

Machine Learning Fundamentals

Lecture -1

**Introduction To Machine
learning**

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What exactly is Machine learning??

- Machine learning is methodology by which we want machine to learn something.
- For learning anything, machine requires data. (i.e. Past Experience).

Humans are the best Example of Machine Learning



Humans are the best Example of Machine Learning



Not Touching a hot pan

Jumping from a height

Data Science vs Machine Learning vs Artificial Intelligence

Data Science

Machine Learning

Artificial Intelligence

Why ML & what Machine Learns

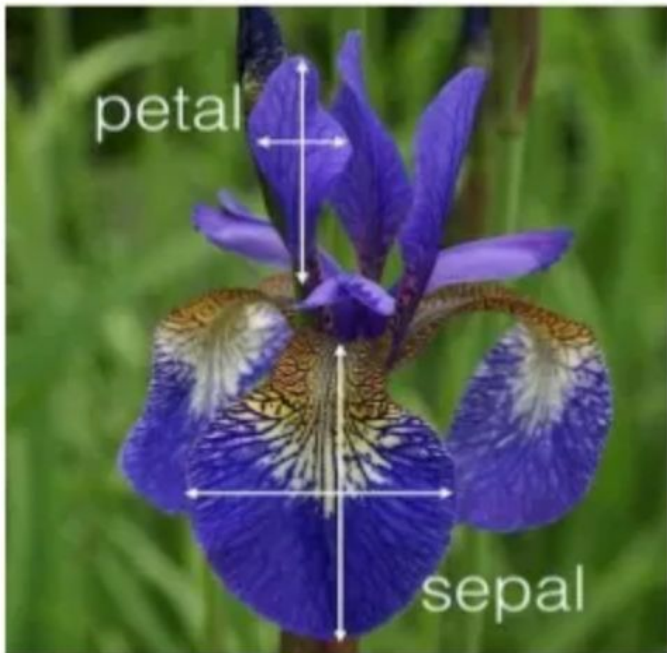
- Data is cheap and abundant (data warehouses).
- knowledge is very expensive and scarce.

Why ML & what Machine Learns

- Data is cheap and abundant (data warehouses).
- knowledge is very expensive and scarce.
- Insights should make **Business** Sense.

- Used Almost Everywhere, especially in web.
 - Content Feed
 - Ads
 - Spam Filtering
 - Text Recognition
 - Biology (DNA Sequencing)
- Self Driving Car
- Seismic Data
- **Immense Opportunity** lies in almost every field.

“Hello World” of DS & ML



Training / test data

Features

Labels

Sepal length	Sepal width	Petal length	Petal width	Species
5.1	3.5	1.4	0.2	Iris setosa
4.9	3.0	1.4	0.2	Iris setosa
7.0	3.2	4.7	1.4	Iris versicolor
6.4	3.2	4.5	1.5	Iris versicolor
6.3	3.3	6.0	2.5	Iris virginica
5.8	3.3	6.0	2.5	Iris virginica

House Price Dataset

	A	B	C	D	E
1	area	bedrooms	balcony	age	price
2	1200	2	0	2	500000
3	2300	3	2	5	620000
4	2500	4	2	1	122500
5	3650	5	3	3	6000000
6	1800	3	1	5	2122000
7	3000	3	1	4	120000
8	1222	1	0	2	450000
9	4600	5	3	1	6500000
10	2050	2	2	2	1530000
11	1450	2	2	3	1563330

Cricket Dataset

Name	First	Last	Mat	Inn	NO	Runs	HS
Virat Kohli	2008	2021	254	245	39	12169	183
Rohit Sharma	2007	2021	227	220	32	9205	264
Sachin Tendulkar	1989	2012	463	452	41	18426	200*
Rahul Dravid	1996	2011	340	314	39	10768	153
KL Rahul	2016	2021	38	37	6	1509	112
Faiz Fazal	2016	2016	1	1	1	55	55*
Hardik Pandya	2016	2021	63	46	7	1286	92*
Navdeep Saini	2019	2021	8	5	3	107	45
Mayank Agarwal	2020	2020	5	5	0	86	32
Prithvi Shaw	2020	2021	6	6	0	189	49

Types of Machine Learning

Supervised Learning

Unsupervised Learning

Reinforcement Learning

Supervised Machine Learning

- For all training data which have been given to us, we have a label/class/value associated with it.

