PROJECT REPORT

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TOPIC:BASIC PROJECTS ON MACHINE LEARNING

PROGRAMMING LANGUAGE USED:PYTHON

INTRODUCTION:

Machine learning (**ML**) is a field of inquiry devoted to understanding and building methods that 'learn', that is, methods that leverage data to improve performance on some set of tasks. It is seen as a part of artificial intelligence. Machine learning algorithms build a model based on sample data, known as training data, in order to make predictions or decisions without being explicitly programmed to do so. Machine learning algorithms are used in a wide variety of applications, such as in medicine, email filtering, speech recognition, and computer vision, where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks.

A subset of machine learning is closely related to computational statistics, which focuses on making predictions using computers; but not all machine learning is statistical learning. The study of mathematical optimization delivers methods, theory and application domains to the field of machine learning. Data mining is a related field of study, focusing on exploratory data analysis through unsupervised learning. Some implementations of machine learning use data and neural networks in a way that mimics the working of a biological brain.In its application across business problems, machine learning is also referred to as predictive analytics. These are the basic definition and examples of machine learning.

INFORMATION RELATED TO MACHINE LEARNING(CONTENT):

Machine Learning is mainly classified and learnt as Supervised learning,Unsupervised learning and sem-supervised learning.

Supervised Learning

- Input data is labeled.
- Used for prediction and classification models.
- It takes direct feedback of the output.
- These models predict the output.
- It can be used in cases where we know the input and their respective outputs.

Semi-Supervised learning

- A large amount of input data is unlabeled while a small amount is labeled.
- It is used when labeling the whole dataset is expensive.

- It is a type of weak supervision.

Unsupervised learning

- Input data is unlabeled.
- Used for extracting information from large amounts of data.
- Does not have a feedback mechanism.
- These models find underlying patterns in data.

EXTRA CONTENTS USED IN THIS PROJECT:

k-mean techniques,regression (linear regression and multiple regression), plotting of corelation matix..

Explaination:

1. k-means is a technique for data clustering that may be used for unsupervised machine learning.It is capable of classifying unlabeled data into a predetermined number of clusters based on similarities(k).
2. Regression is a technique for investigating the relationship between independent variables or features and a dependent variable or outcome.It's used as amethod for predictive modelling in machine learning,in which an algorithm is used to predict continuous outcomes.Here we have used simple linear regression and multiple regression.
3. Correlation is an indication about the changes between two variables.We can plot correlation matrix to show which variableis having a high or low correlation in respect to another variable.

CONCLUSION:

Each topic is independent of each other.Machine Learning is a subfield of artificial intelligence.Instead of relying on explicit programming,It is a system through which computers use a massive set of data and apply algorithms to "train" on-to teach themselves-and make predictions.

Machine Learning with Python is high.we can also say that Machine learning is the future.Thus we can also say that The scope of machine learning is not limited to a particular domain but it is expanding its wings all around.