Design and Development a Model for Sentiment Analysis on Face-book Posts

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A thesis submitted in fulfillment of the requirement for the degree of Bachelor of Science

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APPROVAL

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DECLARATION

It hereby declare this thesis "**Design and Development a Model for Sentiment Analysis on Facebook Posts**" under the supervisor Dr. Md. Asraf Ali, Associate professor, Department of Software Engineering, Daffodil International University. It is also declared that neither this thesis nor any part of this has been submitted elsewhere for award of any degree.

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Design and Development a Model for Sentiment Analysis on Facebook Posts

ABSTRACT

Social media websites like Twitter, Facebook etc. are a major hub for users to express their opinions online. Sentiment is defined as a thought influenced by or proceeding from feeling or emotion. Sentiment analysis which is also called opinion mining, involves in building a system to collect and examine opinions about the product made in blog posts, comments, or reviews. Sentiment analysis can be useful in real life. In this paper, we analyzed any person's sentiment by using any person's post that he/she write or share on face-book. We analyzed any person's sentiment by viewer reply that he/she got against his/her post that he/she write/share on facebook. We proposed a new way or system by the help of our system we can analyzed any person's sentiment. By that any person's can know about his/her own sentiment or emotion. We take the total number of positive data (love, ha-ha, wow) and negative data (angry, sad) that he/she got against his/her post that he/she write/share on face-book, analyzed the total number of emoticon data. After analyzing the data finally we can detect any person's sentiment or emotion is he/she Positive, Negative or Neutral.

CHAPTER 1: INTRODUCTION

1.1. Background

Sentiment is defined as a thought influenced by or proceeding from feeling or emotion. Sentiment analysis is a tool that aims to explain…sentiment! What that means is that we can use a computer to detect the polarity (positive or negative) of an opinion with a certain degree of confidence. In the simplest application a sentiment analyzer will tell, if the opinion is positive, neutral or negative. Sentiment Analysis is the process of determining whether a piece of writing is positive, negative or neutral. It's also known as opinion mining, deriving the opinion or attitude of a speaker. A common use case for this technology is to discover how people feel about a particular topic.

Sentiment analysis is widely applied to reviews and social media for a variety of applications, ranging from marketing to customer service. First of all choose a topic about which people may like to voice out their thoughts. Then we must try to reach out to as many people as we can. One can do that can be by means of a blog, whatsapp, Facebook, twitter etc. Post our questions there and ask people how they fell about that topic and ask them to voice out their opinions by means of text, so that you might be able to deduce their reaction i.e. positive, negative or neutral.

The rise of social media such as blogs and social networks has fueled interest in sentiment analysis. With the proliferation of reviews, ratings, recommendations and other forms of online expression, online opinion has turned into a kind of virtual currency for businesses looking to market their products, identify new opportunities and manage their reputations. As businesses

look to automate the process of filtering out the noise, understanding the conversations, identifying the relevant content and auctioning it appropriately, many are now looking to the field of sentiment analysis.

Many people work on sentiment analysis in social media. Just in the past year there have been a number of papers looking at Twitter and facebook sentiment and buzz (Pak and Paroubek 2010 [1]; Himanshi Agrawal, Rishabh Kaushal 2016 [11]; Esuli, A., and Sebastiani, F. 2006 [7]; Bifet and Frank 2010 [12]; Barbosa and Feng 2010 [14]; Pang and Lee 2008 [2]; Davidov, Tsur, and Rappoport 2010 [15]. But a small part of people work on sentiment by the help of facebook. So that, we work on sentiment by the help of facebook. We think that our work is different from them and we proposed a new way or system we think by our way or system we detect any person's sentiment easily and properly. Here we use only one type of data for our work (emoticon data). We take total number of positive and negative emoticon data by our feature, normalize that data by the normalization. Finally we average all positive and negative normalized data and find out whether he/she positive, negative or neutral sentiment from different between positive and negative. If we can set this as one of a facebook system then we can know about any person's sentiment by the help of facebook easily.

1.2 Motivation of the Research

Sentiment analysis is used to identify and extract relevant information from the database. The project has a very wide scope and it helps us to assess public opinions. The aim of this paper is to know about a person's sentiment on the base of face-book. In this paper we create a feature that

capture the presence of positive and negative emoticons for analyzing any person's post that he/she write or share on his/her profile. We analyzed any person's sentiment by the help of face-book and this result will show his/her timeline or his/her own profile after suppose one month later. This work helps any person's to know his/her sentiment and help to change his/her sentiment if he/she wants.

1.3 Problem Statement

First we select our topic sentiment analysis. When we started our work with this topic we faced various problems. We didn't understand what we will do and how. We didn't understand which type of data, which type of methodology and which platform we use for our work. By studying various research paper about sentiment analysis in social media and by the help of our supervisor we able to understand our work and fulfill our goal. If we can set this as one of a facebook system then we can know about any person's sentiment by the help of facebook easily.

