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## Research Topic (6)

### Title: Database Indexes

Write research on: The different types of database indexed with a special focus on clustered and non-clustered indexes

The research should include:

1. State the different types of database indexes.
2. Conduct a brief comparison of all database index types and their usages.
3. Of the mentioned types give a detailed explanation and comparison with examples between Clustered and non-clustered indexes.
4. Provide an implementation to simulate clustered indexes using XML files which will be delivered separately as code files and add a brief description of your implementation in your report. For this task assume that you have a single table containing people data (ID, Name, City, Country) and that you are creating the index on the ID field
5. Test your code using different files and provide an evaluation of the performance of the technique using the following template table. Add at least 5 different test cases.

Test Case	No of records in data (min. of 10 records)	No of comparisons made to search for a record	
		Search using ID (write the example you used (e.g. ID = 5))	Search using City (write the example you used (e.g. City = Paris))
1			
2			
3			
4			
5			

6. Add a paragraph commenting on the results you got.

## Instructions:

The form of the research should follow the following rules:

- a. Writing using Microsoft Word.
- b. using Time New Roman font.
- c. 14 Font size for text and 16 Bold for the title.
- d. single space between the lines.
- e. Page margins are 2.5 cm from top, bottom, right and left.
- f. The number of pages is not less than 5
- h. English language formulation should be correct and sound.
- i. Clarity of texts, pictures or drawings.
- j. Upload a compressed version of the whole project you implemented along with the files used for testing.
- k. Plagiarism check will be applied on submitted reports so both copying from another student, or copying directly from internet sources without using your own words is considered plagiarism and causes the rejection of the report.
- l. Upload the report as a PDF file to avoid format problems.
- m. Avoid writing your name or ID anywhere in the report or the code.

*With Our Best Regards,  
Prof. Mohamed Hashem &  
Dr. Wedad Hussein*