한양대학교

OBJECT-ORIENTED SYSTEMS DESIGN (Lab10)

Heejin Park

Hanyang University

10-1 (Display 10.1)

Create a class *TextFileOutputDemo* that prints the output below.

The detailed description of the class is given on the next page.

<output>

```
Writing to file.
End of program.
```

<*stuff.txt*>

```
The quick brown fox
jumps over the lazy dog.
```

[*TextFileOutputDemo*]

1. Import 3 classes as follows.

    java.io.PrintWriter

    java.io.FileOutputStream

    java.io.FileNotFoundException

2. Write a method **main**:

    1. Create **PrintWriter** *outputStream* initialized to *null*.

    2. Create a **try** block.

        Create an object *outputStream* of the class **PrintWriter** that has an argument **new FileOutputStream ("stuff.txt")**.

3. Create a **catch**(FileNotFoundException **e**) block.

    Print out "Error opening the file stuff.txt." and exit.

4. Print out “Writing to file.”.

5. Print the output below to *stuff.txt.*

<*stuff.txt*>

```
The quick brown fox
jumps over the lazy dog.
```

6. Close the file.

7. Print out “End of program.”.

10-2 (Display 10.3)

Create a text file *morestuff.txt* as below.

Create a class *TextFileScannerDemo* that prints the output below.

The detailed description of the class is given on the next page.

<*morestuff.txt*>

```
1 2
3 4
Eat my shorts.
```

<output>

```
I will read three numbers and a line
of text from the file morestuff.txt.
The three numbers read from the file are:
1, 2, and 3
The line read from the file is:
Eat my shorts.
```

[*TextFileScannerDemo*]

1. Import 3 classes as follows.

    java.util.Scanner

    java.io.FileInputStream

    java.io.FileNotFoundException

2. Write a method **main**:

    1. Print out the below.

        I will read three numbers and a line
        of text from the file morestuff.txt.

2. Create **Scanner** *inputStream* initialized to *null*.

3. Create a **try** block.

Create an object *inputStream* of the class **Scanner** that has an argument **new FileInputStream ("morestuff.txt")**.

4. Create a **catch**(FileNotFoundException **e**) block.

Print out the below and exit.

File morestuff.txt was not found
or could not be opened.

4. Create **int** *n1* to read and store the next integer.
5. Create **int** *n2* to read and store the next integer.
6. Create **int** *n3* to read and store the next integer.
7. Using **nextLine()**, move to the next line.
8. Create **String** *line* to read and store the next line.

9. Print out “The three numbers read from the file are: ” and *n1* + “, ” + *n2* + “, and ” + *n3*.

10. Print out “The line read from the file is: ” and *line*.

11. Close the file.

10-3 (Display 10.4)

Create a text file *original.txt* as below.

Create a class *HasNextLineDemo* that creates a file *numbered.txt* below.

The detailed description of the class is given on the next page.

<original.txt>

```
Little Miss Muffet
sat on a tuffet
eating her curves away.
Along came a spider
who sat down beside her
and said "Will you marry me?"
```

<numbered.txt>

```
1 Little Miss Muffet
2 sat on a tuffet
3 eating her curves away.
4 Along came a spider
5 who sat down beside her
6 and said "Will you marry me?"
```

[*HasNextLineDemo*]

1. Import 5 classes as follows.

java.util.Scanner

java.io.FileInputStream

java.io.FileNotFoundException

java.io.PrintWriter

java.io.FileOutputStream

2. Write a method **main**:

    1. Create **Scanner** *inputStream* initialized to *null*.
    2. Create **PrintWriter** *outputStream* initialized to *null*.

3. Create a **try** block.

    Create an object *inputStream* of the class **Scanner** that has an argument **new FileInputStream ("original.txt")**.

    Create an object *outputStream* of the class **PrintWriter** that has an argument **new FileOutputStream ("numbered.txt")**.

4. Create a **catch**(FileNotFoundException **e**) block.

   Print out “Problem opening files.” and exit.

5. Create **String** *line* initialized to *null*.

6. Create **int** *count* initialized to 0.

7. Create a **while-statement** that is executed when **inputStream.hasNextLine( )** is true.

    Store the next line read from the file *original.txt* in *line*.
    Increase *count* by 1.

    Print (*count* + " " + *line*) to the text file *numbered.txt*.

8. Close the input file.
9. Close the output file.

10-4 (Display 10.5)

Create a text file *data.txt* as below.

Create a class *HasNextIntDemo* that prints the output below.

The detailed description of the class is given on the next page.

<*data.txt*>

```
1 2
3 4 hi 5
```

<output>

The sum of the numbers is 10

[*HasNextintDemo*]

1. Import 3 classes as follows.

    java.util.Scanner

    java.io. FileInputStream

    java.io.FileNotFoundException

2. Write a method **main**:

    1. Create **Scanner** *inputStream* initialized to *null*.

2. Create a **try** block.

   Create an object *inputStream* of the class Scanner that has an argument **new FileInputStream ("data.txt")**.

3. Create a **catch**(FileNotFoundException **e**) block.

   Print out "File data.txt was not found." and "or could not be opened." and exit.

4. Create int *next*, *sum* initialized to 0.

5. Create a **while-statement** that is executed when **inputStream.hasNextInt( )** is true.

    Store the next integer into *next*.

    Add *next* to *sum*.

6. Close the input file.
7. Print out ("The sum of the numbers is " + *sum*).

10-5 (Display 10.7)

Create a text file *morestuff2.txt* as below.

Create a class *TextFileInputDemo* that prints the output below.

The detailed description of the class is given on the next page.