1.4 Research Question

The following research questions are posed regarding the sentiment analysis using face book post:

i) How does the sentiment is analyzed on facebook post ?

1.5 Research Objective

According to the research question, the objective of this work is as follows:

    i)   To Design and develop a model for sentiment analysis using facebook post.

1.6 Research Scope

We use only one type of data for our work. We use only five types of emoticon data but there have much scope to work with all types of emoticon data or different types of data set for identify sentiment in future and these works can contribute a lot in future. Our work is short and small but we think our idea or work is new for analyzed any person sentiment by the help of face-book post. But we think if we work on it in future more details that is much effective and helpful for sentiment analysis.

1.7 Thesis Organization

In chapter one, we discuss background of our thesis. Here we also discuss motivation of the research, problem statement, research objective and our research scope. In chapter two, we try to represent literature review, which is related with my work. In chapter three, we discuss our research Methodology. In chapter four, we discuss about our data collection. In chapter five, it

will discuss with Result and Discussion and the number of chapter six it will discuss with Conclusion.

CHAPTER 2: LITERATURE REVIEW

2.1 Literature Review

Sentiment analysis is a tool that aims to explain sentiment. Sentiment is defined as a thought influenced by or proceeding from feeling or emotion. What that means is that we can use a computer to detect the polarity of an opinion with a certain degree of confidence. In the simplest application a sentiment analyzer will tell, if the opinion is positive, neutral or negative. Sentiment Analysis is the process of determining whether a piece of writing is positive, negative or neutral. It's also known as opinion mining, deriving the opinion or attitude of a speaker. A common use case for this technology is to discover how people feel about a particular topic. Sentiment analysis is a useful service for just about any business. It is always valuable to know whether your customers are saying positive or negative things about you.

Sentiment analysis has been handled as a Natural Language Processing task at many levels of granularity. Starting from being a document level classification task, it has been handled at the sentence level and more recently at the phrase level. There are many established methods for sentiment analysis at the sentence and paragraph level. Many people work on sentiment analysis in social media (twitter, wathsapp, facebook etc). Small number of people works on sentiment analysis in facebook.

Micro-blogging today has become a very popular communication tool among Internet users. Millions of users share opinions on different aspects of life every day. Therefore micro-blogging web-sites are rich sources of data for opinion mining and sentiment analysis [1]. Because micro-blogging has appeared relatively recently, there are a few research works that were devoted to this topic. Past many years a large number of people work on sentiment by the help of social media (twitter, wathsapp, facebook etc). They discussed various ways and technique for sentiment analysis. They use various types of methodology, data set and also they develop many new features for their analysis. They discover new way or technique; by the help of those ways or technique we analyzed any person's sentiment easily and properly. Sentiment analysis is a growing area of Natural Language Processing with research ranging from document level classification.

A very broad overview of the existing work was presented in [2]. In their survey describe existing techniques and approaches for an opinion-oriented information retrieval. However, not many researches in opinion mining considered blogs and even much less addressed micro-blogging [1]. M. Gamon analysis on feedback data from Global Support Services survey. One aim of their study is to analyze the role of linguistic features like POS tags. They perform extensive feature analysis and feature selection and demonstrate that abstract linguistic analysis features contributes to the classifier accuracy [4]. In (Yang et al., 2007), they use web-blogs to construct a corpora for sentiment analysis and use emotion icons assigned to blog posts as indicators of users' mood. The authors applied SVM and CRF learners to classify sentiments at the sentence level and then investigated several strategies to determine the overall sentiment of the document [2].

J. Read used emoticons form a training set for the sentiment classification. For this purpose, the author collected texts containing emoticons from Usenet newsgroups. The dataset was divided into "positive" and "negative" samples. Emoticons trained classifiers: SVM and Na¨ıve Bayes, were able to obtain up to 70% of an accuracy on the test set [3]. Provided a good survey of various techniques developed in online sentiment analysis. It covers concept of emotion in written text (appraisal theory), various methodologies which can be broadly divided into two groups: (i) symbolic techniques that focuses on the force and direction of individual words (the so-called "bagof words" approach), and (ii) machine learning techniques that characterizes vocabularies in context. Based on the survey, the authors found that symbolic techniques achieves accuracy lower than 80% and are generally poorer than machine learning methods on movie review sentiment analysis. Among the machine learning methods, they considered three supervised approaches: Support Vector Machine (SVM), Naive Bayes Multinomial (NBM), and maximum Entropy (Maxent) [6]. N. Godbole, M. Srinivasaiah, and S. Skiena developed techniques that algorithmically identify large number (hundreds) of adjectives, each with an assigned score of polarity, from around a dozen of seed adjectives. Their methods expand two clusters of adjectives (positive and negative word groups) by recursively querying the synonyms and antonyms from WordNet [8].

