2: Describe the data processing chain.

To get new value and insight, we need to analysis exiting data. data is information which is known as the heart of business intelligence. Data processing chain is a sequence of steps where information(data) is gathered from different sources and modeled, stored in a database, extract from database for reporting and analysis purpose and store in data warehouse. Then, data is mined to generate new insight by following different data mining technique. Finally, new generated value is displayed or visualized. in data processing cycle, looks like bellow:

Data => Database => Data warehouse => Data Mining => Data visualization

**Data:**  Data might be come from different source like from database of an organization, customer and owner interaction, government body where data type can be also different. In data analytic, data can be classified into different type such as nominal, order, interval, ratio data. apart from, another kind of data which does not lend to that much mathematical analysis. for instance – audio, video and graph files.

**Database:** A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system (DBMS). It is modeled collection of data which is accessible in many ways. A data model can be designed to integrate the operational data of the organization. Now a days, many database management tools are available to help store, manage and model data.

**Data warehouse:** Data warehouse is designed to help organization to decision making which is simpler version of operational database. it is an organized data store where at first, data can be extracted from operational database to find out answer of some queries. this data, might be combined with other data and rolled up to a consistent granularity. Finally, it is uploaded to a separated data store which is named data warehouse.

**Data Mining:** Data Mining is a part of data analysis where it is defined as a process of extracting unused data from a large data set. it is a method of recognizing and discovering hidden pattern throughout whole data set. There are several data mining technique for data analytics. Such as (a)Decision tree - which used different algorithm to make decision tree. (b)Regression - used for figuring out best fitting curve through the many data point (c) Artificial Neural Networks (d) Cluster analysis and so on.

**Data visualization:** Data is being gradually increased as business is growing every day. This data seems to be piling up faster than processing. As a result, it is challenging to make sense or decision making from this vast amount of data. data visualization provides us opportunity to convert raw data to visual representation which can be easily understood. Normally, visualization come in the form of charts, diagram, graph and map which allow users to trace and analyze trends and patterns.