


# *PYTHON WEB TUTORIAL*

*Instructor: Joshua John*

# *Outline*

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- Goal
  - Prerequisites
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  - A simple HTML Page
  - HTML with CSS
  - Adding Bootstrap
  - Installing Python with Others
  - Installing Flask
  - Building our first web app
  - MAIN EVENT
- 

## *Goal*

To develop and host a staff management app

- Features: Admin creates, updates, view and deletes staff
  - Admin login and register
-

# *Prerequisites*

- Prior knowledge of basic python code
  - How to install packages using pip
  - Python interpreter (Python 3.8.2)
  - An editor (Sublime Text used here)
  - Prior or no knowledge in html and css
  - Laptop with internet access
- 



# *Getting Started*

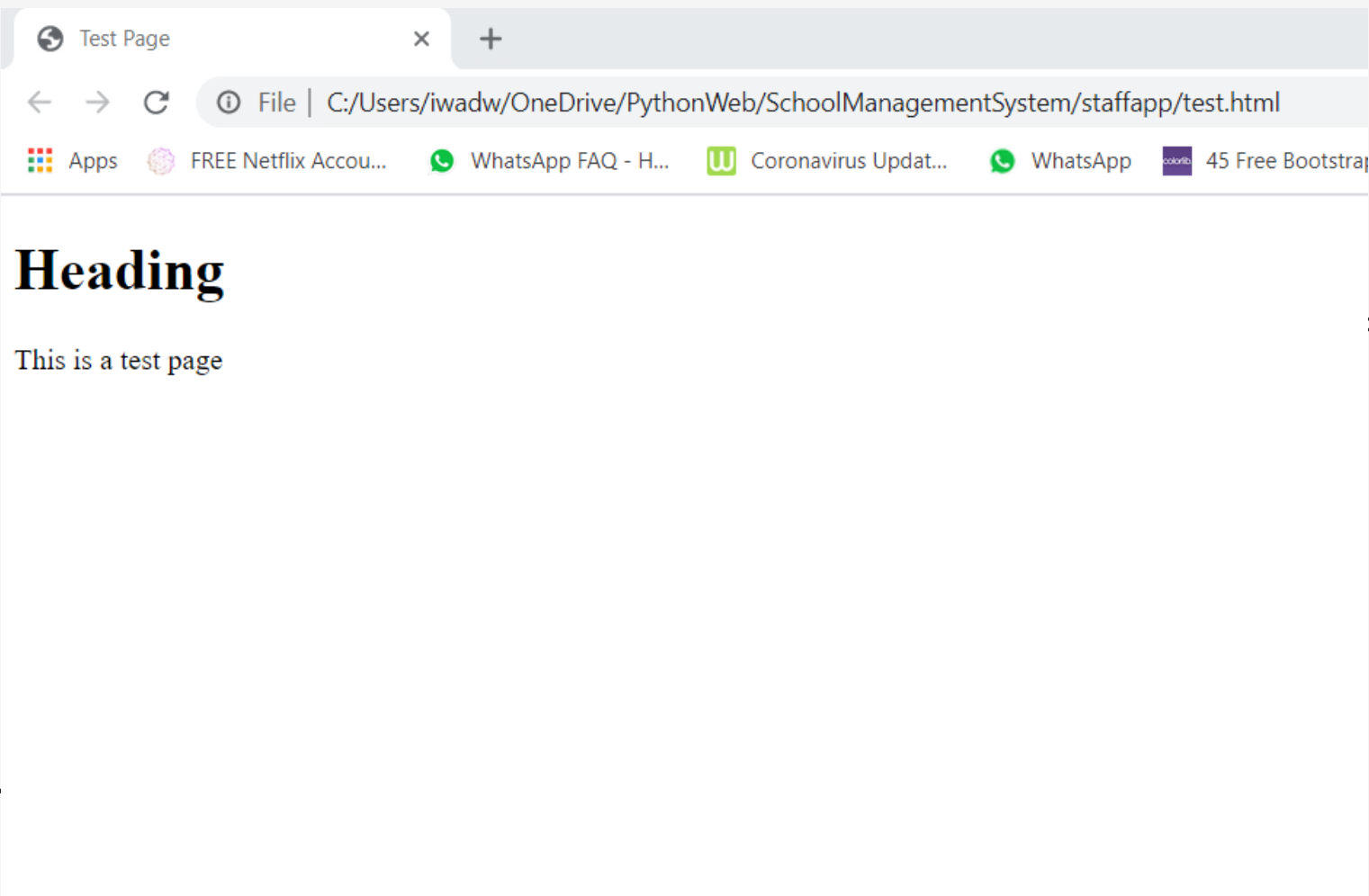
---

There are many frameworks for developing a website using python; the popular which are Django and Flask. In this tutorial, we will be using flask.

First we will brush through Hyper text markup language (HTML) and Cascading Style Sheet (CSS) which will be used to create static pages.



# *A simple HTML Page*



```
<!DOCTYPE html>
<html>
<head>
<title>Test Page</title>
</head>
<body>
<h1>Heading</h1>
<p>This is a test page </p>
</body>
</html>
```

# *HTML with CSS*

```
<body style="background-color: gray; margin: 30px;">
```

```
<style type="text/css">
```

```
.para{
```

```
border-width: 10px;
```

