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HAPPINESS ANALYSIS OF LIBYANS PEOPLE BASED ON TWITTER DATA USING ARTIFICAL NEURAL NETWORK

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ABSTRACT

Information technology is always developing and has very rapid growth. The internet has become a very important online communication tool for many people today. Nowadays people tend to prefer anything that is practical, faster, and flexible. Social networking services have become a simple and universal concept in the internet environment. Purpose of this study are: To analyse happiness of Libyans people based on Twitter data using artificial neural network. This study is an analytical study of secondary data processing obtained without direct field experiments. MTE (Magister program of Electrical Engineering) UNISSULA must have experiment. This study is an analytical study of data based on social media specifically using twitter data. The result of this study is Libyan feel they write down their feelings when happy rather than unhappy. Social media has become an important part of modern life, and Twitter is again a center of focus in recent events. Whatever your opinion of social media these days, there is no denying it is now an integral part of our digital life. Twitter is a good starting point for social media analysis because people openly share their opinions to general public. This is very different from Facebook where social interactions are often private. In this paper, we propose a ANN model for Twitter opinion mining prediction and classification approach. Also, we used the ANN model for Twitter Opinion abstraction and visualization scheme. The main contribution of this work is to propose such a new visualization model for Twitter mood prediction based on ANN approach

Keywords : Sentiment Analysis, *Happines*, ANN

1. Introduction

Information technology is always developing and has very rapid growth. The internet has become a very important online communication tool for many people today. Nowadays people tend to prefer anything that is practical, faster, and flexible. Social networking services have become a simple and universal concept in the internet environment. There are many social networking sites on the internet such as Twitter, Instagram, Facebook, Google +, Linkedin, and Path. People use social networking media to find friends and even exist to run online businesses. Consumers prefer internet media because they do not need to meet directly with service providers in person and deal with the behavior of other consumers. In the development and number of internet growing so fast in the recent ten years, also in Libyan user [1].

One of the social media that is still active and widely used by various groups is Twitter. This social media is considered to provide a lot of information about someone's sentiment. The use of Twitter social media is evidenced by the existence of several studies that use Twitter as material to analyze the sentiments of one's opinion. Among them there is research conducted by Quanzhi Li and the team. In their research, Quanzhi Li and his team used the text feature selection method to support sentiment analysis [16]. In this study also will conduct sentiment analysis of a person's opinion from a tweet they upload on Twitter using text mining. The analysis in question is knowing whether a person's alignments are identified from the radical groups or not [2].

In this study, using an artificial neural network (ANN) method to classify document data while knowing the presence of posts in the form of radical Islam. This method is an artificial neural network which in general can be used in the classification of various problems with non-linear data [4]. ANN has good performance and is widely used in computer vision problems for pattern recognition. Many researchers do classifications in completing their research using this method. As research conducted by Novitasari which classifies egg signals in the form of wave data by combining the fuzzy method and the modification method of backpropagation. ANN can also be used in image classification, such as research conducted by Leavline. Leavline classifies the image of orchids to distinguish plant variations. In addition, the ANN method is used by Wechmongkhonkon and his team in classifying water levels to manage water quality with MLP artificial neural networks in the classification process [3]. Water quality classification has also been done before by Meair and the team who are more inclined to the water quality security prediction model based on the problem variable [5]. This shows that the classification using the ANN method is considered to still give quite good results. Based on the graph above, it can be say that the Twitter use base and growth rate forecast is increasing from year to year, and also the increasing user for Twitter account as follows:

Figure 1.2. StickinessProblem [4]

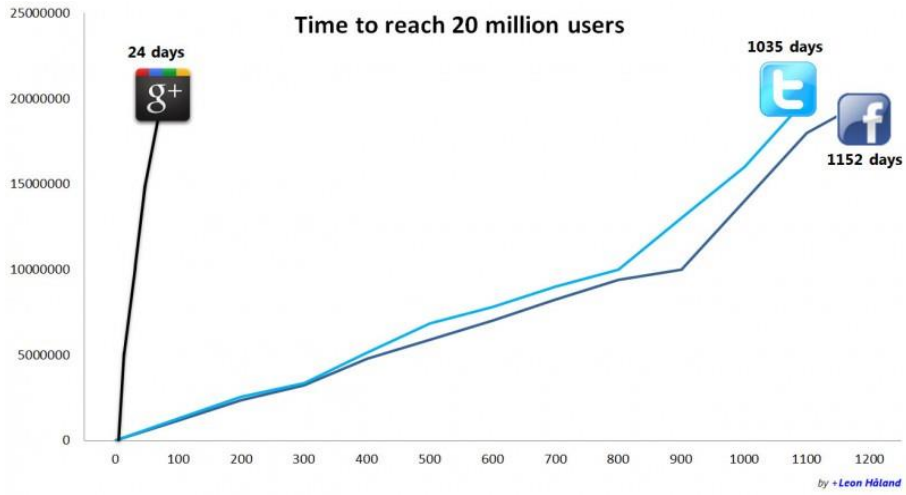

Figure 1. Time reach User [4]

