

Script Programming/Python CSCI-3351-01

Goon Squad Team

Bachelor's in Computer Science and Cybersecurity

Final Project Report

University of New Haven TAGLIATELA COLLEGE OF ENGINEERING, West Haven, CT

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Submitted To: Prof. Reza Sadeghi

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1.1 Team

Name of the Team: Goon Squad

Members:

- 1. Brandon Trundy (Team Head) btrun1@unh.newhaven.edu
- 2. Steven Atilho (Team Member) satil1@unh.newhaven.edu
- 3. Colin Dunn (Team Member) cdunn5@unh.newhaven.edu
- 4. Andrew Mahr (Team Member) amahr1@unh.newhaven.edu
- 5. Andrew Manfredi (Team Member) amanf1@unh.newhaven.edu

1.2 Objective

The goal of our project is to create a website that can operate as a Resume/Biography platform for students. All group members have a section in the About web application to display various sections of information, such as research, professional experience, and pictures. The purpose of this website is to serve as a student's collection of personal information that can be shared to job recruiters or universities. Each aspect of the website will be split amongst several interactive web applications. Each web app or section of the web server will contain its own associated static HTML and/or CSS. A YouTube Series produced by Hacker Shack (Aaron and Davis) was used as a template for the production and development of the website.

1.3 Website Outline

- 1. Web-Admin Portal
 - (a) This web app will be a login portal for registered users of the website, such as admins or forum users. It will use the Django Auth app to create users and implement a login/logout page. There will also be portal views that are restricted by login status.

2. Postgres Database

(a) This database will contain data used throughout the web apps such as images, login usernames, password hashes, and other files. We will first create a Docker image to be able to run apps on any machine, and then we will set up a Postgres database connected to all services using a Docker Compose file.

3. Student About Page

(a) This area will be a block of code which will present the photos and biographies of the team. The following information you will find in each user's biography includes: a brief description of each member, their experience/work experience, research they're involved in, their skillset, and courses they've taken.

4. Contact Page

(a) This page will be a contact form through which users can contact the team for more information or submit comments about the website we have added our emails where we can be reached there.

5. Profile Page

(a) This section will be a short admin/account portal for users of the website. It will contain an avatar picture, a short section for interests, and a short biography. In order to reach this page, the user will be prompted to log in with their username and password.

