

Python Flask Framework

A Step by Step Guide For the Beginners

By

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ABOUT THIS BOOK :

This book is for total beginners who are interested to learn the python flask framework, this book does not contain any advanced concepts of the flask framework and

the advanced python programming concepts. This Book is totally focused on the beginners who are little bit familiar with the python programming and are interested to learn the python framework to develop the web applications .

About ME :

Myself Vasanth Nagarajan ,Working as an Software Engineer in KGiSL,My Area of Domain is Machine Learning & Artificial Intelligence ,Since I have much interested in python programming language ,i came up with an idea to write a book regarding the python and python framework ,to help the veterans who likes to start the python framework from the start.

If you found any mistakes or would you like to leave a feedback regarding this book , You are always welcome you can drop me a mail to the following mail id's will reply it as soon much as possible .

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Happy Programming

Prerequisites:

Before you start proceeding with this tutorial, I assuming that you have hands-on experience on HTML ,CSS,BootStrap, Python and Mysql . If you are not well aware of these concepts, then I suggest you to go through some short tutorials on those topics.

Flask:

Flask is a web application framework written in Python. Armin Ronacher, who leads an international group of Python enthusiasts named Pocco, develops it. Flask is based on Werkzeug WSGI toolkit and Jinja2 template engine. Both are Pocco projects.

Web Framework?

Web Application Framework or simply Web Framework represents a collection of libraries and modules that enables a web application developer to write applications without having to bother about low-level details such as protocols, thread management etc.

WSGI

Web Server Gateway Interface (WSGI) has been adopted as a standard for Python web application development. WSGI is a specification for a universal interface between the web server and the web applications.

Werkzeug

It is a WSGI toolkit, which implements requests, response objects, and other utility functions. This enables building a web framework on top of it. The Flask framework uses Werkzeug as one of its bases.

Jinja2

jinja2 is a popular templating engine for Python. A web templating system combines a template with a certain data source to render dynamic web pages.

Flask is often referred to as a micro framework. It aims to keep the core of an application simple yet extensible. Flask does not have built-in abstraction layer for database handling, nor does it have form validation support. Instead, Flask supports extensions to add such functionality to the application.

WTForms

One of the essential aspects of a web application is to present a user interface for the user. HTML provides a <form> tag, which is used to design an interface. A Form's elements such as text input, radio, select etc. can be used appropriately.

Data entered by a user is submitted in the form of Http request message to the server side script by either GET or POST method.

- The Server side script has to recreate the form elements from http request data. So in effect, form elements have to be defined twice – once in HTML and again in the server side script.
- Another disadvantage of using HTML form is that it is difficult (if not impossible) to render the form elements dynamically. HTML itself provides no way to validate a user's input.

This is where WTForms, a flexible form, rendering and validation library comes handy. Flask-WTF extension provides a simple interface with this WTForms library.

Using Flask-WTF, we can define the form fields in our Python script and render them using an HTML template. It is also possible to apply validation to the WTF field.

