

# PREDICT AND ANALYZE THE CYBER BULLED COMMUNICATION IN ONLINE SOCIAL NETWORKS

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## ABSTRACT

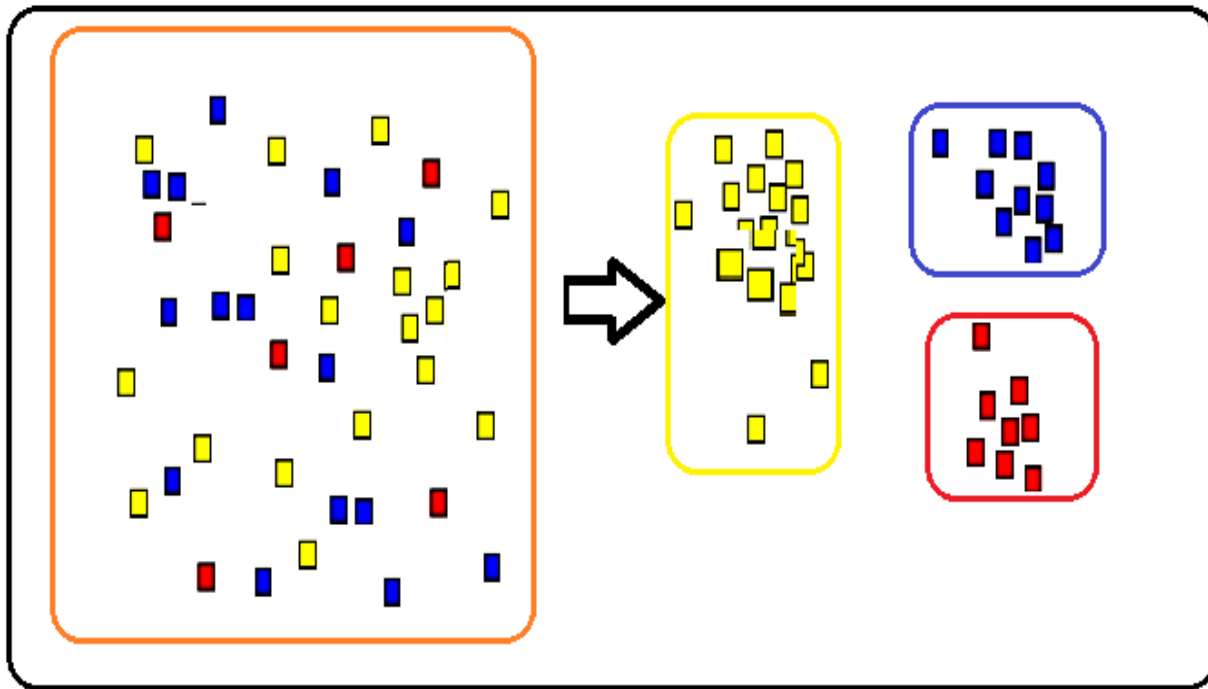
Now a day's social media have attracted a lot of web user's attention towards it for knowing the recent updates, share the new thoughts and exchange the latest updates throughout the world from one location to other location. As this is becoming more popular still it faces some common limitations in terms of controlling the abused or vulgar conversations from individual user account. In general cyber bullying is defined as the process of threatening a small kid or preteen by another child using the internet with some bad conversations and tries to make them feel nervous with these conversations. This is becoming a very severe problem in the current social media by afflicting the children, young adults with these rude messages. Hence we try to construct a machine learning approach for detecting the set of abused words in the conversations and try to block such conversations not to be spread to others. By using this proposed approach we can able to create a positive and safe communication in social media. Here we constructed a filter using Support Vector Machine (SVM) to filter out the abused words during communication.

**Key Words:** Social Media, Cyber Bullying, Support Vector Machine (SVM), Threatening, Vulgar Conversations, Afflicting.

## 1. Introduction

Clustering is refereed together of the foremost process in processing which is employed for separating a group of un-supervised data into a meaningful way. This process could even be how in process of data discovery which successively uses clustering mechanism for getting data accurately. Clustering algorithms are typically used for exploratory data analysis, where there's little or no prior knowledge about the info [1], [2]. This is most often used in several applications of computer data inspection, including the one addressed in our work. If we come across the technical viewpoint, the input data is initially contained

several objects, where some are not labeled and may be found a priori unknown. Moreover, even if we try to assume the labeled datasets might be available from previous analyses, there is no complete hope and assurance of getting a valid outcome after a deep investigation process.