Based on the chart we can see that despite being the most popular Facebook had a time span of 1152 days to reach 20 million users, Twitter won the 20 million users in 1035 days and to be astonished, Google+ in just 24 days reached the 20 million users. In an average of 840 days would be Google+ reaching to Facebook and Twitter in number of users on the social network that Google+ is having an impressive amount of 800,000 daily user. [4]

Social problem communication in Libya after war also arise. Libya, the oil-rich country in northern Africa was once the country with the highest standard of living in Africa. Libyans have experienced free education and free health facilities. But since the revolution in October 2011, Libya has been plagued by violence and political turmoil and financial crisis. The country in North Africa is now on the verge of a civil war. Quoted from the Guardian website, Libya is now divided between a UN-backed government in power in the capital city of Tripoli in the west and protected by various armed militias. To the east in Benghazi, General Khalifa HList, 75, a loyal Qadafi army, formed his own army, the Libyan National Army (LNA) and controlled nearly two-thirds of Libya, including oil fields.

The war also affects the limited works. The war in Libya also affects employment, because there are often wars in Libya, many jobs are closed and none. so many people lost their jobs due to the war, and it is difficult to find decent work in LIbya now. This has caused a lot of unemployment and limited employment in Libya. War damages are very significant for limited jobs. This affecting the happiness Index of Libyan people that still decrease from 2015 until 2020, that can be seen in the graph below:

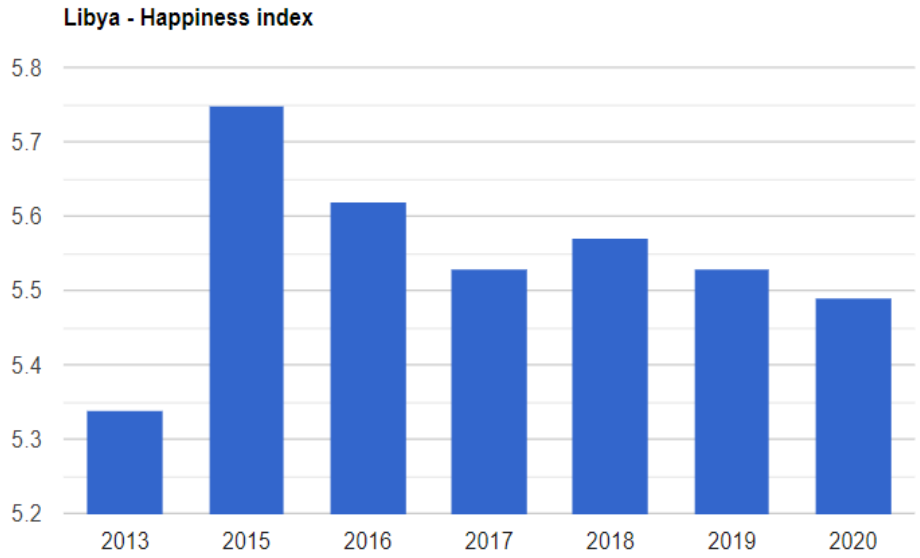

Figure 2. World Happiness Report 2018 ranks Libya 70 in happiest countries in the world

Libyan people should be happiness measuring by ANN algorithm because the Artificial Neural Networks (ANN) has become popular recently and is one of the most effective computational intelligence techniques applied in Pattern Recognition Data Mining and Machine Learning. The main power of ANN lie in its ability to estimate multifaceted and non-linear relationships between input and output data by learning from an instance. Effects produced from each of them network input to network output can be analyzed. These effects provide feedback back about the parameters of which input most significant. To achieve this, sensitivity analysis was carried out. Sensitivity analysis is a method for extracting cause and effect relationship between input and network output. This method will reduce network size and complexity of the model on training process. During the sensitivity analysis, network learning function is disabled, so that the weight of the network is not affected. The basic idea is when inputting to the network changed at any time and changes occur accordingly then output results are reported as percentage. In this ANN model, happiness of libyan people via twitter will be measured and is considered a design parameter the most effective

2. Research Method

This study is an analytical study of secondary data processing obtained without direct field experiments. MTE (Magister program of Electrical Engineering) UNISSULA must have experiment. This study is an analytical study of data based on social media specifically using twitter data.