LET'S GET STARTED



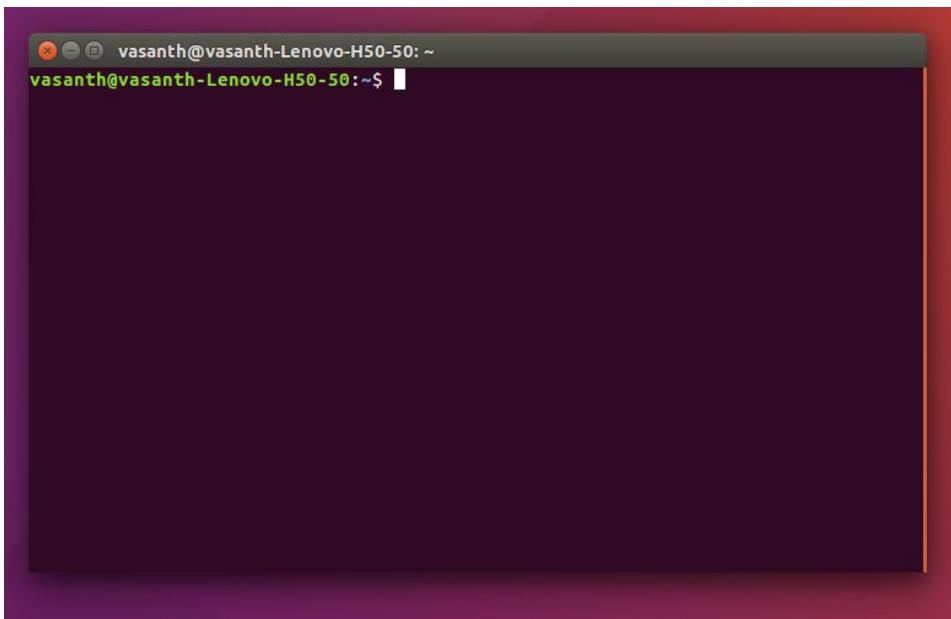
Note :

This Book Explains these basic concepts of Flask and Sql in Ubuntu Operating System (Linux),since am the linux user i have prepared this tutorial based on that,you no need to worry about the platform that you are using,the code works well in both the platform ,except the python packages and flask packages and the libraries of the wtforms and sql connectors installation alone differ rather than that the entire code works well.

If you are windows user please see the note commands that used in the book ,through the installation of the packages that used here ,follow the windows commands to install the specific packages ,if u still experiencing the errors ,please drop me a mail will help you out .

Installation Process :

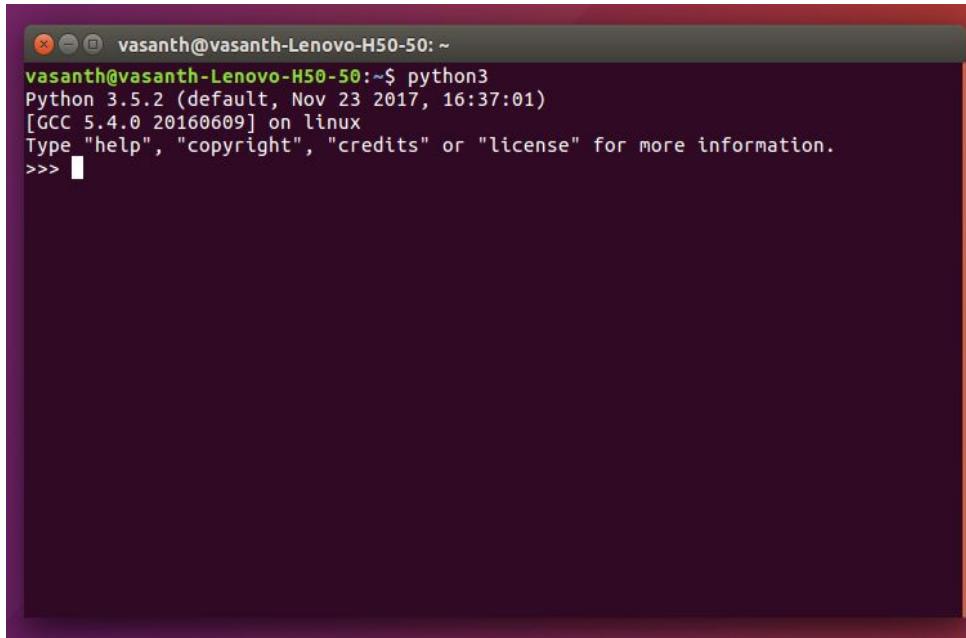
If your using Ubuntu 16 or any other linux latest platform the python has been already preinstalled in the operating system by the default .let's check the python version that present in the system just click the **ctrl + alt + T** in the keyboard or just type Terminal in the search bar in the ubuntu . a window will appear as shown below :



