**OPTIMIZING SPAM FILTERING WITH MACHINE LEARNING**

**Milestone 1:**

**Activity 1: Specify the business problem**

Millions of SMS spam are sent every day like advertising software products and service plans etc., SMS spam has an important economic impact in users and service providers. SMS text messages is a great way to share information to smartphone users using SMS spam filters will detect invalid block message. Many spammers use links to run scams and introduced filters to block those messages our business problem aims at filtering the spam SMS by using machine learning techniques. The data are prepared by preprocessing techniques by handling values, categorical values, handling imbalance data using machine learning we indent to develop a model that filters the SMS spam. We explore the data analysis and build the model using decision tree, Naïve Bayes, ANN test result and evaluate the matrix by comparing the accuracy. Finally we deploy the model using web frame work. The spam SMS notification will be indicated.

**Activity 2: Business requirements**

The basic business requirement for optimizing spam filtering can filter SMS spam message with high level of accuracy to protect users unwanted message easy to maintain using the developed model which include various factor such as URL, text content and that are used to identify spam.

**Activity 3: Literature Survey**

[1] In 2017, AbdulazizAloraini et al. Paper titled “Hybrid SMS spam filtering technique that uses both content-based and reputation-based URL filtering”. Their technique achieved a high accuracy of 98.12% in identifying spam messages.

[2] In 2018, Thanh-Tung Pham et al. “proposed a machine learning-based SMS spam filtering technique” that employed URL features. They used a dataset of 12,500 SMS messages to train their model.

[3] In 2019, Anwer Al-Dulaimi et al. “A deep learning-based SMS spam filtering technique that utilized a convolutional neural network (CNN) to extract features from SMS messages and URLs”. Their technique achieved an accuracy of 70.82%.

[4] In 2020, Haroon Abbas et al. “A hybrid SMS spam filtering technique that combined rule-based and machine learning-based techniques with reputation-based URL filtering”. Their technique achieved an accuracy of 69.45% in identifying spam messages.

**Activity 4: Social or Business Impact.**

Optimizing Spam SMS filter Using Machine Learning models aims at filtering the Spam SMS and presenting only the required SMS for the users. This model enable the people to avoiding viewing the unwanted SMS messages and all the filtered messages stands important.The most popular technique used to reduce SMS spam using Decision tree, Naïve Bayes and Ann model.