

Massmine for the Masses - User Manual

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1. Setup

If you need to have a public facing webpage, or use a different database than SQLite, the Docker Container will not fill your needs. Please skim the instructions on building from source to get an idea of where you're headed, and then skip to the sections below on setting up the server, database, or other components that may be different for your specific needs. Instructions on how to compile this project from source are also located on Github, in the file 'webappInstallation.txt'.

1.1 How To Run From Docker

In order to use a Docker image, you will need to install Docker on your host machine. The Docker container with this project is mftm/mftm, found at <https://hub.docker.com/r/mftm/mftm>

To pull down the application image from the Docker hub, once you have Docker installed on your host machine, execute:

```
sudo docker run -rm -p 8000:8000 mftm/mftm
```

This will allow you to access the application at the address 127.0.0.1:8000 in your browser.

1.2 How To Build From Source

1.2.1 Setup

To get started, you will need to either be running a Linux system or a Linux virtual machine. Only Ubuntu 18.04 has been tested, so we recommend Ubuntu over other Linux distributions and definitely recommend 18.04 to prevent mishap with versioning. We used VirtualBox and Vmware Player for our virtual machines, but you can use other alternatives if you decided that route is preferable. Should you decided to install this project in a virtual machine, here are a few links to get you started:

This is a guide for installing on Virtual Box: <https://www.wikihow.com/Install-Ubuntu-on-VirtualBox>

This is a guide for installing on VMware: <https://websiteforstudents.com/how-to-install-ubuntu-16-04-17-10-18-04-on-vmware-workstation-guest-machines/>

1.2.2 Installing Basic Tools And Dependencies

Once you have your host or virtual machine set up, there are some basic tools you will need for the project. Git will allow you to pull the project files from the Github repository, and pip is an installer for the required Python libraries. Run the following commands in your command line:

- `sudo apt-get install -y git`
- `sudo apt install -y python3-pip`

Now that you have those basic tools installed, we recommend you use a virtual environment to keep your installations in. This step is not required, but it will prevent collisions with different Python versions outside your environment. What we will do is install the virtual environment tool, make a directory to use as our environment, and then create and activate the environment there. From your home directory, run the following command in your command line:

- `python3 -m pip install virtualenv`
- `mkdir django && cd django`
- `python3 -m virtualenv environ`
- `source environ/bin/activate`

Now there are a whole host of dependencies for this project. Run these commands in your command line to install them:

- `pip install django`
- `pip install numpy`
- `pip install matplotlib`
- `pip install plotly`
- `pip install cufflinks`
- `pip install pandas`
- `pip install celery`
- `sudo apt-get install -y erlang`
- `sudo apt-get install -y rabbitmq-server`
- `pip install django-celery-results`
- `pip install django-encrypted-model-fields`
- `pip install pexpect`
- `pip install django-tables2`
- `pip3 install pyenchant`
- `pip install -U textblob`

1.2.3 Cloning the repository

With these required dependencies installed, you will now need to get the actual code for your project and put it into the virtual environment. You want to put the ‘webapp’ folder in your virtual environment folder (we called it ‘django’) but NOT in the ‘environ’ folder within that folder. Run the following commands in the command line:

- `cd && git clone https://github.com/JoshCMoore/Massmine-for-the-Masses.git`
- `cp -a Massmine-for-the-Masses/src/. Django/`

1.2.4 Installing Massmine

Next we need to install Massmine and make it executable. For your convenience, there is a copy of this tool located in the repository you just downloaded and copied, for which the instructions to install are below. You can also follow the instructions listed here:

<http://www.massmine.org/docs/install.html> to get the most up-to-date version, but we can’t promise future updates will work with this project. Run the following commands in the command line:

- `unzip django/webapp/massmine-1.1.0-linux-x86_64.zip -d django/`
- `cd django/massmine && sudo ln -s `pwd`/massmine/usr/local/bin`

1.2.5 Initializing settings

Unless you want to use the default encryption key (NOT RECOMMENDED), you will need to generate your own and replace the one in settings.py. There is also a time zone variable in the environment file timezone.py that needs changed, to replace all instances of TIME_ZONE with TIME. You can make these fixes with a text editor (except the key generation), but it is probably faster to use the commands below.

- `cd && sed -i “s/TIME_ZONE/TIME/g”
django/enviro/lib/python3.6/site-packages/django/utls/timezone.py`
- `MYVAR=$(python django/webapp/manage.py generate_encryption_key)`
- `sed -i ‘/FIELD_ENCRYPTION_KEY/d’ django/webapp/webappproject/settings.py &&
echo “FIELD_ENCRYPTION_KEY = ‘$MYVAR’” >>
django/webapp/webappproject/settings.py`

1.2.6 Initializing the database and administrative users

You’re almost done! Let’s set up the database. Run the following in your command line:

- `python django/webapp/manage.py makemigrations`
- `python django/webapp/manage.py migrate –run-syncdb`

You'll also want an administrative user to get you started. As this is easiest to create from the command line, go ahead and do that now, by running the following command and following the prompts:

- `python django/webapp/manage.py createsuperuser`

1.2.7 Starting the project

You're ready to go now! Go ahead and start your server by running the following command:

- `python django/webapp/manage.py runserver`

Congratulations! You now have the basic project running. If your machine ever restarts or interrupts the project, you can use the 'runserver' command to get the webpage back up and running.

1.2.8 Setting up your own server

If you need to have a public-facing web page, you will want to install an actual server to run this django project on (we use django's default server for the proof-of-concept, which does not support https. This is a disaster from a security perspective.) How to set up an actual server is beyond the scope of this project. However, there are tutorials online that may help.

- We recommend you start here:
<https://developer.mozilla.org/en-US/docs/Learn/Server-side/Django/Deployment>.
Take note of the instructions to change the secret key!
- This is official documentation from Django that gives a more detailed description of the functionalities involved:
<https://docs.djangoproject.com/en/2.1/howto/deployment/wsgi/>.

1.2.9 Setting up the Forgot Password Functionality

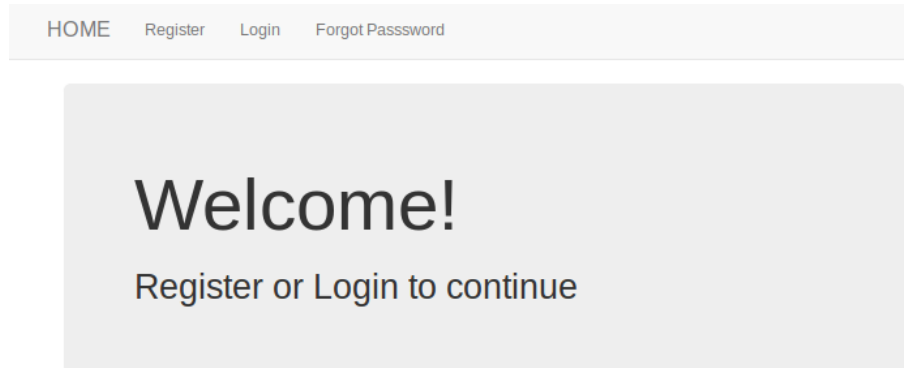
As this project is a proof of concept only, the forgot password function by default sends the email not to an actual address, but to a folder within the project called 'sent_emails'. To change this functionality, you will need to edit the settings.py file to use either your own SMTP service, or a third party service.

