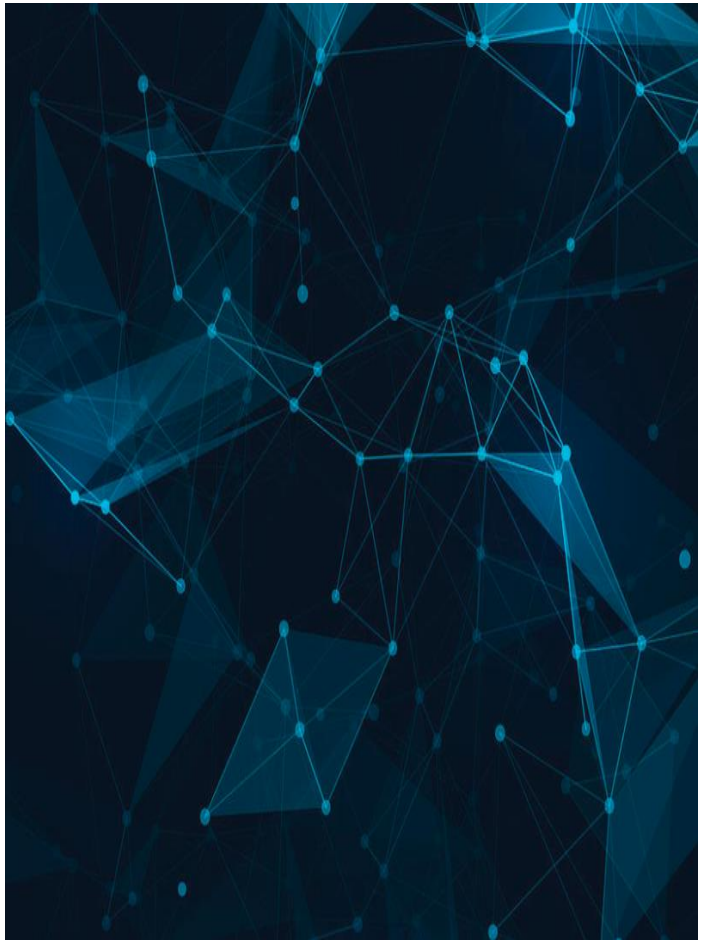


Data Science

Mega Trend of 21st Century

Sonia Sharma

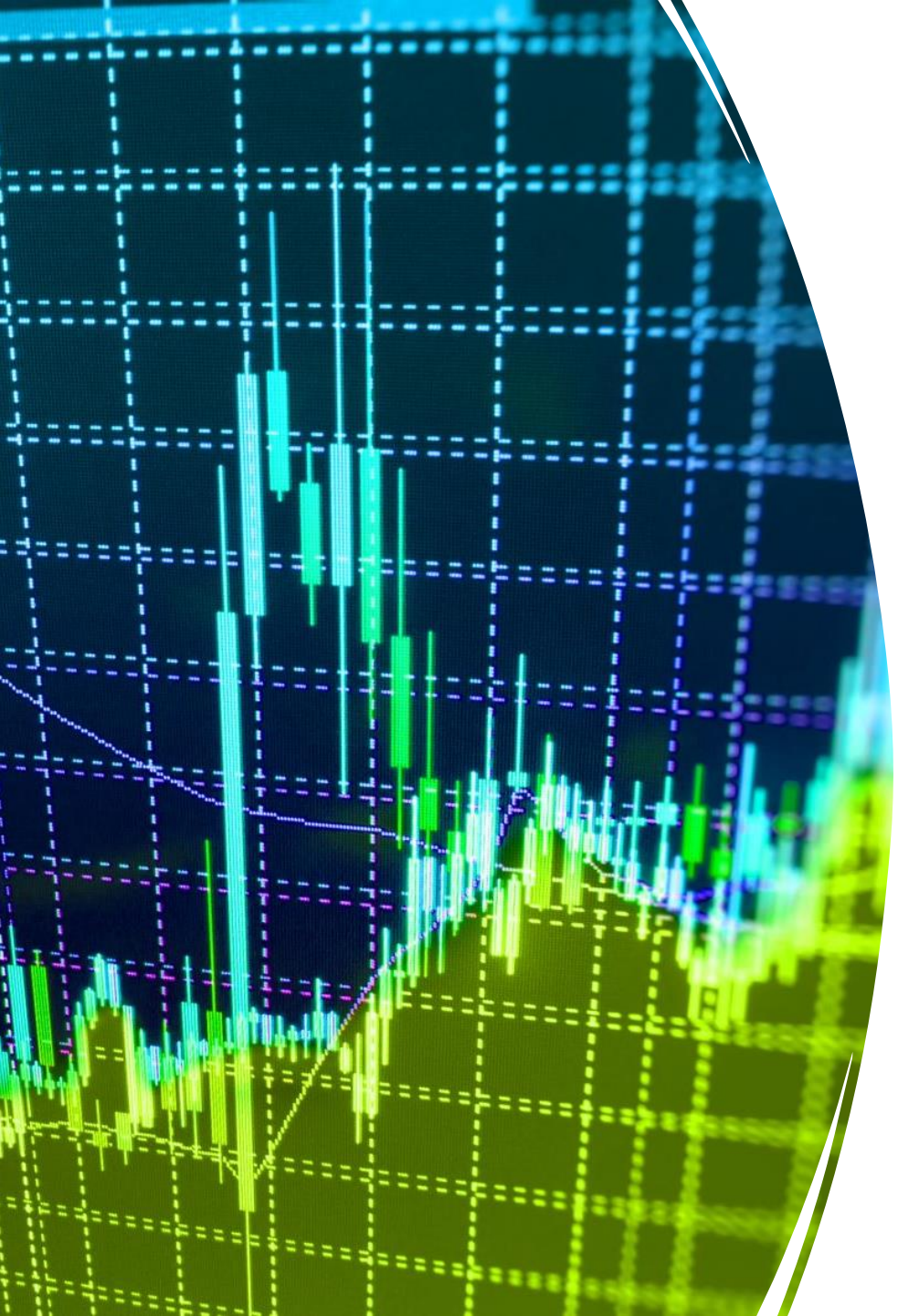
Software Engineer-II

Microsoft

iit-b

Agenda

- Why To Learn Data Science
- Evolution of Data and Statistics
- What is Data Science
- Purpose and Implementation of Data Science
- Tools and Skills Required
- Categories and Types of ML Models
- Consequences