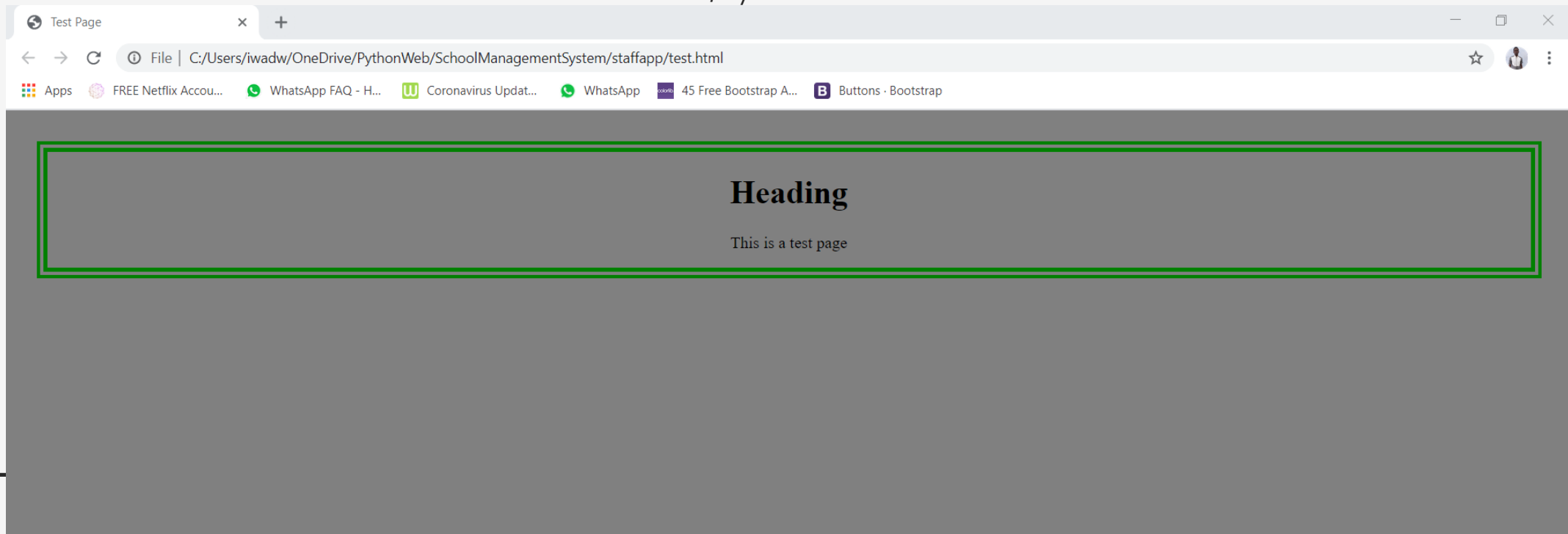
```
border-style: double;
```

```
border-color: green;
```

```
text-align: center;
```

```
}
```

```
</style>
```



# Adding Bootstrap

(<https://getbootstrap.com/docs/4.4/getting-started/introduction/>)

Bootstrap is a css code containing a lot of class designs used for a rich website.

It can be used offline or also served from a Content Development Network (CDN)

Registration Form

## Starter template

Be sure to have your pages set up with the latest design and development standards. That means using an HTML5 doctype and including a viewport meta tag for proper responsive behaviors. Put it all together and your pages should look like this:

```
<!doctype html>
<html lang="en">
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->
    <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.4.1/css/bootstrap.min.css" integrity=

    <title>Hello, world!</title>
  </head>
  <body>
    <h1>Hello, world!</h1>

    <!-- Optional JavaScript -->
    <!-- jQuery first, then Popper.js, then Bootstrap JS -->
    <script src="https://code.jquery.com/jquery-3.4.1.slim.min.js" integrity="sha384-J6qa4849b1E2+poT4WnyKhv5vZF5SrPo"
    <script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js" integrity="sha384-Q6E9RHvbIyZF
    <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.4.1/js/bootstrap.min.js" integrity="sha384-wfSDF2E50Y
  </body>
</html>
```



# *Installing python and others*

---

By now you should have python installed on your system else visit <https://www.python.org/downloads/> to download and install.

Ensure you select Add to Path during installation.

Next, download and install sublime text (an editor) from here

<https://download.sublimetext.com/Sublime%20Text%20Build%203211%20x64%20Setup.exe>

Next, we create a folder where the project will reside



# *Installing Flask*

Flask is the framework that supports web development in python.

First we create a virtual environment.

A virtual environment is a container which will contain all libraries and packages used by us. This enables all requirements to be contained and can be easily sent without having to install the libraries again

On your cmd/terminal, navigate to the project folder using the 'cd {path}' command

Type:

```
pip install virtualenv
```

Create a virtual environment using

```
python -m venv virtual
```

Where virtual is the desired name of your environment

---

# *Installing Flask*

Activate your environment by running the  
\\scripts\\activate.bat located in the virtual environment  
folder

```
C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>webenv\scripts\activate
```

```
(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>pip install
```

After activating your virtual environment, install python  
using

pip install flask

Confirm by typing python on your virtual cmd, then  
import flask

If no errors, then flask is installed



# *Building our first web app*

From your project folder create your app folder, you will also see another folder which is your virtual environment.

Open sublime text, click on open folder and select your app folder.

Create a new file called hello.py

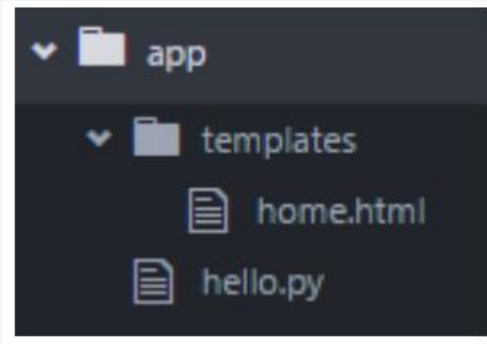
**Input this**

- ```
from flask import Flask
app = Flask(__name__)
@app.route('/')
def home():
    return "Hey there!"
if __name__ == '__main__':
    app.run(debug=True)
```

- Each line will be explained in a voice note
- Run the hello.py file through:
  - `python hello.py`

Once you run the script, your website should be now live on your local machine and it can be viewed by visiting localhost:5000 in your browser.