**Figure. 1. Represent the Example of Data Clustering Technique In The Process Of Data Mining**

From the above figure 1, we will clearly see the detailed and clear example for clustering technique within the process of knowledge mining. Initially, we attempt to collect the un-supervised data as input which aren't arranged so as then we attempt to apply any clustering algorithm and mine the info during a clustered manner. Here we attempt to assume three different blocks with different colours. Here initially all the blocks are kept in an unsupervised manner and now we attempt to apply the clustering algorithm so as to separate the things supported some input function [7]. Here the info which is unsupervised is nearly some colour blocks which are randomly shuffled into one group and where each and each colour block has individual characteristics in appearance and shape. Now we attempt to apply the clustering algorithm K Means so as to categorize the color blocks into separate groups [8]. Now the color blocks which are having an equivalent colour inherit one block and that they are termed together cluster and people which are having a special appearance as treated as separate blocks and that they are treated as unstructured data which remains not matched with any of those groups. During this same way, we will apply an equivalent clustering algorithm on all examples to cluster the info into various individual groups [9]-[11].

Cyberbullying are often defined as aggressive, intentional actions performed by a private or a gaggle of individuals via data communication methods like sending messages and posting comments against a victim[12]. Different from traditional bullying that sometimes occurs at college during face-to-

face communication, cyberbullying on social media can happen anywhere at any time[10]. For bullies, they're liberal to hurt their peers' feelings because they are doing not got to face someone and may hide behind the web. For victims, they're easily exposed to harassment since all folks, especially youth, are constantly connected to the web or social media. Bag-of-words (BoW) model is one commonly used model that every dimension corresponds to a term. By mapping all abused words into fixed-length vectors, the learned representation are often further processed for varied language processing tasks[5]. Here the Support vector machine is used for gathering all abused distinct words and place all those words in that BoW model. Once the words are collected and placed in the BoW database and it is clearly shown in figure 2, then the messages are compared with that bag of words and if any message contains a word found from Bow, then they are identified as cyberbullying conversation and the system should automatically block all such abused conversations[6].



Figure 2. Represent the Group of Some Bullying Features

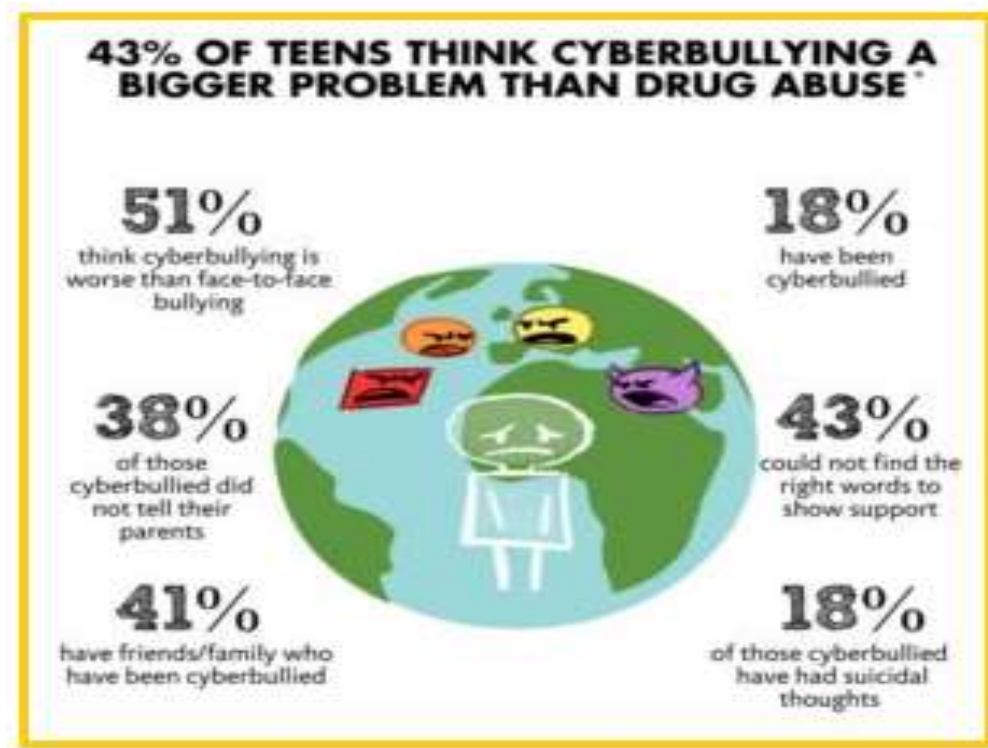
## 2. LITERATURE SURVEY

In this section we will mainly discuss about the background work that is carried out in order to prove the performance of our proposed cyber bullying approach for blocking the conversations which contains the abused or vulgar words.