And so many people work on sentiment in social media. They use various types of method and data for their work. They discover new feature, model, system by those we analyzed any person's sentiment. By social media a large number of people work on sentiment analysis. In social media facebook is one of the platform for work on analyzed sentiment and a small number

of people work on this platform. They use for those works various types of method and classification techniques like: n-gram, Part-of-speech (POS), Lexicon, unigrams, bigrams, Na¨ıve Bayes, Machine learning, Supervised learning, Bayesian network etc and data set Hashtagged, iSieve, Emoticon etc. We work on sentiment analysis by the help of one of the popular social media part Facebook and we think our work is different from the previous work. We work on a small part of sentiment by the help of social media part (Facebook). We analyzed any person's sentiment by viewer reply that he/she got against his/her post that he/she write/share on facebook. In present face-book is one of the most popular media all over the world. By face-book people can connect with their friends, relative, brother, sister, neighbor and so many known, unknown people. They can write, share, post their felling, keystone, picture etc. By the help of one of the most popular part facebook we analyzed any person sentiment by their face-book posts. For this work we use some features and data. We propose a new way or system for sentiment analyzing through social media (Facebook). By the help of our system we can detect any person's sentiment easily.

CHAPTER 3: METHODOLOGY

We use a variety of features for our experiments. We use Normalization and average for our experiments. We also include features typically used in sentiment analysis. Finally, we include features to capture the presence of positive and negative emoticon data.

3.1 Model

```
                    ┌──────────────────┐
                    │  Facebook post   │
                    └──────────────────┘
                             │
                             ▼
                    ┌──────────────────┐
┌──────────────┐    │ Collect Emoticon │
│     Data     │    │      Data        │
│ Normalization│    └──────────────────┘
└──────────────┘             │
                             ▼
┌──────────────┐    ┌──────────────────┐
│   Average    │───▶│  Data Analysis   │
│Normalized Data│    └──────────────────┘
└──────────────┘             │
                             ▼
┌──────────────┐    ┌──────────────┐    ┌──────────────────┐
│ Difference   │    │  Get Result  │───▶│ Detect Sentiment │
│ between       │    └──────────────┘    └──────────────────┘
│ Positive &   │
│ Negative     │
└──────────────┘
```
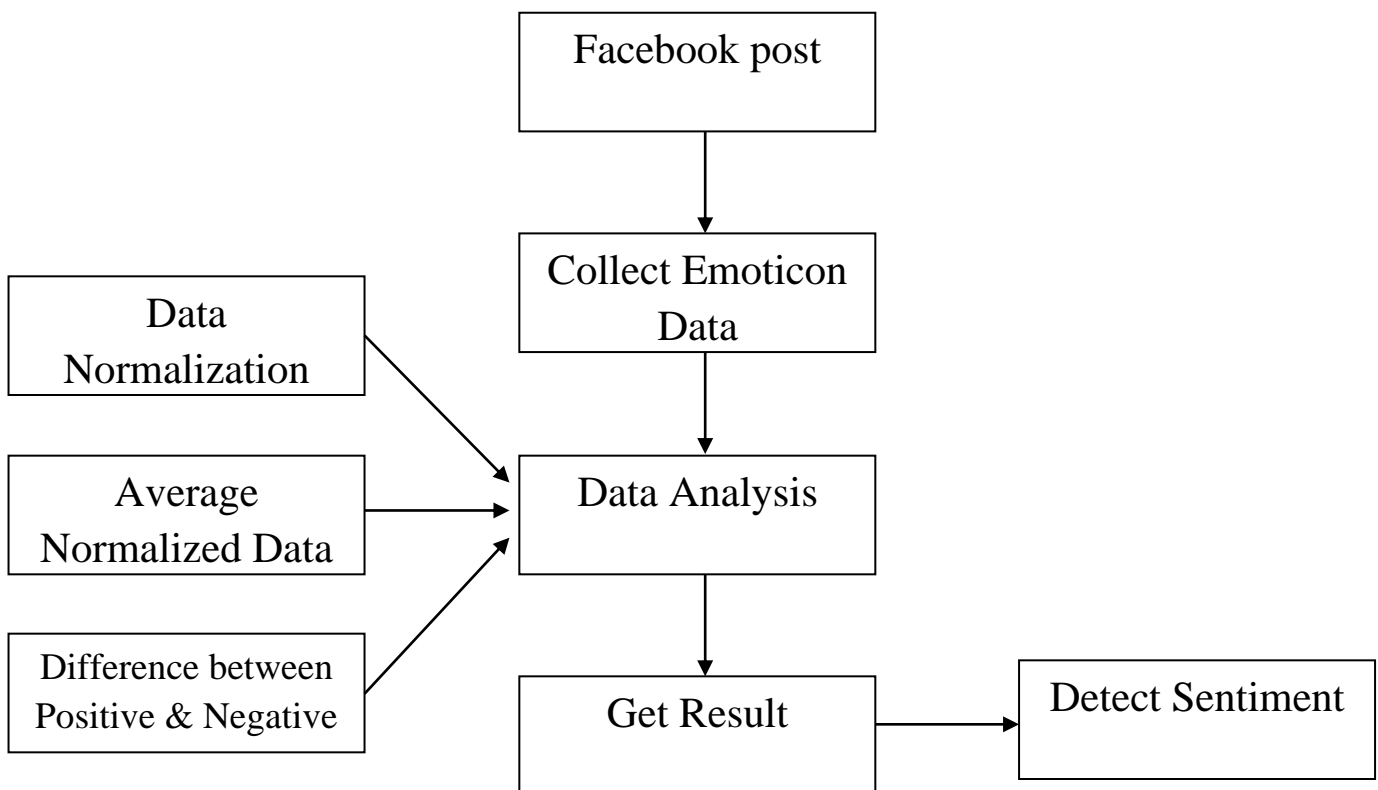
Fig 3.1: Model for sentiment analysis on facebook post.