---



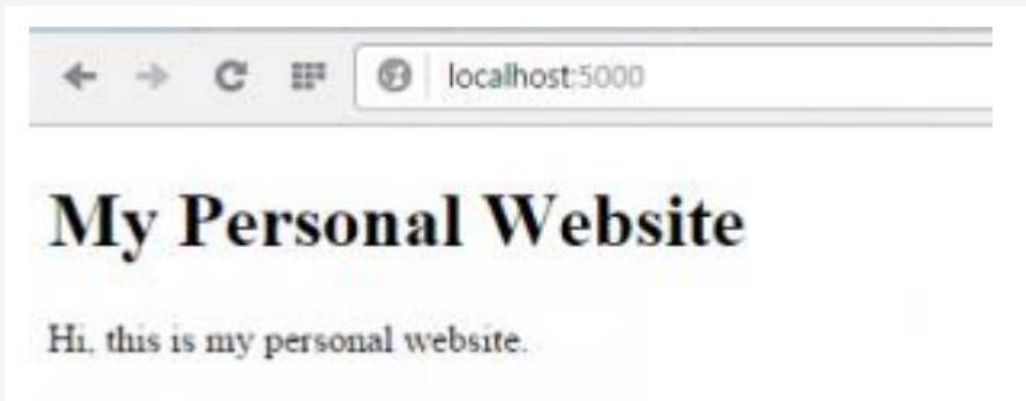
Create an empty file, name it something like home.html and put the following HTML code inside it:

```
<!DOCTYPE html>
<html>
<body>
<h1>My Personal Website</h1>
<p>Hi, this is my personal website.</p>
</body>
</html>
```

**Save the file in a folder called templates and update your script**

```
from flask import Flask, render_template
app = Flask(__name__)
@app.route('/')
def home():
    return render_template('home.html')
if __name__ == '__main__':
    app.run(debug=True)
```

**SAVE AND REFRESH BROWSER**



# MAIN EVENT

*Cheat: I create the page first with pure html and css then break them up into layout vs others and insert jinja2 templates*

- CREATING OUR LOGIN PAGE
- We will use jinja2 templates in our html
- With this, we can break html pages by separating common design into separate file e.g loginlayout.html
- {% %} represents code blocks for keywords e.g while, for, extends, if, etc
- Block is used to insert html file into another using
- {% block content %}

Where the other file is displayed

- {% endblock %}
- This {{ }} is used for variables
- {{ variable\_name }}
- Note all html files are created in the templates folder

```

1  <!DOCTYPE html>
2  <html lang="en">
3
4  <head>
5      ....<!-- Required meta tags -->
6      ....<meta charset="UTF-8">
7      ....<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
8
9      ....<!-- Title Page -->
10     ....<title>{{ title }} Page</title>
11
12     ....<!-- Main CSS -->
13     ....<link href="{{ url_for('static', filename='css/main.css') }}" rel="stylesheet" media="all">
14     ....<link href="{{ url_for('static', filename='css/bootstrap.css') }}" rel="stylesheet" media="all">
15 </head>
16
17 <body>
18     ....<div class="page-wrapper bg-gra-02 p-t-130 p-b-100 font-poppins">
19         ....<div class="wrapper wrapper--w680">
20             ....<div class="card card-4">
21                 ....<div class="card-header">{{ message }}</div>
22                 ....<div class="card-body">
23                     ....<h2 class="title">{{ title }} Form</h2>
24                     ....<hr>
25                     ....<br>
26                     ....<br>
27
28                     ....{% block content %}
29                     ....{% endblock %}
30                 ....</div>
31             ....</div>
32         ....</div>
33     ....</div>
34
35 </body>

```

Create an html file called  
loginlayout.html

Input this

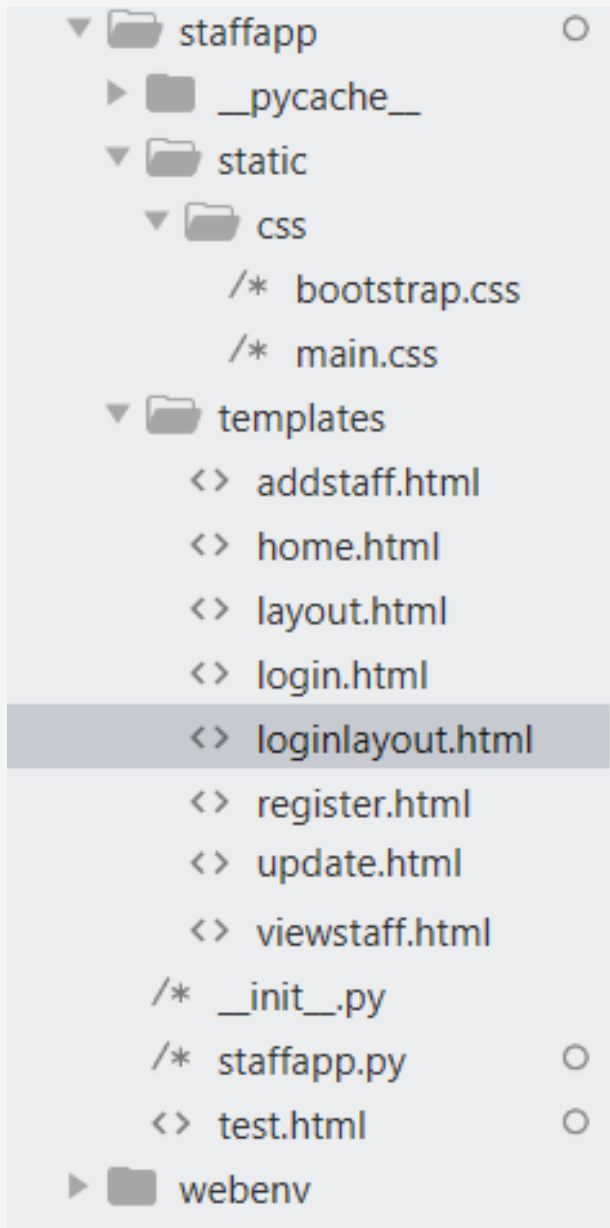
<!DOCTYPE html>

<html lang="en">

<head>

    <!-- Required meta tags -->

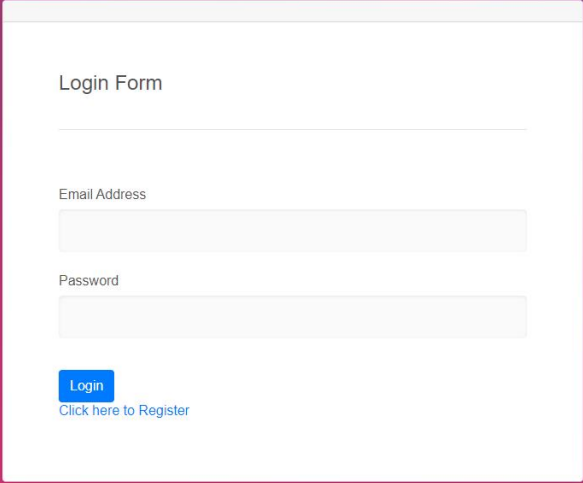
    <meta charset="UTF-8"> (complete code or  
file will be sent to the grp)



