**Big Data and 4V’s of Big Data**

**Big Data :-**

Big data is data that is extremely large and complex in nature that cannot be easily managed or analyzed with traditional data process tools like spreadsheets, Relational Database management systems.

Big Data includes structured data, unstructured data as well as semi structured data. It provides a more comprehensive understanding of patterns and trends in data by integrating from various different data sources to form a complete picture.

Benefits of Big Data :

1. Better insights – When data is integrated from different sources, it allows organizations to have a more comprehensive understanding into the how and why of things, a larger pool of data uncovers previously hidden connections and expands potentially missed perspectives.
2. Improved Decision-making – With better insights , organizations can make data-driven decisions with more reliable predictions. When big data is combined with analytics it opens new range of possibilities including market-trends, social media analysis, etc.
3. Personalized Experiences – Big data is used to create personalized recommendations, targeted advertising and customize experience for users.

Working of Big Data :

1. Integration of Data – Big data integrates data from various sources and forms like structured (SQL tables, spreadsheets), semi-structured (json, xml files) and unstructured (images, text, audio, videos).
2. Manage – Integrated data needs to be stored, it can be in the cloud, on-premises, or both.
3. Analyze - A visual analysis of your varied data sets gives you new clarity, explore the data further to make new discoveries.

**4 V’s of Big Data :-**

1. Volume (Scale): The amount of data generated. Volume refers to the sheer scale and magnitude of data generated and stored by organizations. It may go from petabytes to terabytes.
2. Velocity (Speed): Velocity refers to speed at which data is generated, processed and analyzed in real-time. Normally the highest velocity of data streams directly into memory versus being written on disk.
3. Variety (Diversity): Variety encompasses diverse range of data types, formats and sources that comprise Big Data system.  It encompasses structured, semi-structured, and unstructured data, including text, images, videos, sensor readings, and log files.
4. Veracity (Trustworthiness): Veracity denotes quality, accuracy, reliability and trustworthiness of data

ADDITIONAL 5th V considered -

1. Value (Usefulness of data): Value refers to extracting useful, actionable insights from the data.