“#TrendingNow”

Dissertation submitted in partial fulfillment of the requirement for the degree of

BACHELOR OF TECHNOLOGY
IN
Computer Science and Engineering

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UNDER THE GUIDANCE OF

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To

Department of Computer Science & Engineering and Information Technology

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY

WAKNAGHAT, SOLAN

Certificate

I hereby declare that the work presented in this report entitled **"#TrendingNow"** submitted in the department of Computer Science & Engineering and Information Technology, **Jaypee University of Information Technology, Waknaghat** is an authentic record of our work carried out under the supervision of **Miss Saumya Jain**, Senior Member - Education, Training & Assessment, ETA, Infosys Mysore. We have not submitted this work elsewhere for any degree or diploma.

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Abstract

With the increase in the demands of social media, it is great benefit to analyze the data of a social media site. In our project, we are doing the same. We are analyzing the data of Twitter, so that we can know what are the trending tweets in the world. We are sorting the tweets and displaying top trending tweets based on some factors like retweets, favorites etc. Through this website, User and Admin can analyze the tweets and twitter handles and use it to carry out different tasks.

We are using Asp.net, HTML, CSS, SQL queries, C#, MVC for that. Visual Basic 2015 is out platform for performing and testing. In our project, we have used the data set of twitter within a specific date range but we can also use the web API provided by the twitter.

Chapter 1: Introduction

1.1 Overview

#Trending Now is a website that can be used by organizations to analyze tweets and gather information. It will be used to look for tweets that mention a specific hashtag and also search for other hashtags popular along with it. It should also rank the hashtags based upon their popularity. It can also be used for analyzing activities of specific Twitter handles. In this project, we have used the data set of twitter for particular date range to execute the functionality. This could also be executed by using Web API of twitter by attaining the proper permission.

1.2 Problem Statement

Social media has become an important medium of expression. From discussing politics and sports to providing feedback for different products and services, people use social media websites like Twitter, Facebook to convey their thoughts and connect to other people.

Several organizations sought these social media posts to analyze the sentiment of people regarding a product, service, person, etc. They need tools to automate this process of amassing information from numerous posts.

Our Motive is to develop a Web Application which helps the organization to analyze the most trending topic around the world. It would be available on intranet of an organization.

- It should allow the users to view and analyze the popular and regular tweets for current date as well as for date range.

- It should allow the users to compare two twitter handles to compare the popularity of two users based on relative popularity quotient.

1.3 Objective

The final goal of this project was twofold.

- To create the website that allow the admin to register the users and have access to all the other functionalities that is accessible to users i.e. Admin is also a user but with some privileged authorities.

- To create a website which enable user to view top trending tweets based on the number of likes and retweets, based on their choice, based on a particular duration or sorted in any particular order. It also enables the user to search for specific hashtag

- To create the website that has user friendly User Interface.

1.4 Methodology

To implement our Project Goals, the following Methodology is used.

- Creating the Database using SQL server
- Creating Web Application using MODEL VIEW CONTROLLER structure
- Creating DATA ACCESS LAYER to connect the MVC project to database
- Creating ENTITY DATA MODEL DESIGNER using "Database First Approach" by Entity Framework.
- Used Model classes to specify the basic structure of views.
- Used various Controllers and Views to execute the required functionality and to maintain the flow of execution.
- Used CSS, BOOTSTRAP, AJAX, JAVASCRIPT, HTML to create user friendly User Interface.
- Used TWITTER DATA SET to perform all the analysis and manipulation
- Integrated the modules through the help of used platform
- Performed Unit Testing, Integration Testing, Regression Testing using white box approach.

Chapter 2: Literature Survey

2.1 Asp.Net MVC

MVC contains models, Views, Controllers. Asp.Net MVC help us to create web applications. It makes the use of System.Web.MVC Assembly.

The MVC application pattern separates the various aspects of application by providing loose coupling between these aspects.

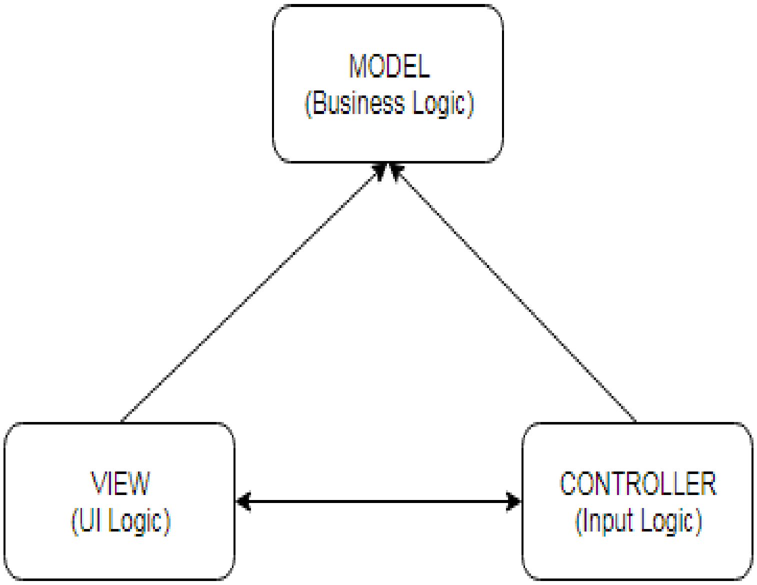


Figure 2.1: Components of MVC

The MVC have following Components:

1. Models: It is responsible for “input logic” aspect or business logic. It retrieves and send the data through Data Access Layer and performs the business logic over the extracted data to execute the complete Functionality. Model Classes is also used
2. to pass the data to Views so that we can execute the data in the controllers.

3. Views: It is used to display the application’s User Interface (UI). UI is built with the help of model data.
   Example: An example would be the search view of hashtags in this project’s web application.

4. Controllers: It’s the responsible for handling user interaction, working with the model and finally selecting a view to render that displays via UI. In the MVC application the View can only display the information and the Controller handles and responds to user inputs and interaction.

Advantages of MVC-Based Web Application:

1) Its reduces the complexity by dividing an application into the model, the view and the controller.

2) It gives developers full control over the behavior of the application.

3) It uses a Front Controller pattern that processes Web application requests through a single controller. This gives the developer a rich routing infrastructure.

4) Test-Driven Development(TDD) is best supported in MVC based application.

5) MVC based application works well in large teams of developers and for Web designers who needs a high degree of control over the application behavior.

Features of the ASP.NET MVC Framework:

1) Separation of tasks, testability and test-driven development. Mock object can be used to test the interface based application. Unit testing is fast and flexible. Any unit testing framework is used which is compatible with .NET framework.

2) Components of ASP.NET MVC framework are designed to be easily replaced and customized. User can use their own View Engine, Action-Method parameter serialization, URL routing policy and other components.

3) Extensive support for ASP.NET routing, which is a powerful URL-mapping component that lets user build applications that have comprehensible and searchable URLs. URLs do not have to include file-name extensions, and are designed to support URL naming patterns that work well for search engine optimization (SEO).

4) Supports for using markup in ASP.NET page(.aspx), user control(.ascx) and master pages(master) markup files as view templates. User can use existing ASP.NET features with the help of ASP.NET MVC framework, like in-line expressions, nested master pages, declarative server controls, templates, data-binding, localization etc.

5) Support for existing ASP.NET features MVC lets users use features like Windows authentication and forms authentication, membership and roles, URL authorization, membership and roles, output and data caching, health monitoring, session and profile state management, the configuration system and the provider architecture.

2.2 HTML

Hypertext Markup Language is a scripting language which is mainly used in creation of Websites. It is very basic and easy to learn and also accessible to everyone through internet. It is quite powerful with what it provides and allows to create. It ever seemingly update its tools to meet the demands and requirements of the Users which are growing day by day.

Working

The scripting language consists of series of short codes that are written into a simple text-file and these series of short codes are known as tags for example: <div>,<p>,<a>,<h1> etc.

These tags contain tools to provide additional information about an element for example, <div style="">, <a href="">, <img src="">. In this, style href and src are attributes.

Limitations faced while working with HTML

HTML provides a very basic layout and as websites are becoming popular, many more supporting

languages have to be used. Cascading Stylesheets are used to enhance the presentation of web

pages. And also, HTML gets updated and modified frequently to make way for the improvements.

JavaScript can be used to provide special effects, which also makes our basic HTML page powerful.

2.3 Cascading style sheet

A Cascading style sheet helps in formatting the layout of the web pages where a HTML page lacks. A CSS file defines text styles, border, margin, padding, alignment, table sizes and other aspects of the web pages that could not be defined in a HTML page.

It helps the web page to adapt its layout to various types of devices and their different screen sizes. It is independent of HTML and can be used with other markup languages such as XML. As the CSS and the HTML files are kept separately, it becomes easy to maintain sites. This separation refers to separation of structure from presentation.

A CSS can be applied to a web page in three ways:

1. External CSS - In this type, a separate file is created that contains CSS instructions with a file extension of .css. And in the HTML page, this CSS file can be imported to provide styling to the layout.

2. Internal CSS - This contains CSS instructions to be placed at the top of the HTML web page document in the head tag of the web page. Here, we don't have to look for a separate file while editing styling instructions.

3. Inline CSS - These kind of styles can be placed at any place where required in the tag you wish to decorate. It gives you a real freedom to specify styling at each web page element.

Order of Precedence:

1. Inline CSS overrides CSS rules in style tag and CSS file.

2. A more specific selector takes precedence over a less specific one.

3. Rules that appear later in the code override earlier rules if both have the same specificity.

External CSS / Internal CSS < Inline CSS
The one specified last will be chosen

2.4 Bootstrap

Today we have a variety of devices in our day to day life for accessing webpages via browser. We need to create html web pages with responsive designs in which elements can cascade and fit according to the resolution of the screen. It is one of the most popular HTML, JavaScript and CSS for developing a responsive and mobile friendly web page. This framework is an open source and it is free to download and use.

It reduces efforts and code redundancy as it contains HTML and CSS based design templates for forms, typography, buttons, tables, navigation, modals, image carousels and many others. Bootstrap can also be widely used for JavaScript plug-ins. There are several advantages of using bootstrap for creating a web page:

- By using bootstrap, we can create a responsive website which can automatically adjust itself to look good on all devices, cascade itself and can be adaptive for smartphones, desktops etc.

- It is very easy and convenient to use and apply on any web project.

- Bootstrap is compatible on a variety of browsers. For example, Chrome, Firefox, Internet Explorer, Safari, Opera etc.

Origin

Originally a software developer, Mark Otto, who was working at twitter started developing bootstrap along with Jacob Thornton as a framework which can encourage consistency across internal tools and can be used easily in place of various libraries which were used for interface development. Bootstrap proved out to be more consistent and low maintenance.

Structure and Function

The structure of bootstrap is modular and it consists of a wide series of Less Stylesheets which implement the various components. Generally, the style sheets are grouped and compiled into a pack and included in web pages. Bootstrap provides a variety of variables and configuration tools that can control things such as color, styling and padding of various components.

The grid system designs and the auto adjust responsive design comes standard with a grid layout which has a width of 1170 pixels.

Bootstrap also provide a set of stylesheets that offers basic style definitions includes all the kay HTML components. Bootstrap also provides several re-usable components and different JavaScript modules and components.

2.5 Entity Framework

Entity Framework is an open-source ORM (Object Relational mapper) framework for .NET applications supported by Microsoft that enables developers to work with data which is kept in the database without actually using the database but with data using objects of domain specific classes on the underlying database tables. While working on the entity framework, developers get a higher level of abstraction with the data and the code written to use these applications are much shorter than compared to the traditional database applications. We need not write the long code to access the database and instead we get an .edmx model created at the code level. We do not need to know the sql to use the entity framework.