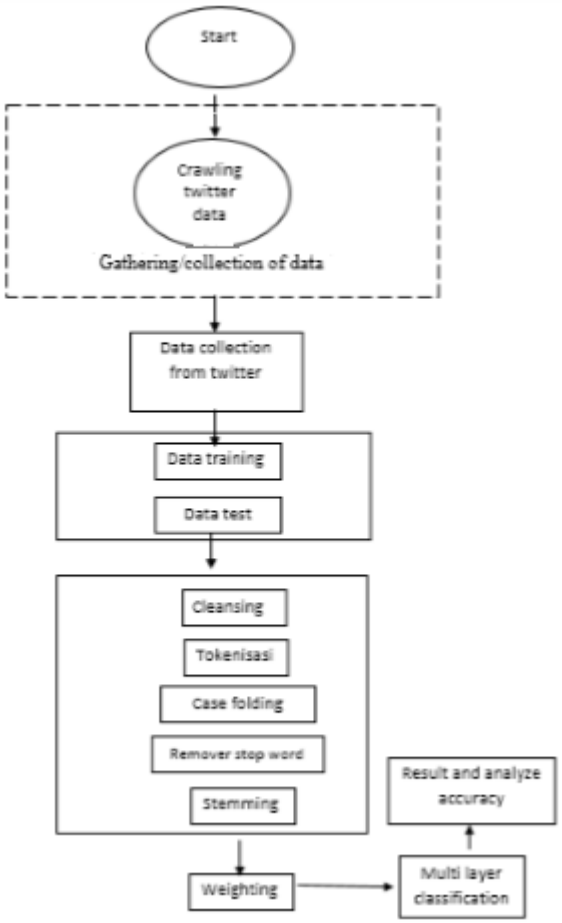

Figure 3. Proposed Research Model

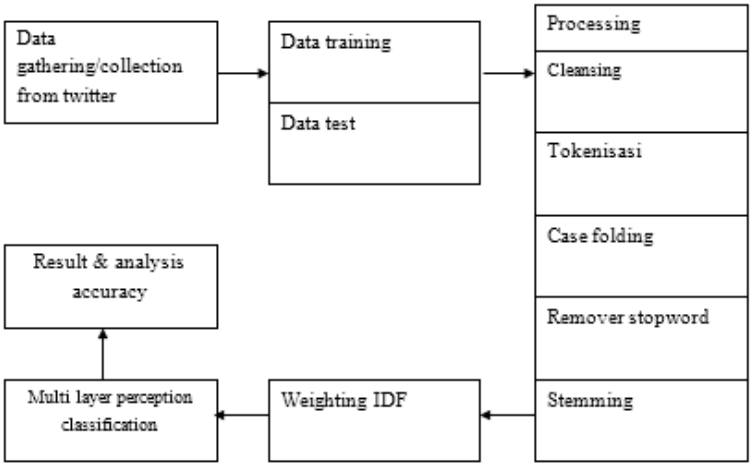

Figure 4. Proposed System Model

The proposed system model start from the data gathering or collection data from Twitter , after that make data training and data test, after that the next step is to

make processing, cleansing, tokenisasi, case folding, remover stop word, stemming, and then weighting IDF, multi-layer perception classification, and make result and analysis accuracy.

2.1. Design System Model

1. Data gathering From Tweet And Twitter

The first method captures Twitter data directly from within the Twitter service via a request for a Twitter archive. As this capture comes from within Twitter, it is both relatively straightforward and will be used as a comparative benchmark for the other data sets. As the owner of a Twitter account, an individual may request the download of their history within the preference section of their account. The limit of this approach is that account ownership is required for the download request. Third party accounts cannot be accessed directly through this method. Data requested directly from Twitter has one of the richer veins of information available, as the system is drawing from the master data source. The downloadable file consists of an interactive interface using an HTML index page, JSON data set, and a CSV file which contains all tweets. The CSV file has ten column of data for each tweet that describe the text of the tweet, and its relative position in the overall Twitter universe in terms of relationships with other users and other tweets. The CSV file is of most value to the method outline in this chapter. The summary overview of the Twitter data set header information contained in the CSV file. Twitter Archive data contains one distinct element not present in other captures the expanded URL category which converts the in-house Twitter (t.co) URL shortener back to its original link. The expanded URL function does not address any other shortened URL (e.g. bit.ly), and only covers the period after the service commenced operation. The archival function provides sufficient data to form the basis for internal analysis where the purpose of the project is to examine the individual, personally controlled Twitter timeline. Academic use of a personal timeline is relatively limited in contrast to the value for practitioners. As academics, personal reflections are often limited in their use. It could be possible that the individual timeline could aid in the development of a reflective narrative of teaching practice, or provide additional data during an ethnographic observation project. However, for the most part, with the notable exclusion of the original Dann (2010) paper, there are few opportunities for applying your timeline for academic study.

