

Practice Final Exam Questions:

1. Write a structured program that accepts two integer numbers up to 40 digits and perform the followings:
Add the two numbers and display the result. For example,
 - If the first input is 236598745632 and the second input is 2453254365546764765, your program must calculate 2453254602145510397You must read the two input numbers as string objects.
 - You may assume that your inputs are valid strings and your program only works for positive integer numbers.
 - You **cannot** use any of **BigDecimal / BigInteger / double / long / int** types for your calculations.

The result number should be separated by commas.

For example

If inputs are:

- Number1: 236598745632
- Number2: 2453254365546764765

The output should be:

```

                236,598,745,632  +
          2,453,254,365,546,764,765
          -----
          2,453,254,602,145,510,397
```

1. Now, write a new version by modifying the above program that takes the name of a text file from user and finds the summation of all the numbers in the file. Each line of file represents a big integer. The following shows a sample of the input file:

```
87345678901234567890
908763456890340
98765432123456789098
45678765432123345560345
19000000000000000014
600000789540002364
```

Note:

- We don't know how many lines are in the file.
 - The final result must be printed in another text file named "result.txt"
 - Use top-down design to write your program
2. Develop body of the method `stat(String inFilename, String outFilename)` that takes two strings as arguments, and calculates statistics about the input file named `inFilename`, and writes them into the output file named `outFilename`. The statistics are line number, number of tokens in the line and number of digits used in the line, separated by comma.

For example, if the input file includes the following line:

```
Hello Java 1.8
This is class CPSC1150,
This class is one of the best.
```

The output file must be like:

```
1, 3, 2
2, 4, 4
3, 7, 0
```

Because in line 1, there are 3 tokens, and 2 digits used In line 2, there are 4 tokens and 4 digits is used in the line. Finally, line 3 includes 7 tokens but no digit.

Note:

- Split your method into sub-methods.
 - Incomplete java code will not be marked.
 - You will be marked based on correctness and quality of your code.
3. Write a low-level algorithm in pseudo code that takes an array of characters that represents a positive double number, and finds its numerical value. (Do not validate the input).

For examples:

for the array equal to {'3', '5', '0', '.', '2', '8'} the algorithm should finds its numerical value which is equal to 350.28

for the array equal to {'1', '2', '0', '8', '.', '8'} the algorithm should finds its numerical value which is equal to 1208.8

Notes:

- This is a low-level algorithm, and you should show details of your work.
 - The result is numerical, not string.
 - Your answer will not be marked if you use any java code/method such as `ParseDouble()`.
4. Write a method in java that given 2 Strings as its parameter, if returns true if all the characters of second parameter is in the first parameter. Otherwise it returns false.

For examples:

if str1="Test" and str2="See" the result is false.

if str1="Police" and str2="Oil" the result is true.

if str1="Stamp" and str2="sample" the result is false.

if str1="teas" and str2="seats" the result is false.

Note:

- The order of letters is not a problem.
- The method is case-insensitive