BottomLine Deployment Guide

Introduction

This document serves as step by step guide for deploying the BottomLine web application. It is assumed the reader has access to the various tools and repositories needed to complete the process and possesses basic technical skills needed to perform the steps defined in this document.

BottomLine is a web application developed using the Django web framework. The project consists of a mix of Python, HTML, and JavaScript which gets combined with the application framework itself plus a database backend.

Deployment Steps – Initial

This section covers the steps needed to perform an initial deployment of BottomLine. A later section will describe the steps needed for an incremental deployment, which will make use of existing infrastructure.

This guide discusses and instructs the installation of BottomLine in a development environment – suitable for running, testing, and exploring the application and its functionality without the system being deployed to the internet.

The following steps were tested using a Windows 10 computer running a fresh install of the Windows 10 development virtual machine from Hyper-V. These instructions assume a similar configuration of Windows 10 with no prior pre-requisite software or tools installed beyond what is already found in the image used for testing. This is an important note because while these instructions will provide everything needed to run the application in a development environment, they also assume there are no competing versions of these tools installs and any associated issues that may arise as a result.

Steps

1. Download and install Python. Use a minimum version of 3.9.
2. Ensure Python in on the system PATH:
   ```
   C:\Users\User>where python
   C:\Users\User\AppData\Local\Microsoft\WindowsApps\python.exe
   ```
3. Ensure that pip is installed as part of the Python package and is on the system PATH:
   ```
   C:\Users\User>where pip
   C:\Users\User\AppData\Local\Programs\Python\Python39\Scripts\pip.exe
   ```
4. Clone or download the BottomLine source repository. Located here.
5. Extract the repo into a directory.
6. Open a command prompt window and navigate to the directory where the project was extracted. Make sure you are in the directory with the `requirements.txt` file.
7. Install the required packages that are called out in the requirements.txt file:

   ```
   pip install -r requirements.txt
   ```

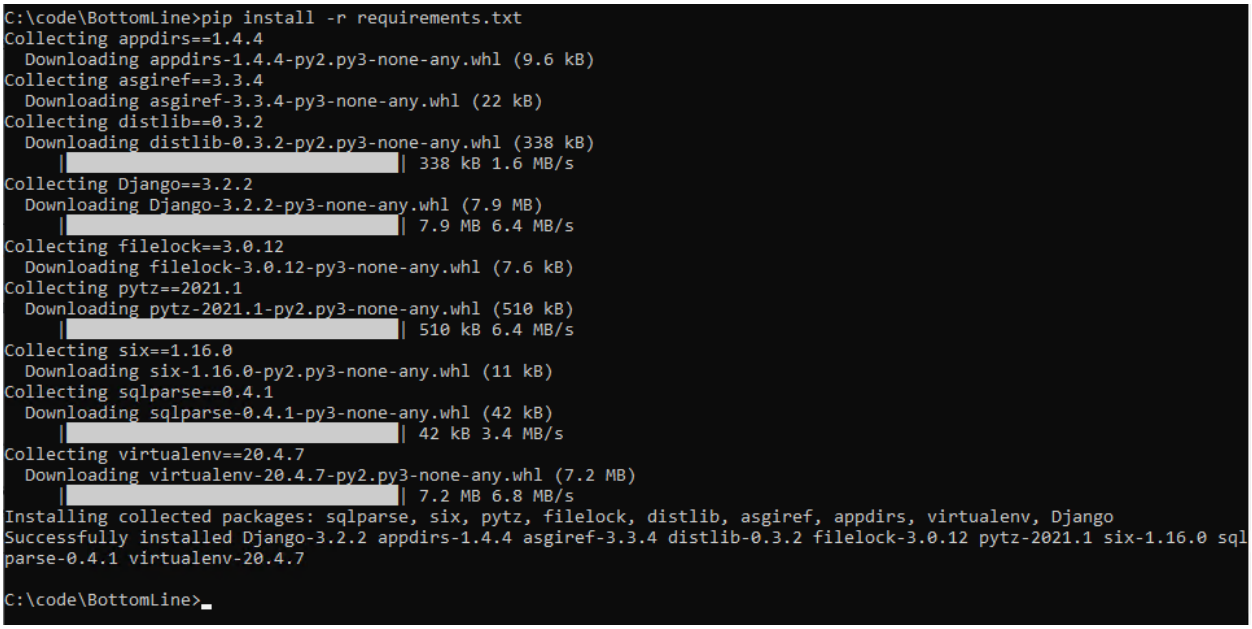

Figure 1: Installing required packages from requirements.txt using pip

8. Setup the database for BottomLine by applying the migrations needed to instantiate the database. See Figure 2 for console output example.

