Exercise 13

Objectives

The goal of this assignment is to learn how to handle classes related to basic input/output processing in the Java programming language. Note that one of the objectives of the exercises is to develop the ***practice*** of problem solving by examining the API, even though some parts are not explained in detail in the lecture.

A: File I/O using Byte Stream [2 pt]

You should create a class ReverseString to read a file "input.txt" presented below using the FileInputStream class, and store input data to an array of integer.

After that, your program should write the reverse order of input data into the file "output.txt" using the FileOutputStream class.

input.txt is as follows:

```
There was once a poor shepherd boy who used to watch his flocks in the fields next to a dark forest near the foot of a mountain. One hot afternoon, he thought up a good plan to get some company for himself and also have a little fun. Raising his fist in the air, he ran down to the village shouting "Wolf, Wolf." As soon as they heard him, the villagers all rushed from their homes, full of concern for his safety, and two of his cousins even stayed with him for a short while. This gave the boy so much pleasure that a few days later he tried exactly the same trick again, and once more he was successful. However, not long after, a wolf that had just escaped from the zoo was looking for a change from its usual diet of chicken and duck. So, overcoming its fear of being shot, it actually did come out from the forest and began to threaten the sheep. Racing down to the village, the boy of course cried out even louder than before. Unfortunately, as all the villagers were convinced that he was trying to fool them a third time, they told him, "Go away and don't bother us again." And so the wolf had a feast.
```

Output File is as follows:

```
.tsaef a dah flow eht os dnA ".niaga su rehtob t'nod dna yawa oG" ,mih dlot yeht ,emit driht a meht loof ot gniyrt saw eh taht decnivnoc erew sregalliv eht lla sa ,yletanutrofnU .erofeb naht reduol neve tuo deirc esruoc fo yob eht ,egalliv eht ot nwod gnicaR .peehs eht netaerht ot nageb dna tserof eht morf tuo emoc did yllautca ti ,tohs gnieb fo raef sti gnimocrevo ,oS .kcud dna nekcihc fo teid lausu sti morf egnahc a rof gnikool saw ooz eht morf depacse tsuj dah taht flow a ,retfa gnol ton ,revewoH .lufsseccus saw eh erom ecno dna ,niaga kcirt emas eht yltcaxe deirt eh retal syad wef a taht erusaelp hcum os yob eht evag sihT .elihw trohs a rof mih htiw deyats neve snisuoc sih fo owt dna ,ytefas sih rof nrecnoc fo lluf ,semoh rieht morf dehsur lla sregalliv eht ,mih draeh yeht sa noos sA ".floW ,floW" gnituohs egalliv eht ot nwod nar eh ,ria eht ni tsif sih gnisiaR .nuf elttil a evah osla dna flesmih rof ynapmoc emos teg ot nalp doog a pu thguoht eh ,noonretfa toh enO .niatnuom a fo toof eht raen tserof krad a ot txen sdleif eht ni skcolf sih hctaw ot desu ohw yob drehpehs roop a ecno saw erehT
```

Submission Files	Types
ReverseString.java	Java Class

B: Input/Output Exercise [3 pt]

Create a class IOExercise that meets the following specifications.

1. Reads a number x from the standard input and outputs its square root, s1, to the standard output.
2. Write s1 to the file “number.data”.
3. Read the contents of file “number.data” into variable s2 and output it to standard output. (Make sure that s1 = s2.)

Use the following items to create your program.

- BufferedReader class for standard input.
- InputStreamReader(System.in) object to create a BufferedReader object.
- parseDouble() method of Double class to convert String to double.
- Data Stream class (DataInputStream/DataOutputStream) to input/output (read/write) to/from a file.

For example, a program is executed as follows:

```
% java IOExercise
Enter the number:
144
Square root of 144.0 is 12.0
The square root value 12.0 is written to the file "number.data".
The value read from the file "number.data" is 12.0
Square of 12.0 is 144.0
```

Use the following API:

- BufferedReader
- InputStreamReader
- DataInputStream
- DataOutputStream
- Double

Submission Files	Types
IOExercise.java	Java Class