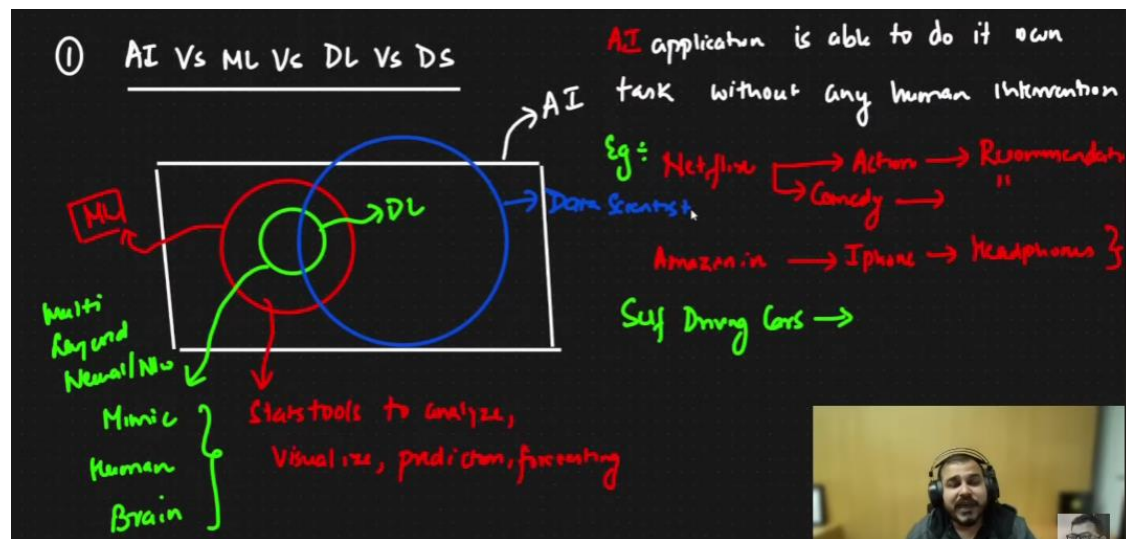
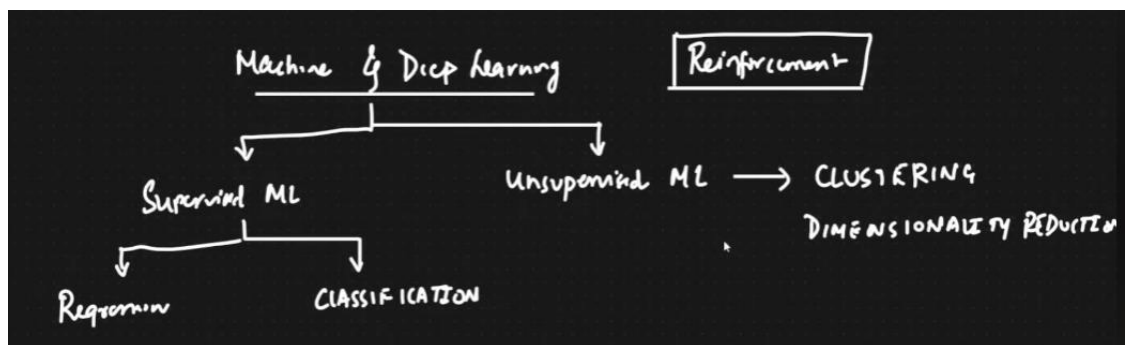


## 1) Intro to Machine Learning:



## 2) Types:



## 3) Supervised Machine Learning:

Supervised ML

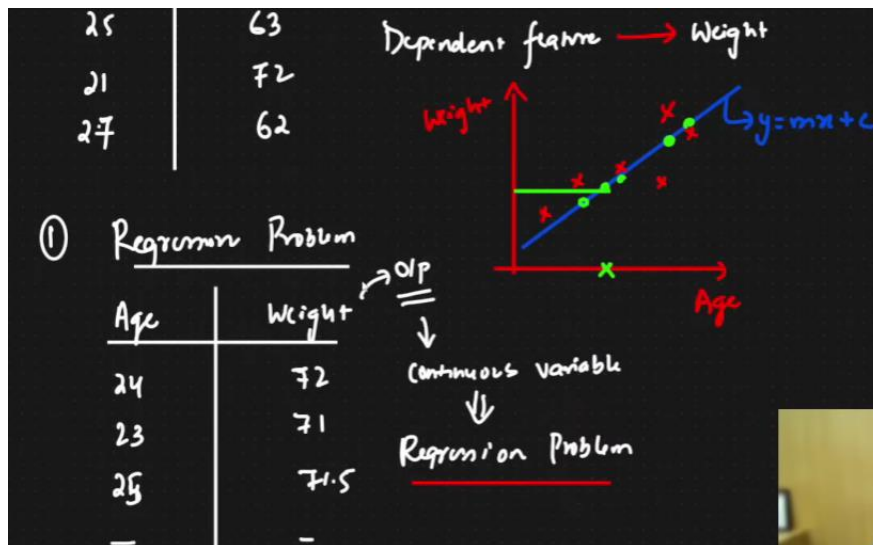
Age	Weight
24	62
25	63
21	72
27	62

Age → Hypothesis → O/P Weight

Independent features → Age

Dependent feature → Weight

a) Regression:



- i) predicts a continuous numerical value
- ii) works with continuous target variables
- iii) uses metrics like Mean Squared Error (MSE) or R-squared.

