

COMP 173 - Lab 7 : Deadlock Detection Jabez Lee

How to Compile and Run Code:

All Code run on Linux using Visual Studio Code (VSCode) in Python

1. Due to using NumPy library, you Must install NumPy. How to install NumPy shown below:
<https://numpy.org/install/>
2. Once Installed you can run the program by typing:
python main.py
3. Type a file name when prompted:
input.txt

Three given input text files:

1. input.txt
 - a. Given input, Fails after reading the first process
2. input2.txt
 - a. Custom Test, Succeeds and is in a safe state
3. input3.txt
 - a. Exam 2 Question, Fails on its last test on process 1

Screenshots:

All Screenshots will be in the "Screenshots" folder

Testing input.txt (Given Test Case):

```
jabezlee@pop-os:~/School/comp173/lab7$ python main.py
Please enter a file to test (Ctrl + C to exit): input.txt
Starting Instance: [0 0 0]

Testing:
Process : 0 Finished
Freeing up: [0 1 0]
Available is now: [0 1 0]
1 : Failed
2 : Failed
3 : Failed
4 : Failed

Testing:
Process: 0 SKIPPED
1 : Failed
2 : Failed
3 : Failed
4 : Failed

Testing:
Process: 0 SKIPPED
1 : Failed
2 : Failed
3 : Failed
4 : Failed

Testing:
Process: 0 SKIPPED
1 : Failed
2 : Failed
3 : Failed
4 : Failed

Testing:
Process: 0 SKIPPED
1 : Failed
2 : Failed
3 : Failed
4 : Failed

Not Safe
Processes (Starts at 0):
1
2
3
4
Are in involved in a Deadlock
```

Testing input2.txt (Custom Succeed Test Case):

```
Please enter a file to test (Ctrl + C to exit): input2.txt
Starting Instance: [9 9 9]

Testing:
Process : 0 Finished
Freeing up: [0 1 0]
Available is now: [ 9 10  9]
Process : 1 Finished
Freeing up: [2 0 0]
Available is now: [11 10  9]
Process : 2 Finished
Freeing up: [3 0 3]
Available is now: [14 10 12]
Process : 3 Finished
Freeing up: [2 1 1]
Available is now: [16 11 13]
Process : 4 Finished
Freeing up: [0 0 2]
Available is now: [16 11 15]

Testing:
Process: 0 SKIPPED
Process: 1 SKIPPED
Process: 2 SKIPPED
Process: 3 SKIPPED
Process: 4 SKIPPED

Testing:
Process: 0 SKIPPED
Process: 1 SKIPPED
Process: 2 SKIPPED
Process: 3 SKIPPED
Process: 4 SKIPPED

Testing:
Process: 0 SKIPPED
Process: 1 SKIPPED
Process: 2 SKIPPED
Process: 3 SKIPPED
Process: 4 SKIPPED

Testing:
Process: 0 SKIPPED
Process: 1 SKIPPED
Process: 2 SKIPPED
Process: 3 SKIPPED
Process: 4 SKIPPED

All Programs have finished; Program is safe
```

Testing input3.txt (Exam 2 Test Case; Fail):

```
jabezlee@pop-os:~/School/comp173/lab7$ python main.py
Please enter a file to test (Ctrl + C to exit): input3.txt
Starting Instance: [2 1 1]

Testing:
Process : 0 Finished
Freeing up: [1 0 1]
Available is now: [3 1 2]
1 : Failed
Process : 2 Finished
Freeing up: [3 0 0]
Available is now: [6 1 2]
Process : 3 Finished
Freeing up: [1 0 1]
Available is now: [7 1 3]

Testing:
Process: 0 SKIPPED
1 : Failed
Process: 2 SKIPPED
Process: 3 SKIPPED

Testing:
Process: 0 SKIPPED
1 : Failed
Process: 2 SKIPPED
Process: 3 SKIPPED

Testing:
Process: 0 SKIPPED
1 : Failed
Process: 2 SKIPPED
Process: 3 SKIPPED

Not Safe
Processes (Starts at 0):
1
Are in involved in a Deadlock
```