3.2 Sample size

We collect six people's data from their face-book and we collect each person at list ten facebook pots data.

Table 3.1: Sample size

No	Person Name	Age	Social Status
1	Jony Mehadi	24	Student
2	Dr . Jafor Iqbal	65	Teacher
3	Rifat Zaman	25	Student
4	GS Takowa	26	Student
5	Shakib al hasan	32	Cricketer
6	Dr. Imran H Sarker	35	Online Activists, Physician

3.3 Data Collection

Social media websites like Twitter, Facebook etc. are a major hub for users to express their opinions online. Sentiment is defined as a thought influenced by or proceeding from feeling or emotion. Sentiment analysis which is also called opinion mining, involves in building a system to collect and examine opinions about the product made in blog posts, comments, or reviews. Sentiment analysis can be useful in real life. We analyzed any person's sentiment by viewer reply that he/she got against his/her post that he/she write/share on facebook. For our work we

use emoticon data. An emotion is a short sequence of keyboard letters and symbols, usually emulating a facial expression that complements a text message. On the Internet in e-mail, chatting, and text messages, an emoticon (sometimes referred to by the name of the original emoticon, the smiley is a short sequence of keyboard letters and symbols, usually emulating a facial expression, expressing a feeling. The Japanese have worked out another set of emoticons that fits the nuances of Japanese culture.

Emoticon data set is organized by various types of emojis and this type of data set created by GO, Bhayani and Huang, L (2009) [9] for a project at Stanford University by collecting tweets with positive and negative emoticons. Messages containing both positive and negative emoticons were omitted. They also hand-tagged a number of tweets to use for evaluation, but for our experiments, we only use five types Emoticons data.

We create a feature with php language that captures the presence of positive and negative emoticon data for analyzing any person post. That he/she write or share on his/her profile.

From Facebook we use five emoticons data (love, wow, ha-ha, angry, Sad) among six type of emoticon data set (Like, love, wow, ha-ha, angry, Sad).We avoid "Like" because many people use auto like option. We define these data into two part Positive and Negative.

Table 3.2: Emoticon Data

Type	Data
Positive	Love, Ha-Ha, wow
Negative	Angry, Sad

In facebook normally a person can give one emoji against a post. We collect viewer's opinion / total number of emojis that he/she expressed by emoticon data, then analyze total number of emoticon data by normalization process, average the normalized data and find the different between positive and negative.

3.4 Data Analysis

3.4.1 Normalization

Normalization is the process of reorganizing data so that it meets two basic requirements: (1) There is no redundancy of data (all data is stored in only one place), and (2) data dependencies are logical (all related data items are stored together). Normalization is important for many reasons, but chiefly because it allows data to take up as little disk space as possible, resulting in increased performance. Normalization is also known as data normalization. We normalized our data for keep data into in a range.

Firstly we collect one person's total number of positive and negative emoticon data against at list ten post that he/she get by viewers. Then we normalized those data after normalized the data, average the normalized data, get a result and we can say that the person is Positive, Negative or Neutral.

In this paper we use normalization our data so that we can keep data into 0 to 100 ranges by following theory:

1. Large value*100 / Large value

2. Small value*100 / Large value

   (Large value = Total number of positive data or total number of negative data

   Small value = Total number of positive data or total number of negative data)

3.4.2 Average Data

Average the data by the following theory:

1. Total Positive / Total Number of Post

2. Total negative / Total Number of Post

   (Total Positive = After Normalization

   Total Negative = After Normalization)

3.4.3 Difference between positive and negative

Finally we find the different between positive and negative by following theory:

1. Average positive – Average negative = Difference between positive and negative

If difference between Positive and Negative is -10 to +10 then we say that the result is Neutral, if the difference is grater then +10 then the result is Positive and the difference is lower than -10 then the result is Negative.

