILED (total time: 12 seconds)
```
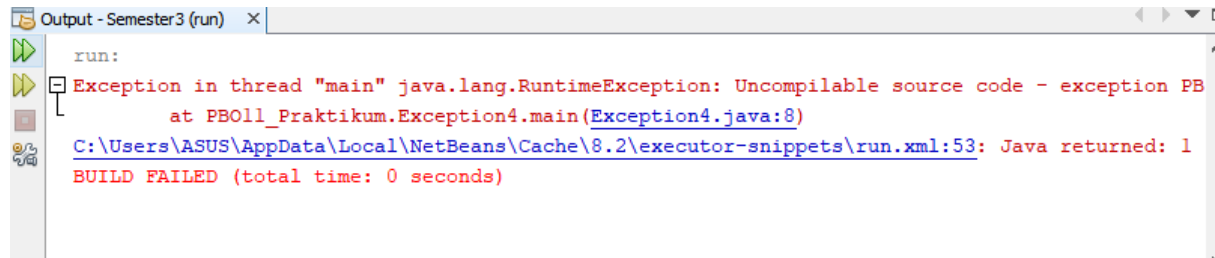
Output 2:

```
run:
Ini menghandle error yang terjadi
BUILD SUCCESSFUL (total time: 0 seconds)
```

Percobaan 4

```java
public class CobaException4 {
    public static void main(String[] args) {
        int bil=10;
        String b[]={"a","b","c"};
        try
        {
            System.out.println(bil/0);
```

```java
            System.out.println(b[3]);
        }
        catch(ArithmeticException e)
        {
            System.out.println("Terjadi Aritmatika error");
        }
        catch(ArrayIndexOutOfBoundsException e)
        {
            System.out.println("Melebihi jumlah array");
        }
        catch(Exception e)
        {
            System.out.println("Ini menghandle error yang terjadi");
        }
    }
}
```
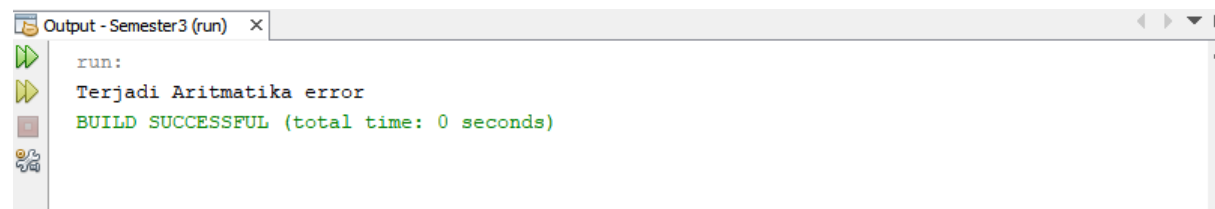
Output 1:

```
run:
Exception in thread "main" java.lang.RuntimeException: Uncompilable source code - exception PB
        at PBOll_Praktikum.Exception4.main(Exception4.java:8)
C:\Users\ASUS\AppData\Local\NetBeans\Cache\8.2\executor-snippets\run.xml:53: Java returned: 1
BUILD FAILED (total time: 0 seconds)
```

Output 2:

```
run:
Terjadi Aritmatika error
BUILD SUCCESSFUL (total time: 0 seconds)
```
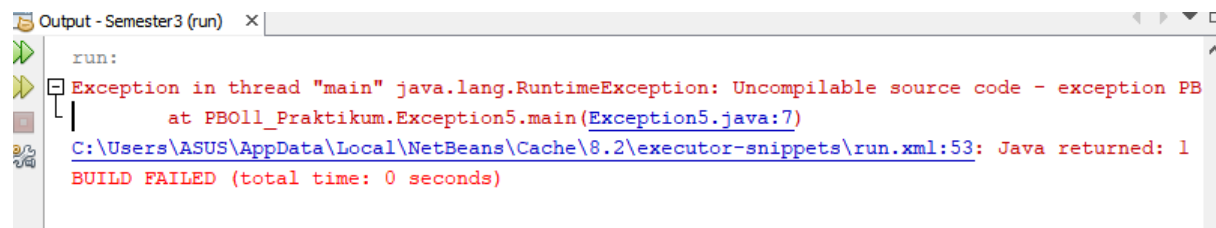
Percobaan 5

