

Machine Learning With Python

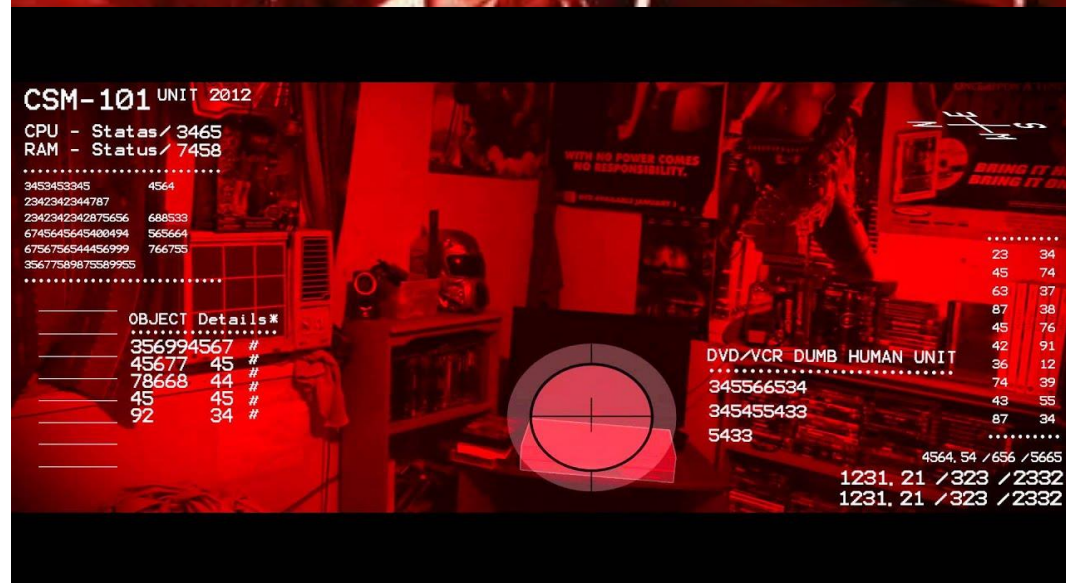




Machine Learning ?