CHAPTER 4: RESULT AND DISCUSSION

4.1 Result and Discussion

Our goal for these experiments is any person's sentiment analysis by face-book post that he/she write/share in his /her profile/timeline. After analyzing collected data by excel, we analyzed minimum ten posts per one person.

Table 4.1: Sentiment Analysis (Person One)

No of Post	Positive	Average(P)	Negative	Average(N)	Difference Between Positive & Negative	Result
1	100		60			
2	60		100			
3	100		20			
4	100		57.14286			
5	100	96	11.11111	38.52115	57.47885	Positive
6	100		35.71429			
7	100		15.38462			
8	100		13.63636			
9	100		22.22222			
10	100		50			

Table 4.2: Sentiment analysis (Person Two)

No of Post	Positive	Average(P)	Negative	Average(N)	Difference Between Positive & Negative	Result
1	100		10.44863			
2	100		51.23641			
3	100		1.649175			
4	100		9.54416			
5	100	100	0.566572	13.96844	86.03156	Positive
6	100		0.909091			
7	100		2.242152			
8	100		2.554745			
9	100		3.514644			
10	100		57.01881			

Table 4.3: Sentiment Analysis (Person Three)

No of Post	Positive	Average(P)	Negative	Average(N)	Difference Between Positive & Negative	Result
1	50		100			
2	100		50			
3	50		100			
4	100		28.57143			
5	100	72	13.33333	74.19048	-2.19048	Neutral
6	33.33333		100			
7	100		75			
8	20		100			
9	100		75			
10	66.66667		100			

Table 4.4: Sentiment Analysis (Person Four)

No of Post	Positive	Average(P)	Negative	Average(N)	Difference Between Positive & Negative	Result
1	100	61.94737	75	84.75	-22.8026	Negative
2	9.090909		100			
3	40		100			
4	23.07692		100			
5	55		100			
6	70.37037		100			
7	80		100			
8	41.93548		100			
9	100		12.5			
10	100		60			

Table 4.5: Sentiment Analysis (Person Five)

No of Post	Positive	Average(P)	Negative	Average(N)	Difference Between Positive & Negative	Result
1	100		0.790514			
2	100		0.589536			
3	100		0.704722			
4	100		21.46157			
5	100	100	0.387597	2.978213	97.02179	Positive
6	100		0.200341			
7	100		0.917431			
8	100		4.078014			
9	100		0.05933			
10	100		0.593072			

Table 4.6: Sentiment Analysis (Person Six)

No of Post	Positive	Average(P)	Negative	Average(N)	Difference Between Positive & Negative	Result
1	100		12.5			
2	100		8.333333			
3	40		100			
4	50		100			
5	75	67.08824	100	71.60714	-4.51891	Neutral
6	25		100			
7	5.882353		100			
8	100		66.66667			
9	75		100			
10	100		28.57143			

We know, if difference between Positive and Negative is -10 to +10 then we say that the result is Neutral, if the difference is greater than +10 then the result is Positive and the difference is lower than -10 then the result is Negative.

Here, One (1), Two (2) & Five (5) no people sentiment result is Positive because we see the difference between Positive and Negative greater than +10 range. Four (4) no people sentiment result is Negative because the difference between Positive and Negative is Lower than -10 range. And the no of Three (3) and Six (6) number people sentiment result is Neutral because the difference between Positive and Negative is in -10 to +10 range.

CHAPTER 5: CONCLUSION

5.1 Conclusion

Social media websites like Twitter, Facebook etc. are a major hub for users to express their opinions online. Sentiment analysis which is also called opinion mining, involves in building a system to collect and examine opinions about the product made in blog posts, comments, or reviews. Sentiment analysis can be useful in real life. Above all we can say after analyzing all those, sentiment analysis is necessary for all types of user who are not only social media but also outside in social media. By this any person can know about his sentiment (positive, negative, neutral) and can change/convert his/her negative/neutral sentiment into positive sentiment if he/she want. After done the work we can analyze any person sentiment or emotion that he/she is positive, negative or neutral by the help of our system. We worked on a small part for sentiment analysis. We use only one type of data for our work. We use only five types of emoticon data but there have much scope to work with all types of emoticon data or different types of data set for identify sentiment in future and these works can contribute a lot in future. Our work is short and small but we think our idea or work is new for analyzed any person sentiment by the help of face-book post. But we think if we work on it in future more details that is much effective and helpful for sentiment analysis.