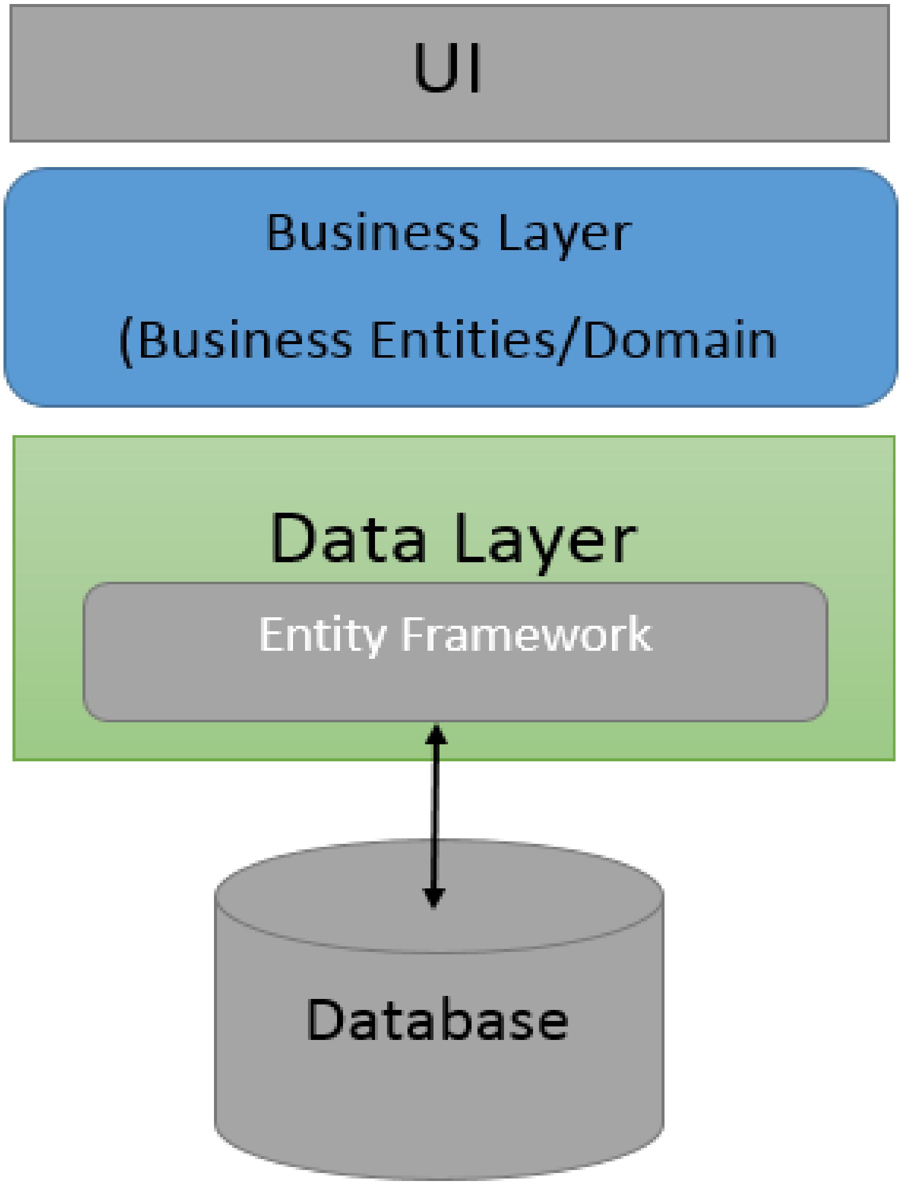


Figure 2.2: Entity Framework Structure

Chapter 3: Project Development

3.1 Database Implementation

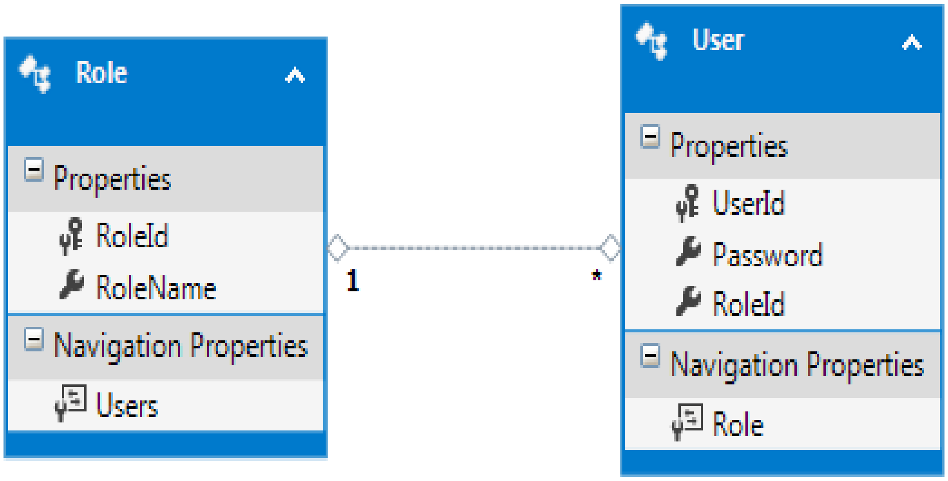


Figure 3.1: Class Diagram

While creating the project we've followed the 'database first' approach and hence we created the database first. We 've used the following tables and their attributes:

- **Role:** This table contains the following attributes:
    - **RoleId** – This attribute is used for unique identification of the User or Admin. It is a primary key.
    - **RoleName-** This attribute specifies the credential holder as an "Admin" or "User"

- **User:** This table contains the information of Users/Admin Credentials. It consists of following attributes:
    - **UserId** – This is the unique Id assigned to the Users/Admin for their Login. It serves as a primary key.
    - **Password** – This attributes specify the password of the Users
    - **RoleId -** This attribute specifies the Role of the user as a User or Admin. It acts as a foreign key in the table.

3.1.1 TABLES/FILES OR ENTITIES

1. Table "Role"

Name	:	Role
Indexing parameters	:	RoleId

Clustering parameters : RoleName

Attributes/Fields :

No.	Field Name	Size	Type	Keys	Occurs	Default values
1	RoleId	1	Integer	Primary key	2	1,2
2	RoleName	20	Varchar	Not null	2	Admin, User

Table 3.1: Description of table “Role”

2. Table “User”

Name : User

Synonym name : Authority

Indexing parameters : UserId

Clustering parameters : RoleId

Attributes/Fields :

No.	**Field Name**	**Description**	**Size**	**Type**	**Keys**	**Occurs**	**Default values**
1	UserId	Identity starting from 1000	4	Integer	Primary key	6	1000
2	Password	Encrypted hash code	100	Varchar	Not null	6	Hash Code
3	RoleId	Reference to Role table	1	Integer	Foreign Key	6	1,2

Table 3.2: Description of table "User"

3.2 Data Access Layer

This layer acts as an interface between the database and the MVC layer. The functions included in this layer helps to perform the CRUD operations on database. CRUD stands for CREATE, READ, UPDATE, DELETE.

The functions used in Data Access Layer are:

1) Validate User: It Validates the Credentials of the User in database and provides the response to MVC project accordingly.
2) GetUserId: It returns the UserId, each time the new user is registered.
3) RegisterUser: It registers new users in database.
4) UpdatePassword: It updates the password of User/Admin in Database when required.

Above all methods make use of encryption and decryption technique. Some more functions are used to implement the Encryption/Decryption strategy.

3.2.1 ENCRYPTION/DECRYPTION

- Gethashkey: This function is used to get a hash key which is being used by the encryption and decryption function to do their respective tasks. This function takes a key as an argument and returns a byte array key. A user defined salt is used for creating the hash key.

- Encrypt: This function encrypt the password entered by the user and return the encrypted password. This encrypted password will get saved in database. This function takes two arguments, the first one is the byte array key obtained by the Gethashkey() function and the second parameter is the simple unencrypted password entered by the user.

- Decrypt: This function takes the encrypted password and the hash key and decrypt the password to bring it in simple text. The returned text is then used to authenticate the users' credentials.

3.3 DESIGN ARCHITECTURE/SYSTEM/SUB-SYSTEM CONTEXT DIAGRAMS

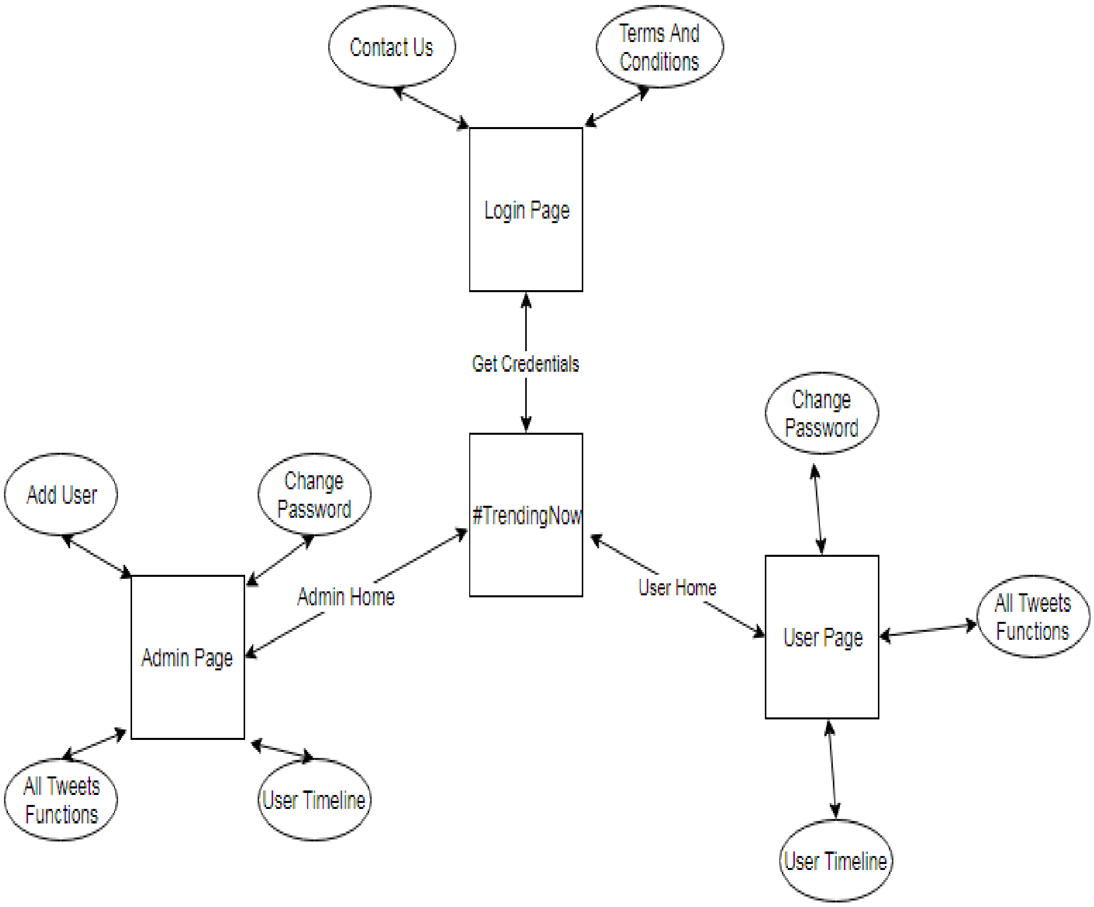


Figure 3.2: Design Architecture

3.4 CONTROLLERS

Controllers are the classes that contain various action methods which help to form the flow of execution and perform various functionalities required for website.

There are 5 controller used in the project:

1) Admin Controller
2) Home Controller
3) Read Twitter Controller
4) Read User Controller
5) User Controller

3.4.1 Admin Controller

This controller contains the method which are responsible for the functionality of the Admin. The actions present in the controller allow the Admin to perform following functionalities:

1) It allows the Admin to view its home page and use various functionalities.
2) It allows the Admin to update its password if he/she wants.
3) It allows the Admin to add new user, whenever a new person get associated with the organization.
4) It allows the Admin to view various tweets trending now-a-days based on the current date or on the provided date range.
5) It allows the admin to view various user handles and compare them on the basis of their popularities.

3.4.2 Home Controller

This controller is responsible to perform credential Validations and login and logout sessions. The action present in this perform following functionalities:

1) It allows the Users/Admin to login through Web Application home page.
2) It validates the user credentials.
3) It checks the role of the credential holder by validating the login Id.
4) It provides the action that help sign off properly
5) It contains various actions that are responsible for providing validations on various model classes.

3.4.3 Read Twitter Controller

This controller contains all those actions that is responsible for handling the tweets and performs various actions on available tweet dataset.

1) It allows the User/Admin to view all the tweets present in the twitter dataset
2) It allows the User/Admin to search for required hashtag or a combination of hashtags for current date or for provided date range
3) It allows the User/Admin to sort the tweets in ascending or descending order and view the most popular 5 trending tweets.
4) It allows the User/Admin to sort the tweets on the basis of date.
5) It allows the User/Admin to view the percentage of their hashtag among all the tweets

3.4.4 Read User Controller

This controller is responsible for all the activities related to user handles and the tweets done by each user handle.

1) It allows the Admin/User to view the user handles present in data set
2) It allows the Admin/User to view the tweets done by a particular user in entered date range
3) It allows the Admin/User to compare two twitter handles on the basis of Relative Popularity Quotient.

3.4.5 User Controller

This controller contains all the actions that handles the activities of User

1) It allows the User to view its home page and use its various functionalities
2) It allows the User to change its password if he/she wants.
3) It allows the User to view various tweets trending now-a-days based on the current date or on the provided date range.
4) It allows the User to view various user handles and compare them on the basis of their popularities.