Why To Learn Data Science

Glassdoor has ranked Data Science as its topmost profession.

- A fuel of 21st Century
- Problem of Demand & Supply
- A Lucrative Career

Evolution of Data and Statistics

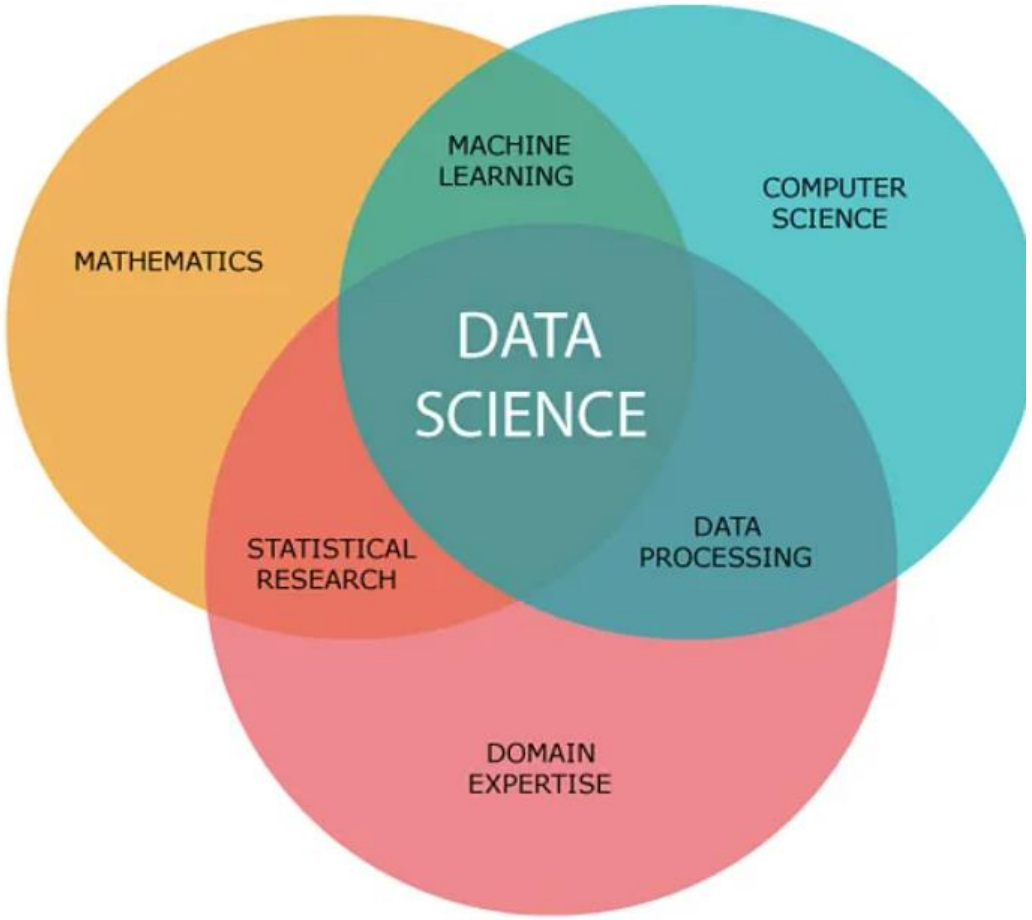
- **Data** is raw, unorganized facts that need to be processed. **Data** can be something simple and seemingly random and useless until it is organized.

