

# 37 Lecture - CS403

## Important Subjective

### 1. What is an index in a database?

Answer: An index in a database is a data structure used to improve data retrieval performance by allowing quick access to specific data items based on a specific attribute or key value.

### How does indexing improve the performance of data retrieval operations?

Answer: Indexing creates a data structure that organizes data in a specific way, allowing for faster search and retrieval of specific data items based on a particular attribute or key value.

### What is a primary key index in a database?

Answer: A primary key index in a database is an index that includes only unique values of a particular column and is used to ensure data consistency and integrity.

### What is a clustered index in a database?

Answer: A clustered index in a database is an index that stores data in a specific order based on a particular column, allowing for fast retrieval of data in that order.

### What is a non-clustered index in a database?

Answer: A non-clustered index in a database is an index that includes only unique values of a particular column and is used to speed up data retrieval operations for non-clustered queries.

### What is an inverted index used for?

Answer: An inverted index is used in search engines to speed up data retrieval by storing a list of documents that contain each word in a document collection.

### What is a file system index?

Answer: A file system index is a data structure used to speed up data retrieval operations in file systems by allowing quick access to specific files based on attributes like file name, date, and size.

### How does indexing affect database storage requirements?

Answer: Indexing increases database storage requirements, as indexes must be stored alongside the data they index.

### What is a hash index used for?

Answer: A hash index is used in databases to speed up data retrieval operations by storing a hash value for each data item based on its key value.

### What are some common challenges associated with indexing large data sets?

Answer: Some common challenges associated with indexing large data sets include increased storage requirements, slower insert and update operations, and the need for periodic index maintenance to ensure data consistency and integrity.