**Spam SMS Classification**

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**Abstract:**

In today’s world, SMS is one of the most used methods of communication. People from different countries, organizations and all across the world uses SMS. As the number of mobile phone users increases, the number of SMS increases and along with that comes the increase in spam SMS. Spam SMS are junk, unnecessary messages which are sent for commercial and advertising purposes. Despite this, spam SMS are also sent to fool us by sending fake links or contact numbers. This makes it dangerous to use. It can include malicious links that can infect our device with malware attacks. To help with overcoming and protecting this, many applications today provide spam filters that are able to classify SMS into spam and non-spam with high accuracy. The general way to label an SMS as spam or non-spam is to set up a finite set of discriminative features and use a classifier for the detection. In most cases, the selection of such features is verified by observations. So, to classify these messages, I am using NLTK, sentence tokenization, word tokenization and naive bayes.

**1. Introduction:**

The aim of the project is to classify the messages that we get everyday into spam and ham since it takes up time and space which is unnecessary for the users. Every one of us has a mobile phone and all of us get random messages every day, at any hour, some being important and the rest being fraudulent, unnecessary, spam messages.

This project is to collect these messages and segregate them into spam and ham. This will be helpful for every single user but also specifically for organizations and companies which don’t want to waste their time reading or checking spam messages. The user will be asked to type in the body of the SMS and will get notified whether the SMS is spam or not spam.

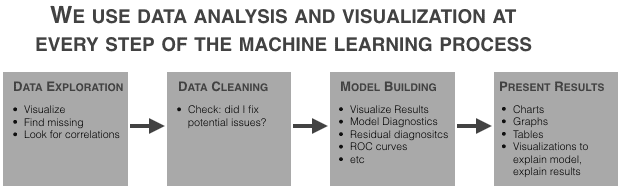
**2. External Search:**

Dataset: https://www.kaggle.com/datasets/uciml/sms-spam-collection-dataset

**3. Benchmarking:**

There are many applications available in the market such as Truecaller, which can classify messages as spam or not spam. But many users don’t want to install an extra application as it uses phone’s memory and space.

**4. Concept Development:**



After importing the data, I have to manually visualize the data to have a clear picture about the data. Exploratory Data Analysis means that we have to analyze and visualize the data.

Data preprocessing is a data mining technique which is used to transform the raw data in a useful and efficient format.

Data processing can be achieved through a series of steps. Some of them are

1. Lower case the sentence

2. Tokenization

3. Removing special characters

4. Removing Stop words and punctuation

5. Stemming

Model building is a process by which we can train our machine with data. In order to train the data properly, I will transform the text into a meaningful representation of integers or numbers which is used to fit in a machine learning algorithm for predictions. Then, I have to classify the data sets based on parameters. There are many types of classifiers. Most common are Naive Bayes (NB) classifier, logistic regression, decision tree etc.

I also import accuracy text, prediction test and confusion matrix to visualize how better the model is getting trained.



Among all the classification algorithms, only KN and NB have the highest precision rate of 100%. But since the NB has a higher accuracy rate than KN, thus I take NB as a classification model for our model.

**5. Final Product Prototype:**



**6. Product Details:**

**6.1. Benefits:**

* Does not need any user information
* Fast and Secure
* User friendly
* User friendly

**6.2. Cost:**

This project has been made economically feasible because it does not cost any amount to develop this application. This application is made with the help of Jupyter notebook and PyCharm, which is open source and free of cost.

**7. Conclusion:**

This project helps users to classify text into spam or not spam. The application takes the input from the device as in string format and then it predicts whether that particular text is spam or not. It can be implemented in mobile devices to check whether a SMS is spam or not. Specifically on android devices, we do not have such a section that classifies which incoming SMS is spam or not. Thus, this project can be beneficial for those situations.

**8. Reference:**

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