

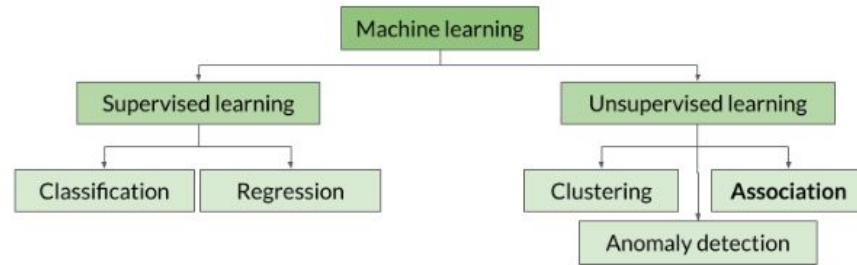
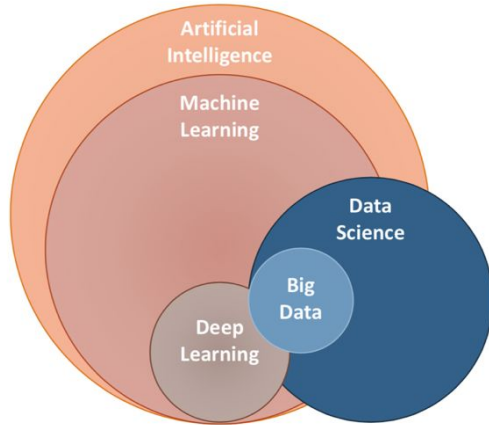
# Expedition to #DataScience and #MachineLearning with #Python

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- What is Machine Learning?
- What is Supervised and Unsupervised Learning?
- What is Classification, Regression, Clustering, Anomaly Detection?
- What is Deep Learning?



- What's the machine learning pipeline?
- What's the difference between Data Engineer, Data Analyst, Data Scientist, Machine Learning Scientist?



Data Engineer	Data Analyst	Data Scientist	Machine Learning Scientist
Store and maintain data	Visualize and describe data	Gain insights from data	Predict with data
SQL + Java/Scala/Python	SQL + BI Tools + Spreadsheets	Python/R	Python/R

Source: [datacamp.com](https://datacamp.com)

# Introduction to #DataVisualization

**Prerequisite:** You have **basic understanding of Python programming** and/or you have successfully **completed the module 1: Python Fundamentals**.

**Course environment:**

- Zoom for the live classes
- Jupyter Notebook for coding
- Google Classroom for the HW/quiz submission
- GitHub for the course materials

## Course objectives:

1. Matplotlib, a powerful Python data visualization library. Matplotlib provides the building blocks to create rich visualizations of many different kinds of datasets. You will learn how to create visualizations for different kinds of data and how to customize, automate, and share these visualizations.
2. Seaborn, for Statistical analysis and to create informative and attractive visualizations. You'll also learn about some of Seaborn's advantages as a statistical visualization tool.
3. Use of Numpy and Pandas for data analysis
4. Become a data storyteller

## **Course outline:**

Lecture 1: Importance of Data visualization, example of Bad data visualization

Lecture 2: Pie Chart, Bar plot

Lecture 3: Time-series plot, Line plot, Scatter plot, Regression plot

Lecture 4: Statistical analysis- Box plot, Histogram, Cumulative distribution function

Lecture 5: Advanced data visualization- Pair plot, Heatmap

Lecture 6: Case study 1

Lecture 7: Case study 2

Lecture 8: Data Visualization in Natural Language Processing (NLP) and Image Processing

Contents may change based on the student's requirement or time constraint.