5.2 Recommendation of future Works

We proposed a new way or system by the help of our system we can analyzed any person's sentiment. We worked on a small part for sentiment analysis. We use only one type of data and some feature for our work. We use only five types of emoticon data but there have much scope

to work with all types of emoticon data or different types of data set for identify sentiment in future and these works can contribute a lot in future.

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Appendix-A: Post page

```html
<!doctype html>
<html lang="en">
<head>
    <title>Post</title>
    <link rel="stylesheet" href="bootstrap.css">
    <link rel="stylesheet" href="font.css">
</head>
<body>

<div class="container">
    <div class="row">
        <div class="col-md-6">
            <form action="" method="post" enctype="multipart/form-data">
                <div class="form-group">
                    <label for="">Post name</label>
                    <input type="text" name="name" class="form-control">
                </div>
                <div class="form-group">
                    <label for="">Description</label>
                    <input type="text" name="description" class="form-control">
                </div>
                <div class="form-group">
                    <label for="">Post Image</label>
                    <input type="file" name="image" class="form-control">
                </div>
                <button type="submit" name="btn">Submit</button>
            </form>
        </div>
    </div>
</div>

</body>
</html>

<?php
$db = new PDO('mysql:host=localhost;dbname=Sentiment_Analysis;charset=utf8mb4',
'root', '');
if (isset($_POST['btn'])){
    $name = $_POST['name'];
    $description = $_POST['description'];
    $tmp_name=$_FILES["image"]["tmp_name"];
    $img_name=$_FILES['image']['name'];
    move_uploaded_file($tmp_name,'images/'.$img_name);

    $query = "INSERT INTO `post` (`post_id`, `name`, `description`, `image`) VALUES
(NULL, '$name', '$description', '$img_name');";
    $db->exec($query);


}
```
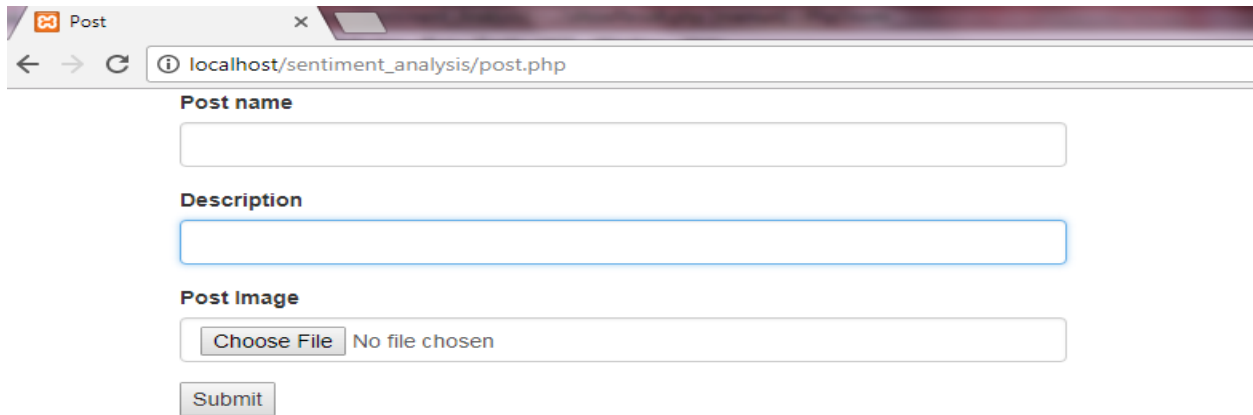
Post name

