User manual

1. Website URLs

1.1. Website URL

To use the application, visit:

213.168.250.159:8000

1.2. Admin URL

To use the admin page of the website, visit:

213.168.250.159:8000/admin

2. Account information

2.1. Creating an account

To create an account, from the project website (see 1.1) click ‘Log in’ from the navigation menu. From the ‘Log in’ page, click ‘Don’t have an account? Sign up’. Here, someone will be able to create a new user account subject to the following conditions:

- Use at least 4 characters for the username
- The username must be unique
- The email must be a valid email address (include the ‘@’ character)
- The password must match
- The registration key must be valid

The registration key: 1a4bCddeJk9mt

Note: The registration key can be changed from within mysite/apps/accounts/forms.py inside the clean_regkey() function.

Note: The username can only be changed from the admin account once created. Users can edit their email and password (see 2.5).

2.2. Logging in

Before using our application, a login is required. From the home page (see 1.1), click ‘Log in’ from the navigation menu.
Someone can log in using the username and password of any existing account.
There is one administrator login. Admins have the same access to the website as other users, along with being able to manage user accounts from the admin page (see 4). A sample log in is:

Username: main

Password: main-password

2.3. Resetting a user’s password

In the even that that the user has forgotten their password. From the ‘Log in’ page (see 2.2), click ‘Forgot your password? Reset password’.

Here, a user can enter the email address of an existing account. If the email address does not match an existing account, an email will not be sent.

The email address will receive a reset password link where they can then reset their password.

2.4. View profile details

To view profile details, the user must be signed in (see 2.2).

From the navigation menu, click on the username of the signed in account, and then ‘View profile’. The user will be presented with details on the following information:

- Username
- First name
- Surname
- Email

Our database does not store information about our users that we do not need, and so the first name and surname of the user will be empty. The user can add their first name and surname to their account by editing their profile details (see 2.5).

2.5. Edit profile details

To edit profile details, the user must be signed in (see 2.2).

From the navigation menu, click on the username of the signed in account, and then ‘Edit profile’. Alternatively, from the ‘View profile’ page (see 2.4), click ‘Edit profile’ in the main page.

The user will be able to edit their saved email address, add add/edit their first name or surname to their account. Once the use is happy with their changes, click ‘Submit’ to save their edits.

The user cannot change their username. Only the administrator can change usernames (see 4).

3. Using the application

The following requires a logged in account (see 2.2).

3.1. Uploading a file

3.1.1. Uploading

From the main navigation menu, click 'Project Avalon'. To upload a file, either drag and drop the desired CSV file into the drop zone, or click 'Choose a CSV file or drag it here' to open up a file explorer to upload a CSV file manually.

The uploaded file must conform to the following:

- The file must use the .csv file extension
- Only one file can be uploaded at a time
- The contents of the CSV file must adhere to the correct syntax (see 3.1.2)

3.1.2. File contents syntax

The contents of the CSV file must adhere to the following. There must be 6 columns of data beginning from the cell of the first row and first column. The columns should be in the following order:

1. Date
2. Time
3. Open
4. High
5. Low
6. Close

The syntax for each column (excluding the header) is:

1. m/d/yyyy where m=month [1-12], d=day [1-31], y=year e.g. 2009
2. h:m:ss where h=hour [0:23], m=minute [0:59], s=seconds [00-59]
3. <number>
4. <number>
5. <number>
6. <number>

3.2. Reuploading a file

From the main navigation menu, click 'Project Avalon'. To reupload a file from the database, simply locate the file from the table and then click the 'Upload' button.

3.3. Deleting files

From the main navigation menu, click 'Project Avalon'. To delete a file from the database, locate the file to be deleted from the table and click 'Remove'. The user will be taken to another page to confirm this action. Click ‘Yes’ to delete the file, otherwise click ‘Cancel’ to not delete the file.

3.4. Viewing results

3.4.1. Finding the results page

Once a file has been successfully uploaded (i.e. uploaded and ‘Generating images…’ has been displayed and finished), then a ‘View results’ button will be presented. Click this button to view the analysis results for the specific uploaded file.

3.4.2. Analysing the candlestick graph

3.4.2.1. Using the graphing software

On the ‘results’ page (see 3.4.1), click on the ‘Graph’ tab to visualise the uploaded CSV file in candlestick form.

3.4.2.2. Basic functionality

Hover over candlesticks to view their open, high, low, close values.
Use the horizontal scroll bar at the base of the graphing software to scan across the data.
The blue area directly above the horizontal scroll bar can be enlarged and reduced to specify a larger/smaller span to display candlestick graphs for, respectively.

