**AWS DATABASE**

**What is data ?**

**In simple word data can be fact related to any object . for ex age , job , house no , contact no, some data related to you.**

**What is a database ?**

**Database is a systematic collection of data database support storge and manipulation of data.**

**Eg. Facebook, telecom companies, amazon.com.**

**What is DBMS ?**

**DBMS is a collection of programs which enables its users to access database, manipulate data, reporting / representation of data .**

**Types of DBMS :-**

**1) Hierarchical**

**2) Network**

**3) Relational**

**4) Oriented**

**RELATIONAL DATABASE**

* **A relational database is data structure that allows you to link information from different tables “tables “ or different types of data bucket.**
* **2) tables are related to each other , all fields must be filled , suited for OLTP online transaction processing**
* **Relational database MYSQL. ORACLE DBMS, IBM DB2**
* **Each tables has its own primary key**
* **A schema is used to strictly defines tables column indexes and relational between tables**
* **Relational db are usually used in enterprises application / scenario**
* **Exception in MYSQL include php and java based web applications that requires a database storage backend**
* **Eg JOOMLA**
* **Connect scale- out horizontally**
* **Vertically all relational bd used SQL**

**NON RELATIONAL DB / NO SQL DB**

* **Non relational db store data without a structured mechanism to link data from different tables to one anther**
* **Require low cost hardware**
* **Much faster performance(read/write) compared to relational db**
* **Horizontal scaling is possible**
* **New provide tables with flat fixed column record it means schema-free**
* **But suited for online analytical processing**
* **Eg of NoSQL databases -MongoDB, Cassandra, Dynomodb, Raven, Redis.**

**TYPES OF NO SQL DB**

**1)Columnar db Casandra, HBase**

**2) Document db MongoDB, CouchDB,RavenDB -----JSON**

**3) Key value Database , Redis , Riak, DynomoDB, Tokyo cabnet**

**4) Graph base db Neo4j, FlockDB**

**RDs Relational db system**

**In an AWS fully managed Relational db engines service where AWS is responsible for :-**

* **Security and patching**
* **Automated backup**
* **Software update for the DB engine**
* **If selected Multi-AZ with synchronous replication between the Active and standby DB instances . -----standby means copy**
* **Automatic failover if multi-AZ option was selected**
* **By default every DB has weekly mainatainance window ( max 35 days)**

**Settings managed by the users**

* **Managing DB settings**
* **Creating relational db schema**
* **DB performance testing**

**RELATIONAL DB ENGINE OPTIONS**

* **MS SQL SERVER**
* **MySQL -> support 64 tb of DB**
* **Oracle**
* **Aws Aurora -> High throughput it means speed**
* **PostgreSQL -> Highly reliable and stable**
* **Maria DB -> MySQL compatible , 64 tb DB**

**There are two licensing options**

* **BYOL -> bring your own licence**
* **License from AWS on housely basis**

**RDS Limits**

* **Upto 40DB instance for per account**
* **10 of this 40 can be oracle or MS\_SQL**
* **Servers under license model**

**RDS instance storage**

**In DB only EBS storage is used**

* **Amazon RDS use EBS volumes (not instance store) for DB and logs storage .**
* **General purpose -> use for DB workloads with moderate means normal i/o requirement ->**

**Limit :-**

**min -20GB**

**max -16384 GB**

* **Provisional IOPS RDS storage -> use for high performance OLTP workloads used in relational db ,,,,also used for multi or standby instance.**

**Limit:-**

**Min -100 GB**

**Max -16384 GB**

**TEMPLATED AVAILABLE IN RDS**

**Production :- we defaults for high availability and fast consistent performance.**

**Dev / testing :- this instance is intended for development use outside of a production environment.**

**Free – tire :- use free tire to develop new app , test existing app, or gain hands on experience with amazon rds. ----- we not make standby instance.**

**DB INSTANCE SIZE**

* **Standard class :-( its include in m class )**

**max 96 v cpu --- v for Virtual**

**384 GB RAM**

**EBS 14000 mbps**

* **Memory optimized :- (include r and x classes)**

**Max 768 GB RAM**

**96 v CPU --- v for Virtual**

**EBS 14000 MBPS**

* **Burstable class :- include t classes**

**Max 8 v CPU --- v for Virtual**

**32 GB RAM**

**EBS 1500 mbps**