2 Django Python and Docker Implementation

2.1 settings.py

The Django settings file contains all the configuration of our Django project. The settings file is just a Python module with module-level variables. For example, BASEDIR points to top hierarchy of the project, whatever paths we define in the project are all relative to BASEDIR. To use BASEDIR we had to use the 'os' module provided by python. Furthermore, for the INSTALLEDAPPS variable section, we mention all apps that will be used in our Django project. In the DATABASES section, we specified the Postgres database that we integrated into our site. (dja [2020])

```
TEMPLATES = [
                                                                                   "BACKEND": "django.template.backends.django.DjangoTemplates",
                                                                                   "DIRS": [os.path.join(PROJECT_DIR, "templates")],
Django settings for goonsquad_website project.
                                                                                   "APP DIRS": True,
                                                                                   "OPTIONS": {
Generated by 'django-admin startproject' using Django 3.1.3.
                                                                                       "context_processors": [
                                                                                           "django.template.context_processors.debug",
For more information on this file, see
                                                                                           "django.template.context_processors.request",
https://docs.djangoproject.com/en/3.1/topics/settings/
                                                                                           "django.contrib.auth.context_processors.auth",
                                                                                           "django.contrib.messages.context_processors.messages",
For the full list of settings and their values, see
https://docs.djangoproject.com/en/3.1/ref/settings/
                                                                                  3.
                                                                               },
from pathlib import Path
import os
                                                                           WSGI_APPLICATION = "goonsquad_website.wsgi.application"
# Build paths inside the project like this: BASE_DIR / 'subdir'.
BASE_DIR = Path(__file__).resolve().parent.parent
                                                                           # Database
PROJECT_DIR = os.path.join(BASE_DIR, "goonsquad_website")
                                                                           # https://docs.djangoproject.com/en/3.1/ref/settings/#databases
                                                                           POSTGRES_HOST = os.environ.get("POSTGRES_HOST", default="")
                                                                           POSTGRES_DB = os.environ.get("POSTGRES_DB", default="postgres")
# Quick-start development settings - unsuitable for production
                                                                           POSTGRES_USER = os.environ.get("POSTGRES_USER", default="")
# See https://docs.djangoproject.com/en/3.1/howto/deployment/checklist/
                                                                           POSTGRES PASSWORD = os.environ.get("POSTGRES PASSWORD", default="")
# SECURITY WARNING: keep the secret key used in production secret!
                                                                           DATABASES = {
SECRET_KEY = "i-v%y82d-(w*l=hsjtbiu8r&#m8b7n3gieixs=rtbzu0)v%a%5"
                                                                               "default": {
                                                                                   "ENGINE": "django.db.backends.postgresql",
# SECURITY WARNING: don't run with debug turned on in production!
                                                                                   "NAME": POSTGRES DB.
DEBUG = True
                                                                                   "USER": POSTGRES USER.
                                                                                   "PASSWORD": POSTGRES_PASSWORD,
ALLOWED HOSTS = [1
                                                                                   "HOST": POSTGRES_HOST,
                                                                                   "PORT": 5432.
# Application definition
                                                                           }
INSTALLED_APPS = [
    "django.contrib.admin",
                                                                           # Password validation
    "django.contrib.auth",
                                                                           # https://docs.djangoproject.com/en/3.1/ref/settings/#auth-password-validators
    "django.contrib.contenttypes",
    "diango.contrib.sessions".
                                                                           AUTH PASSWORD VALIDATORS = [
    "django.contrib.messages",
                                                                                   "NAME": "django.contrib.auth.password_validation.UserAttributeSimilarityValidator",
    "django.contrib.staticfiles",
    "goonsquad_website.apps.accounts",
                                                                               3.
    "goonsquad_website.apps.contact",
                                                                                   "NAME": "django.contrib.auth.password_validation.MinimumLengthValidator",
                                                                               }.
                                                                               {
MIDDLEWARE = [
                                                                                   "NAME": "django.contrib.auth.password_validation.CommonPasswordValidator",
    "django.middleware.security.SecurityMiddleware",
                                                                               },
    "django.contrib.sessions.middleware.SessionMiddleware",
                                                                               {
    "diango.middleware.common.CommonMiddleware".
                                                                                   "NAME": "django.contrib.auth.password_validation.NumericPasswordValidator",
    "django.middleware.csrf.CsrfViewMiddleware",
                                                                               },
    "diango.contrib.auth.middleware.AuthenticationMiddleware".
    "django.contrib.messages.middleware.MessageMiddleware",
    "django.middleware.clickjacking.XFrameOptionsMiddleware",
                                                                           # Internationalization
                                                                           # https://docs.djangoproject.com/en/3.1/topics/i18n/
ROOT_URLCONF = "goonsquad_website.urls"
                                                                           LANGUAGE_CODE = "en-us"
```

```
# Internationalization
# https://docs.djangoproject.com/en/3.1/topics/i18n/
LANGUAGE_CODE = "en-us"
TIME ZONE = "UTC"
USE_I18N = True
USE_L10N = True
USE_TZ = True
# Static files (CSS, JavaScript, Images)
# https://docs.djangoproject.com/en/3.1/howto/static-files/
STATIC_URL = "/static/"
STATICFILES_DIRS = [os.path.join(BASE_DIR, "static")]
# Django Auth Settings
LOGIN_URL = "accounts:login"
LOGIN_REDIRECT_URL = "accounts:profile"
LOGOUT_REDIRECT_URL = "public:index"
EMAIL_BACKEND = "django.core.mail.backends.console.EmailBackend"
DEFAULT_FROM_EMAIL = "goonsquadwebsite@gmail.com"
```

2.2 admin.py

The admin.py file reads metadata from the project's models and provides an interface wherein "superusers" can manage content on the website. The capabilities of this interface are limited, and it should not be used to build the site's entire front-end. After specifying the URL path of the admin page, it can be accessed through the website. It can then be decided which of the app's models can be edited through the admin interface.

```
from django.contrib import admin

from .models import UserProfile, UserPersona, UserInterest

admin.site.register(UserProfile)

admin.site.register(UserPersona)

admin.site.register(UserInterest)
```