Rishi Bansal

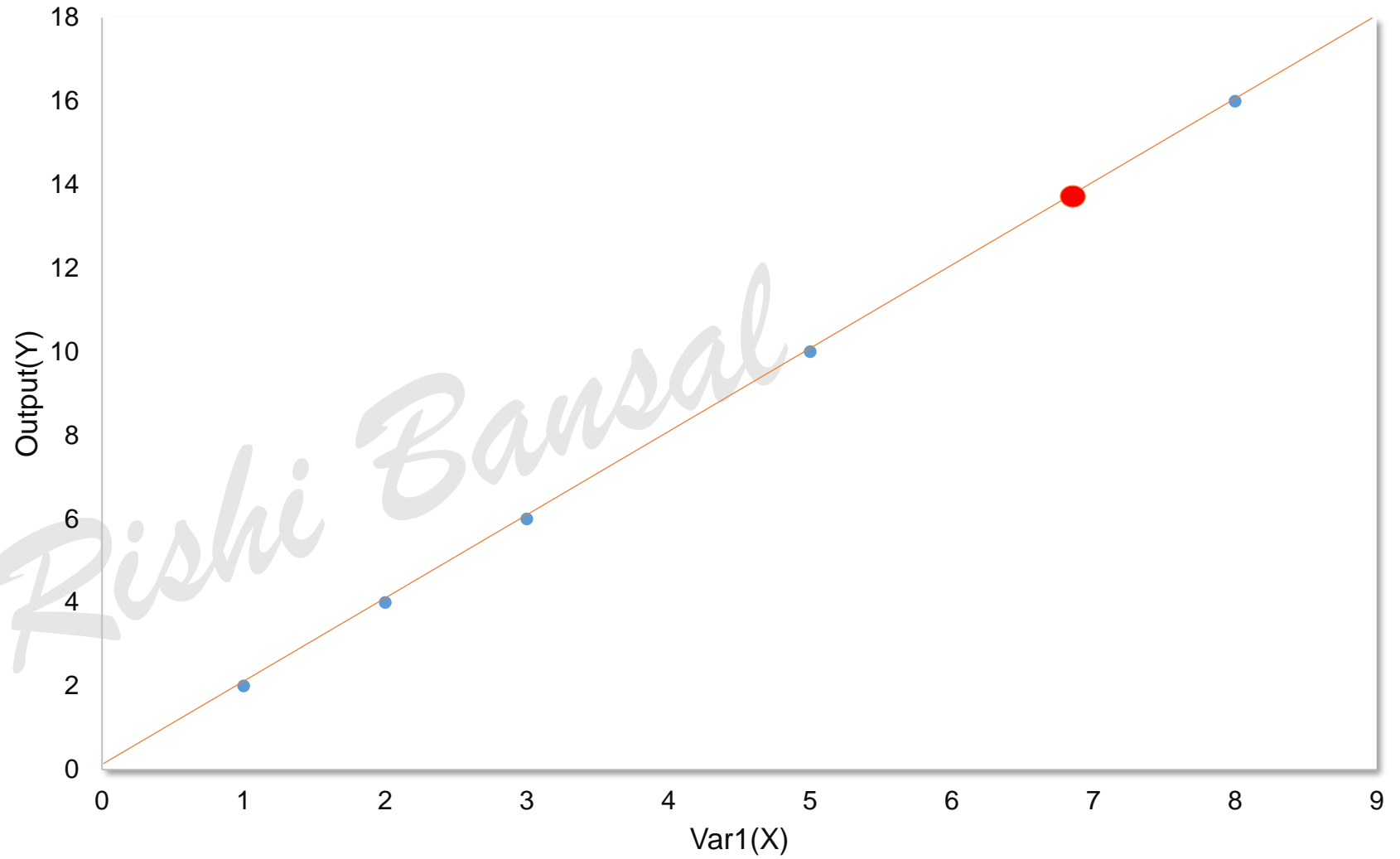




Puzzle

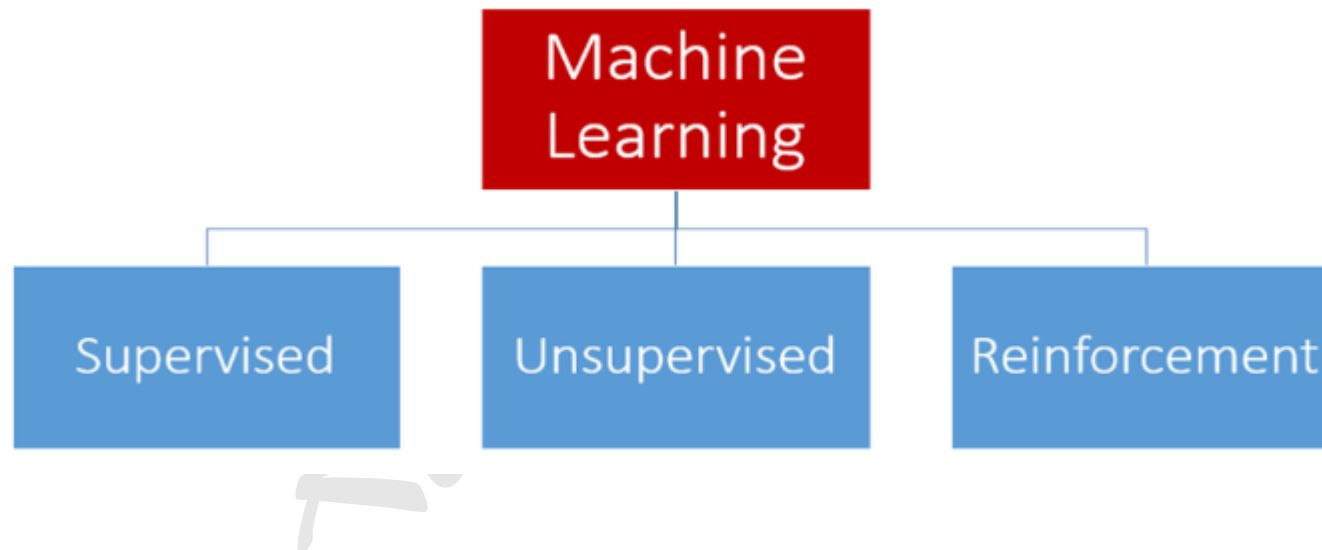
Var(X)	Output(y)
2	4
1	2
5	10
3	6
8	16
7	?