Description

Post Image

Choose File | No file chosen

Submit

Appendix-B: Home Page

```php
<?php
$db = new PDO('mysql:host=localhost;dbname=Sentiment_Analysis;charset=utf8mb4',
'root', '');
$query = "SELECT * FROM `post`";
$stmt = $db->query($query);
$result = $stmt->fetchAll(PDO::FETCH_ASSOC);
?>

<!doctype html>
<html lang="en">
<head>
    <title>Document</title>
    <link rel="stylesheet" href="bootstrap.css">
    <link rel="stylesheet" href="font.css">
</head>
<body>

<div class="container">
    <?php
  $sl = 0;
    foreach ($result as $post){
      $sl++;
        ?>
    <div class="row">
        <div class="panel panel-default">
      <?=$sl?>
            <div class="panel-heading">
                <?=$post['name']?>
            </div>
            <div class="panel-body text-center">
```
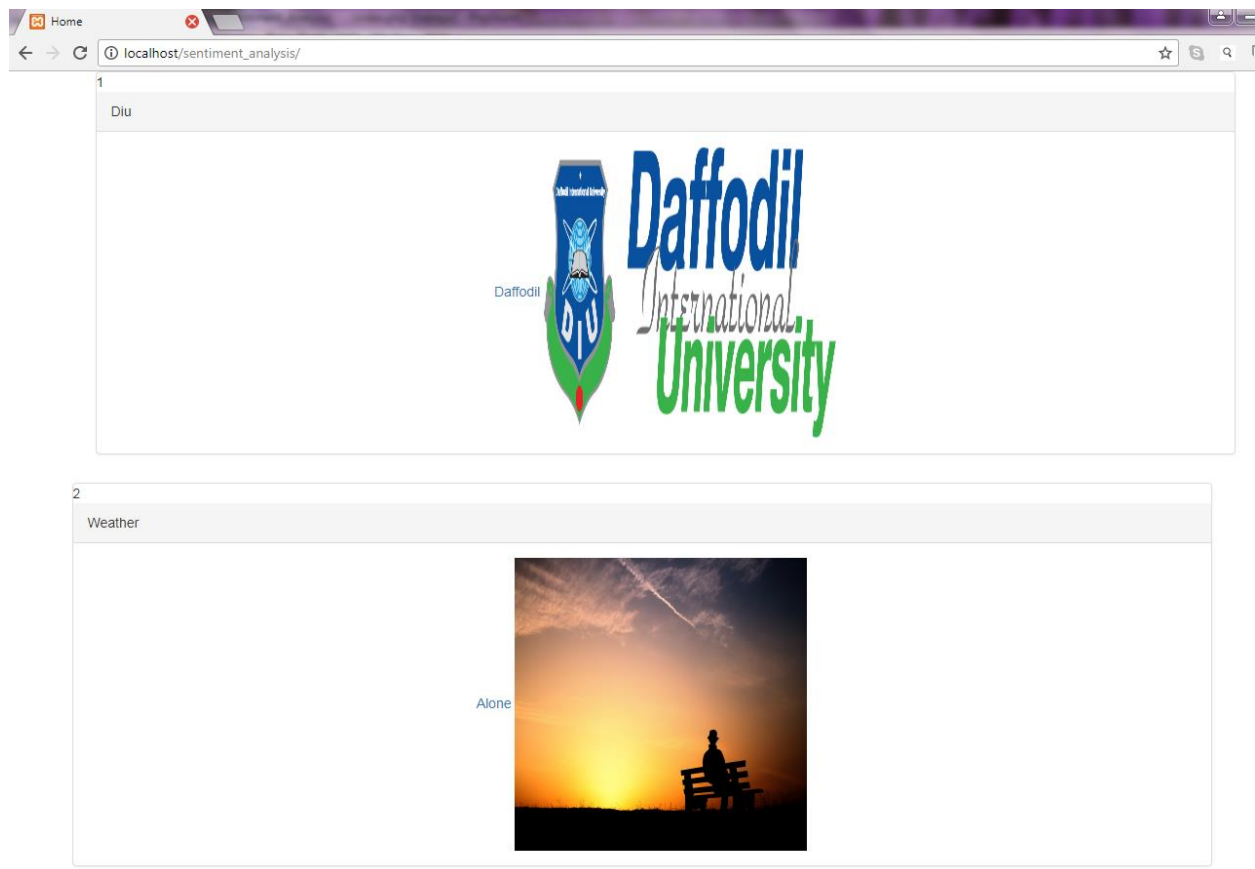
```php
            <a href="review.php?id=<?=$post['post_id']?>">
            <?php echo $post['description']?>
                <img src="images/<?php echo $post['image']?>" alt="" height="300"
width="300">
            </a>
        </div>
    </div>
</div>
<?php
    }
        ?>
</div>

</body>
</html>
```