```java
public class Exception5 {

    public static void main(String[] args) {
        int bil=10;
        try
        {
            System.out.println(bil/0);
        }
        catch(ArithmeticException e)
        {
            System.out.println("Pesan error:   ");
            System.out.println(e.getMessage());
            System.out.println("Info stack erase");
            e.printStackTrace();
            e.printStackTrace(System.out);
        }
        catch(Exception e)
        {
            System.out.println("Ini menghandle error yang terjadi");
        }
    }

}
```
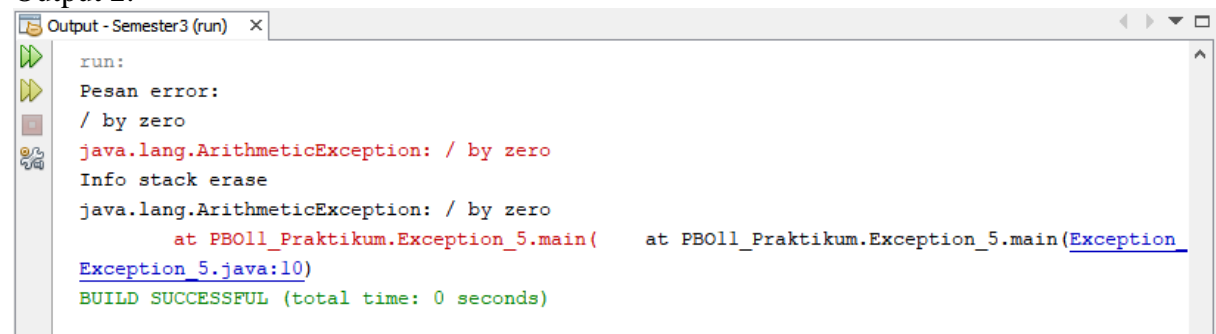
Analisis :

Ketika variabel bil yang bernilai 10 dibagi dengan 0 pada try, akan terdeteksi error yaitu ArithmeticException. Selanjutnya program akan menampilkan output yang ada di dalam catch AritmeticException.

Output 1:

Output 2:

Percobaan 6

```java
public class ThrowExample {

    static void demo()
    {
        NullPointerException t;
        t=new NullPointerException("Coba Throw");
        throw t;


        // Baris ini tidak lagi dikerjakan;
        System.out.println("Ini tidak lagi dicetak");
    }

    public static void main(String[] args) {
        try
        {
            demo();
            System.out.println("Selesai");
        }
        catch(NullPointerException e)
        {
            System.out.println("Ada pesan error: "+e);
        }
    }