Variable ID	Descriptor
tweet_id,	ID marker for each of the timeline author's original tweets
in_reply_to_status_id,	ID marker for a tweet from another timeline that led to the author's response
in_reply_to_user_id	The author of the tweet that resulted in the reply tweet
Timestamp	Timestamp based on the timeline author's declared location
Source	The platform or framework used to create and send the tweet
Text	Actual body of the tweet
retweeted_status_id	This tweet_id of a retweet taken from its original timeline
retweeted_status_user_id	The identity of the author being retweeted
retweeted_status_timestamp	Date stamp for the retweeted tweet
expanded_urls	Where the URL has been shortened by Twitter using the t.co address, the full URL is published here. This cell does not report URL for non-t.co addresses

In direct contrast, self-analysis has several practical purposes for academics and business. For both parties, understanding the vocabulary of the Twitter account, and the tweeting patterns, may be invaluable for determining what to do next with the account. The ability to store, retain and revisit a Twitter account's performance over the full history of the account is a valuable piece of data to integrate into organizational history and metrics. Additional analysis of the text content can reveal adherence or deviations from branding strategy and communication policy. As each tweet is data stamped, it can also be tied to external performance metrics such as sales generated from tweeting a discount code or traffic patterns based on tweets to the company's website. Finally, access to the history of the account's communications can uncover relationship marketing information in the form of most common conversations and most frequent conversational partners across the organization's use of the account.

Happiness can be measure using social media comments and status, so in this research will make data gathering using social media especially for Libyan people. Some common Libyan use social media are twitter, facebook, Instagram, etc. This study using twitter data only because the easiest way to gather the data. Method of used in this research for gathering data is using API. The data is obtained from dummy data obtained when a happy tweet will be given a value of 1 and if it is sad or means negative it will be given a value of 0.The tools used in this research are: Python Code and data about 1,000 status/comment data from different account of Libyan people. The data were collected through the researchers' twitter account and collected directly by searching for the keywords that were determined in this study.

2. Dividing tweet data becoming Data Train And Data Test

The model development effectiveness depends on the available data and its preparation. After data collection, three pre-processing procedures were conducted to increase the training process efficiency. These procedures are: (1) missing data, (2) outliers data and (3) normalize data. In this study, the missing data problem was solved through average calculation. Out of the data set entered, only seven values were missed and solved. At the same time, it is important to identify the outliers, which are observations with a unique combination of characteristics identifiable distinctly from most of the observations. On the other hand, the normalization procedure is an important step, since mixing variables with large magnitudes and small magnitudes from the inputs and the outputs will confuse the learning algorithm on the effect of each variable. Such procedures should improve the density of the data over the problem domain and allow the network to converge faster and generalize better outputs.

3. Results And Analysis

3.1. System Design Model

The architecture above discusses the steps conducted to analyze the sentiment the steps are as follows: comment data collection public from twitter, the comment data enters preprocessing, results preprocessing is carried out by calculating the weight in each term using IDF, then the classification process is carried out using a multilayer algorithm perceptron at this stage is carried out to

classify sentiments. These steps are taken, the sentiment results will be obtained. sentiments are divided into 2 categories, namely happy and unhappy. The next will be calculated the level of accuracy values.

3.2. Data collection

In this first step, we have to Plaintext only without number, comma, quotation, etc. The second step is Tokenization, in this step, we have to convert text into token (word), for example: text: I am very happy today, token: I – am – very – happy – today (there are 5 tokens). Third step is make Happiness labeling, every data must have label “happy” or “not happy”. The next step is Feature Selection, we have to select token/word that indicate “happy” or “not happy”, all selected word will be used in dataset attribute. The last step is make dataset, in this step all data will convert to dataset based on feature selection. 1000 data are collected.

Table 1. Data collection

No	id		user	Message
1	1467810369	NO_QUERY	_TheSpecialOne_	We are super hungry
2	1467810672	NO_QUERY	scotthamilton	You lied to me
3	1467810917	NO_QUERY	mattycus	Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out
4	1467811184	NO_QUERY	ElleCTF	Two wrongs don't make a right, but they make a good excuse
5	1467811193	NO_QUERY	Karoli	Life is an awful, ugly place to not have a best friend.
6	1467811594	NO_QUERY	coZZ	For every minute you are angry you lose sixty seconds of happiness.
7	1467811795	NO_QUERY	2Hood4Hollywood	To my future man: I am convinced that I am beer and I have no hope after seeing this chef Hope in you, my soul
8	1467812416	NO_QUERY	erinx3leannexo	If you judge people, you have no time to love them.
9	1467812723	NO_QUERY	TLeC	I eat what you eat so please don't eat cum.