- **Data** are individual pieces of information, recorded and used for the purpose of analysis. It is the raw information from which **statistics** are created.

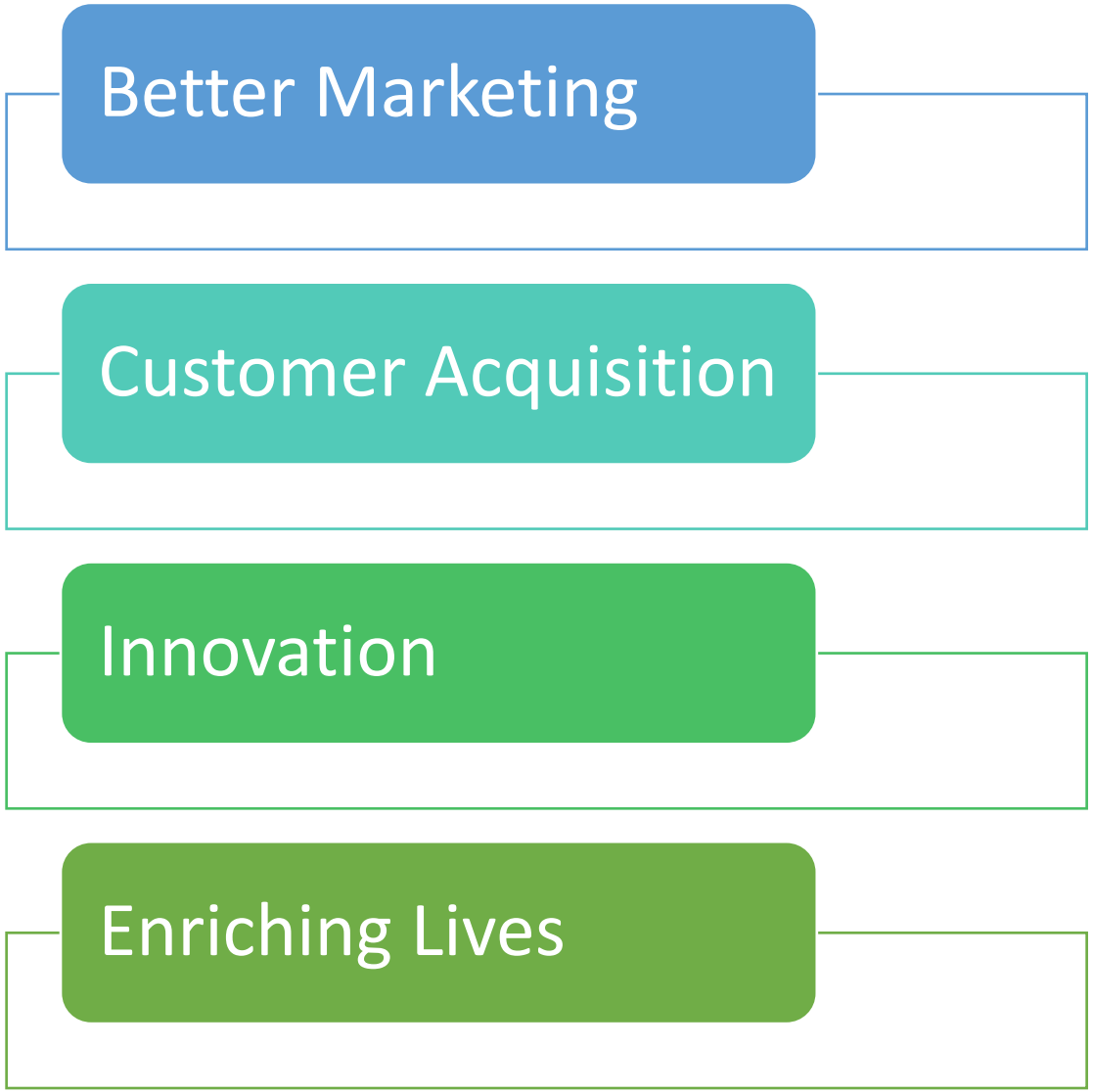
- **Statistics** is the discipline that concerns the collection, organization, analysis, interpretation and presentation of data - its interpretation and presentation.