- Note, your folder tree should look like this
- Ignore other files for now...
- Create a folder called static
- Create a sub folder called css
- Add the two css files into it
- Bootstrap.css can be gotten online
- I will send main.css
- Create a file called the login.html
- I will send the file to the grp



# *Login page*



Login Form

Email Address

Password

Login

[Click here to Register](#)

- Input this in the python script file
- ```
from flask import Flask, render_template, url_for
```
- class StaticAttr:

```
    LoggedUser=[]  
    message = "
```

```
@app.route('/')  
@app.route('/login')
```

```
def login():
```

```
    return render_template('login.html', title = 'Login',  
    message = StaticAttr.message)
```

```
if __name__ == '__main__':
```

```
    app.run(debug=True)
```

## Registration Form

First Name

Josh

Last Name

John

Email Address

admin@triple.net

Password

\*\*\*\*\*

Confirm Password

\*\*\*\*\*

Create Account

[Click here to Login](#)

## Same with the register page

- Add this for the register page

```
@app.route('/register')
```

```
def register():
```

```
    return render_template('register.html', title =  
    'Registration', message = StaticAttr.message)
```

# *Adding database*

---

We use sqlalchemy sqlite3 db here

Install through

Pip install flask-sqlalchemy

On your app script

```
from flask_sqlalchemy import SQLAlchemy
```

```
app = Flask(__name__)
```

```
app.config['SQLALCHEMY_DATABASE_URI'] =  
'sqlite:///site.db'
```

```
app.config["SQLALCHEMY_TRACK_MODIFICATIONS"] =  
False
```

```
db = SQLAlchemy(app)
```



# Create a model

- We create a class admin and staff using the db model

```
17 class Admin(db.Model):
18     id = db.Column(db.Integer, primary_key=True)
19     firstName = db.Column(db.String(120), nullable=False)
20     lastName = db.Column(db.String(120), nullable=False)
21     email = db.Column(db.String(120), unique=True, nullable=False)
22     password = db.Column(db.String(120), nullable=False)
23     staffs = db.relationship('Staff', backref='author', lazy=True)
24
25     def __repr__(self):
26         return f"Admin('{self.firstName}', '{self.lastName}', '{self.email}')"
27
28
29 class Staff(db.Model):
30     id = db.Column(db.Integer, primary_key=True)
31     firstName = db.Column(db.String(120), nullable=False)
32     lastName = db.Column(db.String(120), nullable=False)
33     email = db.Column(db.String(120), unique=True, nullable=False)
34     password = db.Column(db.String(20), nullable=False)
35     function = db.Column(db.Text, nullable=False)
36     admin_id = db.Column(db.Integer, db.ForeignKey('admin.id'), nullable=False)
37
38     def __repr__(self):
39         return f"Student('{self.firstName}', '{self.lastName}', '{self.email}')"
40
41
```

class Admin(db.Model):

id = db.Column(db.Integer, primary\_key = True)

firstName = db.Column(db.String(120), nullable=False)

lastName = db.Column(db.String(120), nullable = False)

email = db.Column(db.String(120), unique=True, nullable=False)

password = db.Column(db.String(120), nullable = False)

staffs = db.relationship('Staff', backref = 'author', lazy = True)

def \_\_repr\_\_(self):

return f"Admin('{self.firstName}', '{self.lastName}', '{self.email}')

class Staff(db.Model):

id = db.Column(db.Integer, primary\_key = True)

firstName = db.Column(db.String(120), nullable=False)

lastName = db.Column(db.String(120), nullable = False)

email = db.Column(db.String(120), unique=True, nullable=False)

password = db.Column(db.String(20), nullable = False)

function = db.Column(db.Text, nullable = False)

admin\_id = db.Column(db.Integer, db.ForeignKey('admin.id'), nullable=False)

def \_\_repr\_\_(self):

return f"Student('{self.firstName}', '{self.lastName}', '{self.email}')

# *Hashing our password*

---

- We hash our password before storing in the database using bcrypt
- Install using
  - `pip install flask-bcrypt`

Update code

```
from flask import Flask, render_template, redirect, url_for, request
from flask_sqlalchemy import SQLAlchemy
from flask_bcrypt import Bcrypt
```

```
app = Flask(__name__)
app.config['SQLALCHEMY_DATABASE_URI'] = 'sqlite:///site.db'
app.config["SQLALCHEMY_TRACK_MODIFICATIONS"] = False
db = SQLAlchemy(app)
bcrypt = Bcrypt(app)
```

# *Testing the database and bcrypt from the python console*

```
C:\Windows\system32\cmd.exe - python
(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem\staffapp>python
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> from staffapp import db, Admin
>>> admin1 = Admin(firstName = 'Josh', lastName = 'John', email='joshjohn@mail.com, password='password')
File "<stdin>", line 1
    admin1 = Admin(firstName = 'Josh', lastName = 'John', email='joshjohn@mail.com, password='password')
                                                                    ^
SyntaxError: invalid syntax
>>> admin1 = Admin(firstName = 'Josh', lastName = 'John', email='joshjohn@mail.com', password='password')
>>> db.create_all()
>>> db.session.add(admin1)
>>> db.session.commit()
>>> Admin.query.all()
[Admin ('Josh', 'John', 'admin@triple.net'), Admin ('Josh', 'John', 'joshjohn@mail.com')]
>>> a = Admin.query.all()
>>> a[0]
Admin ('Josh', 'John', 'admin@triple.net')
>>> a[0].email
'admin@triple.net'
>>> from staffapp import bcrypt
>>> p = 'password'
>>> hashed_p = bcrypt.generate_password_hash(p).decode('utf-8')
>>> hashed_p
'$2b$12$DBZcRZWnpDLHqu9PiIBHZ.rPus3yrHrErHxhZL1YR5x4zDuu5leBy'
>>> bcrypt.check_password(hashed_p, p)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
AttributeError: 'Bcrypt' object has no attribute 'check_password'
>>> bcrypt.check_password_hash(hashed_p, p)
True
>>> bcrypt.check_password_hash(hashed_p, 'Password')
False
>>>
```