### MOTIVATION

According to this latest survey, the following are some main points gathered from social media:

1. 51% of teenagers and pre-teens said that cyberbullying conversations made them feel sad, depressed, feel sorrow.
2. 11 % of people felt completely alone with their tweets
3. 28% of people are experienced with some mental stress and which may lead to suicide tendency.
4. 21% of people want to stay home from school due to these threatening conversations.
5. 38% of people don't want to inform their parents or guardians that they are being harassed online



**Figure 3. Represent the Set of Problems that Face with Cyberbullying Conversations**

Here we can clearly see almost in all the cases most of the online users or teens are suffering a lot with the cyberbullying conversations. AS per one advocate or knowledge counselor facts not telling their parents or an adult is treated as one main issue that is disturbing a lot of users for a long time. The main reason of kids hiding these truth is the fear of having their life-line removed[7] (I,e They may not be allowed to access the internet and mobiles). Hence this motivated me a lot to propose this current application in which we can able to identify such abused conversations automatically based on machine learning algorithms[8].

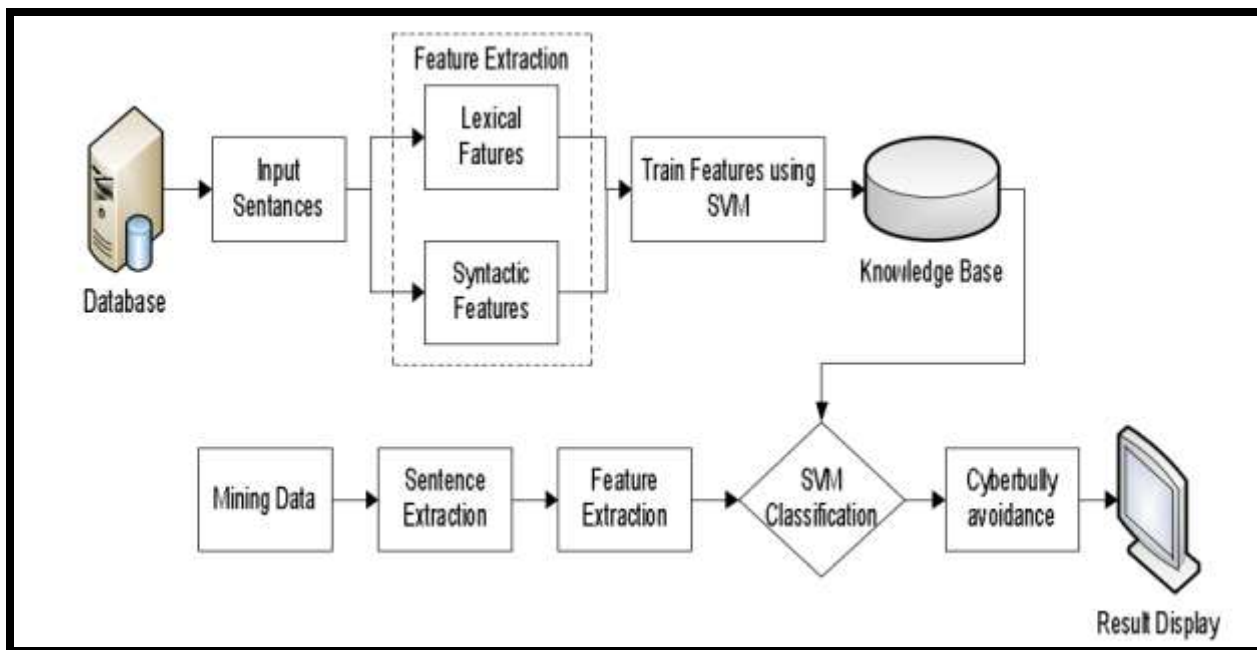
### 3. PROPOSED METHOD

In this section we mainly define about the proposed SVM algorithm for detecting the cyber bullying messages over a social media communication.

**PRELIMINARY KNOWLEDGE**

The proposed SVM algorithm mainly contains two phases like

1. Training Phase (&)
2. Testing Phase



**Figure 4. Represent the Flow of SVM Algorithm in Finding Cyberbullying Users**

In the process of identifying the cyberbullying users based on their conversations in the social media we try to find out that by the help of SVM algorithm, where in testing phase using data mining user comments are extracted from the content which is communicated in the social media and then from such comments we try to extract the lexical and syntactic features and then try to check whether the conversation belongs to cyberbullying or not.