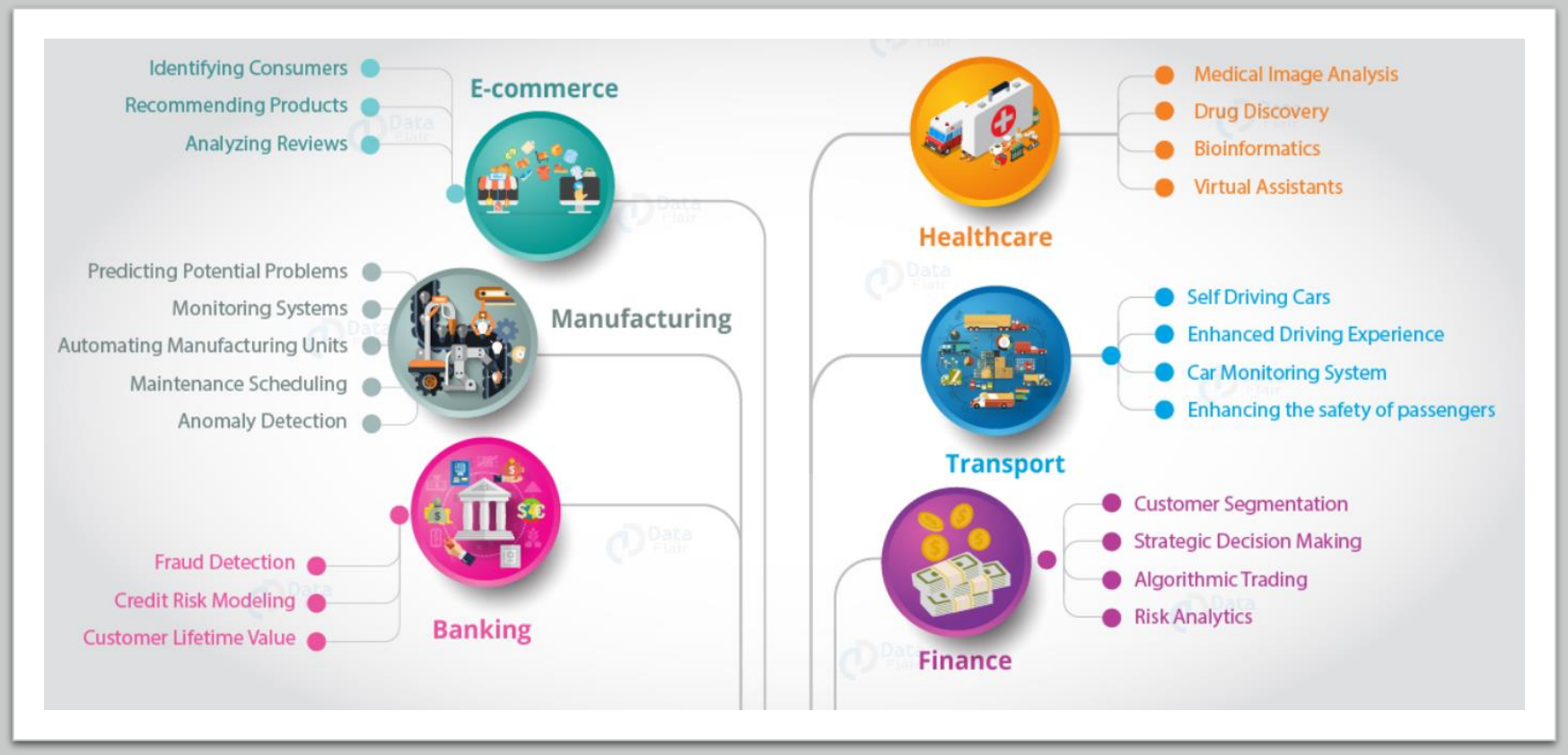
What is Data Science

Statistical and ML tools to draw Patterns and Make business Decisions.



Purpose of Data Science





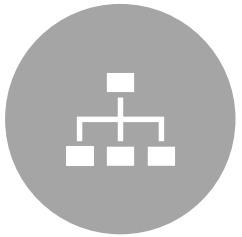
Implementations of Data Science

Places of Data Science in Data Universe

- Artificial Intelligence
- Machine Learning
- Deep Learning
- Big Data
- Predictive Analysis
- Business Intelligence

Role of a Data Scientist

GET DATA



MEANINGFUL STRUCTURE

ANALYZE

HYPOTHESIZE

PREDICTION (ML)

Top Skills for Data Science

Business Skills

Practical Skills (Math and Statistical)

Coding Skills