$$y = 2x$$



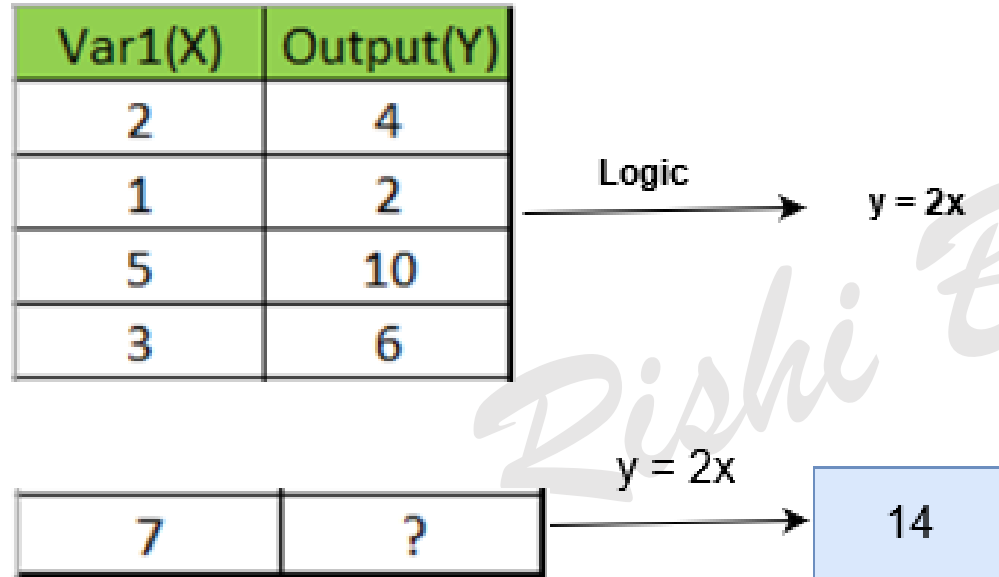


Types of Machine Learning



Supervised Machine Learning

- Labeled Data is used to machine to recognize characteristics and use them for future data



