**(Transaction Processing System)**

* **Transaction-**A transaction usually means a sequence of information exchange and related work that is treated as a unit for the purposes of satisfying a request **.**
* **Database-** A database is a collection of information or data that is organized. It can be easily accessed, managed and updated. Example- Table.
* **Transaction(ACID) Properties :-** The properties are given below as:-

**a. Atomicity**:- This property states that a transaction must be treated as an atomic unit that is either all of its operations are executed or none.

**b. Consistency**  :- The database must remain in a consistent state after any transaction. No transaction should have any adverse effect on the data residing in the database.

**c. Durability: -** If a transaction updates a chunk of data in a database and commits, then the database will hold the modified data**.**

**d. Isolation :-** In a database system where more than one transaction are being executed simultaneously**.**

* **TPS-**A transaction process system (TPS) is an information processing system for business transactions involving the collection, modification and retrieval of all transaction data. TPS is also known as transaction processing or real-time processing.

Example-  customer orders, receipts, payments etc.

* **TPS characteristic**:-The characteristic of TPS is given below as:-

**a. Performance: -** Transaction processing systems are usually measured by the number of transactions they can process in a given period of time.

**b. Data Integrity** :- The system must be able to handle hardware or software problems without corrupting data. Multiple users must be protected from attempting to change the same piece of data at the same time .

**c. Easy of use** :- The system should be simple for them to understand, protect them from data-entry errors as much as possible and allow them to easily correct their errors.

**d.** **Continuous availability** : The system must be available during the time period when the users are entering transaction. Many organizations heavily on their TPS a breakdown will disrupt operations.

**e.** **Modular Growth: -** It should be possible to add, replace, or update hardware and software components without shutting down the system. The system should be capable of growth at incremental costs, rather than requiring a complete replacement .

* **Function of TPS**:-The function of TPS is given below as:-

i. TPS perform input,output,processing and storage.

ii. Input functions means capturing data on a source document, entering the input data into the system and checking input data for errors, a process called data validation.

iii. Output functions means producing screen or paper reports, such as detail reports, summary reports, and exception reports.

iv. Storage functions means storing data in files and databases, accessing stored data, sorting stored data, and updating stored data.

v. Processing functions means the manipulation of data, including computation and decision making.

* **Type of TPS**:- There are two types of TPS as:-

a. Batch Processing

b. Real time Processing

* **Batch Processing**:- Batch processing is the processing as the collection/storage of data at the time of event with actual updating of the database. Example-Telephone Account, Bank Check, generation of Bill etc.
* **Advantage:-** The advantage of Batch processing system is given below as:-

i. It is the control over time of processing.

ii. It is a standardization of processing.

iii. Reduced set up and processing costs.

* **Disadvantage-** The disadvantage of Batch processing system is given below as:-

i. Operational cost may increase.

ii. Only identical data is processed for one batch.

iii. Time delay in gathering data ,storing and bulk processing.

iv. Errors are corrected the processing of data**.**

* **Real time Processing:-** Real time processing is the transaction processing as the immediate processing of data with the database updated as the transaction is being carried out . Example-Bank ATM as the user input which requires immediate feedback. Reservation System and library system.
* **Advantage**:- The advantage of Real Time processing system is given below as:-

i. Data is processed as demanded.

ii. Error correction can be immediate.

iii. Transaction response time is quick if not immediate.

* **Disadvantage**:- The disadvantage of Real Time processing system is given below as:-

i. System hardware and software is expensive.

ii. Processing needs make control difficult.

iii. The possibility of data corruption requires backup.

iii. It may be difficult.

iv. Backup is critical is case of system crashing.

* **Difference between Batch Processing & Real Time Processing**:-

The difference between Batch Processing & Real Time processing is given below as:-

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| **Batch Processing** | **Real Time Processing** |
| i.It is a non-continous processing.It is also called a Batch Processing. | i. It is a continuous processing.It is also called a Interactive processing. |
| ii. It has extended over time period. | ii. It have predictable response time. |
| iii. Certain records are processed after the event to avoid operational delays. | iii. All records are processed immediately. |
| iv. Each transaction is a part of group . | iv. Each transaction is unique. |
| V.Example-Bank cheque. | v.Example-ATM |