2.3 urls.py

URLS.py tells Django to search for URL patterns in the file books/urls.py. It also converts Python functions into a response that the HTTP can handle, like a 404. Every person who views the website needs to be handled by the Python module called URLConf which handles the way the site views your URL connections.

```
"""goonsquad_website URL Configuration
The `urlpatterns` list routes URLs to views. For more information please see:
    https://docs.djangoproject.com/en/3.1/topics/http/urls/
Function views

    Add an import: from my_app import views

    2. Add a URL to urlpatterns: path('', views.home, name='home')
    1. Add an import: from other app.views import Home
    2. Add a URL to urlpatterns: path('', Home.as_view(), name='home')
Including another URLconf
    1. Import the include() function: from django.urls import include, path
    Add a URL to urlpatterns: path('blog/', include('blog.urls'))
from django.contrib import admin
from django.urls import path, include
# from django.contrib.auth import views as auth views
# from django.views.generic.base import TemplateView
from . import views
urlpatterns = [
    path("admin/", admin.site.urls),
    path("", include("goonsquad_website.apps.public.urls")),
    # path('accounts/profile', views.ProfileView.as_view(), name="profile"),
    path("accounts/", include("goonsquad_website.apps.accounts.urls")),
    path("contact/", include("goonsquad_website.apps.contact.urls"))
    # This is Django Auth stuff
]
# Differnt Django Views
# accounts/login/ [name='login']
# accounts/logout/ [name='logout']
# accounts/password_change/ [name='password_change']
# accounts/password_change/done [name='password_change_done']
# accounts/password_reset [name='password_reset']
# accounts/password_reset/done [name='password_reset_done']
# accounts/reset/<uidb64>/<token>/ [name='password_reset_confirm']
# accounts/reset/done [name='password_reset_complete']
```

2.4 asgi.py

The ASGI python file has us supply an application call which the application server uses to communicate with your code. It's commonly provided as an object named application in a Python module accessible to the server. When the ASGI server loads our application, Django needs to import the settings module, where our entire application is defined.

```
ASGI config for goonsquad_website project.

It exposes the ASGI callable as a module-level variable named ``application``.

For more information on this file, see
https://docs.djangoproject.com/en/3.1/howto/deployment/asgi/
"""

import os

from django.core.asgi import get_asgi_application

os.environ.setdefault("DJANGO_SETTINGS_MODULE", "goonsquad_website.settings")

application = get_asgi_application()
```

2.5 views.py

Views.py is a function that gets an HTTP request and returns an HTTP response. This HTTP response is what shows up on a web page. An example of what the HTTP response could return HTML code for the web page.

```
from django.shortcuts import render

# Create your views here.

from django.http import HttpResponse, HttpRequest

# from django.template import loader

def index(request):
    print(request.user)
    return render(request, "index.html")

def about(request):
    return render(request, "about.html")

# def contact(request):
    return render(request, "contact.html")
```

2.6 DockerFile

The Dockerfile is a text doc containing all the shell commands we could execute on the CLI to assemble an image of our containerized website. Using the docker build command we can create an automatic build that executes several CLI instructions in order. The docker build command builds an image from a Dockerfile and a context. The build's context is the set of files at a specified location PATH or URL. The PATH is a directory on your local file system. The URL is a Git repository location. The Docker daemon runs the instructions in the Dockerfile one-by-one, committing the result of each instruction to a new image if necessary, before finally outputting the ID of your new image. doc [2020]

```
FROM python:3.9.0-slim as production
ENV PYTHONUNBUFFERED=1
WORKDIR /app/
RUN apt-get update && \
    apt-get install -y \
    bash \
    build-essential \
    gcc \
    libffi-dev \
   musl-dev \
   openss1 \
    postgresql \
   libpq-dev
COPY requirements/prod.txt ./requirements/prod.txt
RUN pip3 install -r ./requirements/prod.txt
COPY manage.py ./manage.py
COPY setup.config ./setup.config
COPY goonsquad_website ./goonsquad_website
EXPOSE 8000
FROM production as development
COPY requirements/dev.txt ./requirements/dev.txt
RUN pip3 install -r ./requirements/dev.txt
COPY . .
```