- The official documentation gives you the fields that Django assumes and which you may need to specify: <https://docs.djangoproject.com/en/2.2/topics/email/>
- This tutorial for integrating with a third party service uses the service SendGrid, but you can use whatever you wish.
<https://simpleisbetterthancomplex.com/tutorial/2016/06/13/how-to-send-email.html>

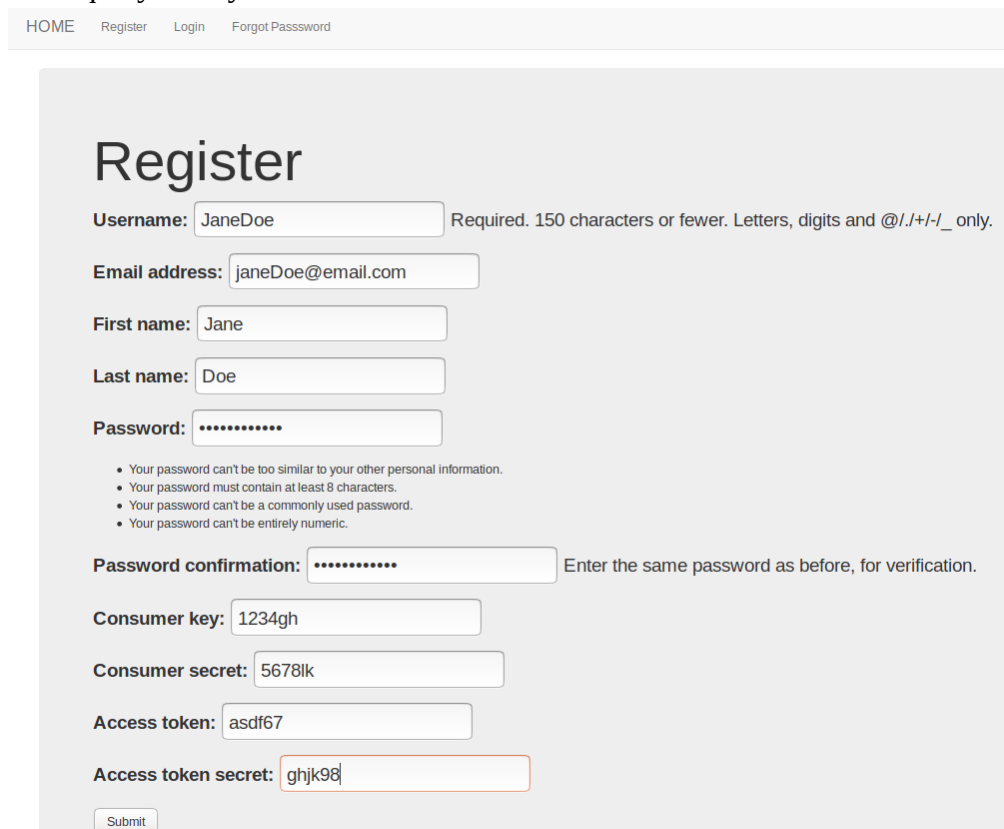
2. User Registration and Administration

2.1 How To Register

When you navigate to the Massmine-for-the-Masses webpage without being logged in, you should be greeted with a home screen that looks like this:



Click on the button that says 'Register' at the top of the screen, and enter your information when prompted. The consumer key, consumer secret, access token, and access token secret, are the four keys from your Twitter developer account found at <https://developer.twitter.com/en/apps>. If you don't know what your keys are, you can register with some random numbers and letters in place instead, but you will not be able to run a massmine query until you have entered valid credentials for these four fields.



Register

Username: Required. 150 characters or fewer. Letters, digits and @/./+/-/_ only.

Email address:

First name:

Last name:

Password:

- Your password can't be too similar to your other personal information.
- Your password must contain at least 8 characters.
- Your password can't be a commonly used password.
- Your password can't be entirely numeric.

Password confirmation: Enter the same password as before, for verification.

Consumer key:

Consumer secret:

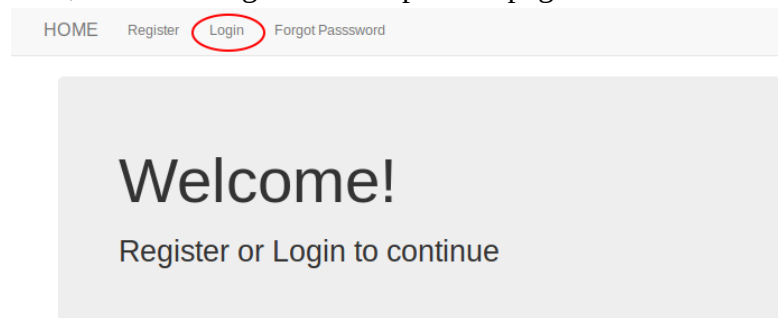
Access token:

Access token secret:

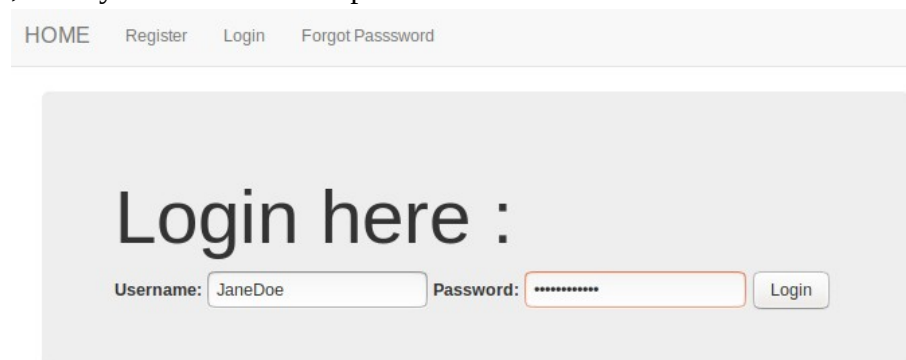
Once you have entered your information, click 'Submit' at the bottom of the page. If your password is incorrect, you will have to enter your password and password confirmation again. If you have bad characters in other fields (such as % or &) you will also have to replace the information in those fields, and will be prompted to do so at the top of the screen. Upon successful registration, you will be redirected to the home page, and you will be able to log in with your new password and username.