   ```
   python manage.py migrate
   ```

9. Start the development server using Django's built-in "`runserver`" command. See example output in Figure 3.

   ```
   python manage.py runserver
   ```

```
C:\code\BottomLine\bottomline>python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, blweb, contenttypes, sessions
Running migrations:
  Applying contenttypes.0001_initial... OK
  Applying auth.0001_initial... OK
  Applying admin.0001_initial... OK
  Applying admin.0002_logentry_remove_auto_add... OK
  Applying admin.0003_logentry_add_action_flag_choices... OK
  Applying contenttypes.0002_remove_content_type_name... OK
  Applying auth.0002_alter_permission_name_max_length... OK
  Applying auth.0003_alter_user_email_max_length... OK
  Applying auth.0004_alter_user_username_opts... OK
  Applying auth.0005_alter_user_last_login_null... OK
  Applying auth.0006_require_contenttypes_0002... OK
  Applying auth.0007_alter_validators_add_error_messages... OK
  Applying auth.0008_alter_user_username_max_length... OK
  Applying auth.0009_alter_user_last_name_max_length... OK
  Applying auth.0010_alter_group_name_max_length... OK
  Applying auth.0011_update_proxy_permissions... OK
  Applying auth.0012_alter_user_first_name_max_length... OK
  Applying blweb.0001_initial... OK
  Applying blweb.0002_vehiclemodel... OK
  Applying blweb.0003_auto_20210605_0008... OK
  Applying blweb.0004_profile... OK
  Applying blweb.0005_alter_profile_account_type... OK
  Applying blweb.0006_alter_profile_account_type... OK
  Applying blweb.0007_vehicleconfig... OK
  Applying blweb.0008_alter_vehicleconfig_config_name... OK
  Applying blweb.0009_auto_20210704_1737... OK
  Applying blweb.0010_alter_vehicleconfig_options... OK
  Applying blweb.0011_vehiclecolor... OK
  Applying blweb.0012_vehicleconfig_color... OK
  Applying blweb.0013_vehiclemodel_price... OK
  Applying sessions.0001_initial... OK

C:\code\BottomLine\bottomline>
```

Figure 2: Applying the database migrations using Django's manage.py

```
C:\code\BottomLine\bottomline>python manage.py runserver
Watching for file changes with StatReloader
Performing system checks...

System check identified no issues (0 silenced).
July 21, 2021 - 16:16:52
Django version 3.2.2, using settings 'bottomline.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
[21/Jul/2021 16:17:04] "GET / HTTP/1.1" 200 2534
```

Figure 3: starting the development server

10. At this point, the dev server is up and the application is deployed. Open a browser to verify the application is up. Navigate to http://127.0.0.1:8000. See Figure 4 for an example screenshot.