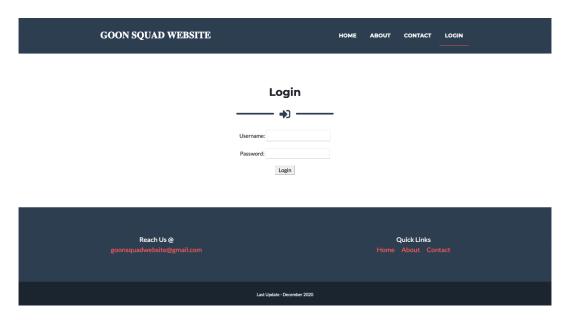
2.7 docker-compose.yml

The docker-compose.yml file describes the services that make our website. In our project, those services are a Django web server, and a Postgres database. The compose file also describes which Docker images these services use, how they link together, and any volumes they might need to be mounted inside the containers. Finally, this file describes which ports these services expose.

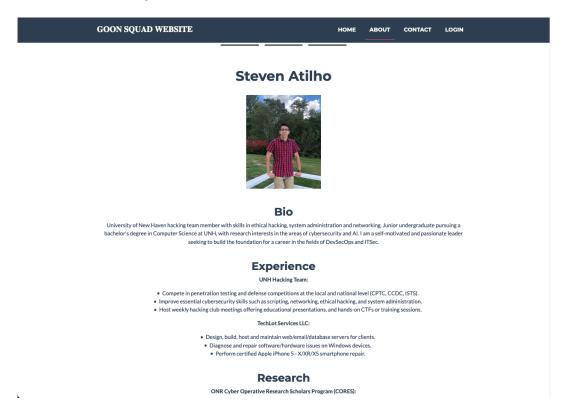
```
version: "3.7"
x-service-volumes: &service-volumes
  - ./:/app/:rw,cached
x-database-variables: &database-variables
 POSTGRES_DB: postgres
 POSTGRES_USER: postgres
 POSTGRES_PASSWORD: postgres
x-app-variables: &app-variables
  <<: *database-variables
 POSTGRES_HOST: postgres
services:
  website:
   image: goonsquad_website:latest
    command: python3 manage.py runserver 0.0.0.0:8000
    volumes: *service-volumes
   environment: *app-variables
    depends_on:
      - db_migrate
    ports:
      - "8000:8000"
 db_migrate:
    image: goonsquad_website:latest
    command: python3 manage.py migrate
    volumes: *service-volumes
    environment: *app-variables
    depends_on:
      - postgres
  postgres:
    image: postgres
    ports:
      - "5432:5432"
    environment: *database-variables
    volumes:
      - db-data:/var/lib/postgresql/data
volumes:
 db-data:
```

3.1 Web Applications

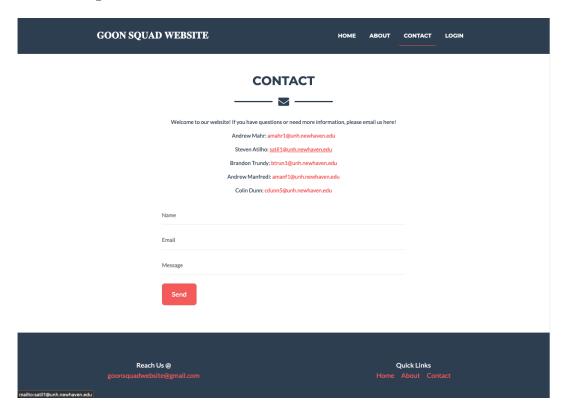
1. Web-Admin Portal



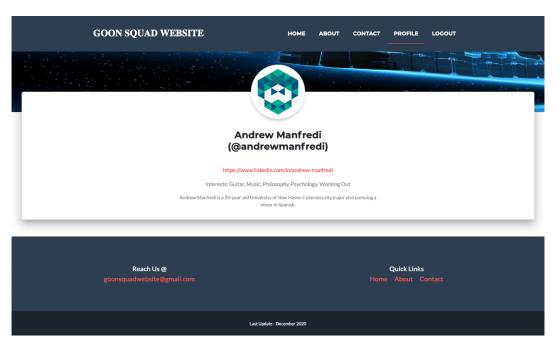
2. Student About Page



3. Contact Page



4. Profile Page



4.1 HTML Design

In order to build the website interface and create the real design of the website, the team used templates and styles from Bootstrap and its Freelancer template (boo [2020]). The team made modifications and changes to style and colors to fit the specifications desired for the website. In order to use the templates within the project, the team referenced the HTML and CSS code found within the template.