Classification

Regression

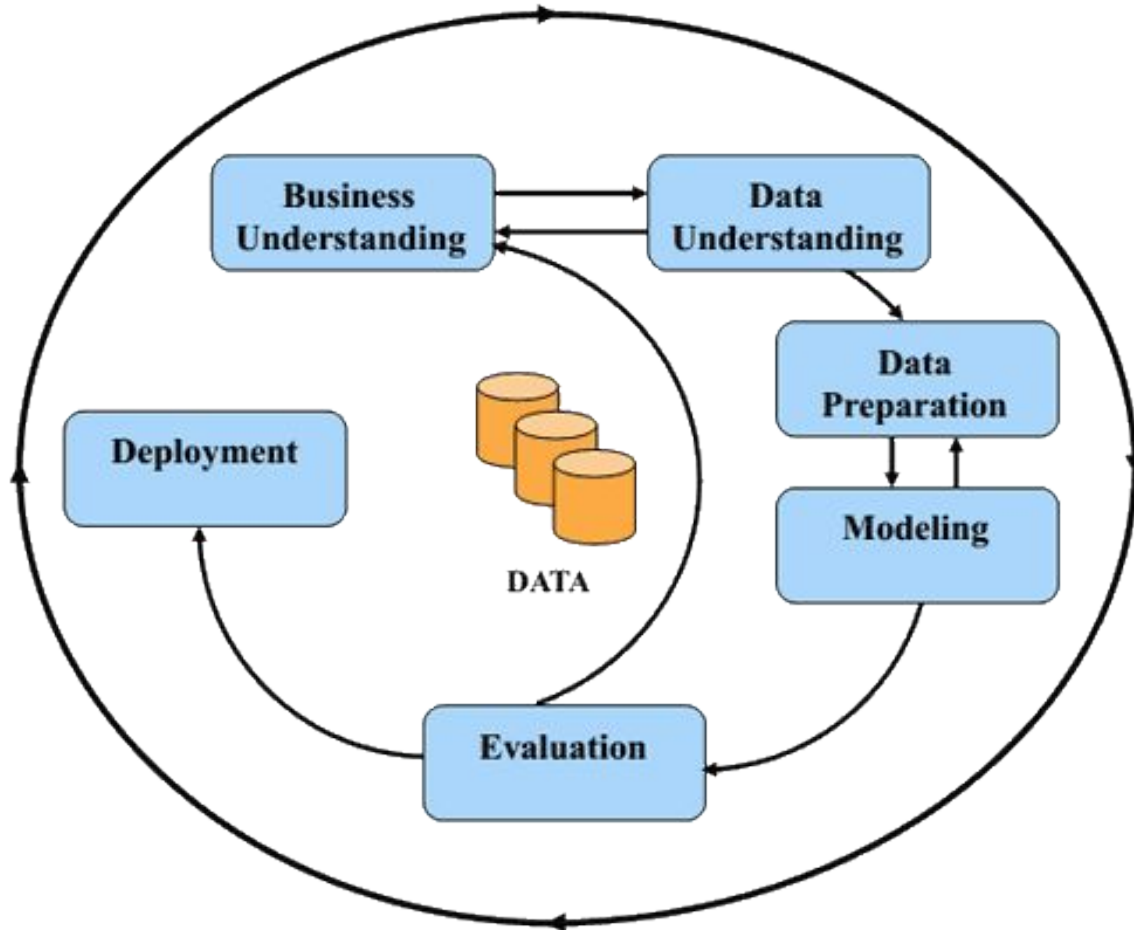
Steps for Supervised ML Algo

Features				Labels
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m rows or Data points
N columns or features
1 output/target Variable

1. Problem Understanding
2. Find Data
3. Data Understanding
4. Data Loading & Cleaning
5. Train our Algorithm
6. Test / Evaluate our Algorithm
7. Model Deployment

CRISP DM Methodology



FIN.

Ask your doubts in comments Section