

# Java, GUI, and IDEs

## OutLab-9

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### Submission Guidelines for assignment

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1. In the file readme.txt in the team-name directory, which contains the contribution of each team member, roll number and references (cite where you get code/code snippets from).
  2. Rename the directory team-name to actual team name instead of  
E.g. Coders
  3. Compress the directory to <team\_name>.tar.gz  
e.g. coders.tar.gz
  4. Submit one assignment per team. Please.
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### Problem 1 - q1.java

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Modify the Inlab problem 4 program so that it can read parse pdf, docs, doc files.  
To do that you are going need third party packages Apache POI & Apache PDF Box.  
This time user should be able to give the file path, depending upon file type your program should invoke respective routine to:-

Create a sample.pdf from the .txt file provided in the InLab.

Extract the text

Tokenize the string and remove stop words={and, the is, in, at, of, his, her, him, ...}

Store the remaining words in ArrayList.

Process the ArrayList so that repeated words are removed, and display the frequency of each words.

Note: Writing this code in Modular way (Dividing into Classes) will help you reduce your work in 'Problem 4'.

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### Problem 2 - q2.java

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Initialize two arrays with random numbers of length  $N > 1000$ . Now you have to add and multiply these arrays element-wise and store the result in two separate arrays.

The Catch here is that the program should be multithreaded i.e. Two separate threads one for multiply and other for addition. Both of them executing parallelly.

Also, compare this implementation against the sequential implementation of yours and write about observations as comments in your source code submission.

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### Problem 3 - q3.java

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Here are two URLs:

[https://www.cse.iitb.ac.in/~diptesh/get\\_hash.php](https://www.cse.iitb.ac.in/~diptesh/get_hash.php)  
[https://www.cse.iitb.ac.in/~diptesh/post\\_hash.php](https://www.cse.iitb.ac.in/~diptesh/post_hash.php)

These are PHP scripts that process 'GET' and 'POST' queries respectively. In both cases, the input argument is 'input'.

These scripts will return you the hash value of your 'input' query. Using java sockets & streams, create a program that sends 'GET' & 'POST' query to these scripts and displays the result in the console. The input is a single string taken from console.

To test simply typing this in browser:

[https://www.cse.iitb.ac.in/~diptesh/get\\_hash.php?input=cs699assignment](https://www.cse.iitb.ac.in/~diptesh/get_hash.php?input=cs699assignment)

will give this

Hash 38356e60518bb8299ec4c41e3815dfc7b6a30733

where ?input=<can be anything>

You have to do this for both 'GET' & 'POST'

Sample run--

Java q3

<input string>

Output

<Hash from GET>

<Hash from POST>

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#### Problem 4 - q4.java

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Design a GUI for Problem 1 of this OutLab (using javax.swing).

GUI should contain two Buttons "Select File" & "Process"

Clicking on "Select File" should display JFileChooser to select the desired file.

GUI Should have JTextArea for stopwords so that user can give a comma-separated list of stopwords.

Clicking on "Process" should accomplish all the task stated as in Problem 1, but displays the Words and their frequency in JTable with one column as word and other as frequency.

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#### Problem 5 - q5.java

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Head over to <https://processing.org/>, It a beautiful framework & IDE based on java

It hides much of the verbosity of Java to give an environment which is especially suited for mathematicians and scientists to create animation, simulation and graphics in 2D & 3D.

Explore its example library and create a mini paint application with the following features-

- Right click hold and drag the mouse to draw a line.
- Left click hold and drag the mouse to erase.
- Press '+' to increase brush and eraser size
- Press '-' to decrease brush and eraser size