Assignment 11

Operating System Lab (**CS341**)

Department of CSE, IIT Patna

Date:- 29-Apr-2020 **Deadline:-** 11:59 PM, 1 May 2020

Instruction:

1. All the assignments should be completed and uploaded by 11:59 PM, Marks will be deducted for late submission.
2. Markings will be based on the correctness and soundness of the outputs. Marks will be deducted in case of plagiarism.
3. Proper indentation and appropriate comments are mandatory.
4. You should zip all the required files and name the zip file as ***roll_no*.zip**, eg. **1701cs11.zip.**
5. Upload your assignment (**the zip file**) in the following link:
   https://www.dropbox.com/request/NMXG4Upy0sS64kFKSJNO

Description: Files are normally stored on the disks. So the main problem is how to allocate space to those files. So that disk space is utilized effectively and files can be accessed quickly. Three major strategies of allocating disc space are in wide use. Sequential, indexed and linked.

Sequential allocation : In this allocation strategy, each file occupies a set of contiguously blocks on the disk. This strategy is best suited. For sequential files, the file allocation table consists of a single entry for each file. It shows the file names, starting block of the file and size of the file. The main problem of this strategy is, it is difficult to find the contiguous free blocks in the disk and some free blocks could happen between two files.

Indexed allocation : Indexed allocation supports both sequential and direct access files. The file indexes are not physically stored as a part of the file allocation table. Whenever the file size increases, we can easily add some more blocks to the index. In this strategy, the file allocation table contains a single entry for each file. The entry consists of one index block, the index blocks having the pointers to the other blocks. No external fragmentation.

Linked allocation : It is easy to allocate the files, because allocation is on an individual block

basis. Each block contains a pointer to the next free block in the chain. Here also the file allocation table consists of a single entry for each file. Using this strategy any free block can be added to a chain very easily. There is a link between one block to another block, that's why it is said to be linked allocation. We can avoid the external fragmentation.

1) Write a C Program to implement Sequential File Allocation method.

2) Write a C Program to implement Indexed File Allocation method.

3) Write a C Program to implement Linked File Allocation method.