For identification of cyberbullying conversation from a set of online users, the application need some previous knowledge about that cyberbullying identification. Hence the application of has to be trained first for identifying the cyberbullying messages easily. In the training phase we try to input the comments or reviews which are gathered from lot of OSN users and they all are fed to feature extraction, which is clearly represented in figure 4. These extracted features are trained by using ML algorithms and one among the best ML approach is Support Vector Machine (SVM).

Here the SVM algorithm will train all the data and the values are stored in the knowledge base. Now if we come with the testing phase, the online user try to give comments or reviews for the other users post which is kept on their wall and now the SVM algorithm try to extract those messages and identify the lexical and syntactic features to classify whether the comment belongs to cyberbullying or not.

## SVM TRAINING PHASE

Support vector machines (SVMs) are a set of supervised learning algorithms which is mostly used for large dataset or big data. In this Big Data era information is sharing more and more in the online social media from one location to other, hence we need to classify the information and try to identify how much of the information contains abused or cyber bullied content. This proposed thesis is trying to search for training (I,e Try to extract the negative words which are present in a sentence) the knowledge base cyberbullying is based on the insight that repetitive negative words represent the core of the abusive text posted on profiles. There are many examples based on cyberbullying detection like

- (i) Cyberbullying is the behavior of posting questions with negative words and
- (ii) Vulnerable targets of cyber-bullying (based on their answers) seem isolated, we sought to build and analyze.

## SVM TESTING PHASE

As we all know that no one can able to understand the inner theory and methodology which underlying behind SVM, but we try to introduce the basic model to explain the current procedure. In general the prediction problem mainly contains the task of separating data into training and testing sets. For each and every individual instance in training data set, there are several class labels and instances. The goal of SVM testing phase is to identify the target values of the test data given only the test data attributes.

## 4. IMPLEMENTATION PHASE

Implementation is the stage where the theoretical design is converted into programmatically manner. In this stage we will divide the application into a number of modules and then coded for deployment. The front end of the application takes JSP,HTML and Java Beans and as a Back-End Data base we took My SQL data base. The application is divided mainly into following 4 modules. They are as follows:

1. Network Creation Module
2. Construction of Bullying Feature Set Module

### 3. Label Feature Selection Module

### 4. Identifying Cyberbullied Users

## 1. NETWORK CREATION MODULE

In this module initially we need to construct a network containing single admin and multiple users. Where the admin has the facility to add a set of words into each BoW database based on individual category. The admin should add each and every word into the database individually. Once if a word is added in one category the same word shouldn't be added on another category. So this should be mandatory step for the admin while adding words into the database. Also admin has the facility to authorize each and every user at the time of registration. The user who got activated by admin only can access his profile by login into the site. Those users who are not authorized can't be entering into their individual accounts at any cost.

## 2. CONSTRUCTION OF BULLYING FEATURE SET MODULE

The bullying features play an important role and should be chosen properly. In the following, the steps for constructing bullying feature set  $Z_b$  are given, in which the first layer and the other layers are addressed separately. Here we try to add all bullying words based on category wise and try to maintain a vector to hold all these data.

## 3. LABEL FEATURE SELECTION MODULE

Here we proposed a labeled Feature Selection method where the labeling is done because, if any word is matched from a set of Bow, then they are automatically identified as an abused word and they will be identified based on individual category wise. Hence labeled based feature selection method is mainly used for categorizing each and every matched word based on category wise. Here we try to use SVM algorithm which maintain BoW database with set of labels like Sex, Vulgar, Offensive, Hate and Violence.

## 4. IDENTIFYING CYBERBULLED USERS

In this module we try to create a separate list and try to classify the users who try to post normal messages under one category and those who try to post abuse conversations in separate list. Here the users who try to post a message either comment or reply by using any bullying words is automatically identified by the admin and they are tagged as Cyberbullied user and those details can be monitored by the admin.