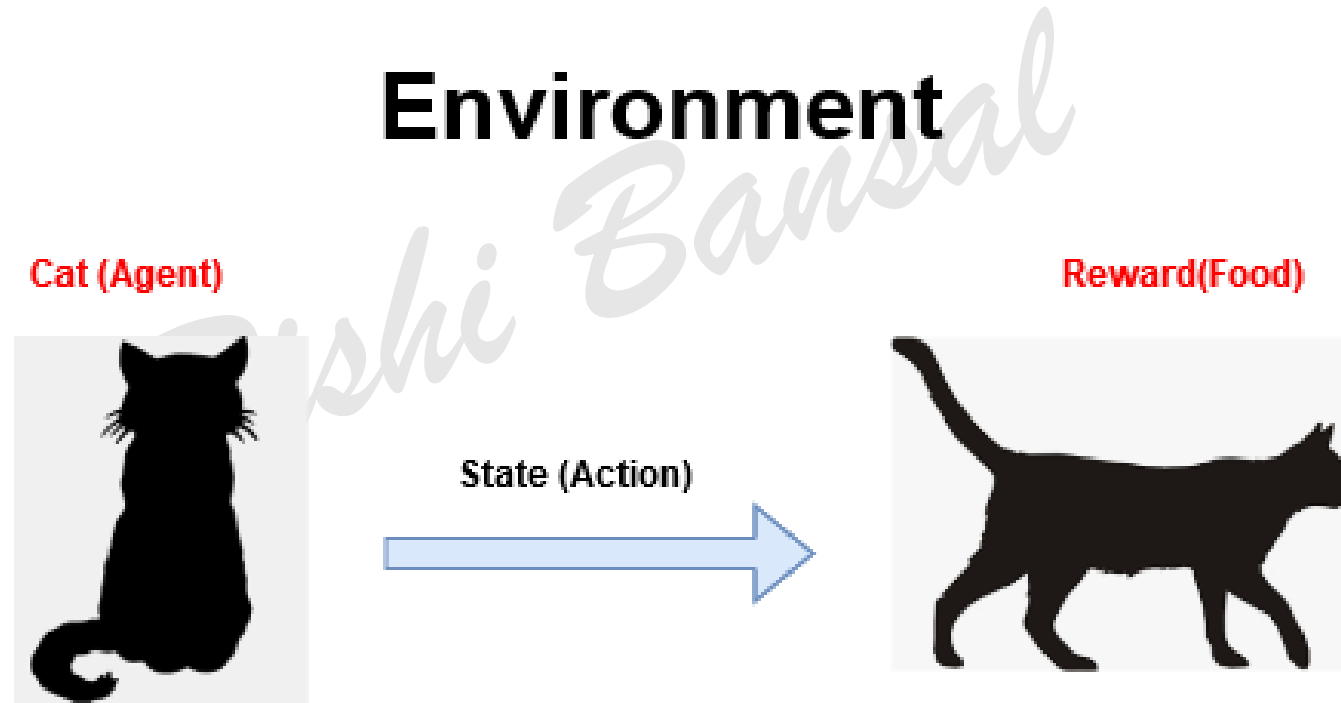
Un-Supervised Machine Learning

- We put unlabeled data and let machine understand the characteristics and classify it
- E,g: News Article



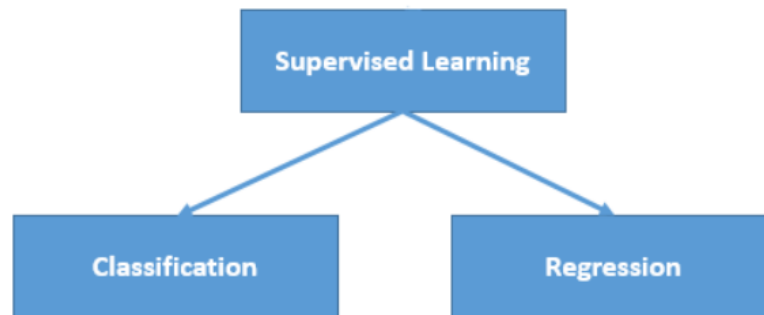
Reinforcement Learning

- RML interact with the environment by producing actions and then analyze errors or rewards.