b) Classification:

Binary classification  
Multiclass classification

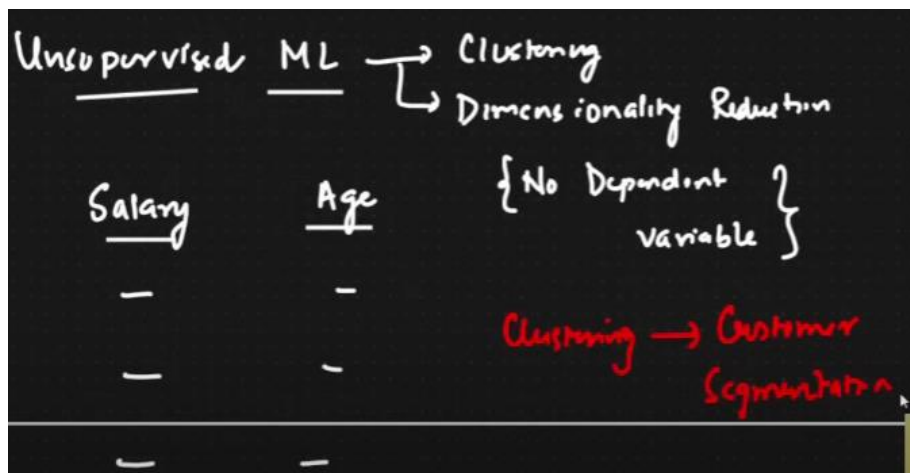
② CLASSIFICATION

No. of hours	No. of play hours	No. of sleep	P/F
—	—	—	P
—	—	—	F
—	—	—	P
—	—	—	F

O/p

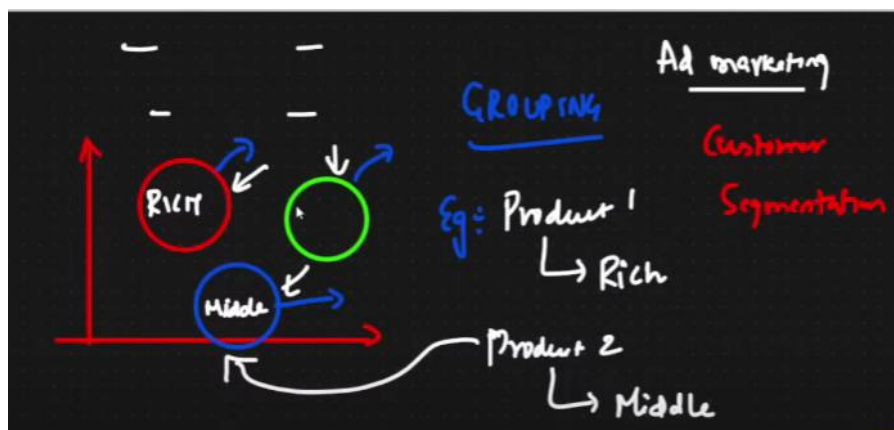
- i) in the output, there's fix no. of categories!  
2 → binary,  
more than 2 → multiclass
- ii) predicts a discrete category or label (e.g., spam or not spam, pass or fail)
- iii) works with categorical target variables
- iv) uses metrics like Accuracy, Precision, Recall, or F1-Score

#### 4) Unsupervised Machine Learning:

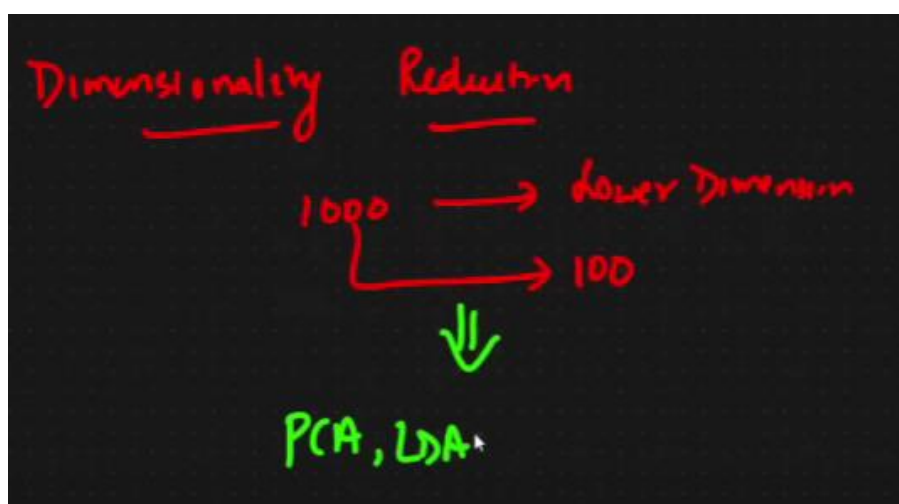


a) no target output and so:

b) perform **clustering**: k-mean, hierarchical:



c) or perform **dimensionality reduction**: pca, lda:



5) ML Algorithms will perform:

Supervised	Unsupervised
① Linear Regression	① K Means
② Ridge & Lasso	② DBSCAN
③ Logistic Reg	③ Hierarchical
④ Decision Tree	④ K Nearest Neighbor Cluster
⑤ AdaBoost	⑤ PCA
⑥ Random Forest	⑥ LDA
⑦ Gradient Boosting	
⑧ Xgboost	
⑨ Naive Bayes	
⑩ SVM	
⑪ KNN	