}
```
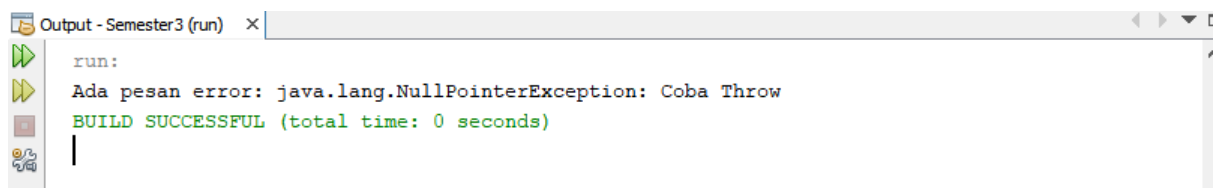
Analisis :

Fungsi demo() memiliki kesalahan yang dibuat manual yaitu NullPointerException, ketika pada blok try NullPointerExceptionakan dilemparkan dan ditangkap oleh bertipe NullPointerException.

Output :
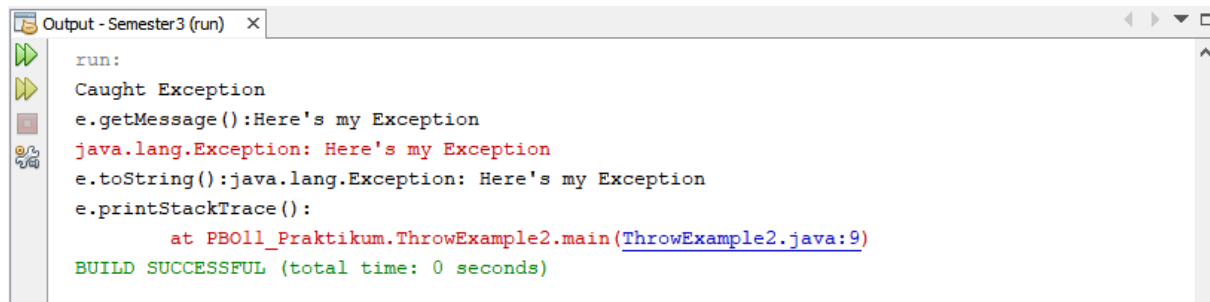
Percobaan 7

```java
public class ThrowExample2 {

    public static void main(String[] args) {
        try
        {
            throw new Exception("Here's my Exception");
        }
        catch(Exception e)
        {
            System.out.println("Caught Exception");
            System.out.println("e.getMessage():"+e.getMessage());
            System.out.println("e.toString():"+e.toString());
            System.out.println("e.printStackTrace():");
            e.printStackTrace();
        }
    }
}
```

Analisa :

Pada blok try akan dilemparkan Exception manual dan ditangkap pada catch

Output :

Percobaan 8

```java
import java.io.*;

public class Test3 {
    public void methodA(){
        System.out.println("Method A");
    }
    public void methodB() throws IOException
    {
        System.out.println(20/0);
        System.out.println("Method B");
    }
}
```

```java
class Utama
{
    public static void main(String[] args)
    {
        Test3 o=new Test3();
        o.methodA();
        try
        {
            o.methodB();
        }
        catch(Exception e)
        {
            System.out.println("Error di Method B");
        }
        finally
        {
            System.out.println("Ini selalu dicetak");
        };
    }
}
```

Analisis :

Pada program di atas dibuat objek o dari kelas Test3. Kemudian dipanggil methodA yang ada di objek o. Lalu pada try dipanggil methodB yang ada di objek o, akan tetapi terdapat error "20/0". Karena terdeteksi error kemudian program akan dilanjutkan ke catch Execption yang menampilkan output "Error di Method B". Setelah itu program akan menampilkan output "Ini selalu dicetak" yang dimana akan selalu dibaca walau tidak terdapat error.

Output :