### 5. EXPERIMENTAL REPORTS

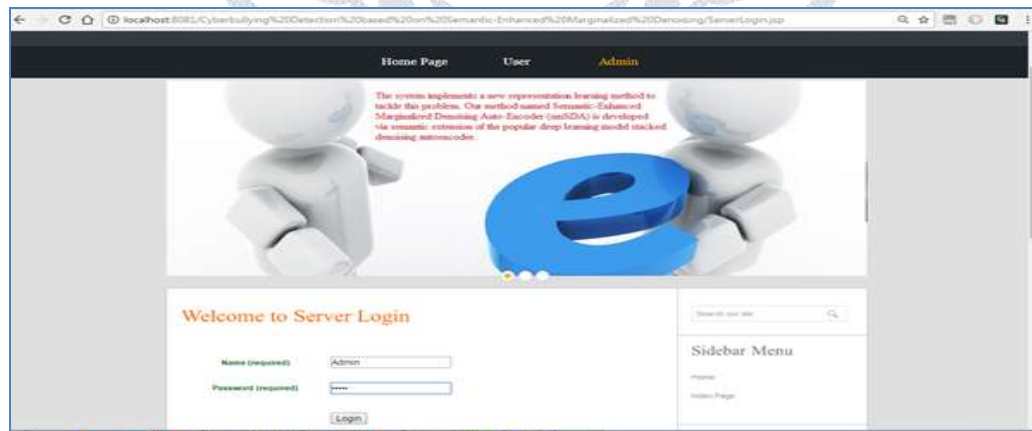
#### 1) MAIN WINDOW



#### 2) ADMIN WINDOW

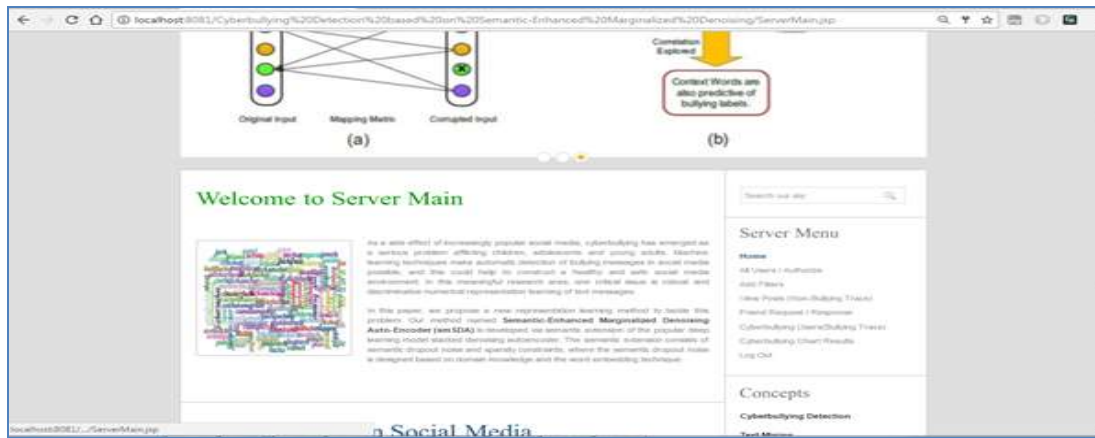