Types of Supervised Learning

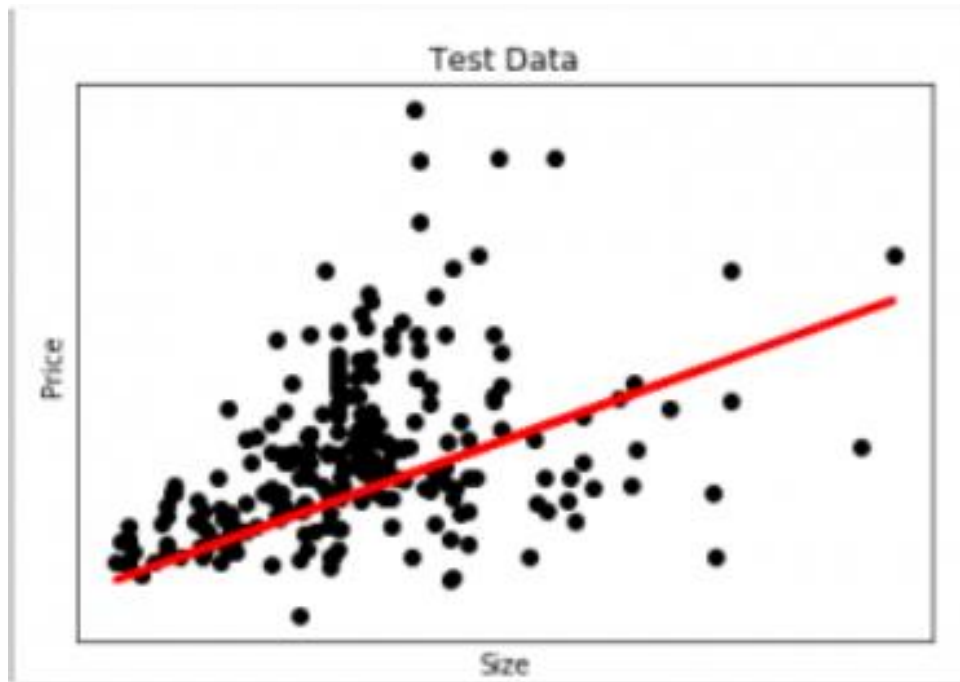


- **Regression:** This is a type of problem where we need to predict the continuous-response value (ex : above we predict number which can vary from -infinity to +infinity)
E.g: House Price, Value of stock
- **Classification:** This is a type of problem where we predict the categorical response value where the data can be separated into specific “classes” (ex: we predict one of the values in a set of values).
E.g: Mail spam or not, Diabetes or not, etc



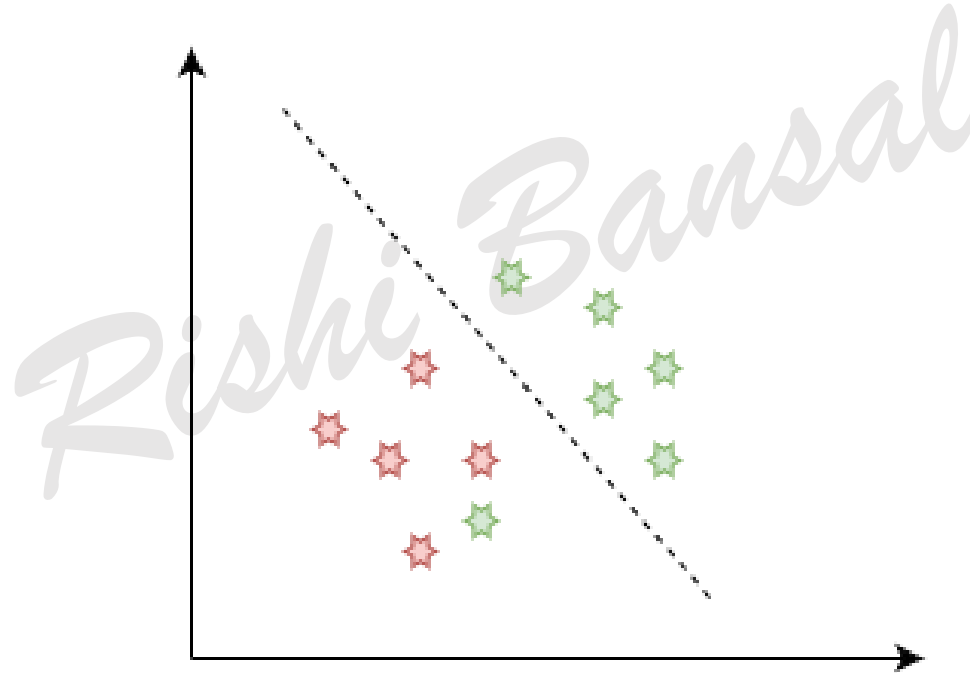
Regression

- A regression problem is when the output variable is a real or continuous value, such as “salary” or “weight”.
- Simplest model is linear regression. It tries to fit “Best fit line” which goes through the points



Classification

- A classification problem is when the output variable is a category, such as “red” or “blue” or “disease” and “no disease”.





Question 1

- **Which of the following is a regression task?**
 - Predicting age of a person
 - Predicting whether stock price of a company will increase tomorrow
 - Predicting whether a document is related to sighting of UFOs?
 - Predicting the gender of a person by his/her handwriting style
- Rishi Bansal*



Question 2

- **Which of the following is/are classification problem(s)?**
 - Predicting the stock price of a company
 - Predicting house price based on area
 - Predicting whether monsoon will be normal next year
 - Predict the number of copies a music album will be sold next month
- Rishi Bansal*