

**Assignment 4**  
**Indexing Techniques**

**Submission Date: Tuesday 02-Nov-2017 (Start of Class)**

**Note:**

- Plagiarism will result in zero credit in all assignments
- Read the assignment statement carefully
- If you have any confusion , try posting it on Piazza
- You can also make suitable assumptions
- Mention any assumptions before solving the question

Consider the following table and statistics which are part of a leaning management system:

Student (RollNo, Name, DegreeID, BatchID, DeptID, GPA .....);

Block Size	64 KB
Available Memory	100 Blocks
Rows	1,000,000
Row Width	512 bytes
Index Row Width	32 bytes

Assume batch 2014 students are 15%, CS department students are 60%, students having GPA>2.5 are 55% and students having GPA>3.7 are 3%.

**Question:**

Find the I/O cost for the two given queries for all the indexes specified:

**Query 1:** Students of the batch 2014 who are from CS dept. and have GPA > 2.5

**Query 2:** Students of the batch 2014 who are from CS dept. and have GPA > 3.7

- 1) FULL TABLE SCAN
- 2) SINGLE INDEXING
- 3) COMBINING MULTIPLE INDEXES
- 4) DYNAMIC BITMAP INDEX
- 5) STATIC BITMAP INDEX
- 6) COMPOSITE INDEX
- 7) CLUSTERED INDEX