				I'm not that kind of worm.
10	1467812771	NO_QUERY	robrobbierobert	he is smiling at you
11	1467812784	NO_QUERY	bayofwolves	I tired to be wiht you, seriously
12	1467812799	NO_QUERY	HairByJess	Good morning, I came to you after a long absence
13	1467812964	NO_QUERY	lovesongwriter	Morning roses and jasmine on your sweet eyes, God willing
14	1467813579	NO_QUERY	starkissed	i don't want to hate everything but
15	1467813782	NO_QUERY	gi_gi_bee	@FakerPattyPattz Oh dear. Were you drinking out of the forgotten table drinks?

From the Table, described the example number 1-15 for data collection.

3.1.2.Data Training and Data Test

The data used in this study consisted of two types, namely training data and test data. The training data used is taken from a collection of tweet data that has been labeled according to the sentiment manually, the label is divided into sentiments, namely happy and unhappy. Then the test data used is a collection of tweet data that does not have a label. Table 2 showed the example of data training and data test.

Table 2. Data Training and Data Test

Tweet	**Label**
@mattycus: Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out	Happy
@Karoli: Life is an awful, ugly place to not have a best friend.	Unhappy

Table 2 showed the data training and data test, for example "Happy birthday to Queen Keke Palmer 27 years of radiant beauty inside and out, it is label Happy,

meanwhile for the words “Life is an awful, ugly place to not have a best friend.” It label Unhappy. Table 3 showed the data labelling.

Table 3.Data Labelling

No	Message	Label	Class
1	We are super hungry	unhappy	0
2	You lied to me	unhappy	0
3	Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out	happy	1
4	Two wrongs don't make a right, but they make a good excuse	happy	1
5	Life is an awful, ugly place to not have a best friend.	unhappy	0

From the table, is the example number 1-5 for data training set and labelling, for example number 1 is “We are super hungry” so the labelling is unhappy (0).

3.1.3 Data prepocessing

Preprocessing is preparing unstructured text documents into structured data that are ready to be used for further processing. Preproccessing consists of five processes, namely cleansing, tokenization, case folding, stopword removal, and stemming. Figure 5 showed five steps of preprocessing of document.

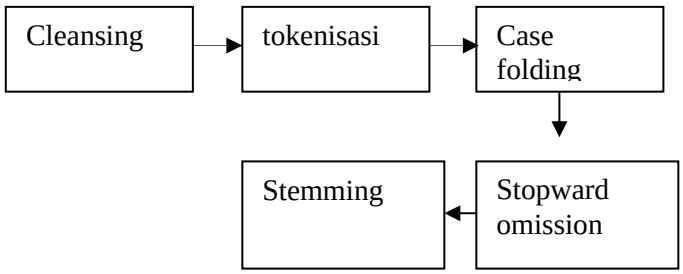

Figure 5. Data prepocessing

a. Cleansing

Cleansing is done to remove comma (,), period (.) Delimiters, all punctuation marks, numbers in tweets and some typical components commonly found in tweets,

namely username (@username), URL, HTML characters, and hashtag (#) because does not have any influence in the process of sentiment analysis, then these components will be removed in order to reduce noise. The example of cleansing from the tweet data that has been obtained is as table 4.

Table 4. Example of Cleansing

Tweet	**Result**
@mattycus: Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out	Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out
@Karoli: Life is an awful, ugly place to not have a best friend.	Life is an awful, ugly place to not have a best friend.

Table 4. showed the cleansing step, for example from the statement “Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out”, after cleansing process become ” Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out”.

Here is the script for cleansing:

Table 5. Clean Message Script (Source Code)

```
clear;clc;

namafile = 'twitter_dataset.xlsx';

P = xlsread(namafile,'9.a Input Dataset');

T = xlsread(namafile,'9.b Target Dataset');



P = transpose(P);

T = transpose(T);



net = newff(P,T,[15,10]);

[net,tr] = train(net,P,T);

ypredicted = sim(net,P);

Y = round(ypredicted,0);

yclassify  = T;

plotconfusion(yclassify,Y);
```

Table 6. Clean Message

No	Message	Label	class	Clean Message
1	We are super hungry	unhappy	0	We are super hungry
2	You lied to me	unhappy	0	You lied to me
3	Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out	happy	1	Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out
4	Two wrongs don't make a right, but they make a good excuse	happy	1	Two wrongs don't make a right, but they make a good excuse
5	Life is an awful, ugly place to not have a best friend.	unhappy	0	Life is an awful, ugly place to not have a best friend.