2.2 How To Login

From the home screen, click on 'Login' at the top of the page.



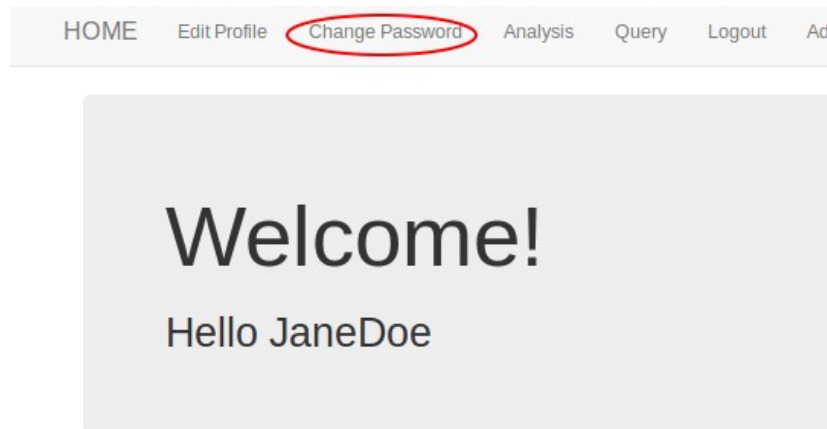
On this page, enter your username and password.



If you enter incorrect information, you will be directed to an error page. On a successful registration, you will be redirected to the home page.

2.3 How To Change Password

Once you are logged in, click on the 'Change Password' button on the navbar.



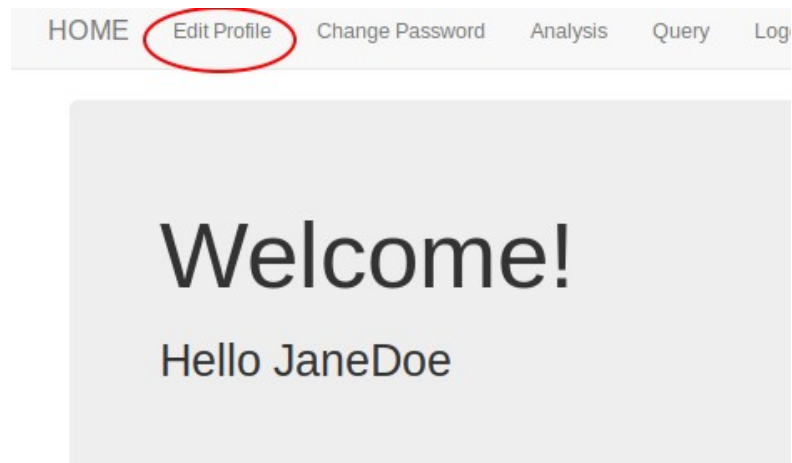
On this page, you will be prompted for your old password, a new password and the new password again to verify it. If your new passwords don't match, or do not fulfill the security requirements, you will be directed to an error page.

A screenshot of a 'Change Password' form. The title 'Change Password' is at the top in a large, bold, dark font. Below the title, there are three input fields: 'Old password:', 'New password:', and 'New password confirmation:'. Each field has a corresponding label to its left. Below the 'New password:' field, there is a bulleted list of password requirements: 'Your password can't be too similar to your other personal information.', 'Your password must contain at least 8 characters.', 'Your password can't be a commonly used password.', and 'Your password can't be entirely numeric.' At the bottom of the form, there is a 'Submit' button.

If you enter the correct old password and your new password matches its verification and meets requirements, you will be redirected to the home page.

2.4 How To Edit Profile Information

To get to the edit profile page, click on 'Edit Profile' on the navbar at the top of the screen.



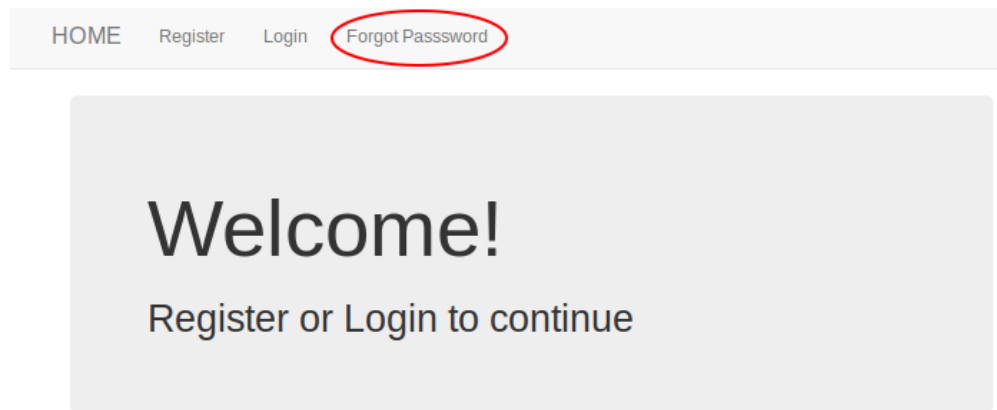
What information is already in the system will be displayed in the text fields. To edit an item, simply alter the contents of that field and hit submit.

A screenshot of a web form titled 'Profile'. The form contains several text input fields, each preceded by a label. The fields and their current values are: 'Email address:' with 'janeDoe@email.com', 'First name:' with 'Jane', 'Last name:' with 'Doe', 'Consumer key:' with 'NEWSTUFF', 'Consumer secret:' with '5678lk', 'Access token:' with 'asdf67', and 'Access token secret:' with 'ghjk98'. At the bottom of the form is a 'Submit' button.

If you leave a required field blank or have illegal characters, you will be prompted to fix that field. Otherwise, you will be successfully redirected to the home page.