```
run:
Method A
Exception in thread "main" java.lang.ArithmeticException: / by zero
        at PBO11_Praktikum.Test3.methodB(Test3.java:12)
        at PBO11_Praktikum.Utama.main(Test3.java:21)
C:\Users\ASUS\AppData\Local\NetBeans\Cache\8.2\executor-snippets\run.xml:53: Java returned: 1
BUILD FAILED (total time: 0 seconds)
```
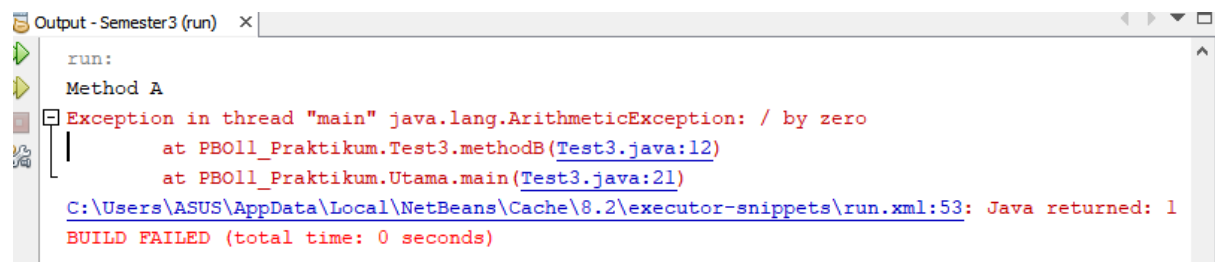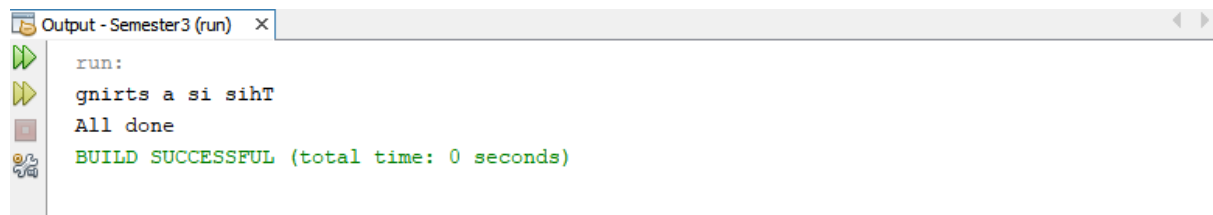
Percobaan 9

```
class Propagate {

    public static void main(String[] args)
    {
        try
        {
            System.out.println(reverse("This is a string"));
        }
        catch(Exception e)
        {
            System.out.println("The String was blank");
        }
        finally
        {
            System.out.println("All done");
        }
    }


    public static String reverse(String s) throws Exception
    {
        if(s.length()==0)
```

```
        {
            throw new Exception();
        }
        String reverseStr = "";
        for(int i=s.length()-1 ; i>=0 ; --i){
            reverseStr+=s.charAt(i);
        }
        return reverseStr;
    }

}
```
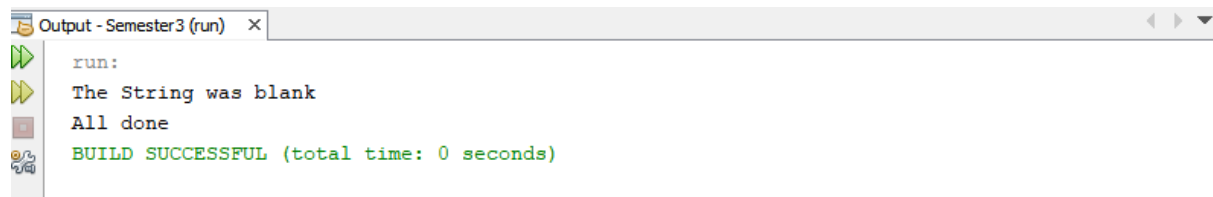
Output :

```
Output - Semester3 (run)   ×
run:
gnirts a si sihT
All done
BUILD SUCCESSFUL (total time: 0 seconds)
```

Pada saat fungsi reverse dikosongkan menjadi reverse("") terdeteksi error sehingga program akan menampilkan output yang terdapat di catch sehingga akan menampilkan output sebagai berikut :