Appendix-C: Review page

```php
<?php
$db = new PDO('mysql:host=localhost;dbname=Sentiment_Analysis;charset=utf8mb4',
'root', '');

$id = $_GET['id'];
```

```php
$query = "SELECT * FROM `post` WHERE post_id='$id'";
$stmt = $db->query($query);
$result = $stmt->fetch(PDO::FETCH_ASSOC);
?>


<!doctype html>
<html lang="en">
<head>
    <title>Document</title>
    <link rel="stylesheet" href="bootstrap.css">
    <link rel="stylesheet" href="font.css">
</head>
<body>

<div class="container">
        <div class="row">
            <div class="panel panel-default">
                <div class="panel-heading">
                    <?=$result['name']?>
                </div>
                <div class="panel-body text-center">
            <?php echo $result['description']?>
                        <img src="images/<?php echo $result['image']?>" alt=""
height="300" width="300">
                    <form action="" method="post">
                        <div class="form-group" style="margin-top: 20px;" >
                            <input type="radio" name="emoji" value="1"><b>Love</b>
                            <input type="radio" name="emoji" value="2"><b>Ha-ha</b>
                            <input type="radio" name="emoji" value="3"><b>Wow</b>
                            <input type="radio" name="emoji" value="4"><b>Sad</b>
                            <input type="radio" name="emoji" value="5"><b>Angry</b>
                            <input type="hidden" name="postID"
value="<?=$result['post_id']?>">
                        </div>
                        <button type="submit" name="btn">Submit</button>
                    </form>
                </div>
            </div>
        </div>

    <div class="row">
        <button class="btn btn-info">
            <a href="showResult.php?id=<?=$result['post_id']?>">Show Result</a>
        </button>
    </div>
</div>

</body>
</html>

<?php
if (isset($_POST['btn'])){
    $postID = $_POST['postID'];
    $emoji = $_POST['emoji'];
    if ($emoji ==1){
        $category = 'p';
    }
    else if ($emoji ==2){
        $category = 'p';
    }
    else if ($emoji ==3){
```
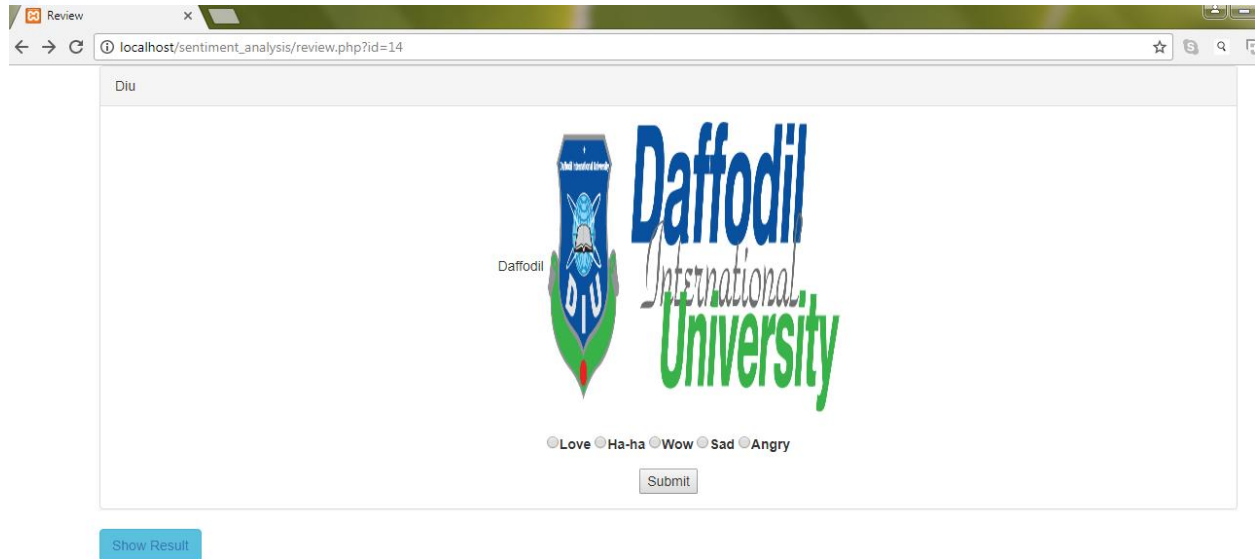
```php
        $category = 'p';
    }
    else if ($emoji==4) {
        $category = 'n';
    }
    else if ($emoji==5) {
        $category = 'n';
    }
    $query = "INSERT INTO `review` (`review_id`, `post_id`, category) VALUES (NULL,
'$postID', '$category');";
    $db->exec($query);
}
?>
```


Appendix-D: Result

```php
<?php
$p_id = $_GET['id'];

$db = new PDO('mysql:host=localhost;dbname=Sentiment_Analysis;charset=utf8mb4',
'root', '');
$query = "SELECT * FROM `review` WHERE category='p' AND post_id = '$p_id'";
$stmt = $db->query($query);
$result1 = $stmt->fetchAll(PDO::FETCH_ASSOC);
?>



<?php

$db = new PDO('mysql:host=localhost;dbname=Sentiment_Analysis;charset=utf8mb4',
'root', '');
```
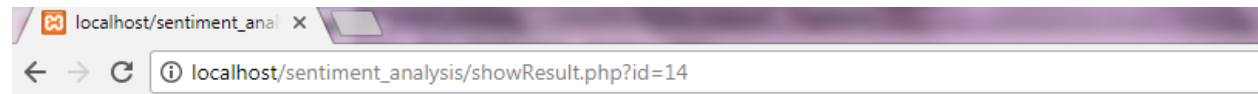
```php
$query = "SELECT * FROM `review` WHERE category='n' AND post_id = '$p_id'";
$stmt = $db->query($query);
$result2 = $stmt->fetchAll(PDO::FETCH_ASSOC);
?>


<?php

echo "Total Positive review: ".count($result1);
echo "<br/>";
echo "Total Negative review: ".count($result2);
```


localhost/sentiment_analysis/showResult.php?id=14

Total Positive review: 0
Total Negative review: 0