# *Creating a home page*

---

We also create a home.html file and add this to the main script

```
@app.route('/home')
def home():
    try:
        admin = StaticAttr.LoggedUser
        print(admin)
        if is_loggedin():
            print('logged_in_admin: ', StaticAttr.LoggedUser)
            # all_staffs = Staff.query.filter_by(author = admin)
            staffs = Staff.query.filter_by(admin_id = admin.id)
            print(admin, staffs)
            StaticAttr.message=""
            return render_template('home.html', title = 'Home',
admin = admin, staffs = staffs , message = StaticAttr.message)
        else:
            StaticAttr.message = 'Login to continue'
    except:
        StaticAttr.message = 'An error occurred'
    return redirect(url_for('login'))
```

# Mumbling it all together

```
class StaticAttr:
    LoggedUser=[]
    message = ""

class Admin(db.Model):
    id = db.Column(db.Integer, primary_key = True)
    firstName = db.Column(db.String(120), nullable=False)
    lastName = db.Column(db.String(120), nullable = False)
    email = db.Column(db.String(120), unique=True, nullable=False)
    password = db.Column(db.String(120), nullable = False)
    staffs = db.relationship('Staff', backref = 'author', lazy = True)
    def __repr__(self):
        return f"Admin ('{self.firstName}', '{self.lastName}', '{self.email}')"

class Staff(db.Model):
    id = db.Column(db.Integer, primary_key = True)
    firstName = db.Column(db.String(120), nullable=False)
    lastName = db.Column(db.String(120), nullable = False)
    email = db.Column(db.String(120), unique=True, nullable=False)
    password = db.Column(db.String(20), nullable = False)
    function = db.Column(db.Text, nullable = False)
    admin_id = db.Column(db.Integer, db.ForeignKey('admin.id'), nullable=False)
    def __repr__(self):
        return f"Student ('{self.firstName}', '{self.lastName}', '{self.email}')"

@app.route('/register', methods=['GET','POST'])
def register():
    try:
        if request.method == 'POST':
            first = request.form['first_name']
            last = request.form['last_name']
            email = request.form['email']
            password = request.form['password']
            hashed_password =
bcrypt.generate_password_hash(password).decode('utf-8')
            if email_exist(email) == False:
                admin = Admin(firstName = first, lastName =
last, email= email, password = hashed_password)
                db.session.add(admin)
                db.session.commit()
                StaticAttr.message = 'Your account has been
created!, Login to continue'
                return redirect(url_for('login'))
            StaticAttr.message = 'Email already exists'
        except:
            db.session.remove()
            StaticAttr.message = 'An error occured'
    return render_template('register.html', title = 'Registration', message = StaticAttr.message)
```



# Mumbling it all together 2

```
@app.route('/')
@app.route('/login', methods=['GET', 'POST'])
def login():
    try:
        if request.method == 'POST':
            email = request.form['email']
            password = request.form['password']
            admin = Admin.query.filter_by(email = email).first()
            if admin:
                if bcrypt.check_password_hash(admin.password, password):
                    StaticAttr.LoggedUser = admin
                    print('login level: ', StaticAttr.LoggedUser)
                    return redirect(url_for('home'))
                else:
                    StaticAttr.message = 'Invalid password'
            else:
                StaticAttr.message = 'Invalid email address'
        except:
            StaticAttr.message = 'An error occurred'
    return render_template('login.html', title = 'Login', message = StaticAttr.message)
```

---

```
@app.route('/logout')
def logout():
    StaticAttr.LoggedUser=[]
    StaticAttr.message = 'Logout successful'
    return redirect(url_for('login'))

@app.route('/home')
def home():
    try:
        admin = StaticAttr.LoggedUser
        print(admin)
        if is_loggedin():
            print('logged_in_admin: ', StaticAttr.LoggedUser)
            # all_staffs = Staff.query.filter_by(author = admin)
            staffs = Staff.query.filter_by(admin_id = admin.id)
            print(admin, staffs)
            StaticAttr.message=""
            return render_template('home.html', title = 'Home', admin = admin, staffs =
            staffs, message = StaticAttr.message)
        else:
            StaticAttr.message = 'Login to continue'
    except:
        StaticAttr.message = 'An error occurred'
    return redirect(url_for('login'))
```

← → ↻ 127.0.0.1:5000/login

Apps FREE Netflix Accou... WhatsApp FAQ - H... Coronavirus Updat... WhatsApp 45 Free Bootstrap A... Buttons - Bootstrap

Invalid email address

Login Form

Email Address

newadmin2@admin.net

Password

\*\*\*\*\*

Login

[Click here to Register](#)

← → ↻ 127.0.0.1:5000/register

Apps FREE Netflix Accou... WhatsApp FAQ - H... Coronavirus Updat... WhatsApp 45 Free Bootstrap A... Buttons - Bootstrap

Registration Form

First Name

Josh

Last Name

John

Email Address

admin@triple.net

Password

\*\*\*\*\*

Confirm Password

\*\*\*\*\*

Create Account

[Click here to Login](#)

Type here to search

04:10

15/04/2020

← → ↻ 127.0.0.1:5000/home

Apps FREE Netflix Accou... WhatsApp FAQ - H... Coronavirus Updat... WhatsApp 45 Free Bootstrap A... Buttons - Bootstrap

School Management System

Josh John [Sign Out](#)