<*morestuff2.txt*>

```
1 2 3
Jack jump over
the candle stick.
```

<output>

```
The first line read from the file is:
1 2 3
The second line read from the file is:
Jack jump over
```

[*TextFileInputDemo*]

1. Import 4 classes as follows.

java.io.BufferedReader

java.io.FileReader

java.io.FIleNotFoundException

java.io.IOException

2. Write a method **main**:

    1. Create a **try** block defined as follows:

        Create an object *inputStream* of the class **BufferedReader** that has an argument **new FileReader ("morestuff2.txt")**.

        Create **String** *line* to read and store the first line by using the method **readLine()**.

        Print the output below.

<output>

The first line read from the file is:
1 2 3

Read the next line and store it in *line*.

Print the output below.

<output>

The second line read from the file is:
Jack jump over

Close the input file.

2. Create two **catch** blocks defined as follows:

catch (FileNotFoundException e) :

Print out “File morestuff2.txt was not found”.

Print out “or could not be opened.”.

catch (IOException e):

Print out “Error reading from morestuff2.txt.”.

10-6 (Display 10.9)

Create a text file *original.txt* as below.

Create a class *TextEOFDemo* that changes the text file *original.txt* to *numbered.txt* below.

The detailed description of the class is given on the next page.

<*original.txt*>

```
Little Miss Muffet
sat on a tuffet
eating her curves away.
Along came a spider
who sat down beside her
and said "Will you marry me?"
```

<*numbered.txt*>

```
1 Little Miss Muffet
2 sat on a tuffet
3 eating her curves away.
4 Along came a spider
5 who sat down beside her
6 and said "Will you marry me?"
```

[*TextEOFDemo*]

1. Import 6 classes as follows.

java.io.BufferedReader

java.io.FileReader

java.io.PrintWriter

java.io.FileOutputStream

java.io.FIleNotFoundException

java.io.IOException

2. Write a method **main**:

    1. Create a **try** block defined as follows:

        Create an object *inputStream* of the class **BufferedReader** that has an argument **new FileReader ("original.txt")**.

        Create an object *outputStream* of the class **PrintWriter** that has an argument **new FileOutputStream ("numbered.txt")**.

        Create **int** *count* initialized to 0.

        Create **String** *line* to read and store the first line in the file *original.txt* in it by using the method **readLine()**.

Create a **while-statement** that is executed while *line* is not null.

Increase *count* by 1.

Print (*count* + " " + *line*) to the output file.

Read the next line from the file *original.txt* and store it in *line*.

Close the file connected *inputStream*.

Close the file connected *outputStream*.

2. Create two **catch** blocks defined as follows:

catch (FileNotFoundException e) :

Print out “Problem opening files.”.

catch (IOException e):

Print out “Error reading from original.txt.”.

10-7 (Display 10.10)

Create a class *RedirectionDemo* that makes a text file *errormessages.txt* and prints the output below.

The detailed description of the class is given on the next page.

<*errormessages.txt*>

```
Hello from System.err.
Hello again from System.err.
```

<output>

```
Hello from System.out.
```

[*RedirectionDemo*]

1. Import 3 classes as follows.

    java.io.PrintStream

    java.io.FileOutputStream

    java.io.FIleNotFoundException

2. Write a method **main**:

1. Create an object *errStream* of the class **PrintStream** initialized to null.

2. Create a **try** block defined as follows:

Store **new PrintStream (new FileOutputStream(“errormessages.txt”))** in *errStream*.

3. Create a **catch (FileNotFoundException e)** block:

Print out “Error opening file with FileOutputStream.” and exit.

4. Redirect the stream **System.err** to *errStream* by using **setErr()**.

5. Print out “Hello from System.err.” to *errStream*.

6. Print out “Hello from System.out.” to the screen.

7. Print out “Hello again from System.err.” to *errStream*.

8. Close the file connected to *errStream*.

10-8 (Display 10.11)

Create a text file *myLine.txt*.

Create a class *FileClassDemo* that makes a text file *mySaying.txt* and prints the output on the next page.

10-8 (Display 10.11)

The detailed description of the class is given on the next page.

<input and output>

```
I will store a line of text for you.
Enter the line of text:
May the hair on your toes grow long and curly.
Enter a file name to hold the line:
myLine.txt
There already is a file named myLine.txt
Enter a different file name:
mySaying.txt
Writing "May the hair on your toes grow long and curly."
to the file mySaying.txt
Writing completed.
```

[*FileClassDemo*]

1. Import 5 classes as follows.

    java.util.Scanner

    java.io.File

    java.io.PrintWriter

    java.io.FileOutputStream

    java.io.FIleNotFoundException

2. Write a method **main**:

    1. Create an object *keyboard* of the class **Scanner**.

    2. Create **String** *line* initialized to null.

    3. Create **String** *fileName* initialized to null.

    4. Print the output below.

    <output>

    I will store a line of text for you.
    Enter the line of text:

5. Store the input line in *line*.

6. Print out “Enter a file name to hold the line:”.

7. Store the input line in *fileName*.

8. Create an object *fileObject* of the class **File** that has an argument **fileName**.

9. Create a **while-statement** that is executed when **fileObject.exists()**.

Print the output below.

<output>

There already is a file named myLine.txt
Enter a different file name:

Store the input line in *fileName*.

Store the **new File(filename)** in *fileObject.*

10. Create an object *outputStream* of the class **PrintWriter** initialized to null.

11. Create a **try** block:

    Store **new PrintWriter (new FileOutputStream(fileName))** in *ouputStream*.

12. Create a **catch (FileNotFoundException e)** block:

    Print out (“Error opening the file ” + *fileName*) and exit.

13. Print the output below.

    <output>

    Writing "May the hair on your toes grow long and curly."
    to the file mySaying.txt

14. Print out *line* to *outputStream*.

15. Close *outputStream*.

16. Print out “Writing completed.”.