|  |  |
| --- | --- |
| Internship Project Title | Classification Model - Build a Model that Classifies the Side Effects of a Drug |
| Name of the Company | TCS ion |
| Name of the Industry Mentor | Debashis Roy |
| Name of the Institute | ICT Academy of Kerala |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Start Date | End Date | | Total Effort (hrs.) | | Project Environment | Tools used |
| 08-09-2023 | 15-09-2023 | | 10 | | Virtual Internship Project | Google Colab,Excel |
| Milestone # | 1 | Milestone: | | Day 5: Students should be able to create, clean, and sanitise data and preprocess the data. | | |
|  |  |  |  |  |  |  |

**TABLE OF CONTENT**

● Acknowledgements

● Objective

● Introduction / Description of Internship

● Internship Activities

● Approach / Methodology

● Assumptions

● Exceptions / Exclusions

● Charts, Table, Diagrams

● Algorithms

● Challenges & Opportunities

● Risk Vs Reward

● Reflections on the Internship

● Recommendations

● Outcome / Conclusion

● Enhancement Scope

● Link to code and executable file

● Research questions and responses

**OBJECTIVE**

The objective of this project is to develop a classification model that can accurately predict and classify the side effects of a specific drug based on the age, gender, and race of the patients.

**INTRODUCTION**

The field of healthcare and pharmaceuticals has always been at the forefront of technological advancements, seeking innovative ways to ensure patient well-being and safety. In this context, the internship topic of "Classification Model - Build a Model that Classifies the Side Effects of a Drug" assumes paramount significance. This internship delves into the realm of data science and machine learning, where the objective is to create a predictive model that can effectively categorize the potential side effects of various drugs.

Unleashing the power of machine learning in health care redefined treatment precision, personalised care, and unlocked new possibilities. With real-time patient data, drug side effects are classified with accuracy, empowering smarter decisions for better outcomes. Discover the future of healthcare, where innovation meets value-based care.

Side effects are unwanted effects that can occur alongside the desired effects of a drug or medication. They vary based on factors like age, disease, gender, race, and health. Starting, changing, or stopping medication can trigger side effects that lead to non-compliance. Severe cases may require dosage adjustments or additional medication. Lifestyle changes can help minimise side effects. Classifying side effects for each drug is challenging, but machine learning eases the process while maintaining accuracy. Research reveals differences in drug response among racial and ethnic groups, emphasising the need for inclusive treatment policies that accommodate individual needs.

For this project, a dataset of drug effects lacked ’Name’, ‘Race’, ‘Gender’ and ‘Age’ features. The dataset used for classification includes the drug name, side effects, etc. of different users of drugs. Datasets were combined. Supervised machine learning classifiers are used in building the model and fitting the data into the model.

**INTERNSHIP ACTIVITIES**

For the first five days, the activities were:

● Watched the welcome kit videos.

● Attended the RIO – pre-assessment test.

● Went through the day-wise plan.

● Read the project reference material.

● I went through the different classifications of YouTube videos.

● Gone through tutorials explaining data analysis

● Created a dataset with the given requirements.

● Worked with the data set by visualising the data.

● Done Exploratory Data Analysis (EDA)

● Gone through tutorials on LinkedIn