3.5 Views, Functionality and Control Flow

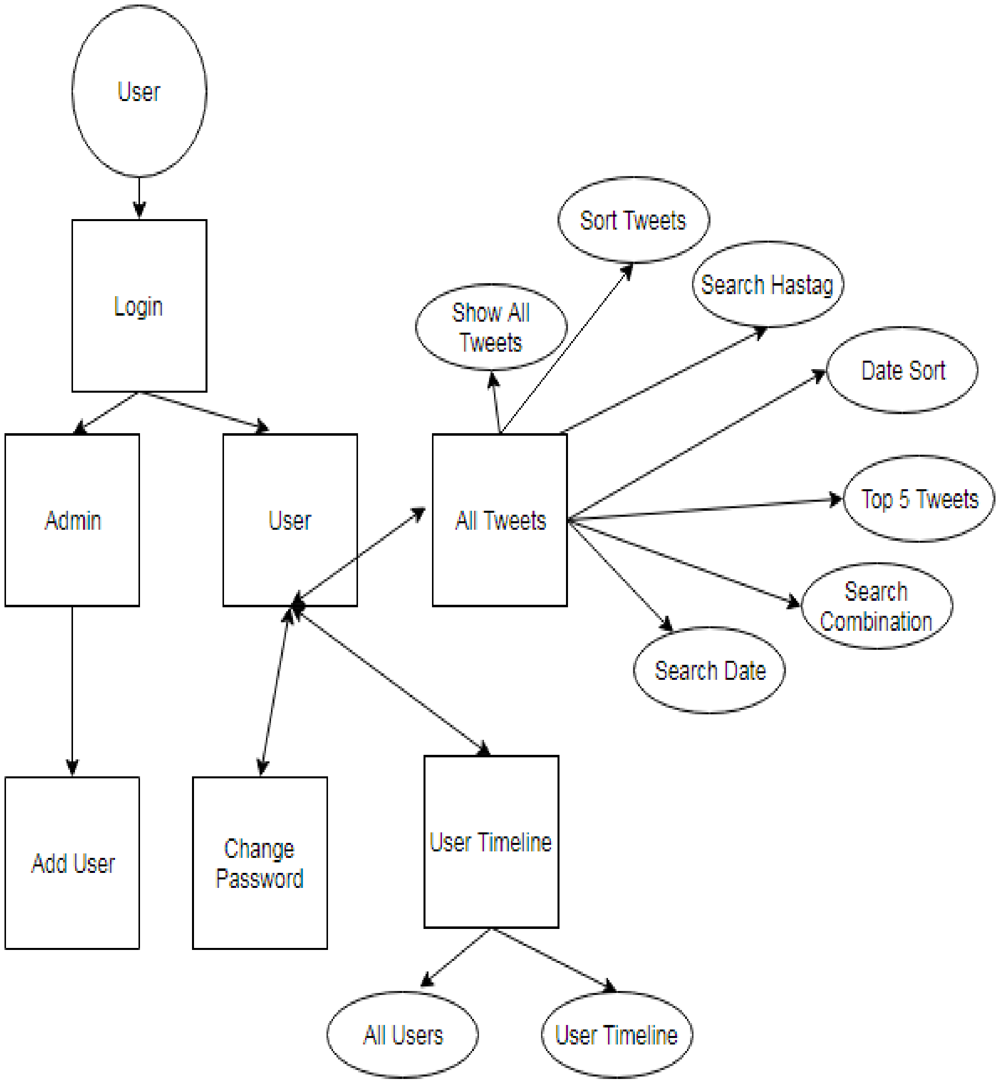


Figure 3.3: Functionality under different controllers

3.5.1 Views

1. **Login**

- Home page of the website.
- Enable the user or admin to login.
- The navigation bar contains links of Terms and Conditions, FAQ and Contact page.

2. **Index**

- Show the home page of User/Admin depending on their role respectively.
- Provide Access to tweets and User Handles for further use.
- Provide link to change/update the password for User/Admin

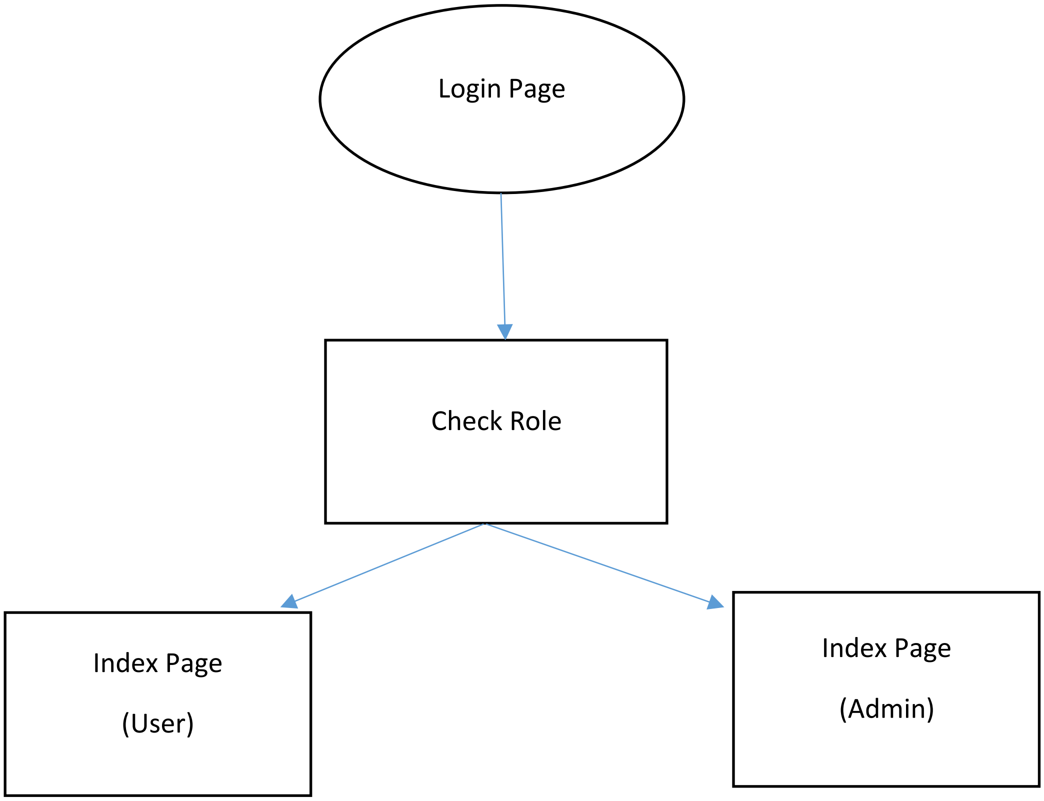


Figure 3.4: Overview of Index

3. All Tweets

- It displays all the tweets present in Data Set.
- Tweets are displayed with the description along with the date on which they were tweeted.
- Shows the number of retweets for each tweet.
- Displays the number of likes on a particular tweet.

4. Date Search

- User may want to search tweets for a particular duration.

  This View allow the user to search for the tweets for the particular hashtag for entered date range.

5. Date Search Save

- It shows the list of all the tweets corresponding to entered hashtag between the two entered dates.
- The main application of this View is to show the trending tweets for the entered date range.

6. Date Sort

- It gives the list of tweets sorted in the order of date in which they are tweeted.
- Top to bottom, the tweets are in ascending order of their date.

7. Search

- This View allow the user/admin to search tweets corresponding to a particular hashtag.

- The search block is provided with a prefix '#' and hence the user just has to enter the corresponding hashtag he/she is searching for.

8. Search Hash

- The control shifts to this view by 'Search in combination' action link.
- This View allow the user/admin to search tweets corresponding to a particular hashtag so that he/she can search for other hashtag associated with the entered hashtag.
- The search block is provided with a prefix '#' and hence the user just has to enter the corresponding hashtag he/she is searching for.

9. Search Hash Percentage

- It displays the percentage of the tweets containing the entered keyword in all the tweets corresponding to the entered hashtag.
- If the entered keyword is present in every tweet of the searched hashtag, then it shows the percentage as 100%.

10. Search Hash

- The left vertical navigation bar provides link named ‘Search in combination’ which shows this view titled ‘Search for Hash Tag’.
- Contains the search box with prefix ‘#’.
- The user can enter the name of the hashtag he/she wants to search.

11. Search Hash Tags

- This view shows a page titled as ‘Other hashtags used along’.
- Contains the Hashtag corresponding to the entered hashtag.
- Through these links the user can view the tweets corresponding to the combination of hashtags entered.

12. Show Search C

- It allows the User to view the tweets corresponding to combination of hashtags.
- Contains the list of the tweets for a particular hashtag corresponding to the other entered hashtag.

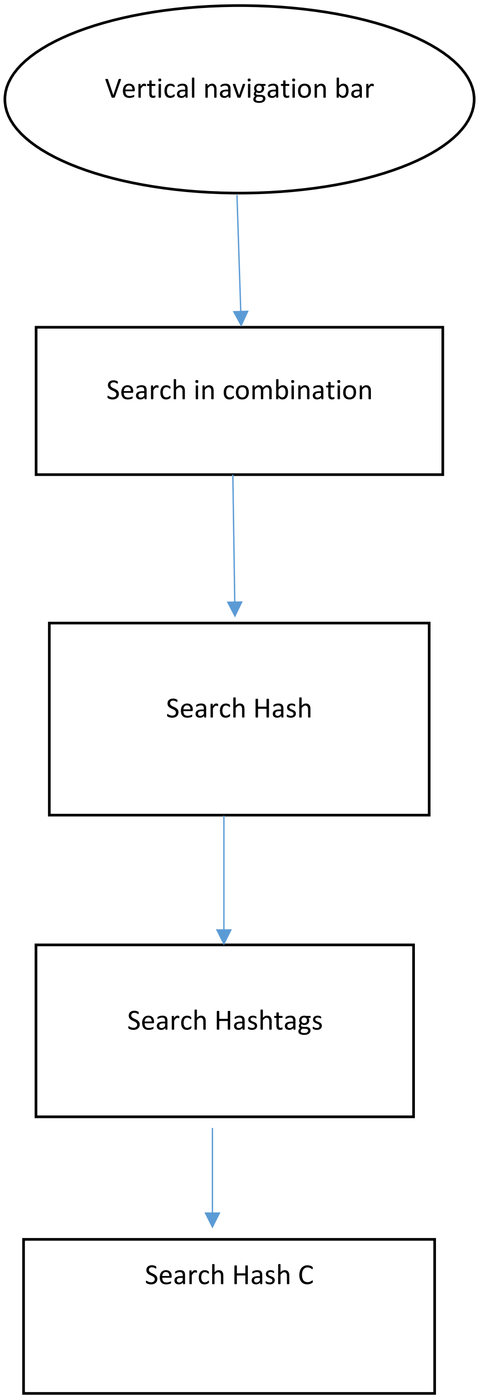


Fig 3.5: Search in Combination Link Control Flow

13. Sort Tweet

- Displays the tweets in sorted order of number of retweets.
- Tweets are displayed in descending order by default. User can sort the tweets according to its priority.
- Allow the user to check the popularity of tweets on the basis of retweets.

14. Sort Tweet Ascending

- Sort the tweets in ascending order of the number of retweets.
- Allow the user to check the popularity of tweets on the basis of retweets.

15. Tweet Top 5

- Displays the list of top five trending tweets based on the number of retweets

16. All Handles

- Displays the page titled ‘All Twitter Handles’.
- Shows the list of all the twitter handles.
- List includes the description of the handle, number of tweets posted by users, number of followers and the user handle following.

17. Maximum Retweets

- Displays the tweet having the maximum retweets for the particular user
- Control shift to this view from User Timeline View.

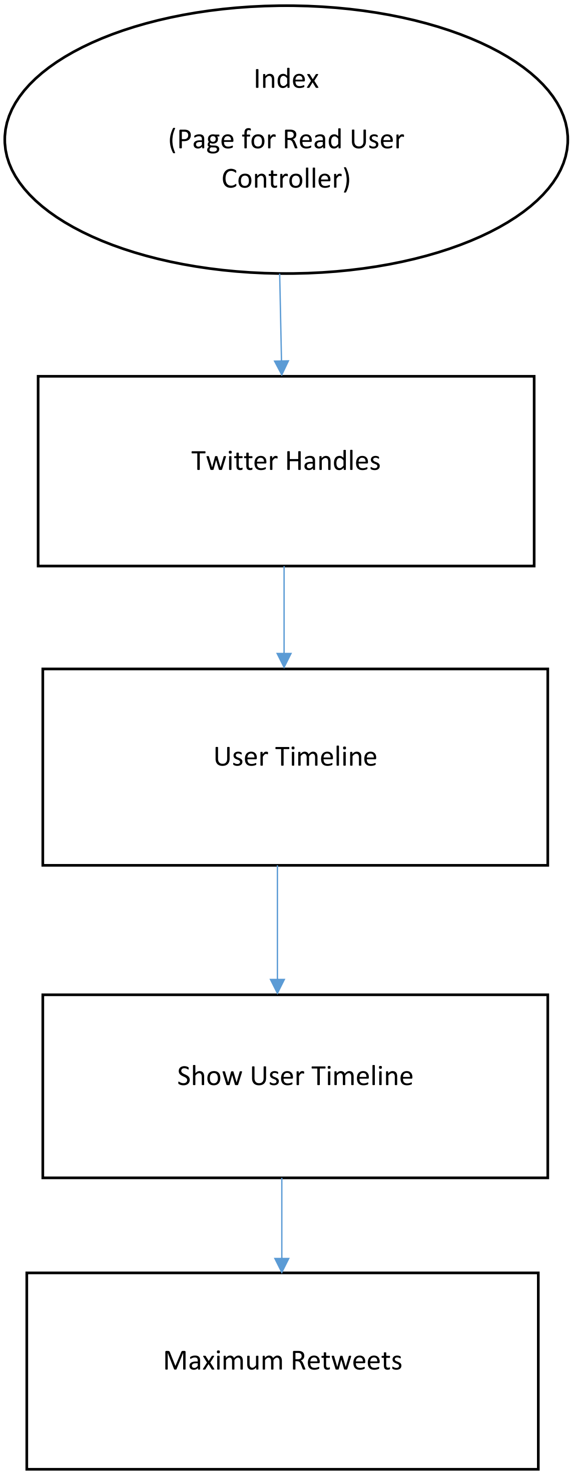


Fig 3.6: Control flow for viewing Twitter Handles

18. Show User Timeline

- Displays all the tweets for a particular handle for entered date range.