2.5 How To Use Forgot Password

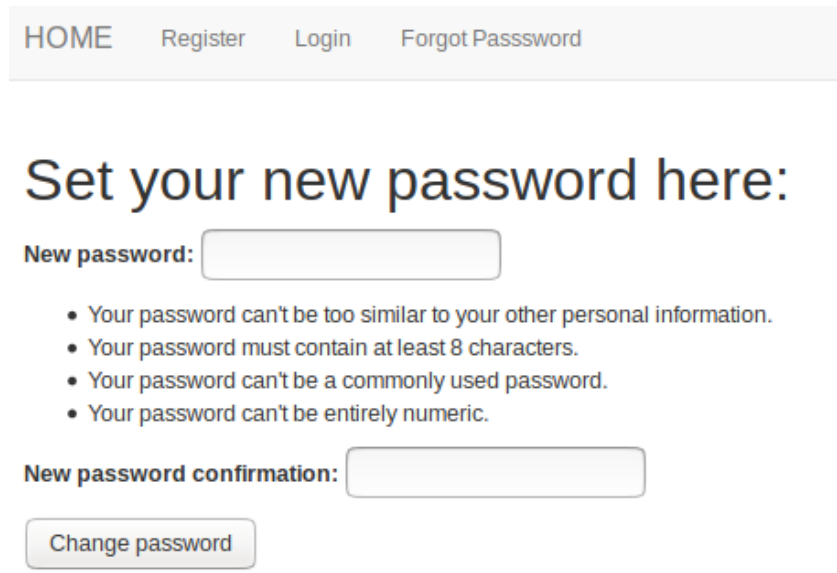
If you are not logged in and do not remember your password, click on the 'Forgot Password' button at the top of your screen.



On the next screen, enter your email address and if that email address exists in the database, you will be sent an email to reset your password. (Note to administrators: If you are using the proof-of-concept version on github, you may be storing these password reset requests as a file in the folder webapp/sent_emails, not emailing them. Please check the Advanced Use section of this guide for instructions on setting up the Forgot Password functionality.

A screenshot of a web application form titled 'Forgot your password?'. The title is in a large, bold, black font. Below the title, there is a line of text: 'Enter your email address below, and we'll send you instructions.' Below this text, there is a label 'Email:' followed by a text input field. Below the input field, there is a button labeled 'Send email'.

Once you receive the email, copy and paste the given link into your browser. You will be presented with a page that prompts you for a new password.



HOME Register Login Forgot Password

Set your new password here:

New password:

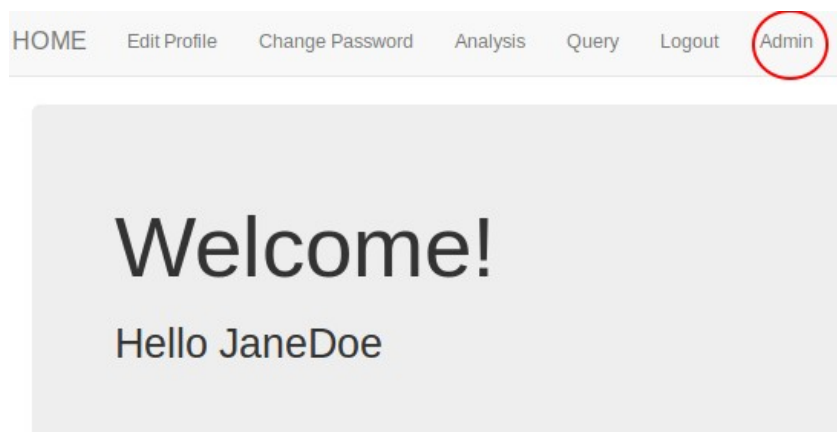
- Your password can't be too similar to your other personal information.
- Your password must contain at least 8 characters.
- Your password can't be a commonly used password.
- Your password can't be entirely numeric.

New password confirmation:

If your password does not meet the listed requirements, you will be prompted to change it. On a successful password change, you will be prompted to log in with your new password.

2.6 How To Login As Admin

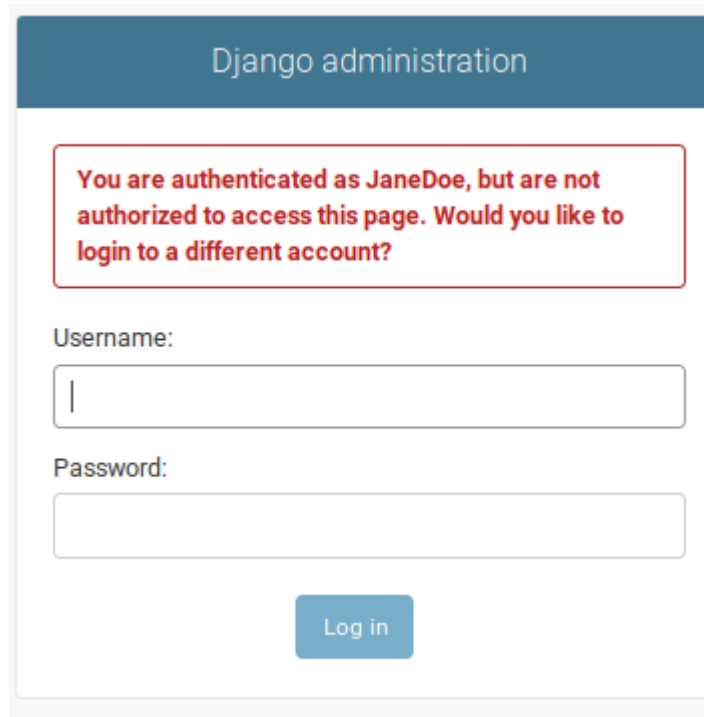
In order to access the Admin page, you will need to log into the regular site first. You may use your administrator credentials or regular credentials to do this if you wish. If you use your regular credentials, you will be prompted to enter admin credentials after clicking on the 'Admin' tab.



HOME Edit Profile Change Password Analysis Query Logout **Admin**

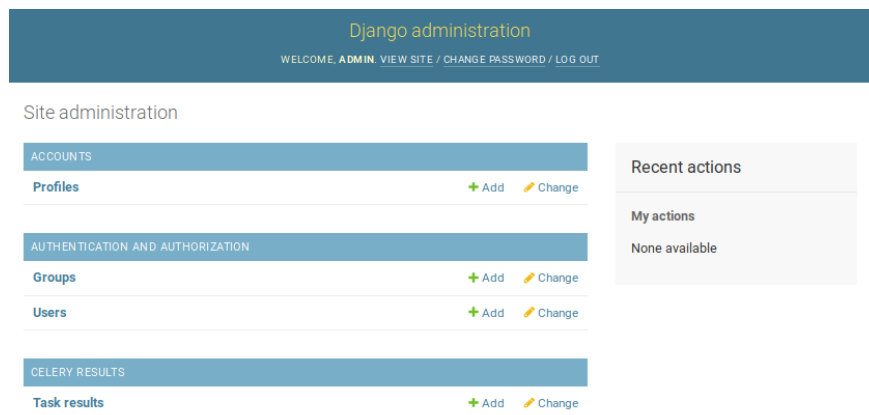
Welcome!

Hello JaneDoe



The image shows the Django administration login page. At the top is a dark blue header with the text "Django administration". Below this is a red-bordered box containing the message: "You are authenticated as JaneDoe, but are not authorized to access this page. Would you like to login to a different account?". Underneath the box are two input fields: "Username:" and "Password:". A blue "Log in" button is positioned below the password field.