View Staffs

Add Staff

List of Staffs

| # | First Name | Last Name | Email | Details |
|---|------------|-----------|-------|---------|
|---|------------|-----------|-------|---------|

Type here to search

04:12

15/04/2020

# Tree view of overall project

The screenshot displays a Sublime Text editor window titled "C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem\staffapp\\_init\_.py (SchoolManagementSystem) - Sublime Text (UNREGISTERED)". The editor shows the following Python code in `_init_.py`:

```
1 from flask import Flask, render_template, redirect, url_for, request
2 from flask_sqlalchemy import SQLAlchemy
3 from flask_bcrypt import Bcrypt
4
5
6 app = Flask(__name__)
7 app.config['SQLALCHEMY_DATABASE_URI'] = 'sql
8 app.config["SQLALCHEMY_TRACK_MODIFICATIONS"]
9 db = SQLAlchemy(app)
10 bcrypt = Bcrypt(app)
11
12
13 class StaticAttr:
14     LoggedUser=[]
15     message = ''
16
17 class Admin(db.Model):
18     id = db.Column(db.Integer, primary_key =
19     firstName = db.Column(db.String(120), nu
20     lastName = db.Column(db.String(120), nul
21     email = db.Column(db.String(120), unique
22     password = db.Column(db.String(120), nul
23     staffs = db.relationship('Staff', backre
24
25     def __repr__(self):
26         return f"Admin ('{self.firstName}',
27
28
29 class Staff(db.Model):
30     id = db.Column(db.Integer, primary_key =
31     firstName = db.Column(db.String(120), nu
32     lastName = db.Column(db.String(120), nullable = False)
33     email = db.Column(db.String(120), unique=True, nullable=False)
34     password = db.Column(db.String(20), nullable = False)
35     function = db.Column(db.Text, nullable = False)
36     admin_id = db.Column(db.Integer, db.ForeignKey('admin.id'), nullable=False)
37
38     def __repr__(self):
39         return f"Student ('{self.firstName}', '{self.lastName}', '{self.email}')"
40
```

On the left, the "FOLDERS" pane shows the project structure:

- SchoolManagementSystem
  - staffapp
    - \_\_pycache\_\_
    - static
      - css
    - templates
      - addstaff.html
      - home.html
      - layout.html
      - login.html
      - loginlayout.html
      - register.html
      - update.html
      - viewstaff.html
    - \_\_init\_\_.py
    - staffapp.py
  - webenv
    - logs.txt
    - Procfile
    - requirements.txt
    - runtime.txt
    - wsgi.py

A "Command Prompt" window is open, showing the output of the command `tree /f` in the directory `C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem\staffapp`:

```
(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem\staffapp>tree /f
Folder PATH listing for volume OS
Volume serial number is 9ED9-A708
C:.
  site.db
  staffapp.py
  __init__.py
  static
    css
      bootstrap.css
      main.css
  templates
    addstaff.html
    home.html
    layout.html
    login.html
    loginlayout.html
    register.html
    update.html
    viewstaff.html
  __pycache__
    staffapp.cpython-38.pyc
```

The Windows taskbar at the bottom shows the date and time as 16:12 on 15/04/2020.

# *Publish online*

So, let's go and publish our website online. Here are the steps:

1. We will be using the *git* tool to send our local files to the cloud. So, the first thing to do is to download git from <https://git-scm.com/downloads> and install it.

2. Sign up for a free account on Heroku: [heroku.com](https://heroku.com).

3. Download and install Heroku Toolbelt from <https://toolbelt.heroku.com/>.

Heroku Toolbelt is a package that allows you to interact with the Heroku cloud through your computer command line and it needs *git* to do that. You already installed *git* in step 1.

4. Start interacting with your Heroku account through the command line. Open your command line while you are inside project folder and type: ***heroku login***  
you will be redirected to where you login on the browser

```
Command Prompt
Microsoft Windows [Version 10.0.18362.720]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\iwadw>cd "C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem\staffapp"

C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem\staffapp>cd ..

C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>heroku login
heroku: Press any key to open up the browser to login or q to exit:
Opening browser to https://cli-auth.heroku.com/auth/cli/browser/8a4f271c-2d78-457a-9d07-b1045f47544d
Logging in... done
Logged in as jj.john0123@gmail.com

C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>webenv\scripts\activate
(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>pip install guicorn
```



Logged In

You can close this page and return to your CLI. It should now be logged in.

# Publish online

5. Heroku doesn't have a webserver. Instead, it expects the application to use its own webserver.

A Python webserver to be used is ***gunicorn***. Gunicorn comes as a Python library, so you need to install it with *pip*. Gunicorn 'Green Unicorn' is a Python WSGI HTTP Server for UNIX. It's a pre-fork worker model ported from Ruby's [Unicorn](#) project. The Gunicorn server is broadly compatible with various web frameworks, simply implemented, light on server resource usage, and fairly speedy.

