**UNIVERSITY OF ASIA PACIFIC**

Department of Computer Science & Engineering

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**Artificial Inteligence Lab**

**Course Code: CSE 404**

**Project - 2**

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**INDEX**

|  |  |
| --- | --- |
| **Content** | **Page Number** |
| Problem Statement | 2 |
| Introduction | 2 |
| Algorithm | 2 |
| Datasets | 3 |
| Implementation & Visualization | 4 |
| Result Analysis | 7 |
| Conclusion | 7 |

**Problem Statement :**

Multi-variable Linear Regression for predicting the chance of admit of Graduate Admission using Open-Source Dataset.

Dataset: [Graduate Admission 2](https://www.kaggle.com/mohansacharya/graduate-admissions)

**Introduction :**

Multiple linear regression (MLR), also known simply as multiple regression, is a statistical technique that uses several explanatory variables to predict the outcome of a response variable. The goal of multiple linear regression is to model the linear relationship between the explanatory (independent) variables and response (dependent) variables. In essence, multiple regression is the extension of ordinary least-squares (OLS) regression because it involves more than one explanatory variable.

**Algorithm:**

Here,

***y***= predicted value of the dependent variable

= y-intercept or value of y with all parameters set to 0

= regression coefficient of the first independent variable

= regression coefficient of the last independent variable

= model error or level of variation

***Cost Function***:

***Gradient Decent:***

**Datasets:**

**Context:**

This dataset is created for prediction of Graduate Admissions from an Indian perspective.

**Content:**

The dataset contains several parameters which are considered important during the application for Masters Programs.  
The parameters included are :

1. GRE Scores ( out of 340 )
2. TOEFL Scores ( out of 120 )
3. University Rating ( out of 5 )
4. Statement of Purpose and Letter of Recommendation Strength ( out of 5 )
5. Undergraduate GPA ( out of 10 )
6. Research Experience ( either 0 or 1 )
7. Chance of Admit ( ranging from 0 to 1 )

**Implementation:**

**Programming Language:**Python

**Tools:**Jupyter Notebook, Pandas, Matplotlib

1. **Without SK-Learn:**

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1. **With SK-Learn:**

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**Result Analysis:**

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**Conclusion:**

By doing this project I gained knowledge about Multi-variable Linear Regression and also learned the way to apply this on any real-life dataset.