4.1.1 base.html

This html file deals with the base for every page of the website. This is where the header and footer are declared, and all the necessary styling and css information writen in HTML.

```
e... > goonsquad_website > templates > 💠 base.html
       {% load static %}
       <!DOCTYPE html>
         <meta charset="utf-8">
         <title>{% block title %}Goon Squad Website{% endblock %}</title>
         <meta charset="utf-8" />
         <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no" />
         <meta name="description" content="" />
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26
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43
44
         <meta name="author" content=""</pre>
         <script src="https://use.fontawesome.com/releases/v5.13.0/js/all.js" crossorigin="anonymous"></script>
         <link href="https://fonts.googleapis.com/css?family=Montserrat:400,700" rel="stylesheet" type="text/css" />
<link href="https://fonts.googleapis.com/css?family=Lato:400,700,400italic,700italic" rel="stylesheet" type="text/css" /:</pre>
         <!-- Core theme CSS (includes Bootstrap)-
         <link href="{% static 'css/main.css' %}" rel="stylesheet" />
         {% block head %}
         {% endblock %}
         {% include 'navbar.html' %}
         <main id="main"
           {% block content %}
           {% endblock %}
         <script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
         <script src="{% static 'theme/js/scripts.js' %}"></script>
       {% include 'footer.html' %}
```

4.1.2 index.html

This html file deals with the content displayed on the homepage. It has a brief overview of the website and the project itself.

```
(% backents) hase_html' %]

(% block title %)Gandalf&#8217s Goon Squad Fan Page(% endblock %)

(% block content %)

(% block content %)

(% comment %) <ing class="masthead-avatar mb-5" src="(% static 'theme/assets/ing/portfolio/submarine.png'%)" alt="" /> (% endcomment %)

cheader class="masthead text-white text-center")

clock content %, ling class="masthead-avatar mb-5" src="(% static 'theme/assets/ing/portfolio/submarine.png'%)" alt="" /> (% endcomment %)

clock content %)

clock content %, ling class="masthead-avatar mb-5" src="(% static 'ing/Andrew-Logo-Rounded.png'%)" alt="" /> (% endcomment %)

clock content %, ling class="masthead-avatar mb-5" src="(% static 'ing/Andrew-Logo-Rounded.png'%)" alt="" /> (% endcomment %)

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clock content %, ling class="masthead-avatar mb-5" src="(% static 'ing/Andrew-Logo-Rounded.png'%)" alt="" /> (% endcomment %)

class="divider-custom-ling"> (div class="masthead-avatar mb-5" src="(% static 'ing/Andrew-Logo-Rounded.png'%)" alt="" /> (% endcomment %)

clock class="divider-custom"> (div class="divider-custom-line"> (di
```

4.1.3 footer.html

This html file deals with the content displayed at the bottom of every page. It includes links to the important pages of the website and displays the team email created for the project.

4.1.4 navbar.html

This html file deals with the creation of the navbar at the top of every page. The navbar contains the team name, and buttons with links to the important pages, login, and other information.

```
($ wn' publication: as about_un! $)
($ wn' accounts:login' as login_un! $)
($ wn' accounts:login_un! $)
($ wn' accounts:login_un!
```