command line, type: ***pip install gunicorn***

***Next is to CONVERT APP TO PACKAGE/MODULE***

6. Rename your app.py to `__init__.py`,

Then in your root folder, create a file named **wsgi.py** and type this

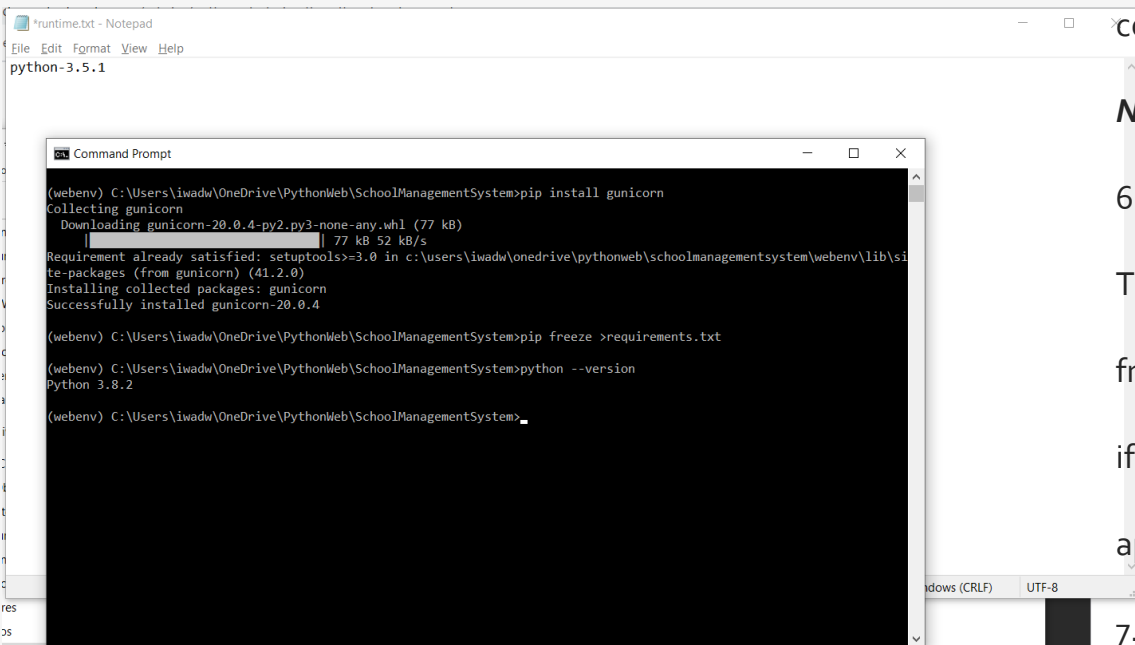
from app import app

if `__name__` == ("`__main__`"):

app.run(debug=True)

7. Create an empty file named ***Procfile*** in your current folder.

Then enter this line inside the empty file: **web: gunicorn wsgi:app** The file shouldn't have any extension, so make sure the file name is not getting a `.txt` extension.



```
*runtime.txt - Notepad
File Edit Format View Help
python-3.5.1

Command Prompt

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>pip install gunicorn
Collecting gunicorn
  Downloading gunicorn-20.0.4-py2.py3-none-any.whl (77 kB)
    |#####| 77 kB 52 kB/s
Requirement already satisfied: setuptools>=3.0 in c:\users\iwadw\onedrive\pythonweb\schoollmanagementsystem\webenv\lib\site-packages (from gunicorn) (41.2.0)
Installing collected packages: gunicorn
Successfully installed gunicorn-20.0.4

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>pip freeze >requirements.txt

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>python --version
Python 3.8.2

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>_
```

# *Publish online*

8. Create a *requirements.txt* file by typing:

```
pip freeze > requirements.txt
```

That will generate a list of the Python libraries that are installed in your virtual environment and write the list inside the *requirements.txt* file. That file will then be sent and read by the webserver so that the webserver knows what libraries to install so that application runs correctly.

9. Great! Now, Heroku may run Python 2 by default for the applications that are sent to it.

Therefore, it would be a good idea to declare what Python version your app has been designed to work with. I built my app using Python 3.8.2. To do that, you need to create a **runtime.txt** file and insert the this line in there: python-3.8.2

---

Check your python version using: `python --version`

# Final round

```
Command Prompt
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\utils.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\__init__.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\accept.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\auth.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\base_request.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\base_response.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\common_descriptors.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\cors.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\etag.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\json.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\request.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\rresponse.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wrappers\user_agent.py.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in webenv\Lib\site-packages\werkzeug\wsgi.py.
The file will have its original line endings in your working directory

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>git commit -m "First Commit"
```

```
Command Prompt
merge      Join two or more development histories together
rebase     Reapply commits on top of another base tip
reset      Reset current HEAD to the specified state
switch     Switch branches
tag        Create, list, delete or verify a tag object signed with GPG

collaborate (see also: git help workflows)
fetch      Download objects and refs from another repository
pull       Fetch from and integrate with another repository or a local branch
push       Update remote refs along with associated objects

'git help -a' and 'git help -g' list available subcommands and some
concept guides. See 'git help <command>' or 'git help <concept>'
to read about a specific subcommand or concept.
See 'git help git' for an overview of the system.

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>git config --global user.email "jj.john0123@gmail.com"

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>git config --global user.name "Josh"

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>git init
Initialized empty Git repository in C:/Users/iwadw/OneDrive/PythonWeb/SchoolManagementSystem/.git/

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>git add .
```

```

Command Prompt - git push heroku master

create mode 100644 webenv/Lib/site-packages/werkzeug/wrappers/json.py
create mode 100644 webenv/Lib/site-packages/werkzeug/wrappers/request.py
create mode 100644 webenv/Lib/site-packages/werkzeug/wrappers/response.py
create mode 100644 webenv/Lib/site-packages/werkzeug/wrappers/user_agent.py
create mode 100644 webenv/Lib/site-packages/werkzeug/wsgi.py
create mode 100644 webenv/Scripts/Activate.ps1
create mode 100644 webenv/Scripts/activate
create mode 100644 webenv/Scripts/activate.bat
create mode 100644 webenv/Scripts/deactivate.bat
create mode 100644 webenv/Scripts/easy_install-3.8.exe
create mode 100644 webenv/Scripts/easy_install.exe
create mode 100644 webenv/Scripts/flask.exe
create mode 100644 webenv/Scripts/gunicorn.exe
create mode 100644 webenv/Scripts/pip.exe
create mode 100644 webenv/Scripts/pip3.8.exe
create mode 100644 webenv/Scripts/pip3.exe
create mode 100644 webenv/Scripts/python.exe
create mode 100644 webenv/Scripts/pythonw.exe
create mode 100644 webenv/pyvenv.cfg

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>heroku create staffmanagementapp
Creating ⬢ staffmanagementapp... done
https://staffmanagementapp.herokuapp.com/ | https://git.heroku.com/staffmanagementapp.git

(webenv) C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>git push heroku master
Enumerating objects: 1977, done.
Counting objects: 100% (1977/1977), done.
Delta compression using up to 4 threads
Compressing objects: 100% (1950/1950), done.
Writing objects: 16% (317/1977)