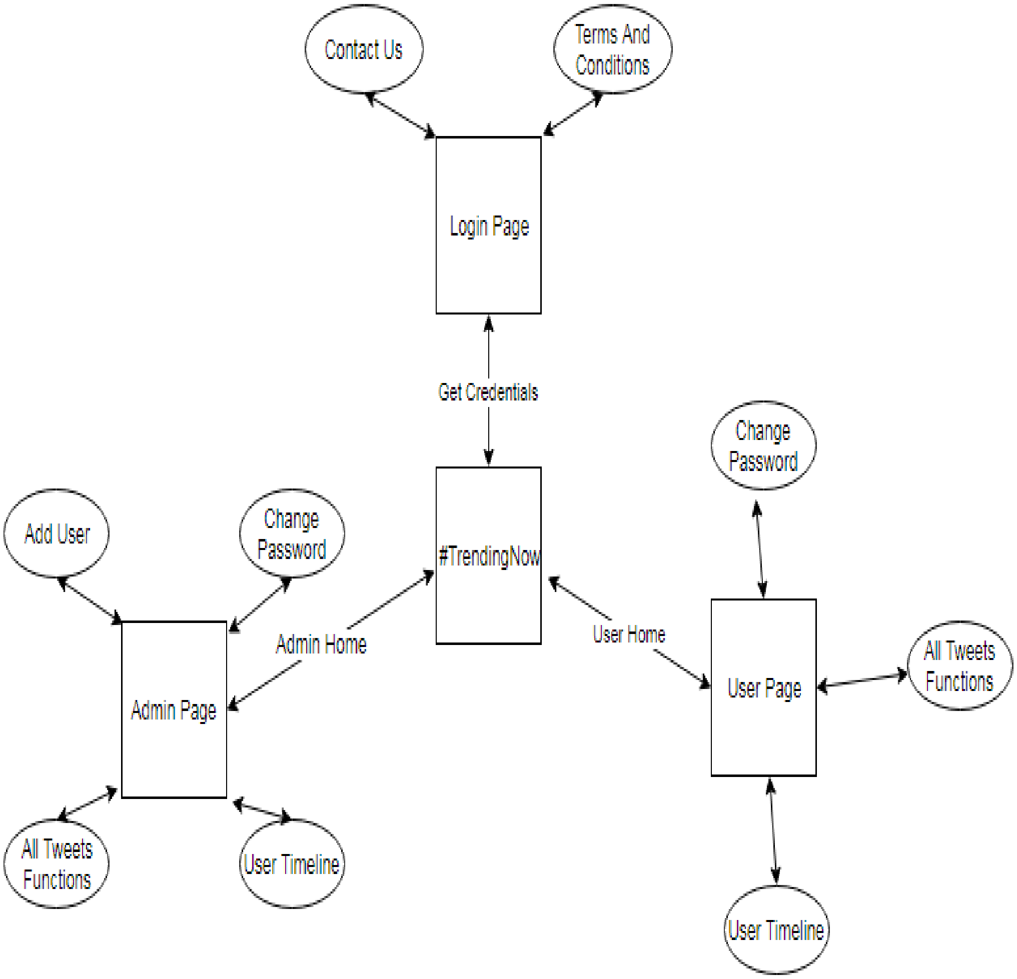


Fig 3.7: Interrelation of Functionalities

3.5.2 Shared Layouts:

Our project contains several views that are used as common layout in other views. Our web application has logo, header, footer etc. displayed all over the web pages. A consistent look and structure should be maintained across all the pages of the site. Hence by writing a shared code in a common layout file, we avoided repetition, which allowed us to save time and redundancy of code. Hence shared layout page introduced reusability and increased maintainability.

The following layouts are used in our project :–

- _Layout
- _LayoutContactUs
- _LoginLayout
- Error
- NoTweet
- NoTweetstwitter
- TweetsCommon
- UsersCommon

In this project, _Layout is used as a layout for most of the cshtml pages in the project. The main body of the web page is rendered by the corresponding page which is using the layout. Renderbody() method is used for the content of the web page. The layout page renders the top horizontal navigation bar. Navigation bar contains three buttons implemented using the list buttons in the navigation bar:

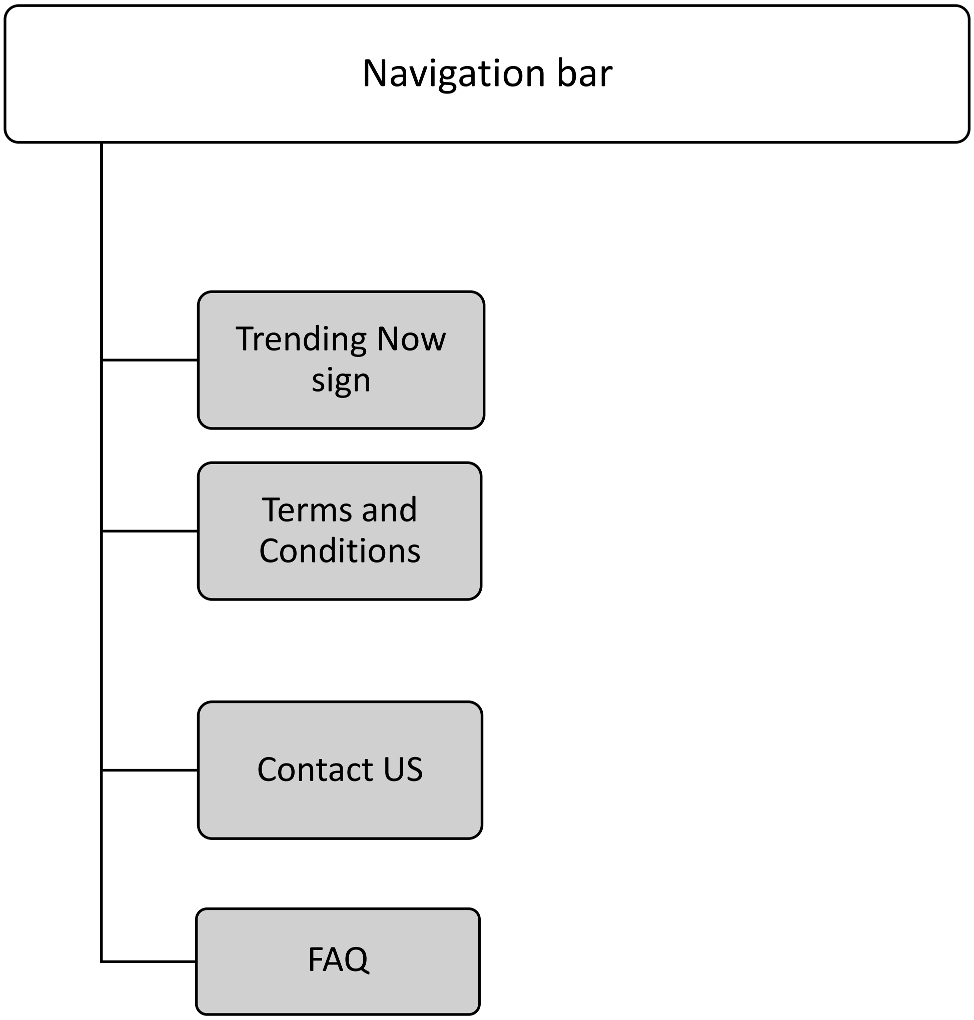


Figure 3.8: Horizontal Navigation Bar

- **Trending Now:** The trending Now logo is the link to the home page of the project. On clicking this logo, the controls get shifted on the home page of User/Admin and hence the user can visit the required functionality again.

- **Terms and Conditions:** This file contains the assumptions and terms and conditions of our web application.

- **Contact Us –**This page provides the contact list to the user in case he/she requires any help or faces any difficulty

- **FAQ -** This page contains the frequently asked questions.

3.6 Models

The following models are used in the project:

- ChangePassword
- Description
- Description1
- DescriptionTweet
- Entities
- Entities1
- Entities1Tweet
- Entities2
- Entities3
- EntitiesTweet
- Extended_Entities
- Extended_Entities1

- Hashtag
- Hashtag1
- Large
- Large1
- Large2
- Large3
- Medium
- Medium1
- Medium2
- Medium3
- Medium4
- Medium5
- Medium6
- Medium7
- Retweeted_Status
- RootObject
- RootObjectTweet
- Sizes
- Sizes1
- Sizes2
- Sizes3
- Small1
- Small2
- Small3
- Status
- Thumb
- Thumb1
- Thumb2
- Thumb3
- Url

- Url1
- Url1Tweet
- Url2
- Url2Tweet
- Url3
- Url3Tweet
- UrlTweet
- User

To use the data set in our project, we made the use of RootObjectTweet class to handle that data set. The above mentioned class has following properties.

1. public virtual Extended_Entities extended_entities
2. public object in_reply_to_status_id_str
3. public object in_reply_to_status_id
4. public string created_at
5. public object in_reply_to_user_id_str
6. public string source
7. public virtual Retweeted_Status retweeted_status
8. public bool retweeted
9. public object geo
10. public object in_reply_to_screen_name
11. public bool is_quote_status
12. public string id_str
13. public object in_reply_to_user_id
14. public int favorite_count
15. public long id

16. public string text
17. public object place
18. public string lang
19. public bool favorited
20. public bool possibly_sensitive
21. public object coordinates
22. public bool truncated
23. public virtual Entities2 entities
24. public object contributors
25. public virtual User1 user

Chapter 4: System Development

4.1 Functional Requirements

The employees of the organization who will use this application for trend analysis will be the user of this application.

- User login is mandatory but registration is not possible.
- An employee with administrative access should be able to generate user ids and passwords.

After login to the application, the user must be able to:

1. View top 5 popular tweets based on the number of likes and retweets.

2. Search for a specific hashtag or a combination of hashtags and view reports based on the search results.

   2.1 The user can search hashtags for current date and also provide date range for the analysis.

   2.2 The system should search for the tweets with the input hashtag for the current date or between the date range and display a report with Tweets that mention the given hashtag.

      2.2.1 By default, the tweets should be sorted in descending order of number of retweets.

      2.2.2 The user should be able to sort them based on number of retweets and change the sorting order.

   2.3 A list of other hashtags which are used along with this hashtag should also be generated along with number of occurrences, sorted in descending order of number of occurrences.

2.4 When the user selects/clicks on a specific hashtag, display all the tweets that mention the selected hashtag. The user should be able to sort them based on likes or retweets.

3. View reports based on the text in tweets.

3.1 The user can provide terms like awesome, loved it, hated it, not good, etc. and get the report of the number of tweets which mentioned any of these words for the selected hashtag.

3.2 For example, if the selected hashtag is #Thor and the user provides terms like awesome and best, a report should be generated to show how many tweets mention awesome or best or both and the percentage of such tweets based on all the tweets that mention #Thor

4 View following details for a Twitter handle:

4.1 Total number of tweets sent by the Twitter handle between a date range (based on the data available).

4.2 Tweet with maximum number of likes and retweets.

4.3 For each tweet, the number of likes and retweets.

5. Compare Twitter handles based on a relative popularity quotient. While calculating this popularity quotient, the system should consider following:

5.1 Total number of followers of the Twitter handles

5.2 The number of likes and retweets on each tweet sent by the handle and the frequency of the tweets

4.2 Requirements out of scope

- A full text analysis to automatically judge the sentiment of the tweet.

4.3 User interface

- Should be easy to understand and user friendly
- Should adapt to different screen sizes

4.4 Non-Functional Requirements

i. Security: The password of all the users of the website is encrypted with a hash function and stored in the database which makes it secure for the users.

ii. Performance: Every function in the project are made with a low complexity algorithm to make the performance of the website better.

iii. Session Security: A user cannot access the functionalities of the website without logging in and every time a user tries to access a page in the website without logging in, he is redirected to the login page.

iv. Verified users: A stranger cannot register to the website, only a member of the organization is able to use the website who is verified and created by the admin and is given a default password which he is able to change and a unique registration id.