After you log in with admin credentials, you will be on the administrator site.

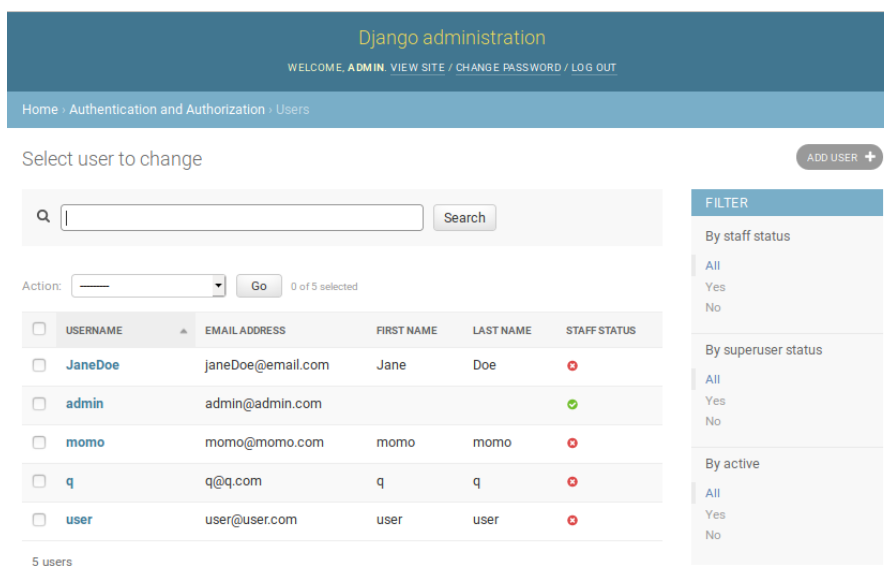
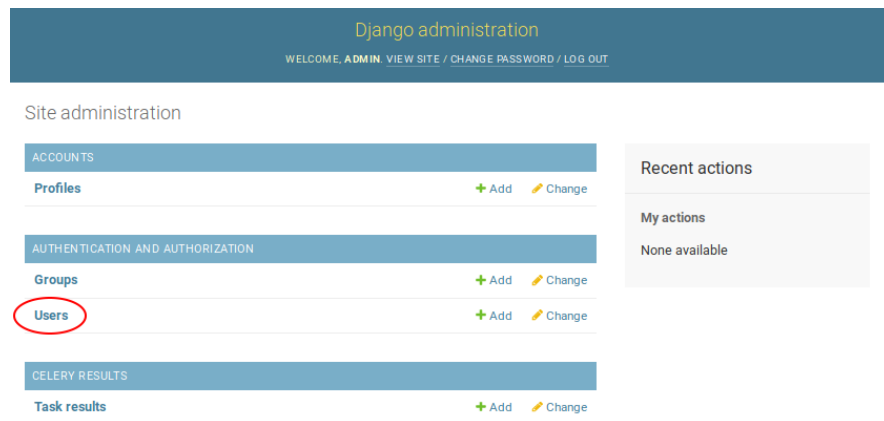


The image shows the Django administration dashboard. At the top is a dark blue header with the text "Django administration" and a navigation bar with links: "WELCOME, ADMIN", "VIEW SITE", "CHANGE PASSWORD", and "LOG OUT". Below the header is the "Site administration" section. It contains three main categories: "ACCOUNTS" with a "Profiles" link and "Add" and "Change" buttons; "AUTHENTICATION AND AUTHORIZATION" with "Groups" and "Users" links, each with "Add" and "Change" buttons; and "CELERY RESULTS" with a "Task results" link and "Add" and "Change" buttons. On the right side, there is a "Recent actions" section with a "My actions" link and the text "None available".

To return to the main site, click 'View Site' at the top of the screen.

2.7 How To Make Administrative Users

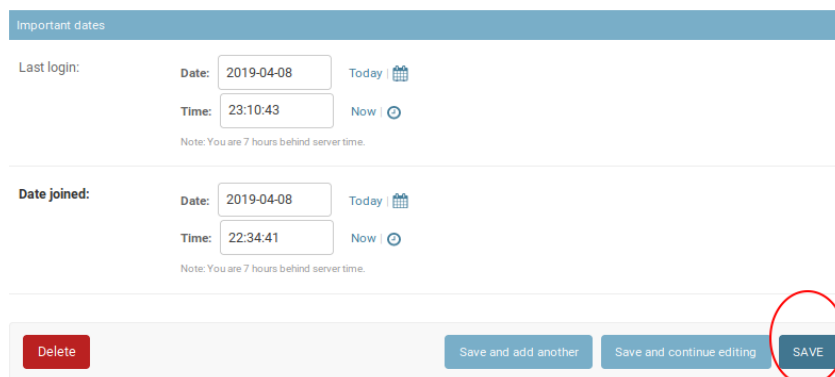
It may be helpful to have more than one administrator account. If you have accidentally deleted your only admin, you will need to create one from the command line, by navigating to the project folder, where the file `manage.py` is located, and running `'python manage.py createsuperuser'` in the command line, which will walk you through creating an admin. To make an existing user account and administrator, login to the administrator site and click on 'Users'.



Next, click on the user you wish to make administrator. Scroll down to permissions, where you can choose 'staff' (recommended) or 'superuser' (this is complete access to everything).

The screenshot shows the 'Permissions' section for a user in the Django administration interface. It has a blue header with the word 'Permissions'. Below the header, there are three sections: 'Active' (checked), 'Staff status' (unchecked), and 'Superuser status' (unchecked). Each section has a description: 'Active' designates whether the user should be treated as active; 'Staff status' designates whether the user can log into this admin site; and 'Superuser status' designates that this user has all permissions without explicitly assigning them.

Once you have selected the desired status, (Do not unselect Active unless you want to make the user inaccessible), just scroll to the bottom of the page and click 'Save'.



Important dates

Last login: Date: 2019-04-08 Today Time: 23:10:43 Now

Note: You are 7 hours behind server time.

Date joined: Date: 2019-04-08 Today Time: 22:34:41 Now

Note: You are 7 hours behind server time.

