

Cairo University
Faculty of Computers & Artificial Intelligence

Advanced Operating System (2021-2022)

Assignment 2

Disk Scheduling

You should try to compare the output after applying **all** the following disk scheduling algorithms (**FCFS**, **SSTF**, **SCAN**, **C-SCAN**, **LOOK** and **C-LOOK**) as well as **the newly optimized algorithm**

by implementing their algorithms and applying it on a disk queue with requests for I/O blocks on cylinders.

Example of cylinders I/O requests:

98, 183, 37, 122, 14, 124, 65, 67

Initial head start cylinder: 53

The newly optimized algorithm procedure and flowchart are found in page 10 in the following paper:

<https://research.ijcaonline.org/volume93/number18/pxc3896046.pdf>

The following information should be followed:

- 1- The Input queue like above should be an input to your program from the command line, from a file or through GUI.
- 2- The Initial head start cylinder should also be an input to your program and entered by the user.
- 3- The output result should **show the sequence** of head movement to access the requested cylinders based on the implemented algorithms.
- 4- Also, show **the total head movement** per algorithm.
- 5- You should summarize the newly optimized algorithm in your own words.

**** 1 Bonus Grade** for visualizing the sequence of the head movements using GUI.

Submission Instructions:

- 1- This assignment will be submitted into groups of **(three to four students)** and the due date is on **Friday 22th of April 2022 at 11:59 PM** on Blackboard. **You should work in groups from the same lab.**
- 2- You can deliver code in (Java, C++, C#, or Python). You should deliver a running code and match the assignment criteria.
- 3- You should submit your code on Blackboard before the specified time. Follow these steps in your submissions or you will lose your grades **(No Excuses)**:
 - a. You should deliver a folder with your program files. **Do not deliver any subfolders just one folder with sub-files.**
 - b. Name the folder with your IDs separated by underscores **without any spaces.**
 - c. Compress this folder in a **.zip** file with the same folder name and upload it. This zipped folder contains the code, needed text files if any, and file containing students' names and ids.
 - d. Only **one member** from the group should upload the assignment file.
 - e. You should deliver your own code. **Don't copy from the other teams or the internet (NO CHEATING).** Otherwise, you will get a negative grade.
 - f. Late submission is NOT allowed.

Good Luck