4.5 Design of algorithms

- Sorting Algorithms
- Searching Algorithms

4.6 Hardware/software and platform

Hardware:

- An Intel Pentium 4 processor or later that's SSE2 capable

Software:

- Windows 7, Windows 8, Windows 8.1, Windows 10 or later

Platform:

- Visual Studio 2015

Chapter 5: Performance Analysis

5.1 TEST ENVIRONMENT

- **Hardware**: Window 7 Desktop
- **Software**: 32-bit Operating System, Visual Basic 2015

1. **For Login Page**

Sr. No:	Condition to be tested	Expected Result	Test Status
1	Successful Login	Admin Page	Pass
2	Validation of credentials	Alert Box	Pass
3	Validation of credentials	Alert Box	Pass
4	Checking Data Annotations	Proper User Friendly message	Pass

Table 5.1: Test Table 1

2. **For displaying top 5 tweets and tweets within entered date range**

Sr. No:	**Condition to be tested**	**Expected Result**	**Test Status**
1	Displaying of most popular tweets	Top 5 Trending Tweets displayed	Pass
2	Tweets for the entered date range should be displayed.	Tweets are displayed between given data range	Pass
3	Checking Data Annotations of the entered date	Proper User Friendly message	Pass
4	No tweets should be displayed for the incorrect date range	Error Page of No Tweets should be displayed	Pass
5	Empty Date Tags	Proper User Friendly message	Pass

Table 5.2: Test Table 2

3. **For displaying tweets with searched hashtag and also sorting them**

Sr. No:	Condition to be tested	Expected Result	Test Status
1	When Searched Hashtag is present in dataset	Tweets of the searched hashtag should be displayed	Pass
2	When Searched Hashtag is not present in dataset	Error Page of No Tweets should be displayed	Pass
3	When term is searched instead of hashtag	Proper User Friendly message of Invalid Format	Pass
4	Empty Search tags	Proper User Friendly message	Pass
5	Display Tweets in Sorted manner	Tweets in descending order should be displayed	Pass

Table 5.3: Test Table 3

4. **For changing password and logging off.**

Sr. No:	**Condition to be tested**	**Expected Result**	**Test Status**
1	Changing Password	Password should be changed	Pass
2	Check data annotation for wrong old password	Proper user friendly message for wrong old password	Pass
3	Check data annotation for the length of the new password	Proper User Friendly message for invalid length	Pass
4	Check data annotation for matching new and confirmed password	Proper User Friendly message for unmatched new and confirm password	Pass
5	Check data annotations for matching new and old password	Proper User Friendly message for matched new and old password	Pass
6	Successful Log off	Should Log off correctly	Pass

Table 5.4: Test Table 4

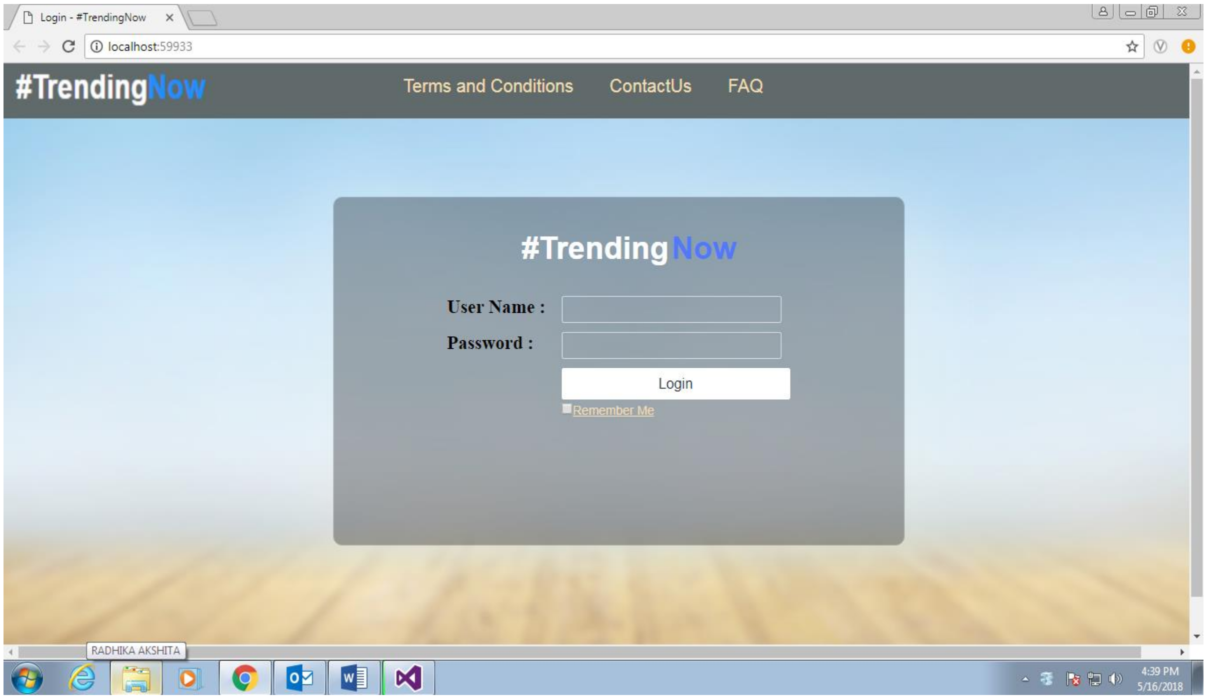
5. **For tweets sent by the entered twitter handle in a given Date range**

Sr. No:	Condition to be tested	Expected Result	Test Status
1	When the entered User handle is present and date entered is in correct format.	Tweets sent by User handler in the date range is displayed	Pass
2	When the entered User handle is present but date entered is in incorrect format.	Proper User Friendly message.	Pass
3	When the entered User handle is not present but date entered is in correct format.	Error page of No tweets is displayed	Pass
4.	When the entered User handle is present and date entered is in correct format, show tweets with maximum retweets	Tweet with maximum retweets will be shown	Pass

