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Subject - Machine Learning

Assignment - 1

Q.1. Define machine learning ?

→ 1> Machine learning is a field of a computer science that gives computers the ability to learn without being explicitely programmed.
2> A computer program is said to learn from experience E with respect to some task T and some performance measure P, it's performance on T, as measured by P improve with experience E,
3> e.g. :- Task (T) : Playing chess Game
Performance(P) : percent of game w on again opponent.
Experience(E) : Playing practice game again itself

Q.2. Difference between Traditional programming VS machine learning.

Traditional Programming	machine learning.
1) A traditional algorithm take I/P data and some logic in the form of code in any programming language this code is executed on given I/P data to given result.	1) ML algorithm takes past dc I/P, process the I/P and give logic which can then be used to work with new I/P to given an O/P.
2) In traditional programming user hard code the behaviour of the programe.	2) In ML user leaves a load of work to the meachin to learn from data.
3) Traditional algorithm totally depends on rule define by human experts.	3) ML algorithm define it own rule based on I/P data.
4) These are programmed to perform a task	4) These are trained to learn first and then to perform the task.
5) These algorithm are generally interpretation oriented.	5) These algorithm are generally prediction oriented.

Traditional Programming	Machine Learning
6) These algorithm have more regorous mathematical Approch	6) ML Algorithm are more data intensive.

Q.3. Explain 5 core tasks of machine learning.

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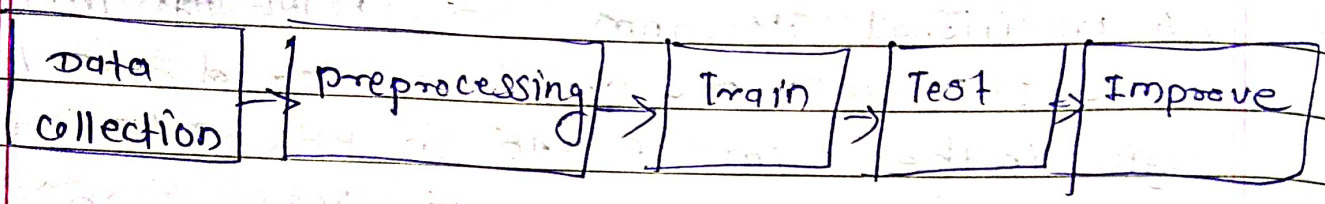

(a) Get data :- (1) depend on your project or datatype (2) Can also use data form internate repositories sites such as kaggle and others.

(b) preprocessing :- (1) cleanning (2) prepare and (3) manipulate

(2) Real word data is mostly unorganised with missing or noisy containts.

Explain : Removing imogis (smilies) from the text.

(3) It is a importent it convert the data sets into valid format for your chosen ML plateform.

eg. translate the data into cvs file.

(4) Finally you splite your data into training and test data set. tranning set used to train the model in the next step while the test data is used to validate the method in 4th step.

i.e 70 % → Traning and

30 % → Testing

c) Train model :- ① Apply dataset to an algorithm
② Algorithm use mathematical modeling to learn and developed prediction.

d) Test model :- ① validate your trained model, check the model accuracy, it result are not accurate go to the next step.

e) Improve : you need to improve and retrained you ML model by below ways.
ⓐ add more data
ⓑ use another algorithm
ⓒ modify algorithm.

Q.4. What are the key element of machine learning ?
→ Every machine learning algorithm composed ~~of~~ of three components —

→

Representation

Evaluation

optimization

ⓐ Representation :- ① Representation select a model a model to represent your knowladge of data.
② In this phase we are trying to find the the shape that its or represent the knowladge.

(3) different knowledge representation method can be used in different kind of learning problems e.g. decision table, decision trees.

(b) Evaluation :- (1) Evaluation is the way to evaluate the machine learning model and prefer one model vs another.
(2) used to distinguish good classifier from a bad one.
(3) It is a technique to optimizing the performance of machine learning model.

(4) Evaluation is done using an evalution fun also known objective fun scoring fun or fitness function.

(c) Optimization :-
(1) Optimization is the way that estimate model parameters using optimization method
(2) Determine Highest scoring classifier.
(3) e.g. greedy search, branch and bound.