CSE 142 Section Handout #6
Cheat Sheet

Scanner methods for "peeking" at next token (5.4)

Method	Description
`hasNextInt()`	returns `true` if there is a next token and it can be read as an `int`
`hasNextDouble()`	returns `true` if there is a next token and it can be read as a `double`
`hasNext()`	returns `true` if there is a next token to read
`hasNextLine()`	returns `true` if there is a next <u>line</u> to read

Reading an input file (6.1 - 6.2)

```java
import java.io.*;    // for File
import java.util.*;  // for Scanner

public class name {
    public static void main(String[] args) throws FileNotFoundException {
        Scanner name = new Scanner(new File("file name"));
        ...
    }
}
```

Line-based file processing (6.3)

```java
Scanner input = new Scanner(new File("file name"));
while (input.hasNextLine()) {
    String line = input.nextLine();
    Scanner name = new Scanner(line);
    process this line;
}
```

Example:
```java
Scanner input = new Scanner(new File("input.txt"));
while (input.hasNextLine()) {
    String line = input.nextLine();
    Scanner lineScan = new Scanner(line);
    int count = 0;
    while (lineScan.hasNext()) {         // count the words on each line
        String word = lineScan.next();
        count++;
    }
    System.out.println("Line has " + count + " words");
}
```

> **Input cursor**
> ```
> 308.2  14.9\n 7.4\n
> ^
> 
> input.nextDouble()
> 308.2  14.9\n 7.4\n
>        ^
> 
> input.nextDouble()
> 308.2  14.9\n 7.4\n
>              ^
> ```

File output (6.4)

```java
PrintStream name = new PrintStream(new File("file name"));
name.print(value);
name.println(value);
name.printf("format string", value, ..., value);
...
```

Example:
```java
PrintStream output = new PrintStream(new File("out.txt"));
output.println("Hello, world!");
```

Common Scanner errors

- `NoSuchElementException` - You read past the end of the input.

- `InputMismatchException` - You read the wrong type of token (e.g. read "hi" as `int`).

To fix these, carefully read the exception text for line numbers in your code:

```
Exception in thread "main" java.util.NoSuchElementException
    at java.util.Scanner.throwFor(Scanner.java:838)
    at java.util.Scanner.next(Scanner.java:1347)
    at MyProgramName.myMethod(MyProgramName.java:19)
    at MyProgramName.main(MyProgramName.java:6)
```