Soft Skills

Tools

- Python / R
- SQL
- Hadoop
- Excel/PowerBI/Tableau

Process To Target A Problem

- Identify Data Sources
- Ingest
- Clean Data
- Exploratory Data Analysis
- Train/Test Split
- Build Model on Train Data
- Evaluate
- Deploy, Monitor, Refine

Machine Learning Categories

Supervised Learning

Unsupervised Learning

Types Of Models

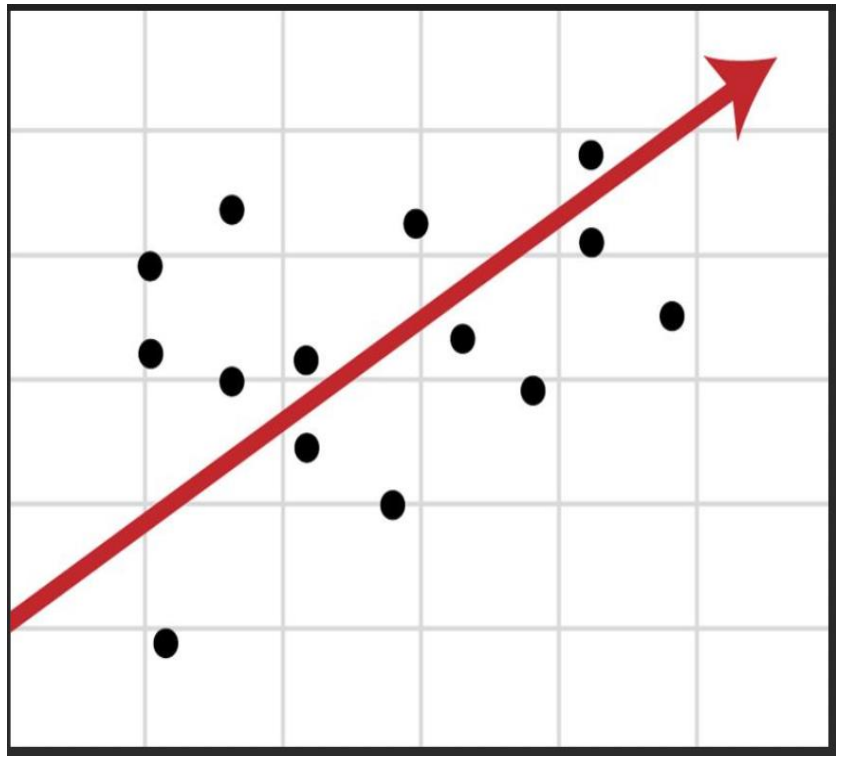
Regression

Classifications

Clustering

Types Of Regression Algorithms

- Simple Linear Regression
- Multiple Linear Regression
- Lasso Regression
- Support Vector Machine
- Multiple Variate Regression