From the table, showed the example of cleansing number 1-5 about the clean message that has been allowed through the cleansing process.

b. Tokenization

Tokenization is a process carried out to separate a series of words in a sentence, paragraph or page into tokens or single word pieces or termmed words. At the same time, tokenization also removes certain characters which are considered as punctuation marks. The example of tokenization of the tweet data that has been obtained is as follows :

Table 7. Tokenization

Tweet	**Result**
Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out	“happy” “birthday” “to” “queen “keke” “palmer” “27” “years” “of” “radiant” “beauty” “inside” “and” “out”
Life is an awful, ugly place to not have a best friend.	“life” “is” “an” “awful” ‘ugly” “place” “to” “not” “have” “a” “best” “friend”

Table 7. showed the tokenization process, for example: “Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out”, the result are: “happy” “birthday” “to” “queen “keke” “palmer” “27” “years” “of” “radiant” “beauty” “inside” “and” “out”.

Here is the script for tokenization:

```
import nltk

class Preproses:

def tokenize(self, tweet):

token = nltk.word_tokenize(tweet)

return token
```

Table 8. Source Code-Tokenization

No	Clean Message	Tokenization
1	We are super hungry	We|are|super|hungry
2	You lied to me	You|lied|to|me
3	Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out	Happy|Birthday|to|Queen|Keke|Palmer|27|years|of|radiant|beauty|inside|and|out
4	Two wrongs don't make a right, but they make a good excuse	Two|wrongs|don't|make|a|right,|but|they|make|a|good|excuse
5	Life is an awful, ugly place to not have a best friend.	Life|is|an|awful,|ugly|place|to|not|have|a|best|friend.|

c. From the table is the example number 1-5 for Data tokenization (to separate a series of words in a sentence, paragraph or page into tokens or single word pieces or termmed words).

d. Case Folding

Case folding is done to change the entire letter size of a word into a form of the same letter size. Because not all tweets are consistent in the use of font sizes. Case folding is done by changing words to lower cases or lowercase letters. The case folding example of the tweet data that has been obtained is as follows:

Table 8. Case Folding

***Tweet* Text**	**Result**
Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out	happy birthday to queen keke palmer 27 years of radiant beauty inside and out
Life is an awful, ugly place to not have a	life is an awful, ugly place to not have a

best friend.	best friend.

Table 8. showed the case folding, for example: from the tweet text “Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out”, after case folding become “happy birthday to queen keke palmer 27 years of radiant beauty inside and out”.

Here is a script for doing case folding:

```
def preprocess(tweet):

tweet.lower()
```

Figure 9. Source Code-Case Folding

No	Clean Message	Tokenization	Case Folding
1	We are super hungry	We|are|super|hungry	we|are|super|hungry
2	You lied to me	You|lied|to|me	you|lied|to|me
3	Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out	Happy|Birthday|to|Queen|Keke|Palmer|27|years|of|radiant|beauty|inside|and|out	happy|birthday|to|queen|keke|palmer|27|years|of|radiant|beauty|inside|and|out
4	Two wrongs don't make a right, but they make a good excuse	Two|wrongs|don't|make|a|right,|but|they|make|a|good|excuse	two|wrongs|don't|make|a|right,|but|they|make|a|good|excuse
5	Life is an awful, ugly place to not have a best friend.	Life|is|an|awful,|ugly|place|to|not|have|a|best|friend.|	life|is|an|awful,|ugly|place|to|not|have|a|best|friend.|
6	For every minute you are angry you lose sixty seconds of happiness.	For|every|minute|you|are|angry|you|lose|sixty|seconds|of|happiness.|	for|every|minute|you|are|angry|you|lose|sixty|seconds|of|happiness.|

From the table, is example number 1-6 for case folding (change the entire letter size of a word into a form of the same letter size. Because not all tweets are consistent in the use of font sizes)

From the figure above, is example number 1-15 for case folding (change the entire letter size of a word into a form of the same letter size. Because not all tweets are consistent in the use of font sizes)

e. Stopword Removal

The Stopword stage is the process of deleting words that are considered unimportant and have no effect on the categorization process. Examples are conjunctions like 'and', 'or', 're', 'to', and so on.

The example of removing stopwords from tweet data that has been obtained is as follows:

Table 10. Stopword Removal

***Tweet* Text**	**Result of Stopword**
happy birthday to queen keke palmer 27 years of radiant beauty inside and out	happy birthday queen keke palmer 27 years radiant beauty inside out
life is an awful, ugly place to not have a best friend.	life is awful, ugly place not have best friend.

Table 10. showed the stopword removal from the text “happy birthday to queen keke palmer 27 years of radiant beauty inside and out” become “happy birthday queen keke palmer 27 years radiant beauty inside out”.