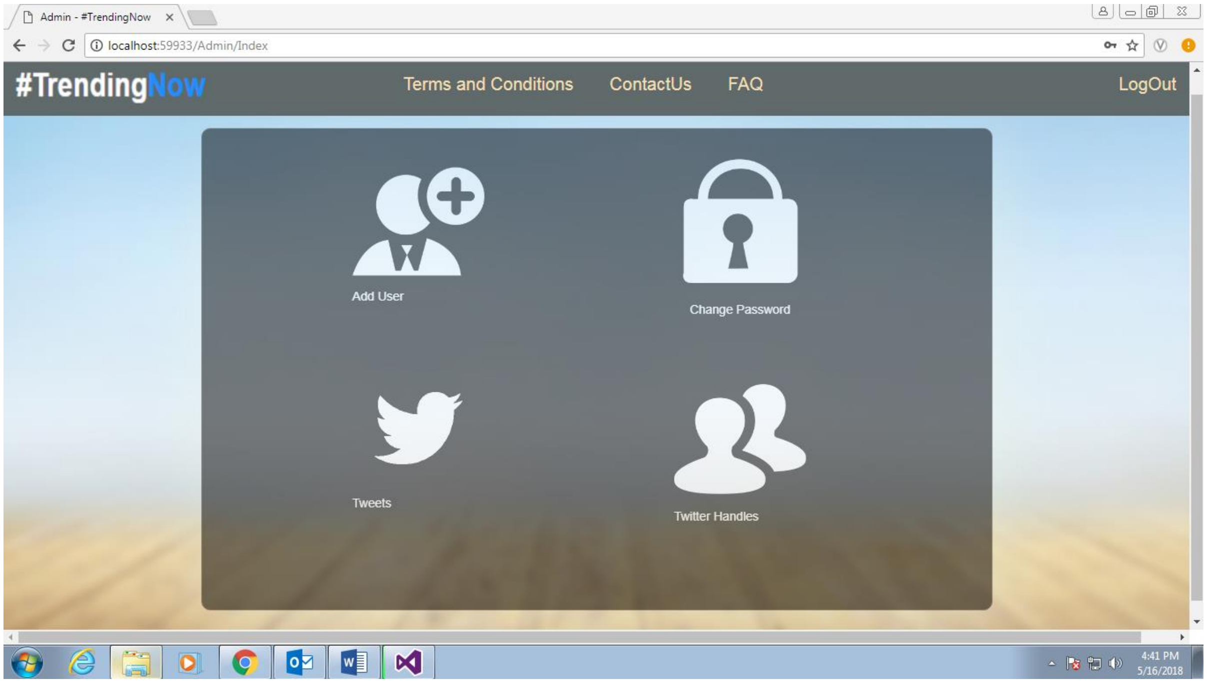
Table 5.5: Test Table 5

Chapter 6: Screenshots

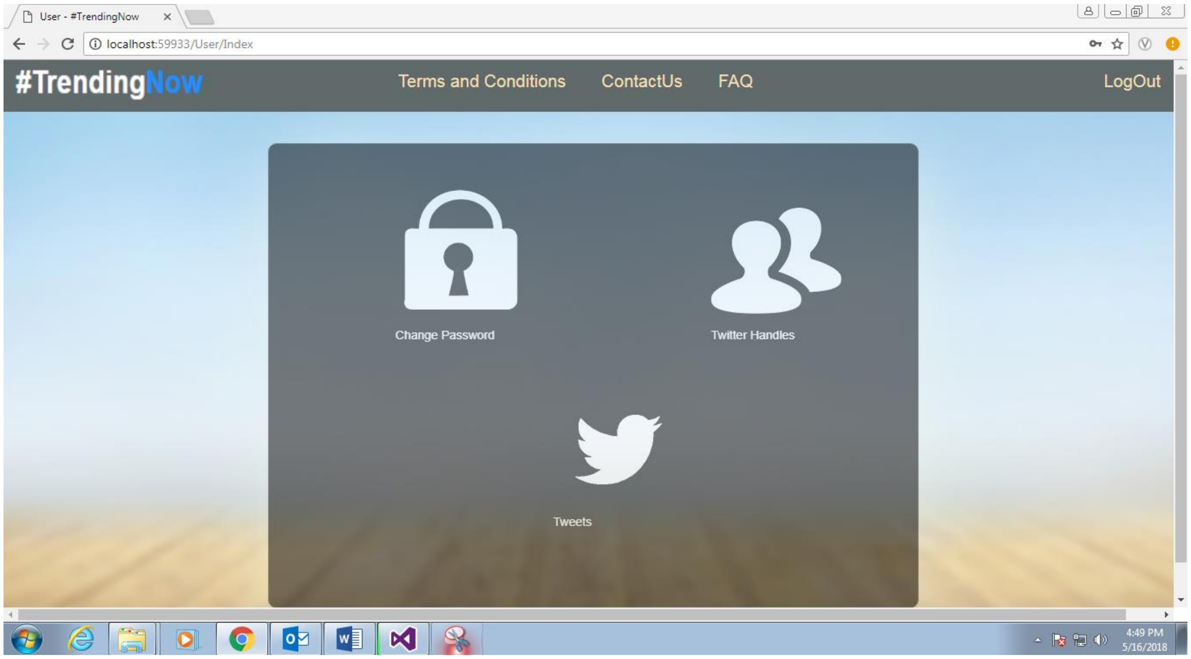
1. Login page



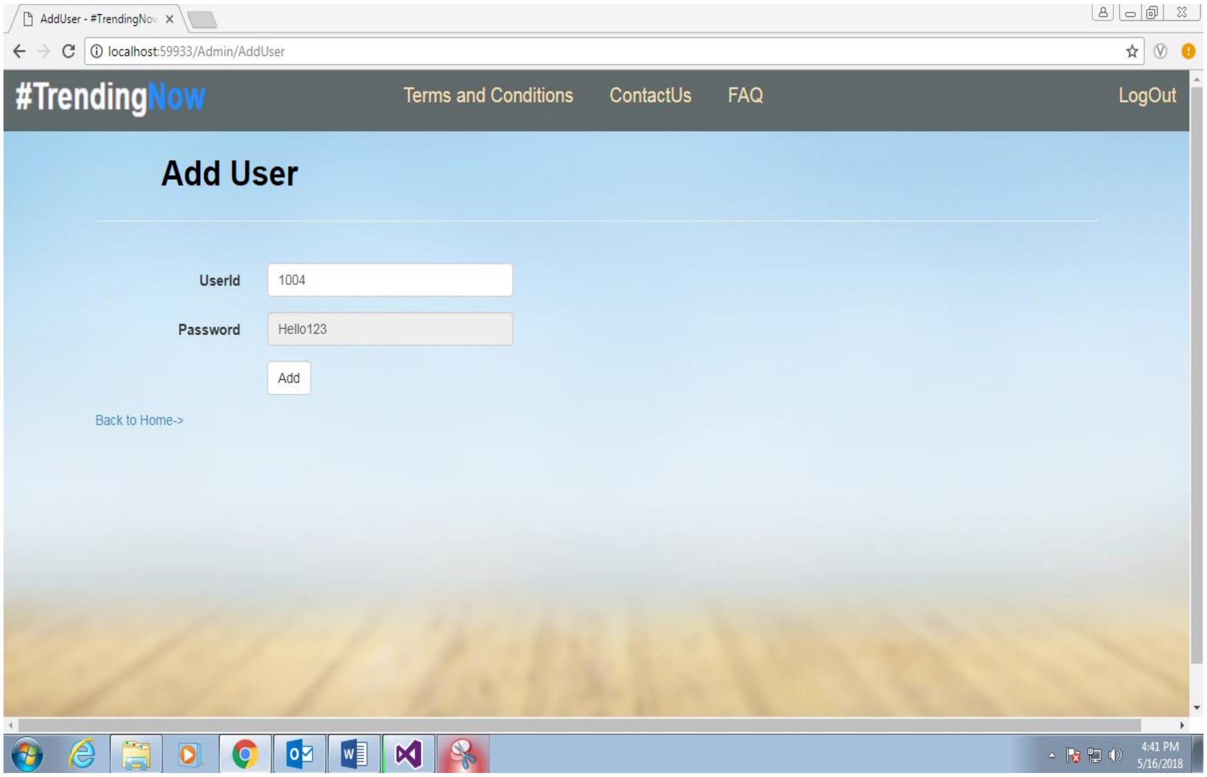
2. Admin Page



3. User Page



4. Add User



Add User

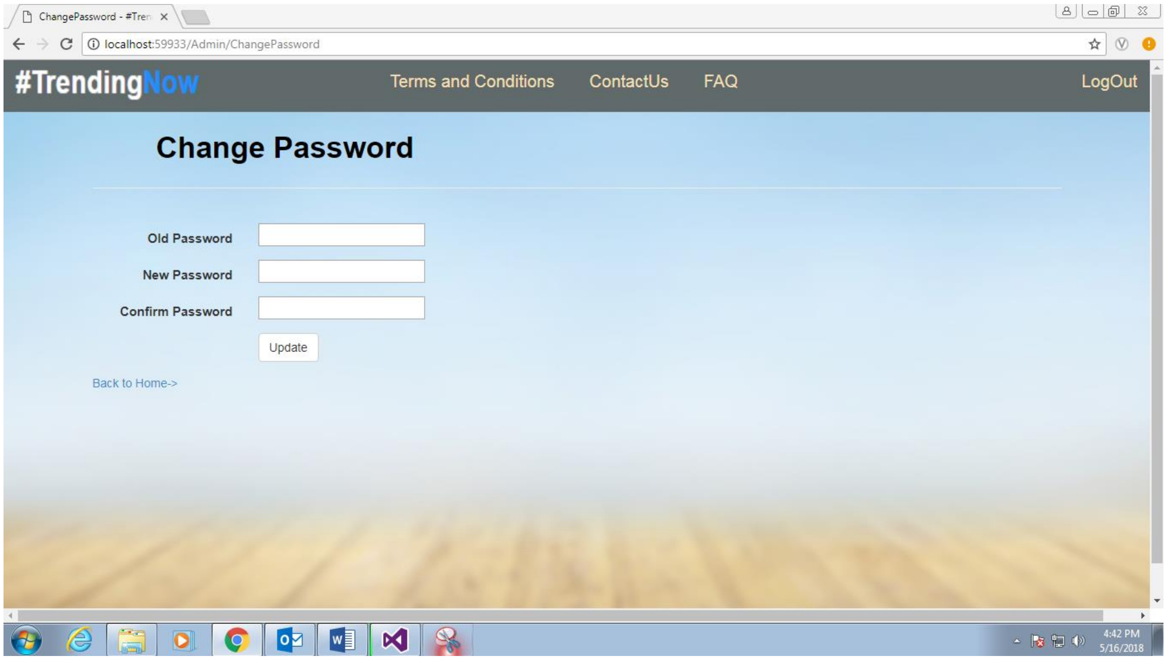
UserId 1004

Password Hello123

Add

Back to Home->

5. Change Password



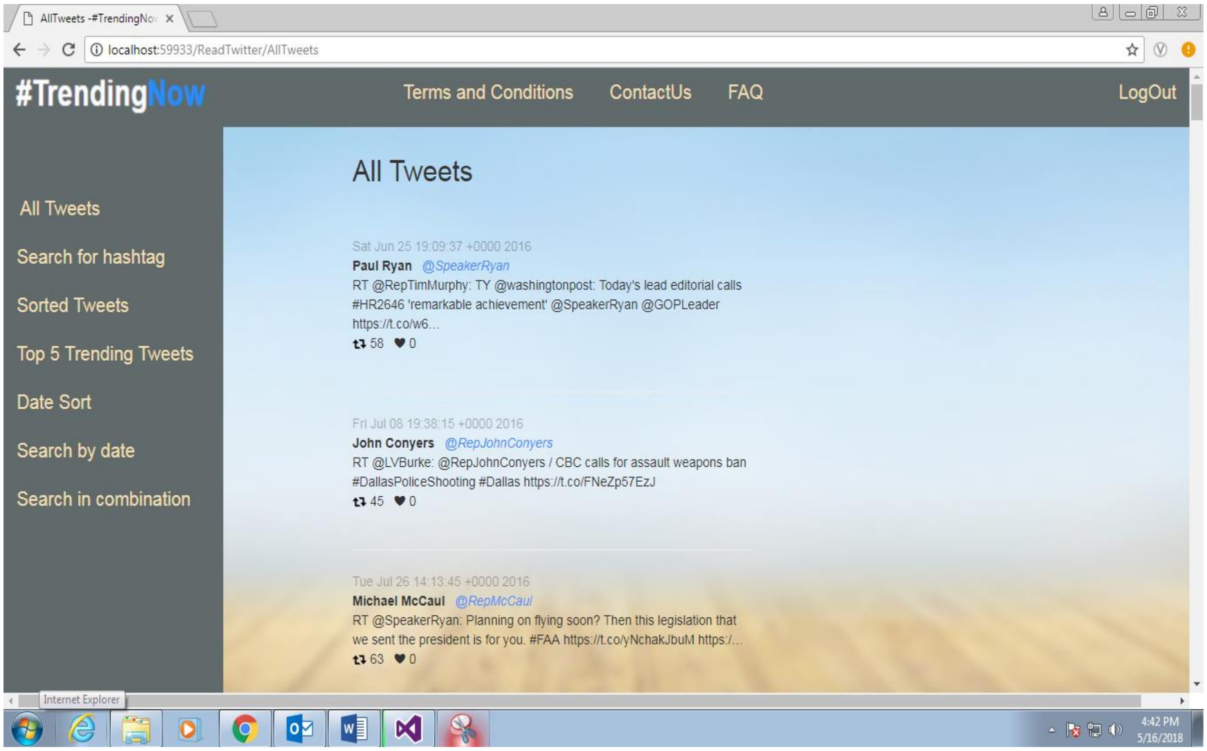
Change Password

Old Password

New Password

Confirm Password

6. All tweets



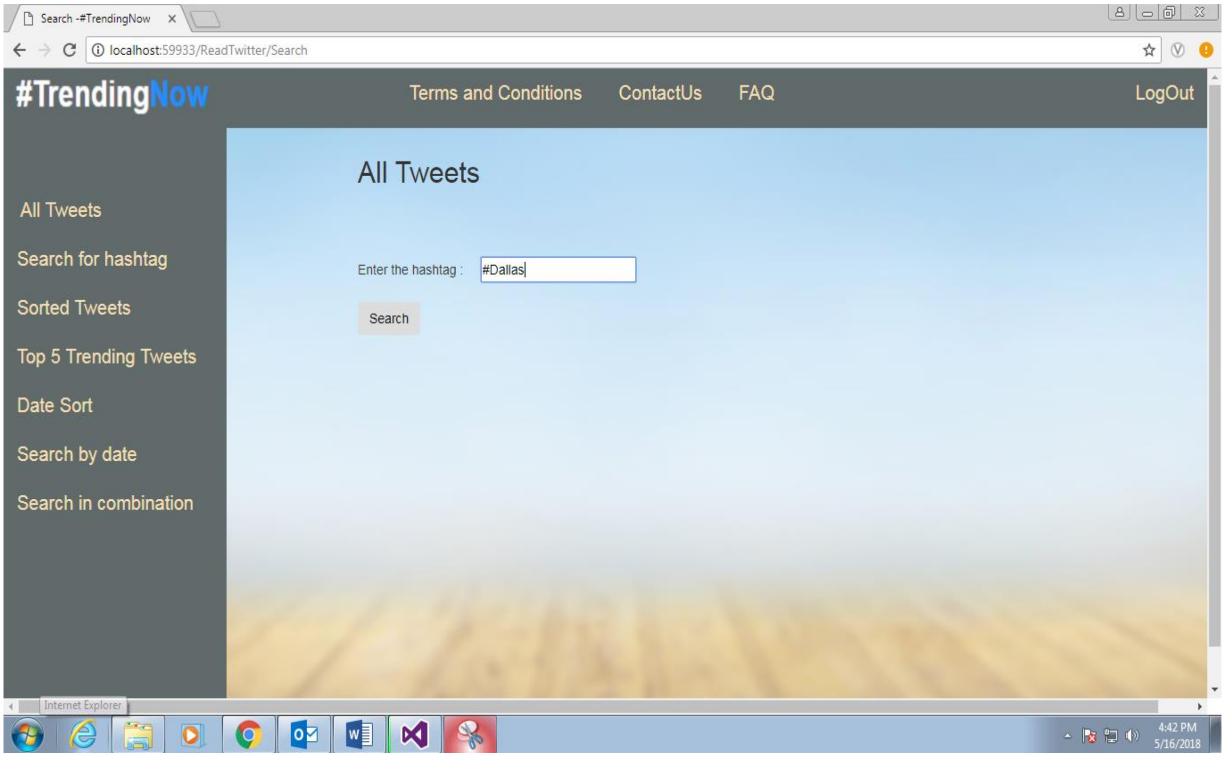
All Tweets

Sat Jun 25 19:09:37 +0000 2016
Paul Ryan *@SpeakerRyan*
RT @RepTimMurphy: TY @washingtonpost: Today's lead editorial calls #HR2646 'remarkable achievement' @SpeakerRyan @GOPLeader https://t.co/w6…
58 ♥ 0

Fri Jul 08 19:38:15 +0000 2016
John Conyers *@RepJohnConyers*
RT @LVBurke: @RepJohnConyers / CBC calls for assault weapons ban #DallasPoliceShooting #Dallas https://t.co/FNeZp57EzJ
45 ♥ 0

Tue Jul 26 14:13:45 +0000 2016
Michael McCaul *@RepMcCaul*
RT @SpeakerRyan: Planning on flying soon? Then this legislation that we sent the president is for you. #FAA https://t.co/yNchakJbuM https:/…
63 ♥ 0

