Exception Handling

EX1)

Suppose that **statement2** may cause an exception in the following code:

```
try {
  statement1;
  statement2;
  statement3;
}
catch (Exception1 ex1) {
}
catch (Exception2 ex2) {
  throw ex2;
}
finally {
  statement4;
}
statement5;
```

Answer the following questions:

a. If no exception occurs, will **statement4** or **statement5** be executed?

b. If the exception is of type **Exception1**, will **statement4** or **statement5** be executed?

c. If the exception is of type **Exception2**, will **statement4** or **statement5** be executed?

d. If the exception is not **Exception1** nor **Exception2**, will **statement4** or **statement5** be executed?

EX 2)

Write a program that prompts the user to enter an integer between 1 and 12 and then displays the months and its number of days corresponding to the integer entered.
Your program should display “wrong number” if the user enters a wrong number by catching ArrayIndexOutOfBoundsException.
Modify it to prevent users entering anything other than an integer (catch InputMismatchException).
If the user didn’t enter a correct input (number 1-12, everything else is considered as wrong input regardless of the exception that it raises), you have to keep asking for a correct input. The only way the program will stop is if the user enters a correct input. After entering the correct input, the month and the number of days for that month will be printed on the console.

EX3)

Create a class called NumberConverter.
The users of that class should not be able to create objects of that class, they can only call public static methods of that class (same as Math class).

Do not let anyone instantiate this class.
Inside of the class you are going to have to public static methods, hex2Dec and bin2Dec which will convert hexadecimal and binary numbers (represented as String) into decimal numbers.
Each of them will throw custom exceptions. Hex2Dec will throw HexFormatException if the input is not in hexadecimal format and bin2Dec will throw BinaryFormatException if the input is not in binary format.

Working with files

EX4)
Create a program that replaces a word in a file with another word and saves it into a new file.
App usage should be: java ReplaceText sourceFile targetFile oldString newString
All the inputs of the program will be passed through main method arguments array.
If the source file doesn't exist or the target file already exist, exit the application.

Ex5)
Write a program to create a file named Ex5.txt if it does not exist. Write 100 integers created randomly into the file using text I/O. Integers are separated by spaces in the file. Read the data back from the file and display the sorted data.

EX6) Genome Sequence
Write a program that prompts user to enter 4 numbers: number of Adenine, number of Thymine, number of Cytosine and number of Guanine.
Create a file that contains a sequence of genome with the same number of adenine, thymine, cytosine and guanine that the user prompted, the order of which it will be randomly(ACCTAGTGAATCCACATGGA…CTA).
Close the file and then read the sequence again, count all four different types of DNA nucleotides that you have on the file and prove that you have inserted them correctly as the user asked.