#### 3) ADMIN LOGIN WINDOW

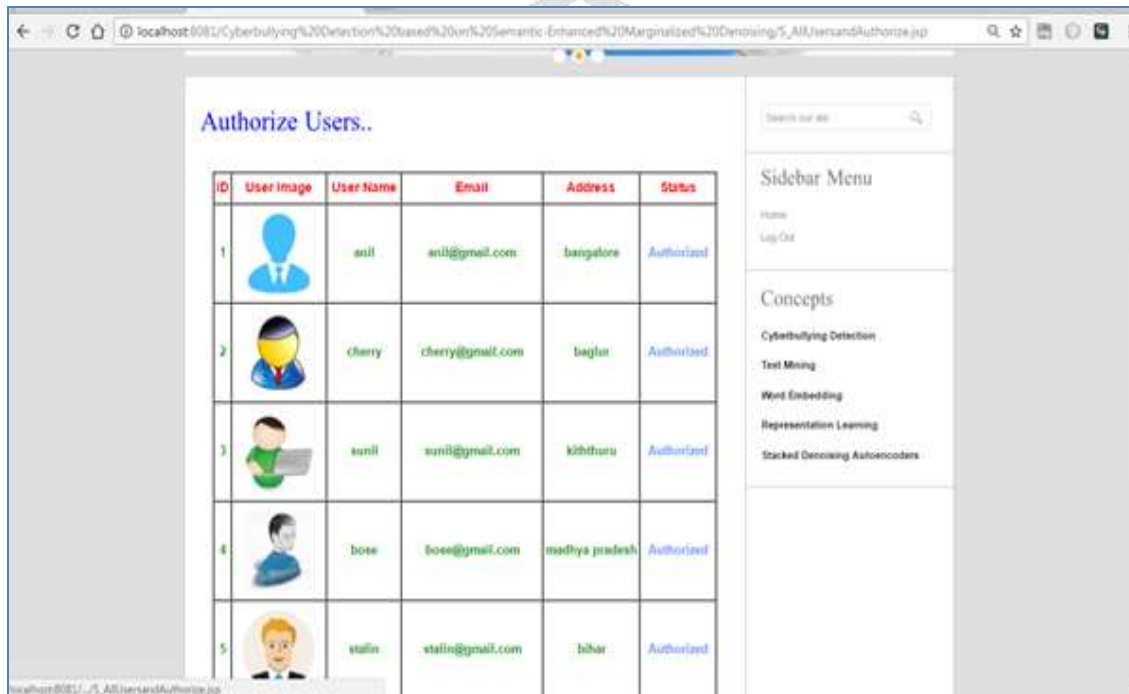




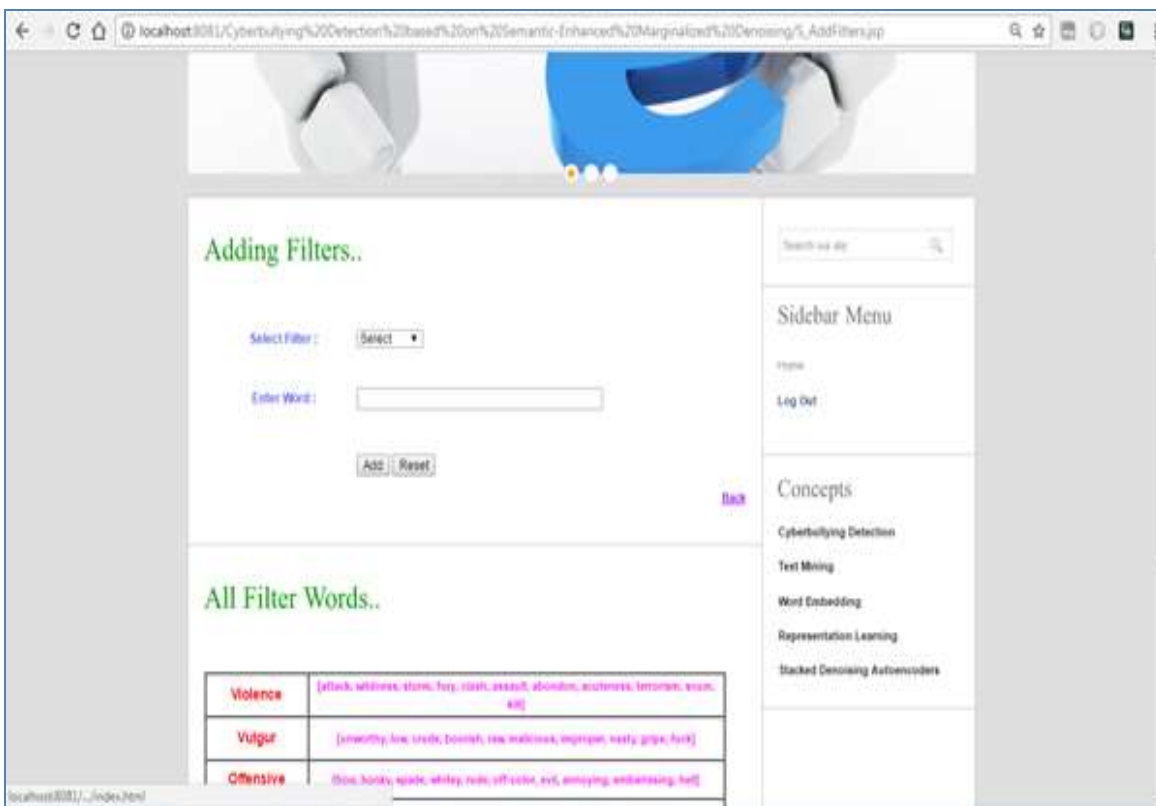
4) ADMIN MAIN PAGE