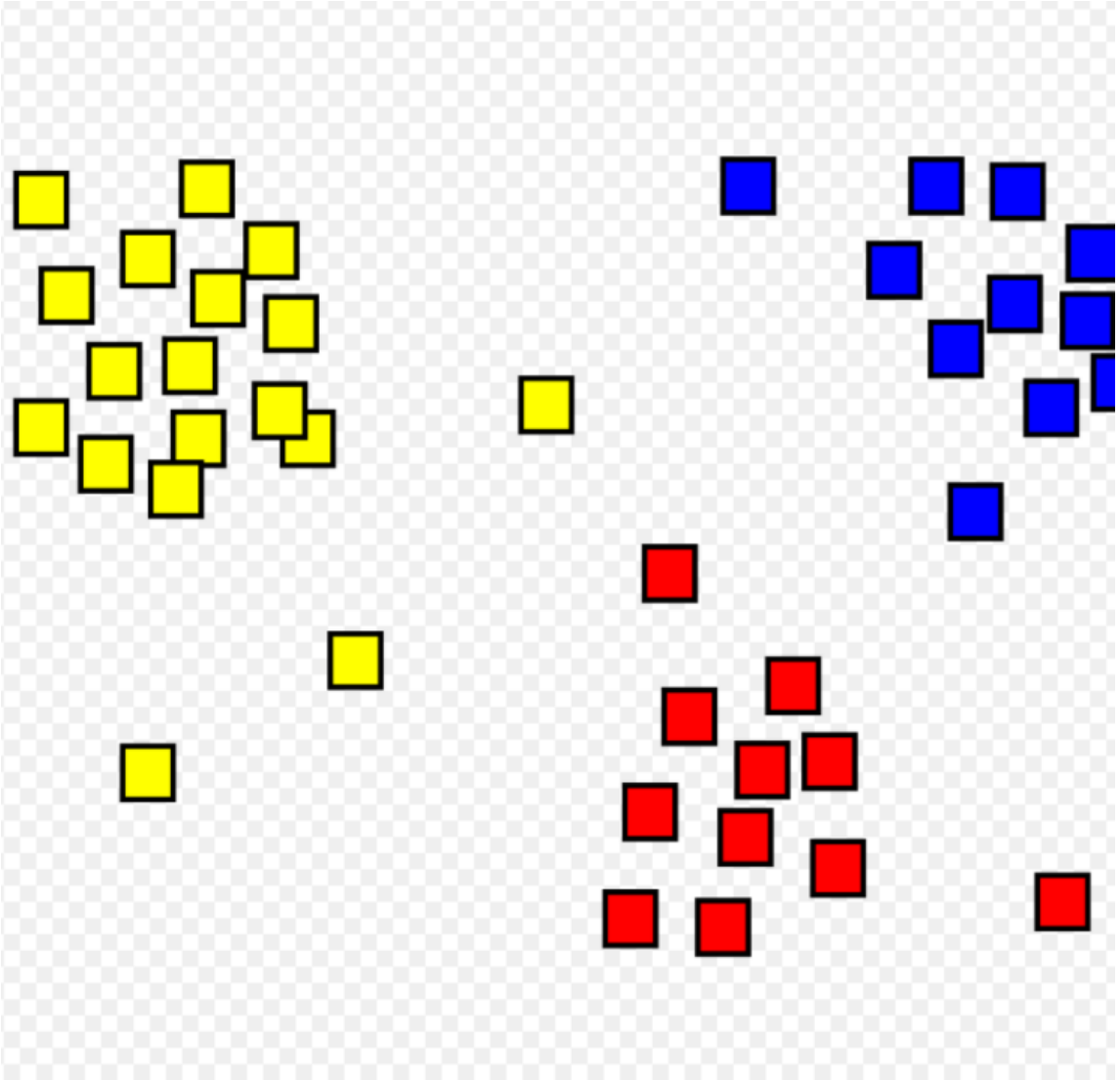


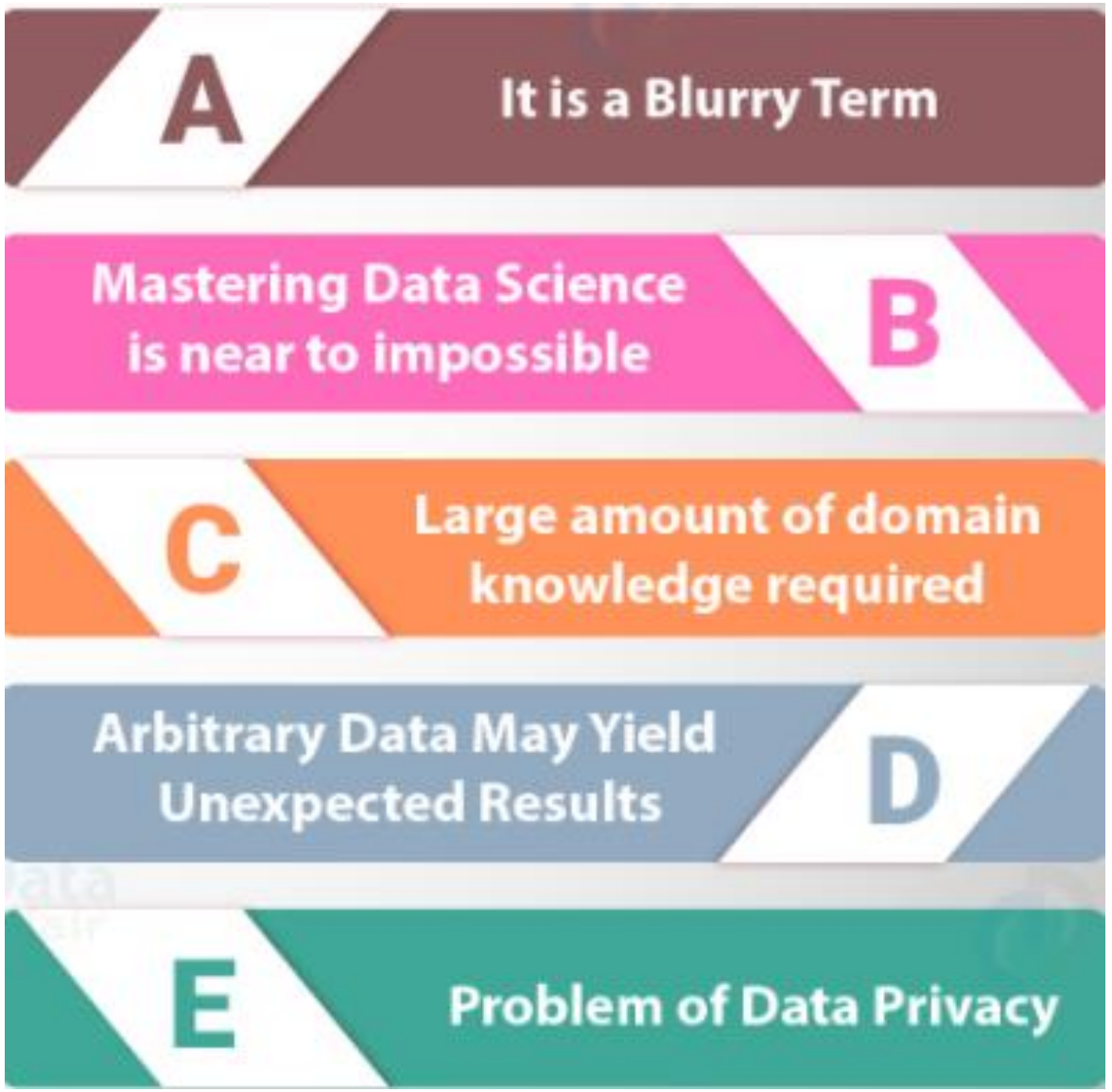
Types of Classification Algorithms

- Logistic Regression
- Naïve Bayes Algorithms
- K-Nearest Neighbors
- Decision Trees
- Random Forest
- Support Vector Algorithms

Types of Clustering Algorithms

- K-Means Clustering
- Mean Shift Clustering





Consequences

Summary

“While Data Science is a vast subject, It is a very robust field that best fits people who have a knack for experimentation and problem-solving. With a large number of applications, Data Science has become the most versatile career.”

References

- Kaggle
- Analytics Vidya
- Linkedin Learning
- Open Source Data Science Masters
- Elite Data Science (65 Free Data Science Tutorials for Beginners)

Thank You

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