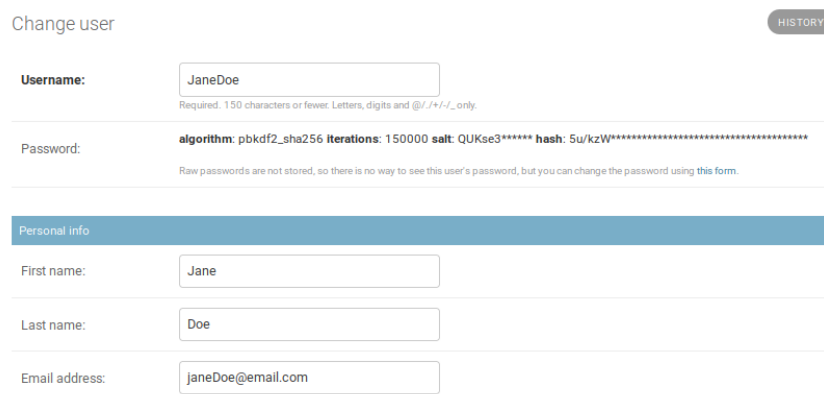
Delete Save and add another Save and continue editing **SAVE**

Congratulations! You have a new administrator.

2.8 How To Delete Or Edit Users

To edit or delete a user, log in to the administrator site as in the instructions above, then click on 'Users' under the Accounts and Authorization section. Then, click on the user you wish to edit or delete.

If you wish to edit the user, you can change the user's first name, last name, and email address on that page. A link next the password allows you to reset that as well. **DO NOT RESET THE USERNAME.** It is editable, but changing it here will not change the user ID on associated tweet studies and may have unexpected and undesired effects.



Change user HISTORY

Username: JaneDoe
Required: 150 characters or fewer. Letters, digits and @/./+/-/_ only.

Password: algorithm: pbkdf2_sha256 iterations: 150000 salt: QUKse3***** hash: 5u/kzW*****
Raw passwords are not stored, so there is no way to see this user's password, but you can change the password using [this form](#).

Personal info

First name: Jane

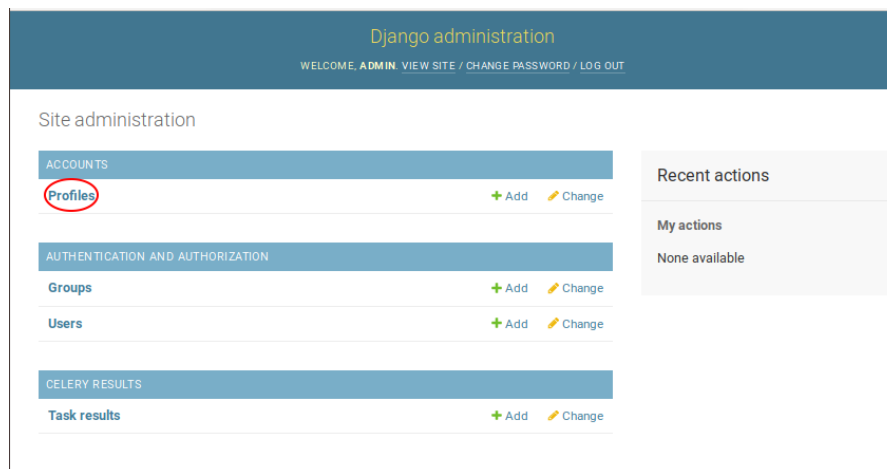
Last name: Doe

Email address: janeDoe@email.com

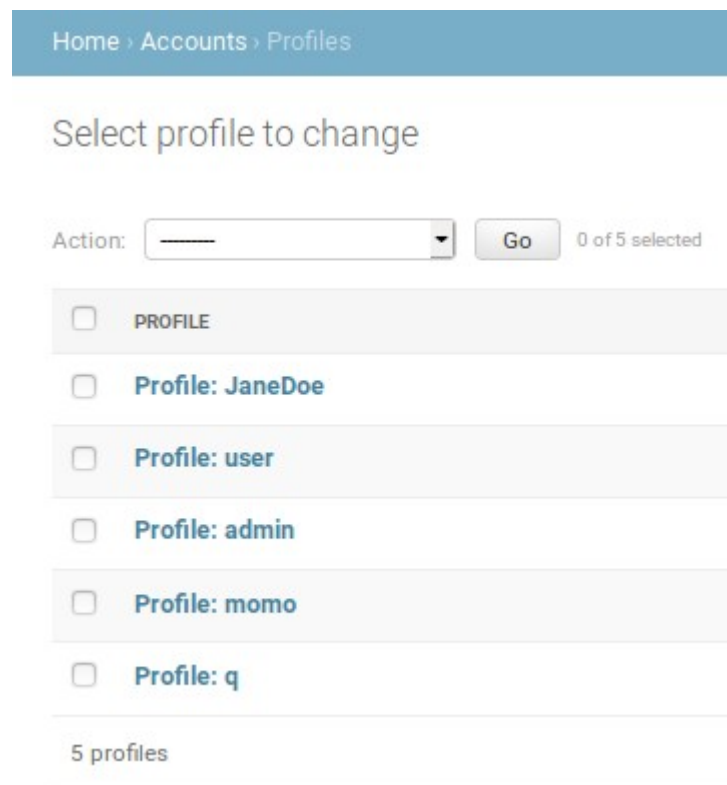
Once you have made your desired changes, scroll to the bottom of the page. On the left, click 'Delete' to remove the user. On the right, click 'Save' to save edited information.

2.9 How To Delete Or Edit User Profiles

To edit a user's profile, login to the administrator page as instructed above, and click on 'Profiles' under the Accounts section.



On the next page, click on the user you wish to edit.



These profiles contain the user's Twitter authentication credentials, which you can edit or delete as appropriate.

Home · Accounts · Profiles · Profile: JaneDoe

Change profile HISTORY

User: JaneDoe ✎ +

Consumer key: 1234gh

Consumer secret: 5678lk

Access token: asdf67

Access token secret: ghjk98

Delete Save and add another Save and continue editing SAVE

3. Running a Query

3.1 How To Run A Query

After creating a profile with correct Twitter Authentication Keys, click “Query” at the top of any page to start a query.

On the query page, you have two parameters, Keyword & Count. Keyword is the word(s)/phrase you would like to query. Count is the number of recent Tweets you’d like to query containing said Keyword. In this example, we are retrieving the 250 most recent Tweets containing the word “google”.