3.4.2.3. Zoom functionality

Along the top of the graphing area, next to ‘Zoom’, the user can select any of the following buttons:

1. 10m
2. 1hr
3. 6hr
4. 1d
5. All

Each button resizes the current graph display to show candlestick graphs within the specified time frame.

Note: when lots of candlesticks are displayed, the data is aggregated by showing a single candlestick to represent multiple candlesticks. Hover over the candlestick to view the timespan. This functionality improves performance.

3.4.2.4. Specify results between dates

Along the top of the graphing area, the user can display candlesticks between specific dates. This functionality is limited to displaying data between days only.

The syntax for specifying a date:

yyyy-mm-dd where yyyy=year, mm=month, dd=day

Entering an invalid date into these fields will have no effect on how the data is displayed. If an invalid date is entered into the 'From' text field then the data will default to the earliest possible date. Similarly, an invalid data entered into the 'To' text field will default to the latest possible date.

3.4.2.5. Saving candlestick graph images

To save a snapshot of your candlestick image, click on the 3 horizontal lines at the top right of the graphing area, and then click on the format of how you wish to save your candlestick image. There is also an option to print the candlestick image.

3.4.3. Visualising the results

3.4.3.1. Accessing the TensorBoard visualisation

On the 'results' page (see 3.4.1), click on the 'Visualise' tab to visualise the uploaded data in 3D form, powered by TensorBoard.

Once the visualisation is ready, it will be displayed. If an error appears on 'failing to connect', then try refreshing the page.

3.4.3.2. Basic functionality

In the section of where the data is displayed in 3D, drag the screen to pan around the visualisation and use the scroll wheel to zoom in and out.

Clicking on candlestick images will display their file name and label. The label value represents the prediction value assigned to that specific candlestick image:

- 0: the algorithm predicts the stock will decrease
- 1: the algorithm predicts the stock will increase

3.4.3.3. Using the t-SNE algorithm to create clusters

Inside the 'DATA' pane on the left-hand-side of TensorBoard, clicking the 'T-SNE' tab will automatically apply the t-SNE algorithm on the uploaded data. The 'iterations' label in the bottom-left of TensorBoard describes the number of iterations that t-SNE has been applied.

To pause the t-SNE algorithm, press the 'pause' button within the 'T-SNE' tab, and clicking 'Resume' will continue the algorithm processing from the current number of iterations.

Clicking 'Stop' will freeze the t-SNE algorithm at the current number of iterations, but then only allowing the user to 'Re-run' the t-SNE algorithm from zero iterations again.

3.4.3.4. Further functionality

For further information on the functionality of TensorBoard, visit the official documentation:

https://www.tensorflow.org/guide/summaries_and_tensorboard

3.4.4. Prediction results

3.4.4.1. Accessing the predictions

On the 'results' page (see 3.4.1), click on the 'Results' tab to view the prediction results. Once the results are ready, they will be displayed.

The predictions label each action 'Buy', 'Sell' and 'Hold' with a percentage. Each percentage represents the probability of success of taking that action of the uploaded stock.

For example, if 'Buy' is labelled '60%', then our prediction model says buying the stock will have a 60% probability of success i.e. the stock value will increase with 60% likelihood, and thus making the user a profit.

3.4.5. Exiting the results page

Once the user is finished with their analysis, given that the visualisation and prediction results have loaded, an 'Exit' button will appear. Clicking this will kill the port used to run the TensorBoard application and return the user to the 'Upload a file' page.

Ignoring this should be fine since around 7000 ports can be used at once for running TensorBoard.

4. Admin actions

4.1. Accessing the admin page

To access the admin page, visit the URL specified in 1.2.

Use the administrator log in information to sign in. If the administrator was already logged in from the project website, then this sign in will not be required:

Username: main

Password: main-password

4.2. Basic functionality

4.2.1. Editing user details

To view all users, click ‘Users’ under ‘Authentication and Authorization’. A table of user accounts and their basic information will be presented. Clicking a username of a user will direct the admin to a form for editing user details. Once the admin is happy with their changes, scroll to the bottom and click ‘Save’.

4.2.2. Deleting users

To delete a user, follow the steps of 4.2.1 and at the bottom of the page, instead of clicking ‘Save’, click ‘Delete’ and then confirm the deletion on the following page. Alternatively, in the table of users, check the boxes of the users that are to be deleted, and then click the ‘Action’ dropdown (this is located near the top of the page next to ‘Go’), select ‘Delete selected users’, and then press ‘Go’. The deletion must be then confirmed on the following page.

4.3. More functionality

The functionality of the administrator page can be better understood by visiting the official Django admin documentation:

https://docs.djangoproject.com/en/2.2/ref/contrib/admin/