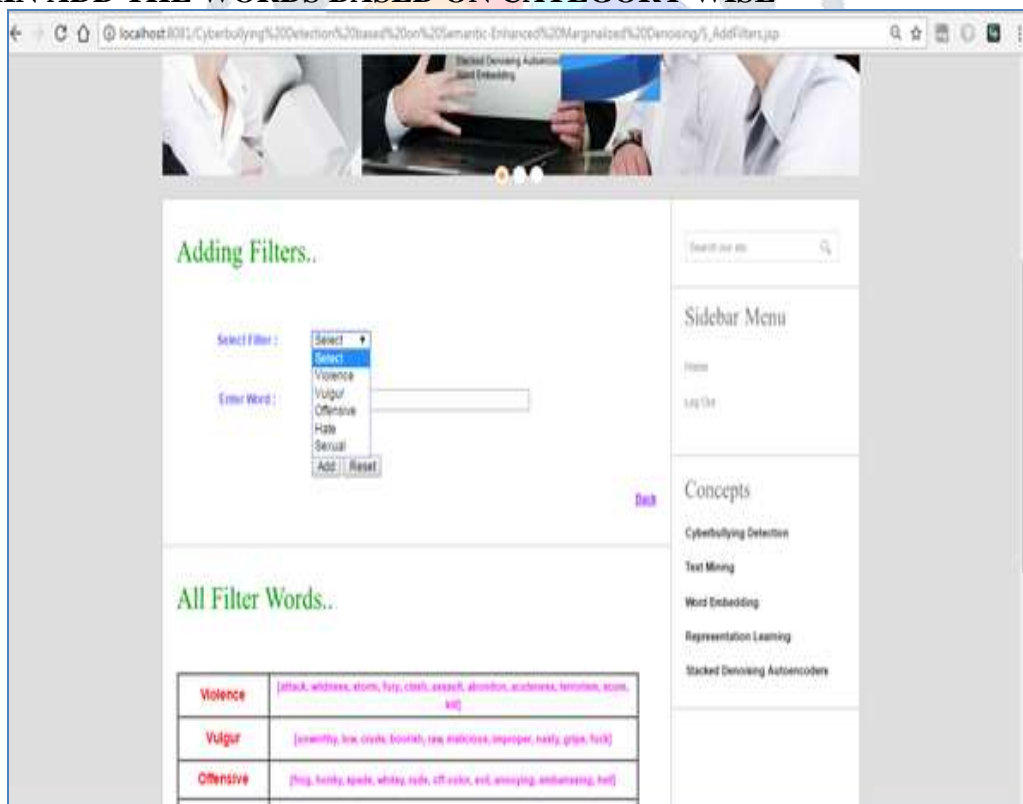
5) ADMIN VIEW ALL THE USER DETAILS



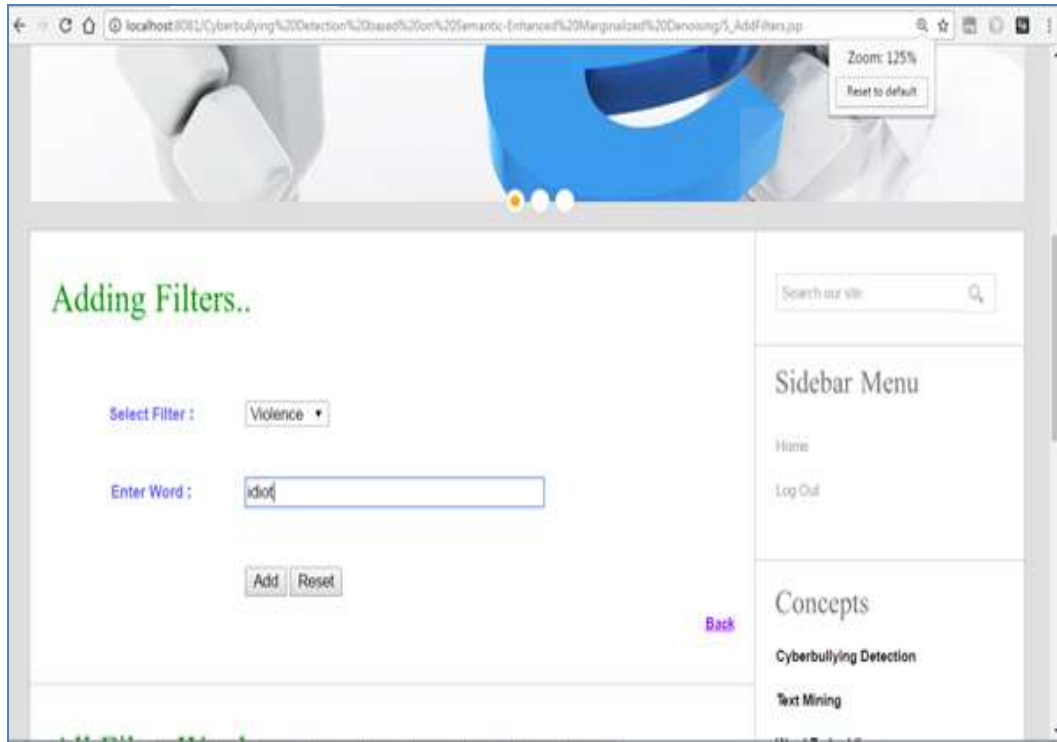
### 6) ADMIN CAN ADD WORDS FOR FILTERING