```

```

Command Prompt

remote:      Building wheels for collected packages: Flask-Bcrypt
remote:      Building wheel for Flask-Bcrypt (setup.py): started
remote:      Building wheel for Flask-Bcrypt (setup.py): finished with status 'done'
remote:      Created wheel for Flask-Bcrypt: filename=Flask_Bcrypt-0.7.1-py3-none-any.whl size=5010 sha256=8e3855466
efe587a2cf35d3fe0bc66f0c0a8e746813f515234f539e1e0f14b29
remote:      Stored in directory: /tmp/pip-ephem-wheel-cache-zhncvjp1/wheels/8a/d9/0e/dc762c4ebc76f581397a2e25991db6
efd148640b5616ab9210
remote:      Successfully built Flask-Bcrypt
remote:      Installing collected packages: six, pycparser, cffi, bcrypt, click, itsdangerous, Werkzeug, MarkupSafe, Jinja2, Flask, Flask-Bcrypt, SQLAlchemy, Flask-SQLAlchemy, gunicorn
remote:      Successfully installed Flask-1.1.2 Flask-Bcrypt-0.7.1 Flask-SQLAlchemy-2.4.1 Jinja2-2.11.1 MarkupSafe-1.1.1 SQLAlchemy-1.3.16 Werkzeug-1.0.1 bcrypt-3.1.7 cffi-1.14.0 click-7.1.1 gunicorn-20.0.4 itsdangerous-1.1.0 pycparser-2.20 six-1.14.0
remote: -----> Discovering process types
remote:      Procfile declares types -> web
remote:
remote: -----> Compressing...
remote:      Done: 59.1M
remote: -----> Launching...
remote:      Released v3
remote:      https://staffmanagementapp.herokuapp.com/ deployed to Heroku
remote:
remote: Verifying deploy... done.
To https://git.heroku.com/staffmanagementapp.git
 * [new branch]      master -> master

C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>heroku ps:scale web = 1
web=1:Free

C:\Users\iwadw\OneDrive\PythonWeb\SchoolManagementSystem>

```



dashboard.heroku.com/apps

HEROKU

Jump to Favorites, Apps, Pipelines, Spaces...

Personal

Welcome to Heroku  
Now that your account has been set up, here's how to get started.

Show next steps

Filter apps and pipelines

staffmanagementapp

heroku.com Blogs Careers Documentation Support

heroku-x64.exe Git-2.26.1-64-bit (1).exe Canceled Git-2.26.1-64-bit.exe

Type here to search

staffmanagementapp.herokuapp.com

staffmanagementapp

### Login Form

Email Address

admin@triple.net

Password

\*\*\*\*\*

Login

[Click here to Register](#)

heroku-x64.exe Git-2.26.1-64-bit (1).exe Canceled Git-2.26.1-64-bit.exe

Type here to search

05:46 15/04/2020

Browser tabs: B Intro, Login, Avoid, Downl, Git - D, Confir, staffm, Deploy, Deploy, Flask a, Herok, Applic, Home, +

Address bar: staffmanagementapp.herokuapp.com/home

Navigation: Apps, FREE Netflix Accou..., WhatsApp FAQ - H..., Coronavirus Updat..., WhatsApp, 45 Free Bootstrap A..., Buttons - Bootstrap

School Management System Live Web [Sign Out](#)

View Staffs

Add Staff

### List of Staffs

| # | First Name | Last Name | Email | Details |
|---|------------|-----------|-------|---------|
|---|------------|-----------|-------|---------|

Browser tabs: B Intro, Login, Avoid, Downl, Git - D, Confir, staffm, Deploy, Deploy, Flask a, Herok, Applic, Page, +

Address bar: staffmanagementapp.herokuapp.com/addstaff

Navigation: Apps, FREE Netflix Accou..., WhatsApp FAQ - H..., Coronavirus Updat..., WhatsApp, 45 Free Bootstrap A..., Buttons - Bootstrap

School Management System Live Web [Sign Out](#)

View Staffs

Add Staff

### Add Staff

First Name

Staff

Last Name

Live

Email Address

stafflive@gmail.com

Password

\*\*\*\*\*

Function

this is a live staff

Add Staff

Taskbar: heroku-x64.exe, Git-2.26.1-64-bit (1).exe Canceled, Git-2.26.1-64-bit.exe

Search: Type here to search

Icons: File Explorer, Store, Chrome, Edge, VS Code, etc.

Taskbar: heroku-x64.exe, Git-2.26.1-64-bit (1).exe Canceled, Git-2.26.1-64-bit.exe

Search: Type here to search

Icons: File Explorer, Store, Chrome, Edge, VS Code, etc.

System tray: Show all, 05:48, 15/04/2020

Staff Management System

Live Web Sign Out

View Staffs

Add Staff

List of Staffs

| # | First Name | Last Name | Email               | Details                  |
|---|------------|-----------|---------------------|--------------------------|
| 2 | staff1     | Adsa      | livewebll@gmail.com | <a href="#">Function</a> |

Staff Management System

Live Web Sign Out

View Staffs

Add Staff

staff1's Profile

|            |   |
|------------|---|
| Staff Id   | 2   |
| First Name | staff1  |
| Last Name  | Adsa  |
| Email      | livewebll@gmail.com                           |
| Function   | Inducts new employees on the company's ethics |

[Edit](#) [Delete](#)

heroku-x64.exe

Git-2.26.1-64-bit (1).exe Canceled

Git-2.26.1-64-bit.exe

Type here to search

heroku-x64.exe

Git-2.26.1-64-bit (1).exe Canceled

Git-2.26.1-64-bit.exe

Show all

Type here to search

05:51 15/04/2020

Note: project includes pages more than what what explained here

For production scale; Postgrel db should be used and debug should be false

Crashes was avoided in the project so as to used the sqlite3 db

For the LoggedUser, a Static property is used here.. For optimality, we use login, authentication and session managing modules.

Others are freestlyes

---

# *Thank you*

Project files and presentation is access via GITHUB

<https://github.com/successfuljosh/pythontutorial>

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