INTERNATIONAL ISLAMIC UNIVERSITY CHITTAGONG

Lab report-6

Topic: Python Machine learning (Data science)

Course code: CSE-3636
Course Title : Artificial Intelligence Lab

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Introduction:

Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy.

Machine learning is a subfield of artificial intelligence that involves building algorithms that can learn from and make predictions or decisions based on data. Python is a popular programming language for machine learning due to its ease of use, flexibility, and vast library of tools for data analysis and modeling.

In this lab report, we will explore the process of building a machine learning model using Python and a dataset from the UCI Machine Learning Repository.

Data:

The dataset used for this lab is the "Iris" dataset, which contains measurements of the sepal length, sepal width, petal length, and petal width for 150 iris flowers, with 50 samples from each of three species: setosa, versicolor, and virginica.

A dataset is a table/spreadsheet document with historical information. For example, if you want to understand details about the weather: the dataset will include the historical information about the weather in the past few years. Precipitation, Humidity, Temperature, etc. Below is a sample snapshot of the dataset

Preprocessing:

Before building a machine learning model, we need to preprocess the data to prepare it for analysis. This includes checking for missing values, encoding categorical variables, scaling numeric variables, and splitting the data into training and testing sets.

For this dataset, we did not need to perform any preprocessing, as it was already clean and formatted in a way that could be easily read by a machine learning algorithm

Typically, before starting any data science project, we need data to perform analysis and build a model. Though you will need first to understand the business need and collect the data in the real world, we are providing the data for you in this module. Please use this dataset for the next steps.

Model Building:

To build a machine learning model, we used the scikit-learn library in Python, which provides a wide range of machine learning algorithms and tools for model evaluation.

We started by importing the necessary libraries and loading the data into a pandas dataframe

My Code repositories here :

https://github.com/riazahmedmahin/Machine-learning-AI

Conclusion:

In this lab, we demonstrated the process of building a machine learning model using Python and the scikit-learn library. We used the Iris dataset to train a logistic regression model, which achieved perfect accuracy on the testing data. This example showcases the power of machine learning in analyzing and making predictions based on data.