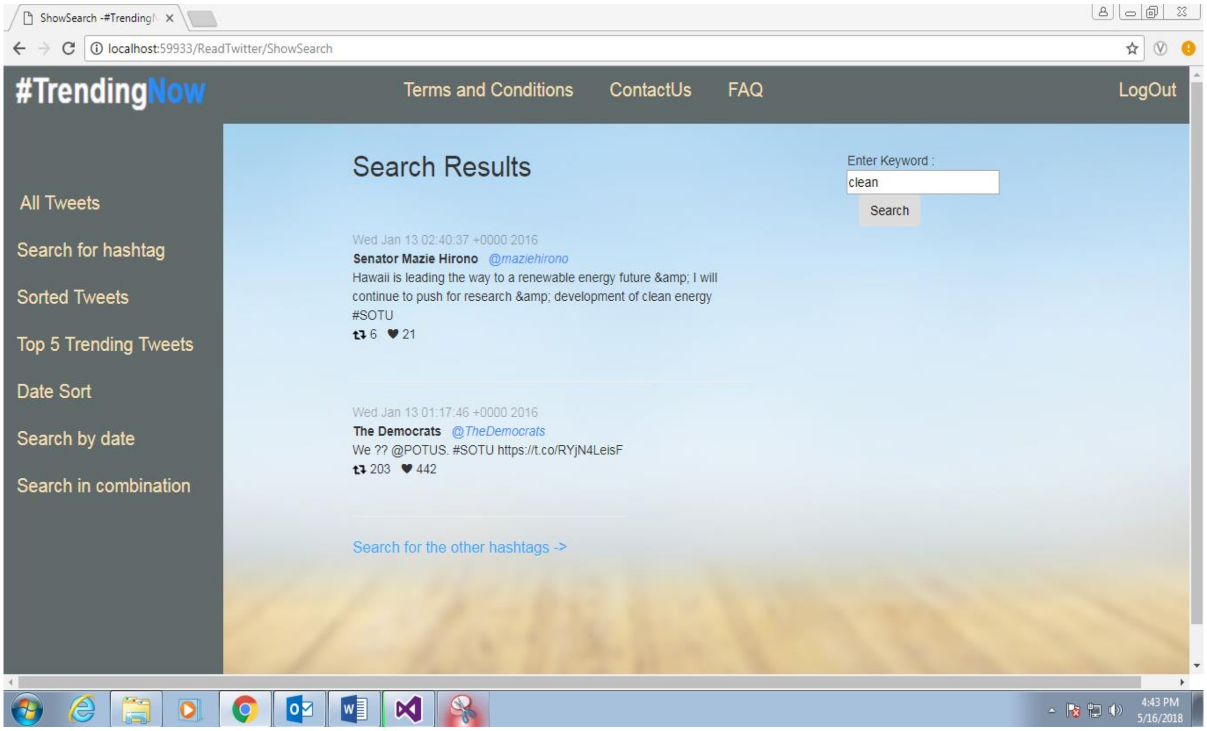
7. Search by hashtags



All Tweets

Enter the hashtag : #Dallas

8. Searching for the keyword



Search Results

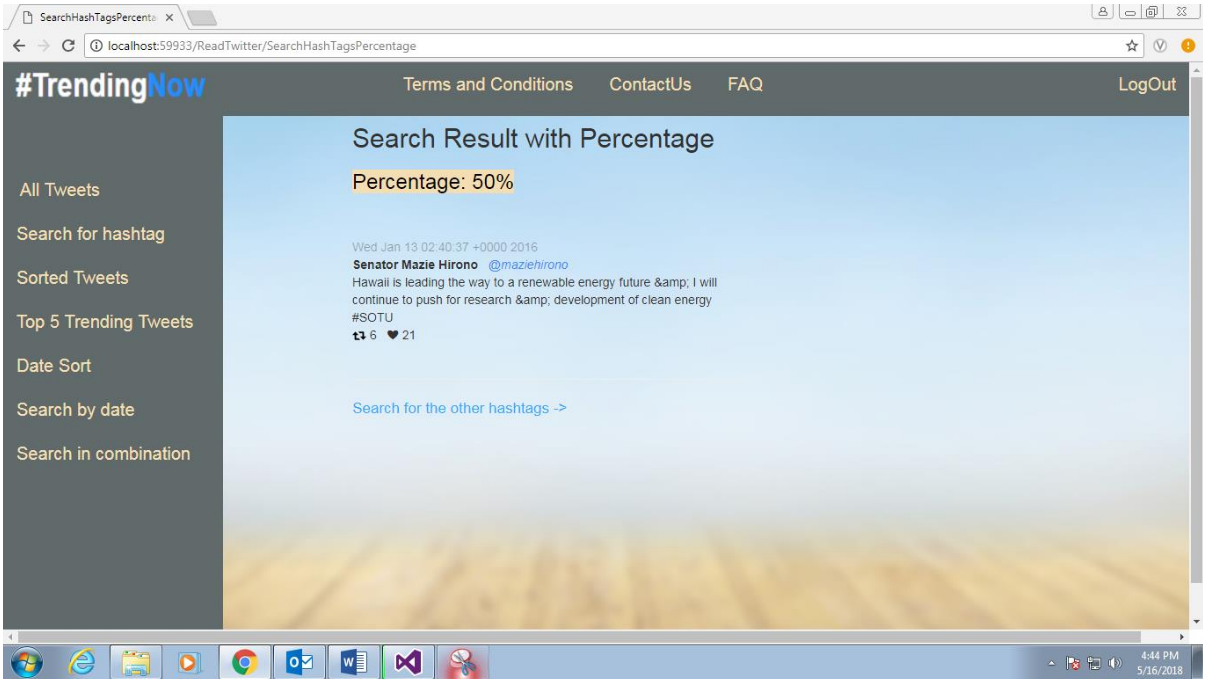
Enter Keyword : clean

Wed Jan 13 02:40:37 +0000 2016
Senator Mazie Hirono *@maziehirono*
Hawaii is leading the way to a renewable energy future &amp; I will continue to push for research &amp; development of clean energy #SOTU
⇄ 6 ♥ 21

Wed Jan 13 01:17:46 +0000 2016
The Democrats *@TheDemocrats*
We ?? @POTUS. #SOTU https://t.co/RYjN4LeisF
⇄ 203 ♥ 442

Search for the other hashtags ->

9. Search Result of the keyword

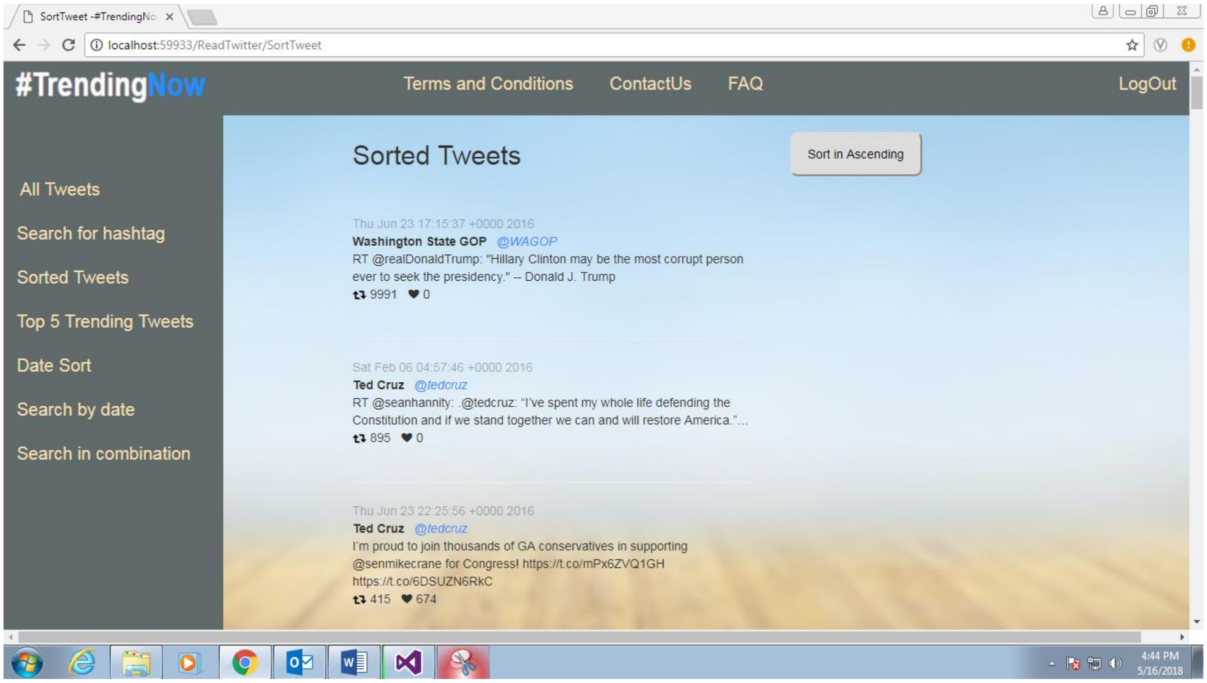


Search Result with Percentage

Percentage: 50%

Wed Jan 13 02:40:37 +0000 2016
Senator Mazie Hirono @maziehirono
Hawaii is leading the way to a renewable energy future &amp; I will continue to push for research &amp; development of clean energy #SOTU
6 ♥ 21

10. Sorted Tweets



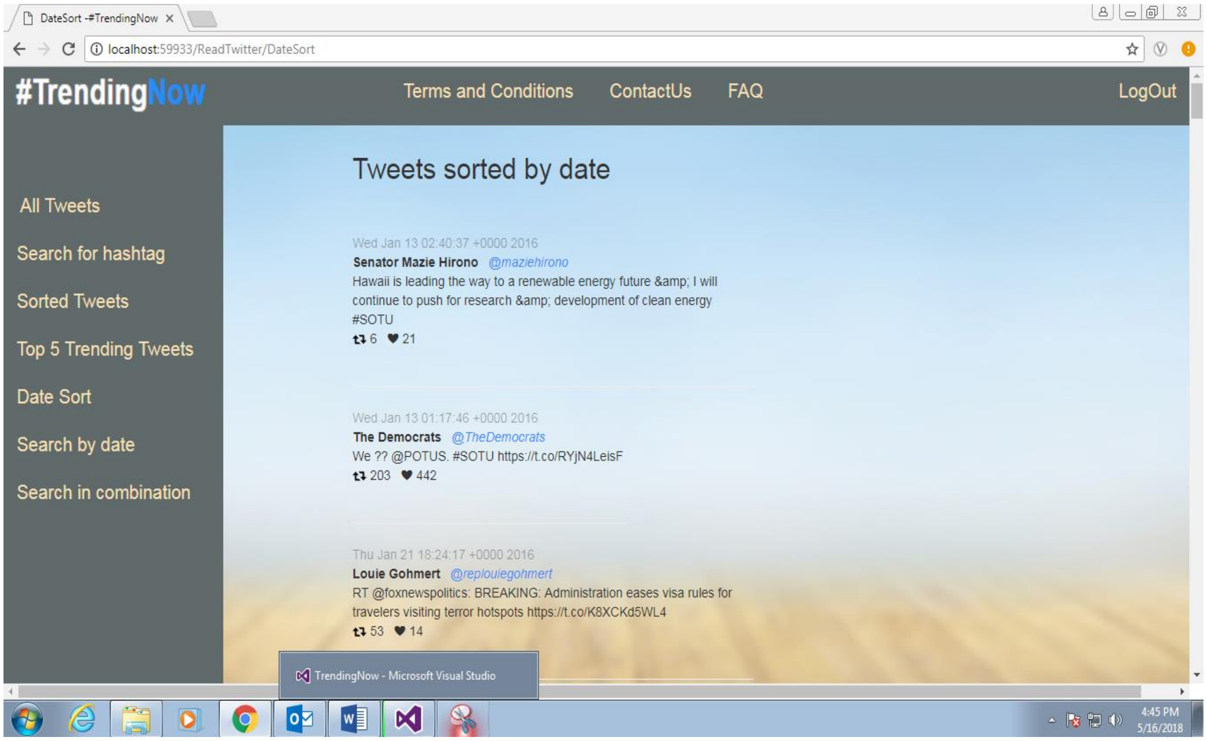
Sorted Tweets

Thu Jun 23 17:15:37 +0000 2016
Washington State GOP @WAGOP
RT @realDonaldTrump: "Hillary Clinton may be the most corrupt person ever to seek the presidency." -- Donald J. Trump
9991 ♥ 0

Sat Feb 06 04:57:46 +0000 2016
Ted Cruz @tedcruz
RT @seanhannity: .@tedcruz: "I've spent my whole life defending the Constitution and if we stand together we can and will restore America."…
895 ♥ 0

Thu Jun 23 22:25:56 +0000 2016
Ted Cruz @tedcruz
I'm proud to join thousands of GA conservatives in supporting @senmikecrane for Congress! https://t.co/mPx6ZVQ1GH https://t.co/6DSUZN6RkC
415 ♥ 674

11. Tweets sorted by date



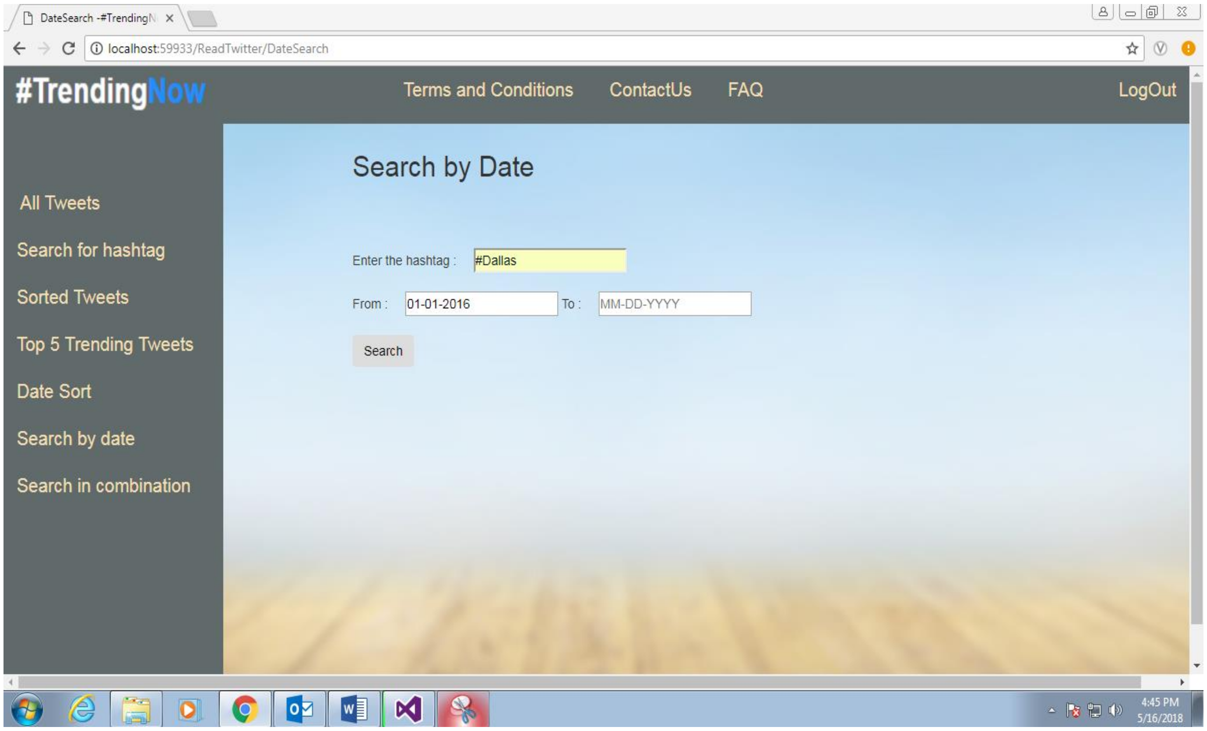
Tweets sorted by date

Wed Jan 13 02:40:37 +0000 2016
Senator Mazie Hirono *@maziehirono*
Hawaii is leading the way to a renewable energy future &amp; I will continue to push for research &amp; development of clean energy #SOTU
6 ♥ 21

Wed Jan 13 01:17:46 +0000 2016
The Democrats *@TheDemocrats*
We ?? @POTUS. #SOTU https://t.co/RYjN4LeisF
203 ♥ 442

Thu Jan 21 18:24:17 +0000 2016
Louie Gohmert *@replouiegohmert*
RT @foxnewspolitics: BREAKING: Administration eases visa rules for travelers visiting terror hotspots https://t.co/K8XCKd5WL4
53 ♥ 14