```
Output - Semester3 (run)   ×
run:
The String was blank
All done
BUILD SUCCESSFUL (total time: 0 seconds)
```
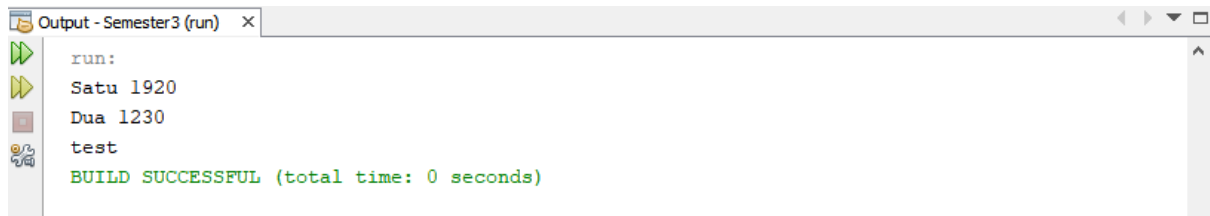
Percobaan 10

```java
class RandomAccessRevisi
{
    public static void main(String[] args) {

        String bookList[]={"Satu","Dua","Tiga"};
        int yearList[]={1920,1230,1940};
        try
        {
            RandomAccessFile books = new RandomAccessFile
("books.txt","rw");

            for(int i=0;i<3;i++)
            {
                books.writeUTF(bookList[i]);
                books.writeInt(yearList[i]);
            }
            books.seek(0);
            System.out.println(books.readUTF()+" "+books.readInt());
            System.out.println(books.readUTF()+ " "+books.readInt());
            books.close();

        }
        catch(IOException e)
        {
            System.out.println("Indeks melebihi batas");
        }
        System.out.println("test");
    }

}
```

Output :

```
Output - Semester3 (run)   ×
    run:
    Satu 1920
    Dua 1230
    test
    BUILD SUCCESSFUL (total time: 0 seconds)
```
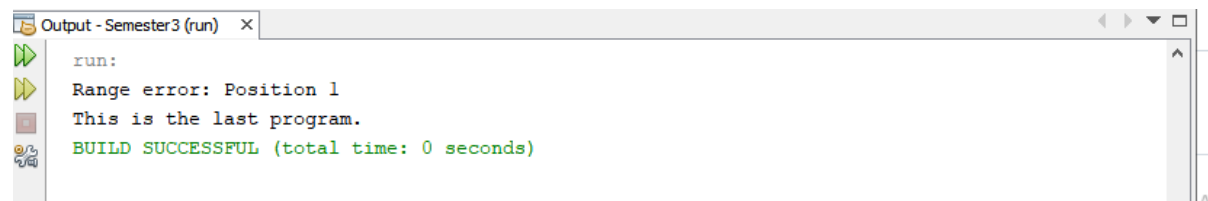
Muncul file tipe txt dengan nama books.

Percobaan 11

```java
class RangeErrorException extends Throwable
{
    public RangeErrorException(String s)
    {
        super(s);
    }
}
```

```java
    public static void main(String[] args)
    {
        int position=1;
        try
        {
            if(position>0)
            {
                throw new RangeErrorException("Position " +position);
            }
        }
        catch(RangeErrorException e)
        {
            System.out.println("Range error: " +e.getMessage());
        }
        System.out.println("This is the last program.");
    }
}
```

Output :

```
Output - Semester3 (run)   ×
run:
Range error: Position 1
This is the last program.
BUILD SUCCESSFUL (total time: 0 seconds)
```

Percobaan 12

```
class MyException extends Exception{

    private String Teks;
    MyException(String s)
    {
        Teks="Exception generated by: "+s;
        System.out.println(Teks);
    }
}

class Eksepsi
{
    static void tampil(String s)throws Exception
    {
        System.out.println("Tampil");
        if(s.equals("amir"))
        {
            throw new MyException(s);
        }
        System.out.println("OK!");
    }

    public static void main(String[] args)throws Exception
    {
        try
        {
            tampil("ali");
            tampil("amir");
        }
        catch(MyException ex)
        {
            System.out.println("Tangkap:"+ex);
        }
    }
}
```

Output :

```
Output - Semester3 (run)   ×
run:
Terjadi pelanggaran memory
BUILD SUCCESSFUL (total time: 0 seconds)
```