HOME Edit Profile Change Password Analysis Query Logout Admin

Enter a Search Term

Keyword: google Count: 250 Submit Query

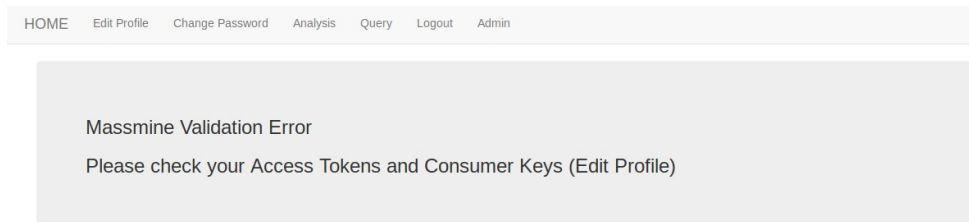
Once your query has successfully completed, you will see the following message:

HOME Edit Profile Change Password Analysis Query Logout Admin

Your Query is Complete

A New Study Has Been Created (view it in Analysis)

If your Twitter Authentication keys are invalid/incorrect, you will see the following message after a query attempt:



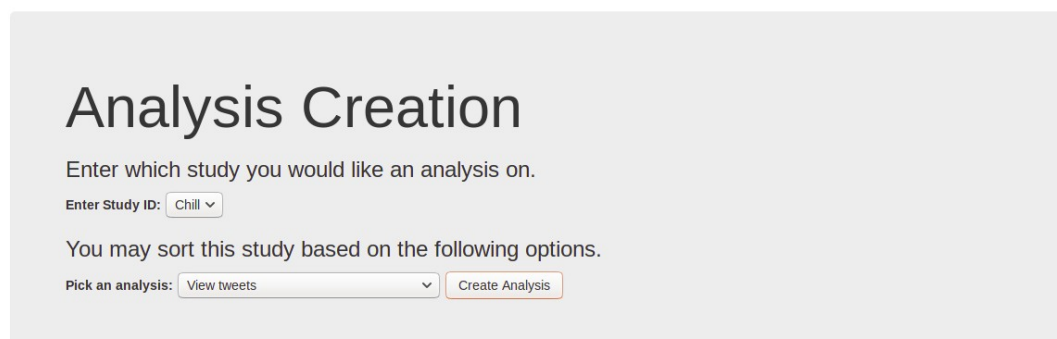
After your query has finished processing, and you see the success message “Your Query is Complete”, you can click on Analysis to see more information about your data.

4. Viewing A Study

4.1 How To View A Study

To view the study table with all associated tweets, first a study must be created by running a query.

Next navigate to the create analysis page and select a study id as well as the View Tweets analysis option.



Click create analysis and the following page will display all tweets associated with that study.

Tweet id str	Created at	Text	Device	Truncated	Retweet count	Lang	Country	In reply to status id str	In reply to
1121456486746476544	Thu Apr 25 16:50:36 +0000 2019	chill☹️ https://t.co/Wdpw1YqD0l	Twitter for Android	✖	0	en	—	—	—
1121456504685637633	Thu Apr 25 16:50:41 +0000 2019	RT @CUTTHROATFLYJET: These hoes love you till you broke man chill out	Twitter for iPhone	✖	4	en	📍 9	—	—
1121456505868443648	Thu Apr 25 16:50:41 +0000 2019	RT @valentinesmgc: \$500 for a ticket? talk about a sister scam lmao. that's a rent/food for a month for someone just to meet u. youre a god...	Twitter for iPhone	✖	258	en	📍	—	—
1121456508322164742	Thu Apr 25 16:50:41 +0000 2019	What is up crazy people and Welcome to the Captain's crew, we are a few minutes from going live on this grind in... https://t.co/JH1V13b6Z5	Twitter for Android	✓	0	en	North Carolina, USA	—	—
1121456512185065472	Thu Apr 25 16:50:42	🔴 Live Now! 🔴 Hi! Hello! Starting off with some just chatting	Twitter Web Client	✓	1	en	United States	—	—

5. Analysis

5.1 Initial Set-Up for Analysis

Firstly, it should be noted that before the analysis function may be used the user must be logged in and have a study that they queried for. In this guide the study created is ‘Soccer’. This key term is the name of a study.

There are three steps involved in creating an analysis once the initial setup is complete. Firstly, select a study from the first drop-down menu.

[HOME](#)
[Edit Profile](#)
[Change Password](#)
[Analysis](#)
[Query](#)
[Logout](#)
[Admin](#)

Analysis Creation

Enter which study you would like an analysis on.

Enter Study ID: Soccer ▼

Soccer

You may sort this study based on the following options.

Pick an analysis: Sort by sentiment ▼ Create Analysis

Then select an analysis from the drop-down menu. Click the ‘Create Analysis’ button to view it.

HOME Edit Profile Change Password Analysis Query Logout Admin

Analysis Creation

Enter which study you would like an analysis on.

Enter Study ID:

You may sort this study based on the following options.

Pick an analysis: [Create Analysis](#)

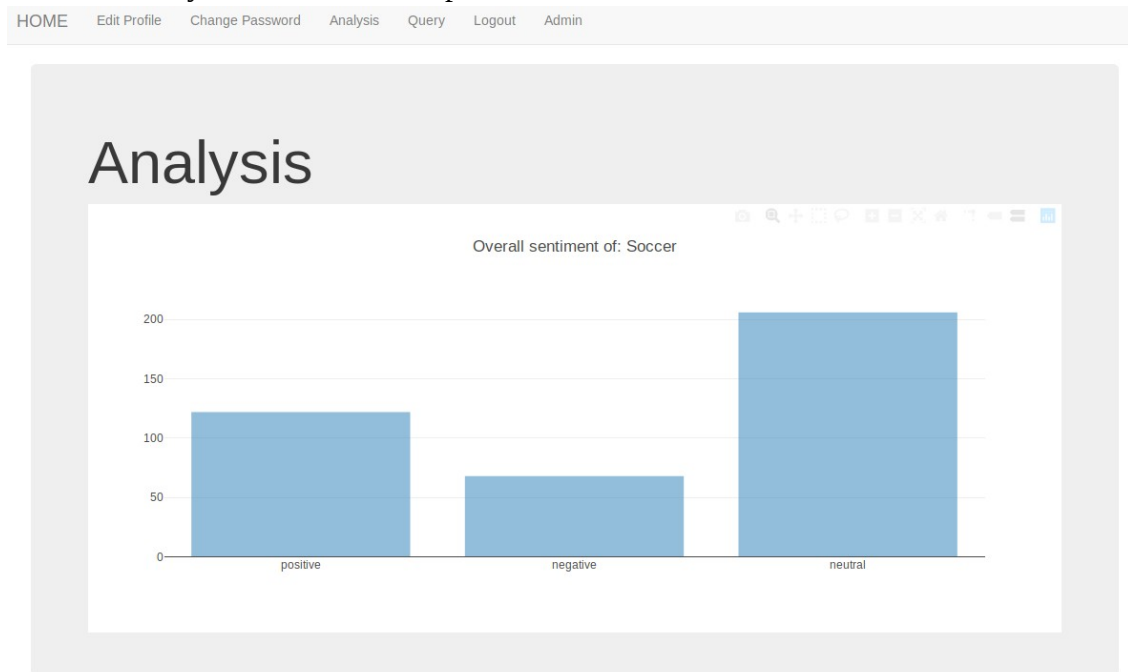
- Sort by sentiment
- Sort by the most frequently used words
- Sort by date
- View tweets

There are three analyses to choose from, in addition to the view tweets option.