12. Search by date



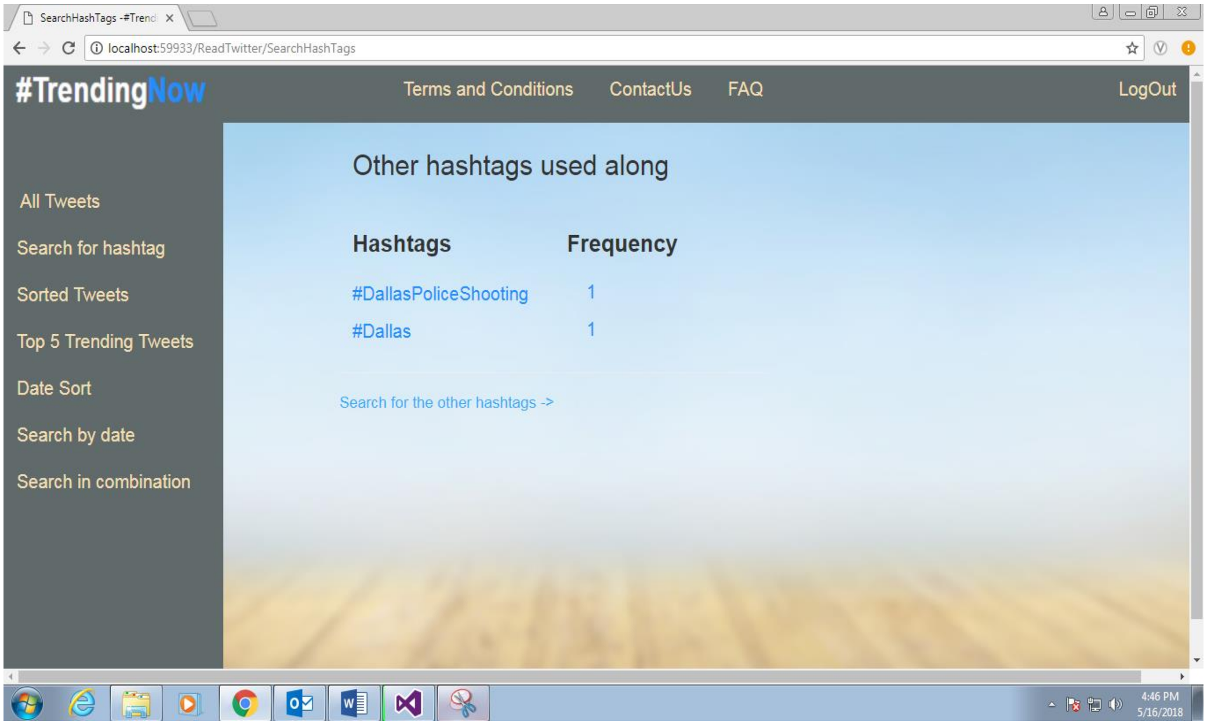
Search by Date

Enter the hashtag : #Dallas

From : 01-01-2016 To : MM-DD-YYYY

Search

13. Search in combination

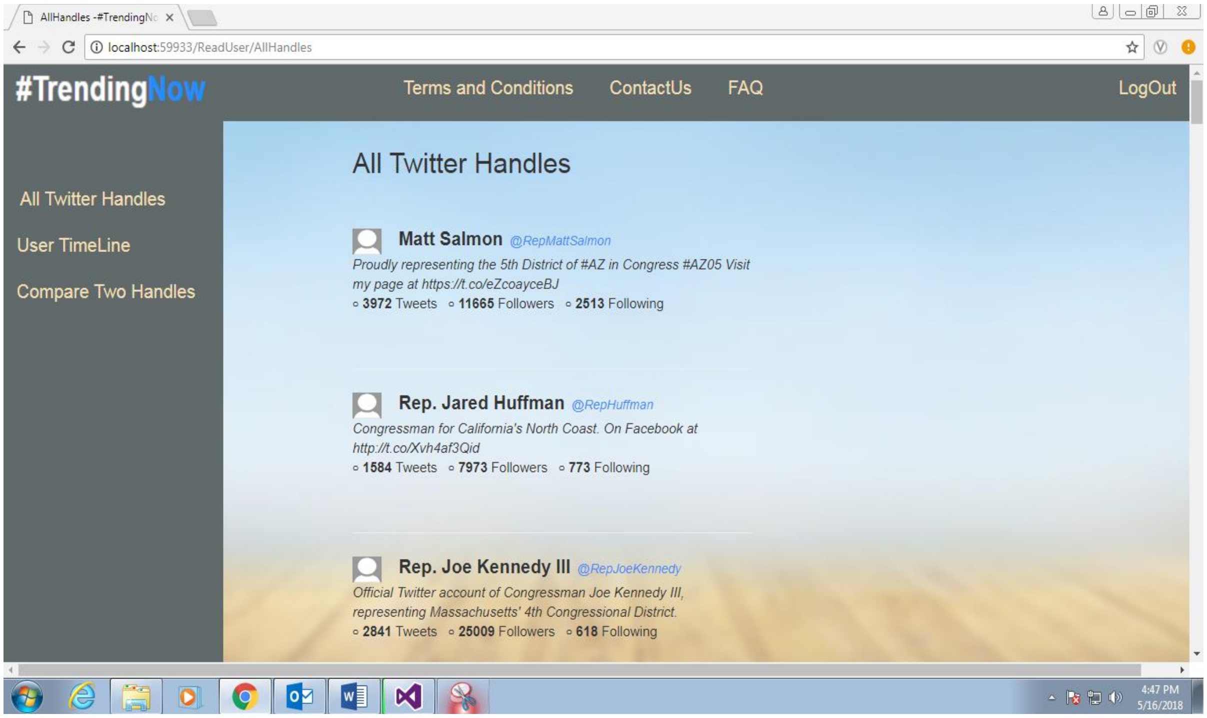


Other hashtags used along

Hashtags	Frequency
#DallasPoliceShooting	1
#Dallas	1

Search for the other hashtags ->

14. All twitter handles



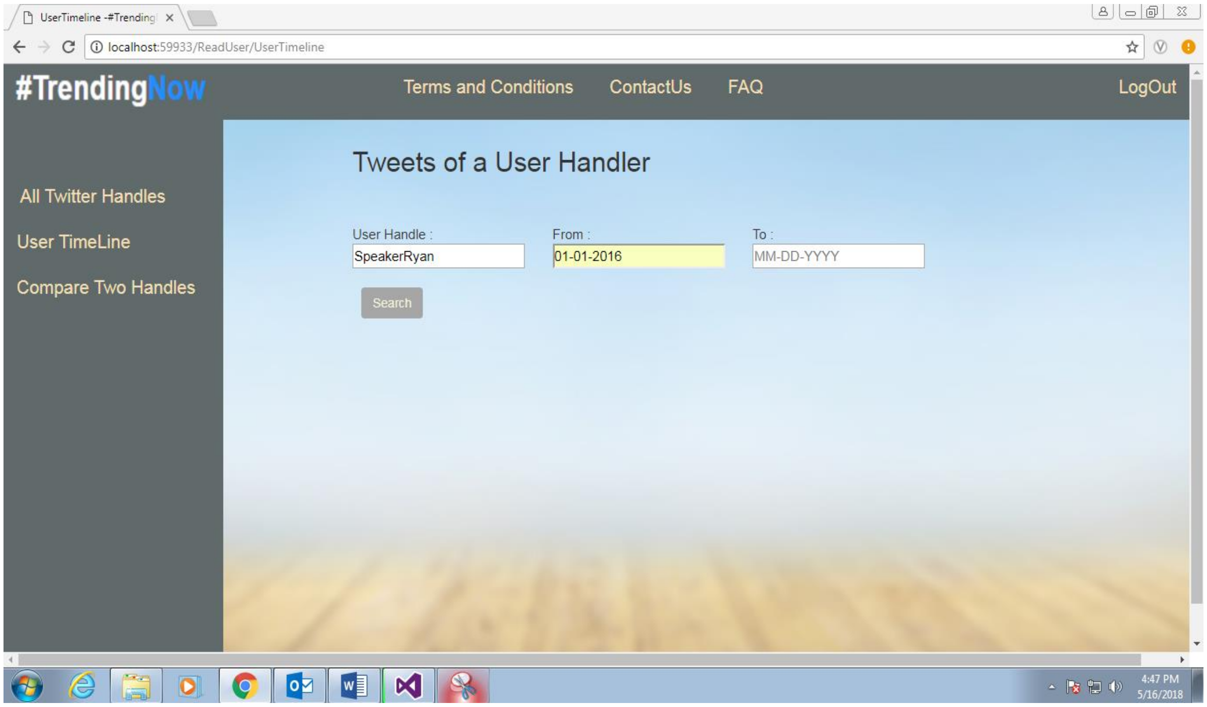
All Twitter Handles

Matt Salmon @RepMattSalmon
Proudly representing the 5th District of #AZ in Congress #AZ05 Visit my page at https://t.co/eZcoayceBJ
- **3972** Tweets
- **11665** Followers
- **2513** Following

Rep. Jared Huffman @RepHuffman
Congressman for California's North Coast. On Facebook at http://t.co/Xvh4af3Qid
- **1584** Tweets
- **7973** Followers
- **773** Following

Rep. Joe Kennedy III @RepJoeKennedy
Official Twitter account of Congressman Joe Kennedy III, representing Massachusetts' 4th Congressional District.
- **2841** Tweets
- **25009** Followers
- **618** Following

15. Searching tweets of a twitter handle



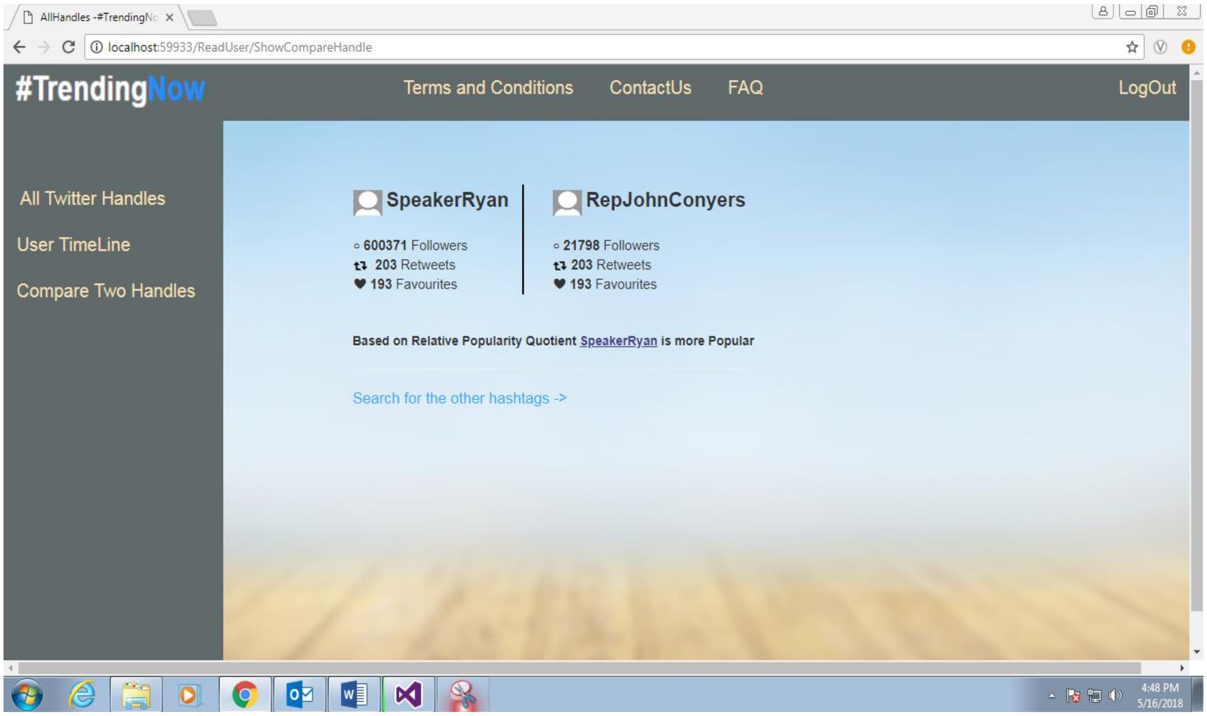
Tweets of a User Handler

User Handle : SpeakerRyan

From : 01-01-2016

To : MM-DD-YYYY

16. Comparing two twitter handles



SpeakerRyan	RepJohnConyers
○ 600371 Followers	○ 21798 Followers
203 Retweets	203 Retweets
♥ 193 Favourites	♥ 193 Favourites

Based on Relative Popularity Quotient SpeakerRyan is more Popular

Search for the other hashtags ->

Chapter 7: Conclusion

7.1 Conclusion

The Web Application developed was up to the satisfaction of Our mentors/Clients. All the user requirements are fulfilled and the application works well in the intranet environment of an organization. The Application is well tested in different erroneous conditions and the errors are handled properly in debugging phase. The Users can access the application from two different computers simultaneously and can login and logout successfully without facing any session error. The Application works fine in different conditions of respective systems. It can be improved further and can be made more attractive and can offer additional functionalities in terms of analyzing the tweets. The application can be made more useful if worked with the better Dataset.

7.2 Future Scope

The Application has covered all the requirements provided by the Client. It can be modified further to implement the extra requirements and functionalities and the improvements can be made easily as coding is done in a structured and a modular manner. Improvements can be executed by making changes in an existing modules or by adding new modules. Further enhancements that can be added includes:

1) Better User Interface
2) Use of Web API of twitter
3) Better security strategies can be applied
4) More functionalities can be added with respect to the tweets and User Handles according to the upcoming trends and needs.