4.1.5 about.html

This html page contains all of the groups information. This information includes pictures, biographies, skillsets, experience and anything more that team members wished to include.

```
(% extends 'base.html' %)
(% loads taitc %)
(dink href="(% static 'css/profile.css' %)" rel="stylesheet" />
(% block title %)Gandalf&#82175 Goon Squad Fan Page(% endblock %)
(% block content %)
(% comment %) (imp class="masthead-avatar mb-5" src="(% static 'theme/assets/img/portfolio/submarine.png'%)" alt="" /> (% endcomment %)

theader class="masthead text-white text-center")

(div class="container d-flex align-items-center flex-column")

(-- hasthead Avatar image=-)

{% comment %) (imp class=masthead-avatar mb-5" src="(% static 'img/Andrew-Logo-Rounded.png'%)" alt="" /> (% endcomment %)

(-- hasthead Avatar image=-)

(ht class="masthead-heading text-uppercase mb-0">Final Project CSCI-3351-01</hd>

(h1)

(div)

(class="masthead-heading text-uppercase mb-0">Final Project CSCI-3351-01</hd>

(h1)

(div)

(class="divider-custom=line">//div)

(div)

(div)

(div)

(alsas="divider-custom=line">//div)

(div)

(div)

(div)

(alsas="divider-custom=line">//div)

(div)
```

4.1.6 contact.html

This html page contains a contact form from which users could contact the team for access to the website or to notify the team of any issues with the website.

```
[% extends 'base.html' %]
{% block title %}Contact{% endblock %}
{% block content %}
        <h2 class="page-section-heading text-center text-uppercase text-secondary mb-0">Contact</h2>
        <div class="divider-custom">
            <div class="divider-custom-icon"><! class="fas fa-envelope"></i></div>
<div class="divider-custom-line"></div></div></div</di>
            <div class="text-center text-secondary mb-0">
                   Welcome to our website! If you have questions or need more information, please email us here!
                    Andrew Mahr: <a href="mailto:amahr1@unh.newhaven.edu">amahr1@unh.newhaven.edu</a>
                    Steven Atilho: <a href="mailto:satil1@unh.newhaven.edu">satil1@unh.newhaven.edu</a>
                   Brandon Trundy: <a href="mailto:btrun1@unh.newhaven.edu">btrun1@unh.newhaven.edu</a>
                    Andrew Manfredi: <a href="mailto:amanf1@unh.newhaven.edu">amanf1@unh.newhaven.edu</a>
                   Colin Dunn: <a href="mailto:cdunn5@unh.newhaven.edu">cdunn5@unh.newhaven.edu</a>
        <div class="row"
                {% if success %}
                 <div class="alert alert-success" role="alert">
                    Your message was sent! Check your inbox for a response.
                {% endif %}
```

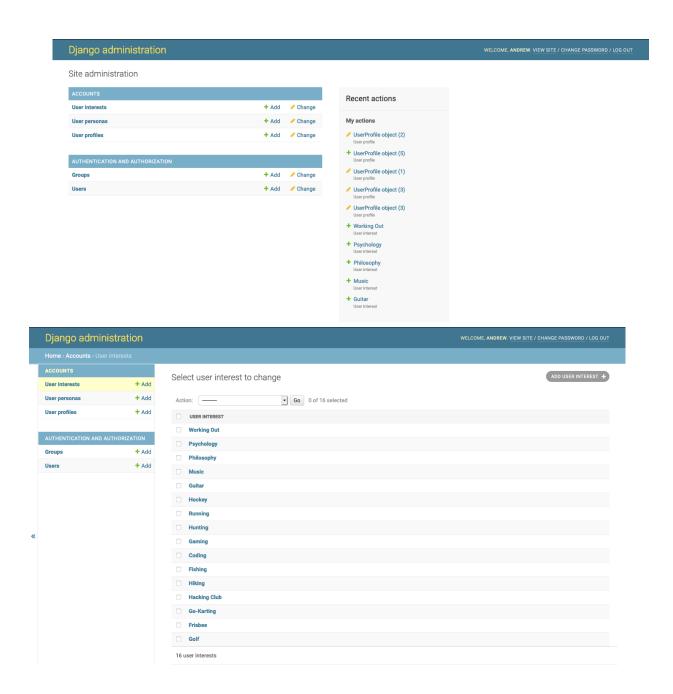
5.1 Postgres Database

The Postgres database contains the information about the users, passwords, and other data used within the website. Below is a picture of the different tables within the Postgres database. (pos [2020])