5.2 How To Create An Analysis

5.2.1 How To Create A Sentiment Analysis

Once the desired study is selected, select 'Sort by sentiment' from the drop down menu then click 'Create Analysis'. The new tab opened looks as follows:



5.2.2 How To Create A Frequent Words Analysis

How to create a frequent words analysis

Once the desired study is selected, select 'Sort by the most frequently used words' from the drop down menu then click 'Create Analysis'.

HOME Edit Profile Change Password Analysis Query Logout Admin

Analysis Creation

Enter which study you would like an analysis on.

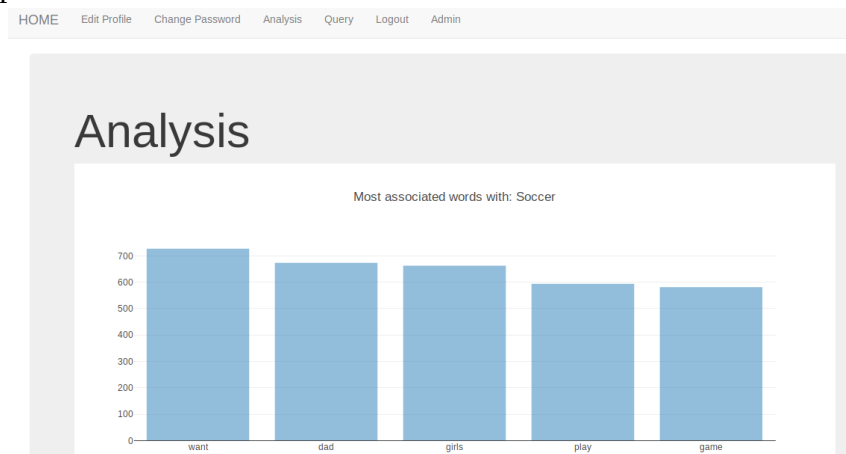
Enter Study ID:

You may sort this study based on the following options.

Pick an analysis: Create Analysis

- Sort by sentiment
- Sort by the most frequently used words
- Sort by date
- View tweets

The new tab opened looks as follows:



5.2.3 How To Create An Activity Analysis

Once the desired study is selected, select 'Sort by date' from the drop down menu then click 'Create Analysis'.

HOME Edit Profile Change Password Analysis Query Logout Admin

Analysis Creation

Enter which study you would like an analysis on.

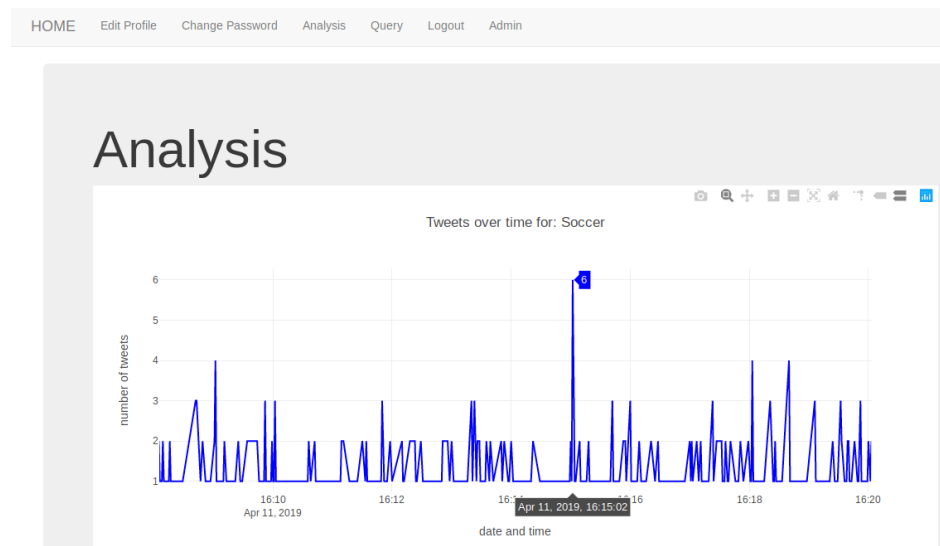
Enter Study ID:

You may sort this study based on the following options.

Pick an analysis: Create Analysis

- Sort by sentiment
- Sort by the most frequently used words
- Sort by date
- View tweets

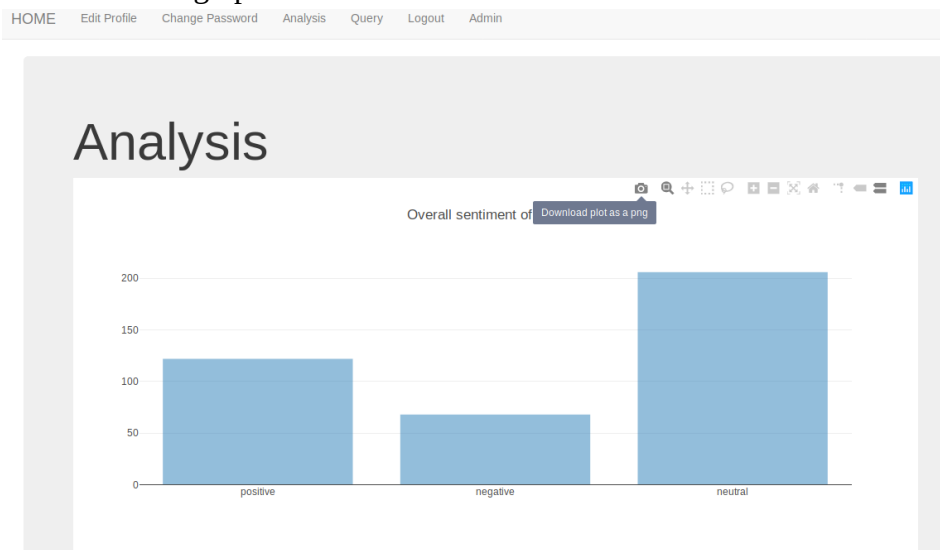
The new tab opened looks as follows:



It can be noted that the graph displays more information if the mouse hovers over data.

5.3 How To Download An Analysis

Once any analysis is created and the new graph is open on the screen, hover the mouse over the small camera icon on the graph like so:



Click this button to download the graph as an image, the web browser may prompt for permission.

It should also be noted that any graph has access to this function as well as being able to zoom in and out of the image with the '+' and '-' icons:

