

Assignment 5 - Due on Nov 14th 2021

Github link : <https://github.com/kpavan95/CS5343/blob/main/src/com/assignments/assignment5/>

Requirements

- JDK 8 and above installed

Zip file

As part of the submission, a zip file will be provided which will have 3 items

- Assignment folder: It's a java project which contains the code . Note: you can also go to the above Github link and look at the code.
- assignment5.jar: It's the executable file to run the program. Instructions to run it are provided below in the Execution Instruction section
- This readme file in pdf format

Build Program

Note: the executable jar is already provided as part of the assignment submission so the jar can be downloaded and this part can be skipped.

- Download the source folder submitted or download it from the github link.
- Open terminal and change directory to the root folder
- Create a binary folder to store the .class file

```
> mkdir bin
```

- Compile the .java files using the following command

```
> javac src/com/assignments/assignment5/*.java -d bin/
```

- change directory to bin folder

```
> cd bin/
```

- Create a Executable jar file using the .class files

```
> jar cfe assignment5.jar com/assignments/assignment5/Assignment5 com/assignments/assignment5/*.class
```

now the executable assignment5.jar is ready to use.

Execution Instruction

To run the program, enter the following command in terminal where the executable jar is located

```
> java -jar assignment5.jar
```

The program starts and will guide the user through the process. Lets look at it in detail below

The screenshot below shows the program's execution in different stages

```
Pavans-MacBook-Air:bin pavankumar$ java -jar assignment5.jar
Nov 14, 2021 7:11:36 PM com.assignments.assignment5.Assignment5 main
INFO: Welcome to Programming assignment 5
Professor: Neeraj Gupta
Written By: Pavan Kumar
Date Of Submission: Nov 14th 2021
```

Figure 1: Welcome message

```
Nov 14, 2021 7:11:36 PM com.assignments.assignment5.Assignment5 main
INFO: DFS Being Performed on the Graph 1
Nov 14, 2021 7:11:36 PM com.assignments.assignment5.Graph dfs
INFO: Cycle Detected. Cannot do DFS
```

Figure 2: Graph 1 DFS

```
Nov 14, 2021 7:11:36 PM com.assignments.assignment5.Assignment5 main
INFO: BFS Being Performed on the Graph 1
Nov 14, 2021 7:11:36 PM com.assignments.assignment5.Graph bfs
INFO: Cycle Detected. Cannot do BFS
```

Figure 3: Graph 1 BFS

```
Nov 14, 2021 7:11:36 PM com.assignments.assignment5.Assignment5 main
INFO: DFS Being Performed on the Graph 2
Nov 14, 2021 7:11:36 PM com.assignments.assignment5.Graph printStack
INFO: Result: p,n,o,s,m,r,y,v,x,w,z,u,q,t
```

Figure 4: Graph 2 DFS

```
Nov 14, 2021 7:11:36 PM com.assignments.assignment5.Assignment5 main
INFO: BFS Being Performed on the Graph 2
Nov 14, 2021 7:11:36 PM com.assignments.assignment5.Graph printList
INFO: Result: m,n,p,q,o,s,r,u,y,t,v,w,x,z
```

Figure 5: Graph 2 BFS