### To find Pattern behind the online shoppers purchasing intention

Machine Learning proposal

**Team Members**

Raghunath Babu (A20511598) [rbabu@hawk.iit.edu](mailto:rbabu@hawk.iit.edu)

Aditya Shivakumar (A20513527) [ashivakumar@hawk.iit.edu](mailto:ashivakumar@hawk.iit.edu)

**Problem Description**

The objective of this problem is to predict the Online Customers Purchasing intention by performing Classification and Clustering. The approach to this is to group similar customers based on their purchasing behaviour and predict if a customer could do a purchase based on their history of browsing and purchasing behaviour. Doing this will help us know to get insights into customer behavior and help us define new strategies to enhance the sales.

**Survey on existing methodologies**

In one of the research papers, they predicted the intention of online customers using machine learning algorithms based on the behaviour of user in e commerce website. The author compared the performance of two machine learning algorithms namely Multi layer Perceptron and long short-term memory (LSTM) recurrent neural networks.

For clustering, in one paper the author discussed about density based clustering and grid clustering.

**Preliminary plan**

1. Data Prepossessing(Missing values, translating categorical values)
2. Analyzing correlation between predictor variables and choosing the best subset of predictor variables out of 10 numerical and 8 categorical values)
3. Classification:

Planned to use machine learning models-Logistic regression, SVM, Random forest classifier, Naive Bayes

1. Clustering:
2. means

**Dataset**

[Online Shoppers Intention UCI Machine Learning | Kaggle](https://www.kaggle.com/datasets/henrysue/online-shoppers-intention)

**References:**

1. [Real-time prediction of online shoppers’ purchasing intention using multilayer perceptron and LSTM recurrent neural networks | SpringerLink](https://link.springer.com/article/10.1007/s00521-018-3523-0)
2. [Predicting Purchase Intentions with Logistic Regression (relataly.com)](https://www.relataly.com/predicting-the-purchase-intention-of-online-shoppers/982/" \l ":~:text=Most online stores welcome countless visitors every day,,that a particular customer will make a purchase.)
3. [Real-Time Prediction of Online Shoppers’ Purchasing Intention Using Random Forest - PMC (nih.gov)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7256375/)
4. [Data clustering (acm.org)](https://dl.acm.org/doi/pdf/10.1145/331499.331504)