ASSIGNMENT 5

1.Difference between SQL & NoSQL DBs ?

SQL	NoSQL
• It is an relational management system	• It is an non relational management system
• It has fixed or static or predefined schema	• It is Dynamic schema
• Display data in form of tables,so it is know as table based database.	• Display data as collection of key-value pair,documents,graph database or wide-column stores
• Vertically scalable	• Horizontally scalable
• Suited for complex queries	• Not so good for complex queries

2. Explain advantages of NoSQL DBs ?

- **Flexible scalability**

NoSQL databases are highly scalable and can be modified to meet the unique scaling needs of your business.

- **Flexible data types**

NoSQL databases allow you to store and retrieve data with only limited or no requirements for the predefined schema.

- **Large amounts of data storage**

Many NoSQL databases can handle extensive datasets, making them ideal for big data applications, IoT (Internet of Things), and other real-time analytics.

- **Simplicity and less code**

Many NoSQL database management systems require only a few lines of code, which is ideal for developers who want to get started quickly.

Explain how MongoDB data will be inserted ?

To insert data in MongoDB

After the database is created

>show collections;

Syntax: db.database name.**insert**({"data to be inserted})

For Example:

Db.books.insert({"name": "Mongo db books"})

3. Explain the steps - how COSMOS DB can be creatd with screens ?

- ✓ On the Select API option page, select the Create option within the Core (SQL) - Recommend section.
- ✓ Azure Cosmos DB provides five APIs: Core (SQL) and MongoDB for document data, Gremlin for graph data, Azure Table, and Cassandra.
- ✓ Currently, you must create a separate account for each API. Learn more about the SQL API

4. Explain how to write JSON query in COSMOS DB ?

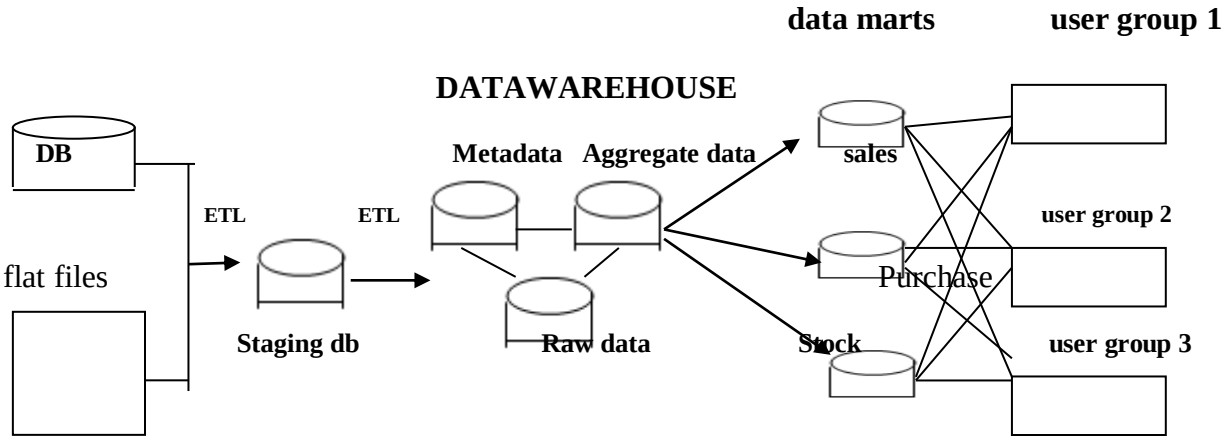
- ✓ Navigate to "Data Explorer".
- ✓ Then navigate to the database and the collection.
- ✓ Select "Items".
- ✓ You should see an "Upload Item" button which you can click on.
- ✓ A new panel will appear on the right where you can select a file to upload.
- ✓ Done.

5. Explain major difference between databases & datawarehouses ?

DATABASE	DATAWAREHOUSE
• It supports operational processes.	• It supports analysis and performance reporting.
• Capture and maintain the data.	• Explore the data.
• Current data.	• Multiple years of history.
• Data is balanced within • the scope of this one system.	• Data must be integrated and balanced from multiple system.
• Data is updated when transaction occurs.	• Data is updated on scheduled processes.
• Data verification occurs when entry is done.	• Data verification occurs after the fact.
• 100 MB to GB.	• 100 GB to TB.

• ER based.	• Star/Snowflake.

6. Explain the architecture of datawarehouses ?



7. Explain what are Datamarts & how different from DATABASES ? & mention the types of Datamarts too

DATAMARTS:

- ✓ It is a smaller version of the data warehouse which deals with a single subject
- ✓ It is focused on one area hence they draw data from a limited number of sources.
- ✓ Time taken to build datamarts is very less compared to the time taken to build a data warehouse.

DIFFERENCE BETWEEN DATAMARTS AND DATAWAREHOUSE:

DATAMARTS	DATAWAREHOUES
✓ Enterprise wide data	✓ Department wide data
✓ Multiple subject area	✓ Single subject area
✓ Multiple data sources	✓ Limited data sources
✓ Longer time to implement	✓ Shorter time to implement

TYPES OF DATAMART:

- ✓ Dependent Datamart
- ✓ Independent Datamart
- ✓ Hybrid Datamart

8. Explain OLAP & OLTP with examples ?

OLAP:

- ✓ OLAP stands for On-Line Analytical Processing.
- ✓ It is used for analysis of database information from multiple database systems at one time such as sales analysis and forecasting, market research, budgeting and etc.

  Example: Data Warehouse

OLTP:

- ✓ OLTP stands for On-Line Transactional processing
- ✓ It is used for maintaining the online transaction and record integrity in multiple access environments.
- ✓ OLTP is a system that manages very large number of short online transactions for example, ATM.

  Example: Analytical Data warehouse

9. Explain what is BI & how BI helps business to take intelligent decisions ?

BI-Business Inteligence

- ✓ It is the activity which contributes to the growth of any company.
- ✓ It is the act of transforming raw/operational data into useful information for business analysis

BI HELPS IN DECISION MAKING:

- ✓ BI ensures stronger ROI as companies can significantly reduce costs, enhance revenue, improve margin, drive cost avoidance and much more.

10.Explain how ETL works with Datawarehouses ?

- ✓ ETL is a process in Data Warehousing and it stands for Extract, Transform and Load.
- ✓ It is a process in which an ETL tool extracts the data from various data source systems, transforms it in the staging area, and then finally, loads it into the Data Warehouse system.