The following is a script for performing Stopword Removal:

```
from Sastrawi.StopWordRemover.StopWordRemoverFactory import
StopWordRemoverFactory

def preprocess(tweet):

factory1 = StopWordRemoverFactory()

stopword = factory1.create_stop_word_remover()

text = stopword.remove(text)
```

Figure 11. Source Code- Stopword omission

No	Clean Message	Tokenization	Case Folding	Stop Word Removal
1	We are super hungry	We|are|super|hungry	we|are|super|hungry	we|super|hungry

2	You lied to me	You|lied|to|me	you|lied|to|me	you|lied||me
3	Happy Birthday to Queen Keke Palmer 27 years of radiant beauty inside and out	Happy|Birthday|to|Queen|Keke|Palmer|27|years|of|radiant|beauty|inside|and|out	happy|birthday|to|queen|keke|palmer|27|years|of|radiant|beauty|inside|and|out	happy|birthday||queen|keke|palmer|27|years||radiant|auty|inside||out
4	Life is an awful, ugly place to not have a best friend.	Life|is|an|awful,|ugly|place|to|not|have|a|best|friend.|	life|is|an|awful,|ugly|place|to|not|have|a|best|friend.|	life|awful,|ugly|place||not|have|a|st|friend.|

From the table, it can be seen example number 1 until 15 for stopword removal, so we need to remove the to be.

f. Stemming

Stemming stage, is the process of converting a compound word into a stem (base word) from a stopword result. The stemming stages are performed using the nazief and adriani algorithms described below:

Table 12. Steaming

***Tweet* Text**	**Result of Stemming**
happy birthday queen keke palmer 27 years radiant beauty inside out	happy birth queen keke palmer 27 year radiant beauty side out
life is awful, ugly place not have best friend.	life is ful, ugly place not have best friend.

Table 12. showed the steaming process, from text “happy birthday queen keke palmer 27 years radiant beauty inside out”, become “happy birth queen keke palmer 27 year radiant beauty side out”.

Table 13. Source Steaming

Case Folding	**Stop Word Removal**	**Stemming**
happy|birthday|to|queen|keke|palmer|27|years|of|radiant|beauty|inside|and|out	happy|birthday||queen|keke|palmer|27|years||radiant|auty|inside||out	happy|birthday||queen|keke|palmer|27|year||radiant|auty|inside||out
two|wrongs|don't|make|a|right,|but|they|make|a|goo	two|wrongs|don't|make|a|right,||y|make|a|good|excuse	two|wrong|don't|make|a|right,||y|make|a|good|excuse

d|excuse		
life|is|an|awful,|ugly|place|to|not|have|a|best|friend.|	life|awful,|ugly|place||not|have|a|st|friend.|	life|ful,|ugly|place||not|have|a|st|friend.|
for|every|minute|you|are|angry|you|lose|sixty|seconds|of|happiness.|	f|every|minute|you||angry|you|lose|sixty|seconds||happiness.|	f|every|minute|you||angry|you|lose|sixty|second||happy|
to|my|future|man:|I|am|convinced|that|I|am|beer|and|I|have|no|hope|after|seeing|this|chef|Hope|in|you,|my|soul	|my|future|man:|i|am|convinced|that|i|er||i|have|no|hope|after|seeing|th|chef|hope|in|you,|my|soul	|my|future|man:|i|am|convinced|that|i|er||i|have|no|hope|after|seeing|th|chef|hope|in|you,|my|soul

From the table, we can see number 1-15 as example for stemming stage (process of converting a compound word into a stem (base word) from a stopword result).

Here is a script to do IDF:

```
from sklearn.feature_extraction.text import TfidfVectorizer

vectorizer = TfidfVectorizer(analyzer='word', max_features=300,max_df=0.5,use_idf=True,

norm='l2')

calculate_tfidf = vectorizer.fit_transform(X_train)
```

Figure 7. Source Code- IDF

3.3. Classification using the Perceptron Multilayer Algorithm

Classification is done using the multi layer perceptron algorithm (MLP) by using the weight of each term selected from the tweets that have been obtained. The value used is the IDF value of each word that has the highest weight. The following is the multilayer perceptron architecture and parameters used in classification:

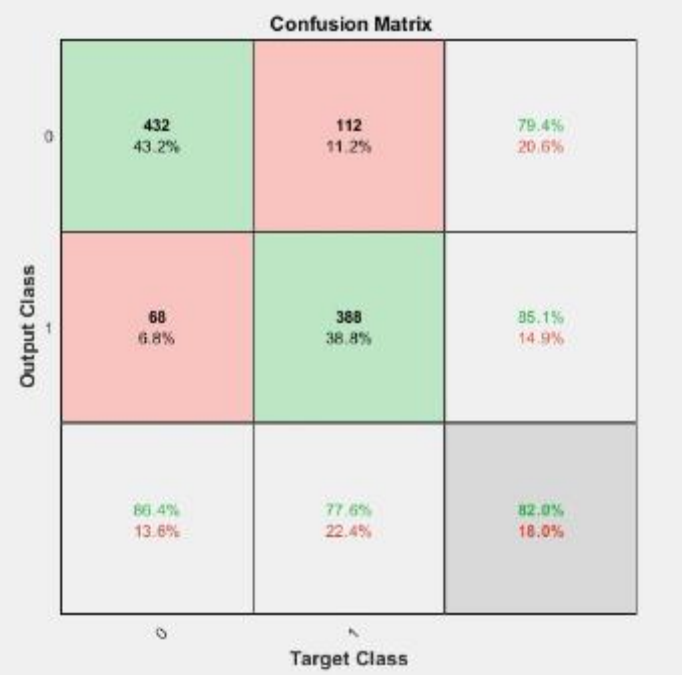

Figure 8. Confussion Matrix

From the figure, it is known that 43.2%, 38.8%, and 18.0% indicate that these number means accuracy result. Meanwhile, the figures obtained from the results (79.4% + 85.1%)/2 = 82.25% which means that the precisions is already good. The 86.4% and 77.6% showed the recall process and the accuracy is 82%.

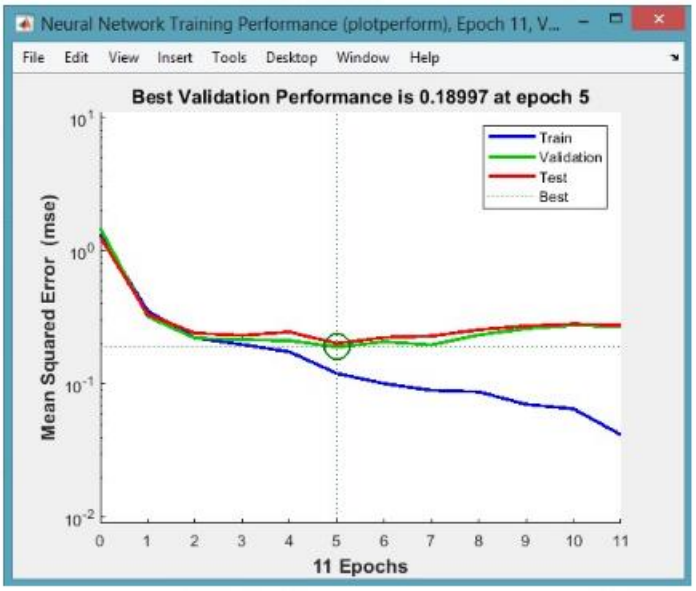

Figure 10. Best Validation Performance

From the figure 4.11, it is known that the green line is a validation, the red line is the test and the the bule line is training, which means the result is better than training and the best validation performance is 0.18997, which means that the error is because the smaller is the better the results will be obtained.

on the Figure 4.15 in the test methods R correlation is 0.6723. Figure above shows the

classification performance of the best ANN model. The actual data are represented on the x-axis, whereas predicted (model's output) data are plotted on y-axis. According to Figure, majority of the data points (x, y), were scattered around the diagonal line which indicates high classification power. The standardised residual graph is given in Figure above. In a typical standardised residual graph, a good model's residuals typically tend to range around the horizontal zero line, the more points close to zero line indicates less classification or prediction error. The graph in Figure indicates that majority of the residuals were stacked around the zero horizontal line, which indicates also a sound classification performance.

4. Conclusion

The result of this study is Libyan feel they write down their feelings when happy rather than unhappy. Social media has become an important part of modern life, and Twitter is again a center of focus in recent events. Whatever your opinion of social media these days, there is no denying it is now an integral part of our digital life. Twitter is a good starting point for social media analysis because people openly share their opinions to general public. This is very different from Facebook where social interactions are often private. In this paper, we propose a ANN model for Twitter opinion mining prediction and classification approach. Also, we used the ANN model for Twitter Opinion abstraction and visualization scheme. The precision result is 82.25% , meanwhile 86.4% and 77.6% showed the recall process and the accuracy is 82%.The main contribution of this work is to propose such a new visualization model for Twitter mood prediction based on ANN approach. The propose system visualizes the top three predictions and their scores for each Twitter in the testing data after the ANN model is trained using the trained dataset that has randomly selected from the original dataset. Then

the propose system is sorting the prediction scores and select the top three values and visualize it as a main predicted Twitter mood (opinion).

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