Week-1 Summary

- Database: An organized body of related information. Miniworld or universe of discourse (UoD)
- Data (Unprocessed material) vs Information (knowledge, intelligence, a particular piece of data with a special meaning or function)
- DataBase Management System (DBMS): A software system that facilitates the creation and maintenance and use of an electronic database
- DBMS Examples: Oracle, MySQL, SQL Server, PostgreSQL, MongoDB
- Expectation from DBMS: Keep data around (**Persistent**), Answer questions (**Queries**) about data, **Update** data
- 1970-72: Codd proposes the relational model for databases
- Early 1980s: The first commercially-available DBMS named as Oracle 2
- Data Model: A data model is a collection of concepts for describing the data in a database. Examples: Relational, Key/Value, Graph, Document, Network etc
- Relational Model: A relation is an unordered set that contain the relationship of attributes that represent entities. (**Entities**, their **Attributes** and **Relationships** with other entities)
- A tuple is a set of attribute values in the relation.
- Primary Key: A relation's primary key uniquely identifies a single tuple.
- Foreign Key: A foreign key specifies that an attribute from one relation **must** map to a tuple in another relation.
- Physical Data Independence: Applications should not need to worry about how data is physically structured and stored. Leave the implementation details and optimization to DBMS