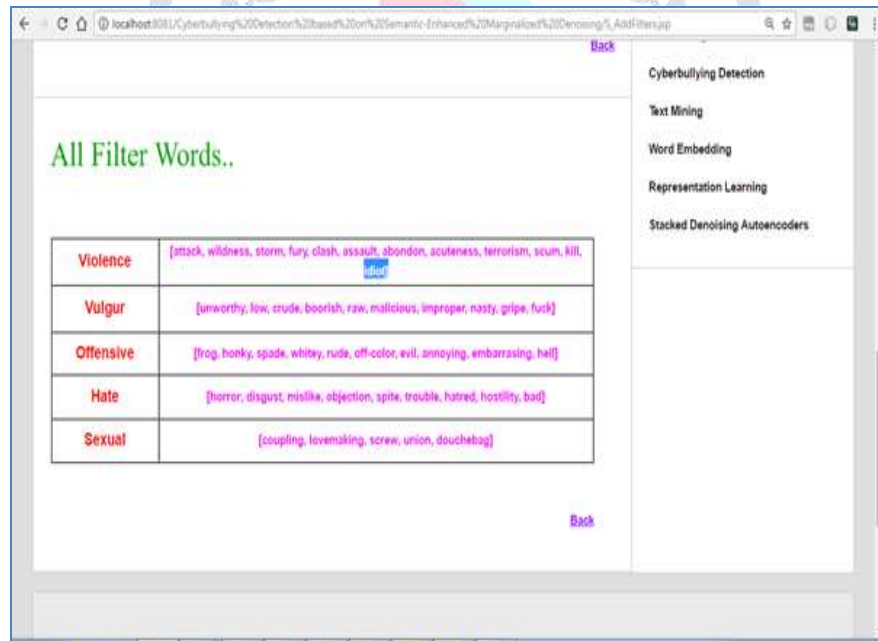
### 7) ADMIN ADD THE WORDS BASED ON CATEGORY WISE



### 8) ADMIN ADD THE ABUSED WORDS



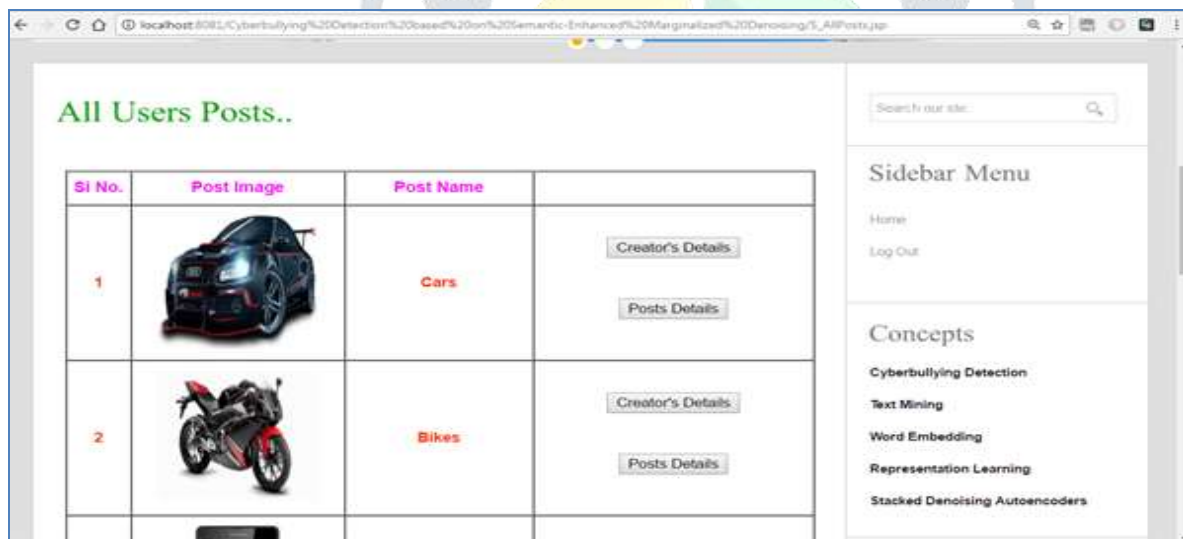
### 9) ADMIN CAN VIEW ALL THE WORDS THAT ARE ADDED IN THE LIST



## 10) IF ADMIN TRY TO ADD SAME WORD INTO THE CATEGORY HE WILL GET AN ERROR AS FOLLOWS:



## 11)ADMIN VIEWS THE POST DETAILS



## 6. CONCLUSION

In this paper we for the first time have construct a machine learning approach for detecting the set of abused words in the conversations and try to block such conversations not to be spread to others. By using this proposed approach we can able to create a positive and safe communication in social media.

Here we constructed a filter using Support Vector Machine (SVM) to filter out the abused words during communication. By conducting various experiments on our proposed method we finally came to an conclusion that SVM algorithm is best suited to identify the cyberbullying conversations very accurately and efficiently on social media and in future we want to extend the same problem with identifying other languages words which come under abused category.

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