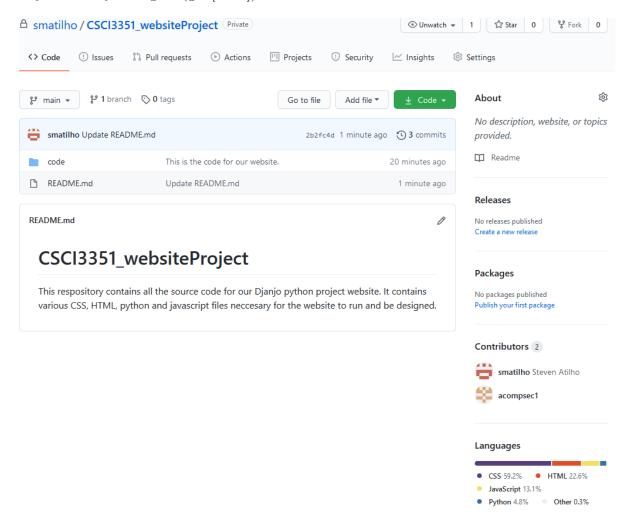
5.2 Django Admin Portal

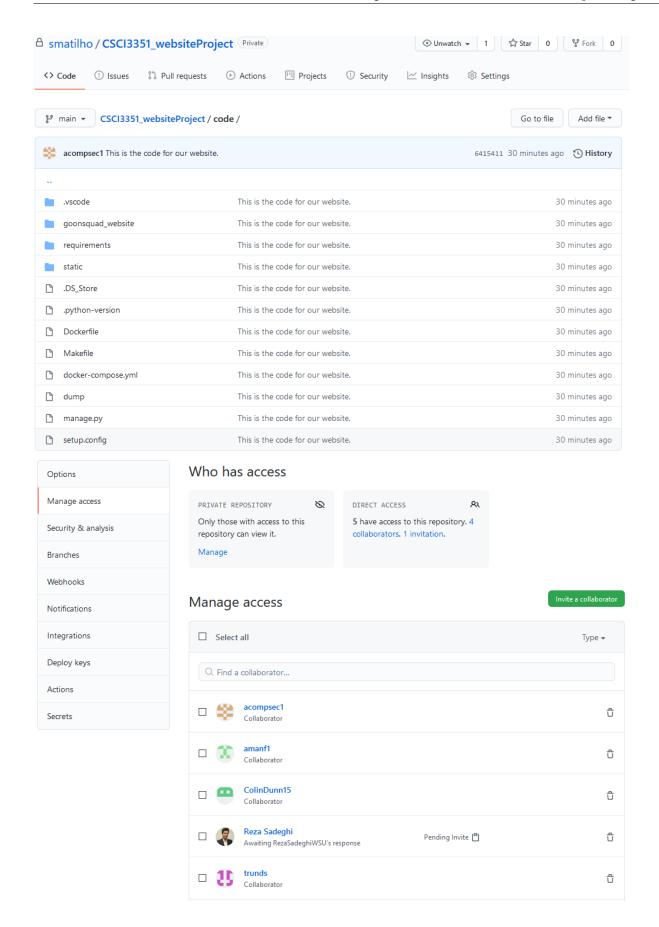
This is the Django admin portal where administrators can add or remove users, profiles, interests and other database information.



6.1 Pushing to Github

Once we completed the source code for our website, we pushed the entire folder onto a Github repository that was shared among all the group members, and the professor for collaboration purposes. This allows anyone to clone the repository onto their device and commit any necessary changes. (git [2020])





References

- Aaron and Davis. Hacker shack: How to make a website with python and django e01-e07. URL https://www.youtube.com/channel/UCEcNXmr7DYq1XxpWHSxaNOw.
- Django is a high-level python web framework that encourages rapid development and clean, pragmatic design. https://www.djangoproject.com/, 12 2020. Accessed on 2020-11-25.
- Get started with docker, we help developers and development teams build and ship apps. https://www.docker.com/, 12 2020. Accessed on 2020-11-25.
- Free bootstrap themes & templates. https://startbootstrap.com/themes, 12 2020. Accessed on 2020-11-25.
- Postgresql: The world's most advanced open source relational database. https://www.postgresql.org/, 12 2020. Accessed on 2020-11-25.
- Github is a development platform inspired by the way you work. https://github.com/, 12 2020. Accessed on 2020-11-25.