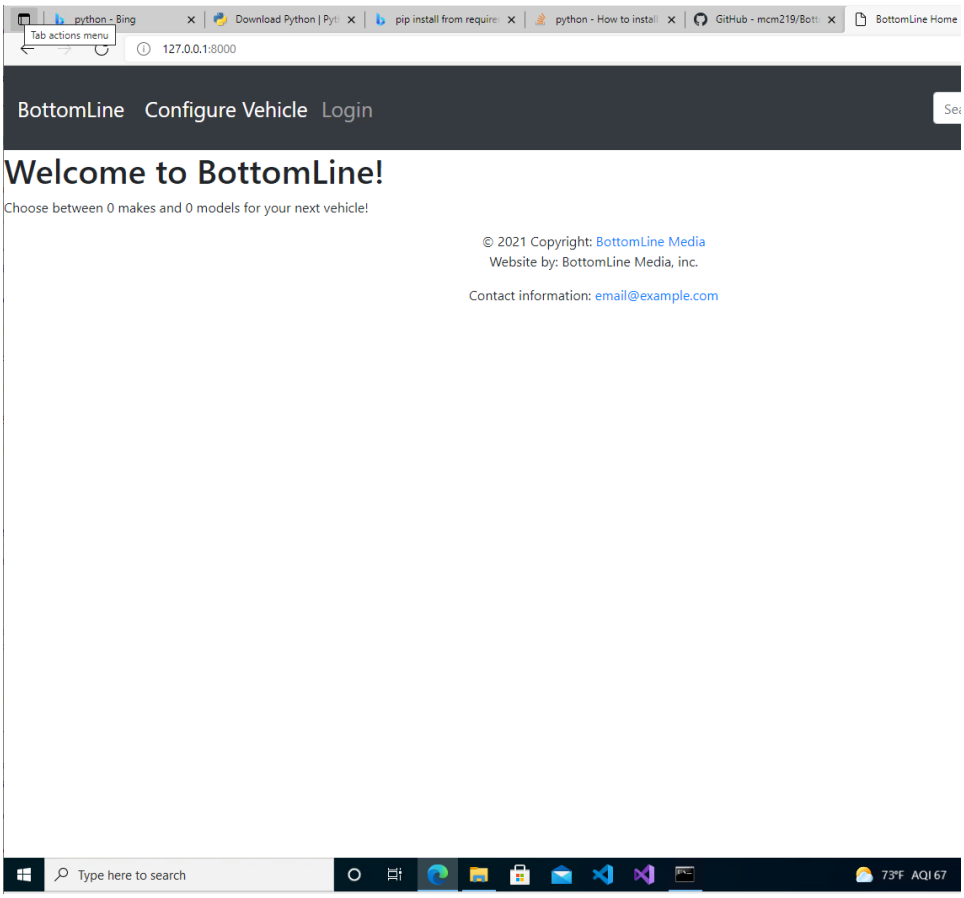

Figure 4: Verifying the app is deployed and up.

11. Stop the test server by pressing CTRL-C to end the process.
12. Add data to the database. Ensure the JSON file is in the deploy directory. Use the loaddata function of manage.py to do this as follows:

```
python manage.py loaddata “..\deploy\bottom_line_dump.json"
Installed 20 object(s) from 1 fixture(s)
```

13. Create an administrator user. Use the Django manage.py module as shown in the following steps to create a new admin account. This will be used when using any of the functionality in the admin portion of the application.

```
python manage.py createsuperuser
Username (leave blank to use 'user'): admin
Email address: admin@example.com
Password:
Password (again):
Superuser created successfully.
```

14. Start the test server again (as in step 9)

```
python manage.py runserver
```

15. Go to the admin portal and verify the new admin credentials work correctly. Open a browser and navigate to http://127.0.0.1:8000/admin. Log in with the username and password created in step 13.
16. Once logged in, you should be presented with a page similar to that shown in Figure 5 below.
17. This completes the steps needed to deploy the BottomLine application.

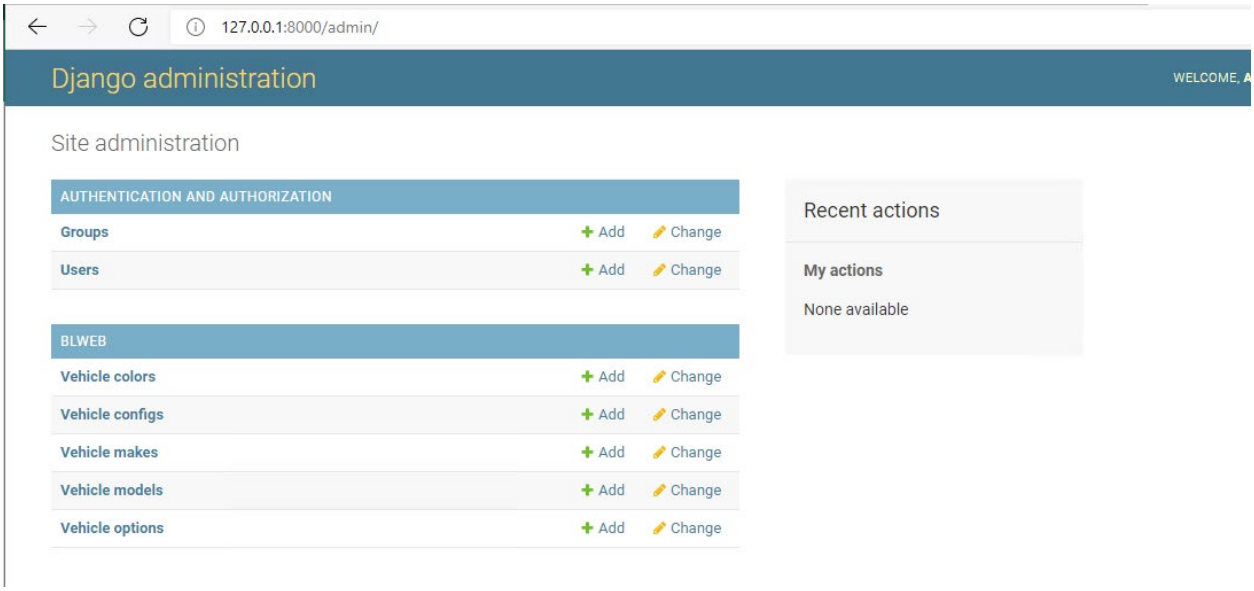

Figure 5: Admin portal

References

- Django deployment checklist: https://docs.djangoproject.com/en/3.2/howto/deployment/checklist/
- BottomLine git repo: https://github.com/mcm219/BottomLine
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