Now Type **Python3** in the Terminal as shown below :

```
vasanth@vasanth-Lenovo-H50-50:~$ python3
```

You will see a window as shown below prompting to enter command as shown below :



A screenshot of a terminal window titled "vasanth@vasanth-Lenovo-H50-50: ~". The window contains the following text:

```
vasanth@vasanth-Lenovo-H50-50:~$ python3
Python 3.5.2 (default, Nov 23 2017, 16:37:01)
[GCC 5.4.0 20160609] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> █
```

If this windows appear as shown above ,this means you have python3 already installed in the system.

If You are using **windows** python is not pre installed in your system so now go to the python download page for windows by clicking this link <https://www.python.org/downloads/windows/> you will see a list of python files to download ,select the python version 3.7.0

Python Releases for Windows

- [Latest Python 3 Release - Python 3.7.0](#)
- [Latest Python 2 Release - Python 2.7.15](#)
- [Python 3.7.0 - 2018-06-27](#)
 - [Download Windows x86 web-based installer](#)
 - [Download Windows x86 executable installer](#)
 - [Download Windows x86 embeddable zip file](#)
 - [Download Windows x86-64 web-based installer](#)
 - [Download Windows x86-64 executable installer](#)
 - [Download Windows x86-64 embeddable zip file](#)
 - [Download Windows help file](#)

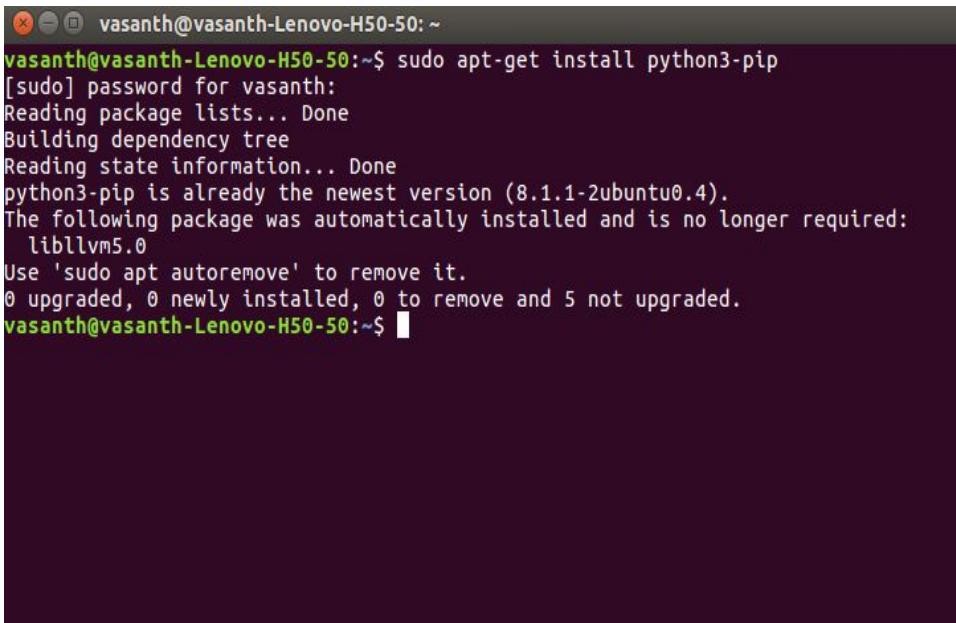
And install the python application in the desired path .(if you have any queries just drop me a mail)

Python Pip :

Pip is the python package manager and its used to install the packages that required for the development for the flask application and its also used to install the specific libraries to the python , to install the pip in ubuntu you have to type the following code in the terminal . just open the terminal and type the following code :

```
vasanth@vasanth-Lenovo-H50-50:~$ sudo apt-get install python3-pip
```

Now the necessary packages will be installed ,if the packages are already there u will get the below message :

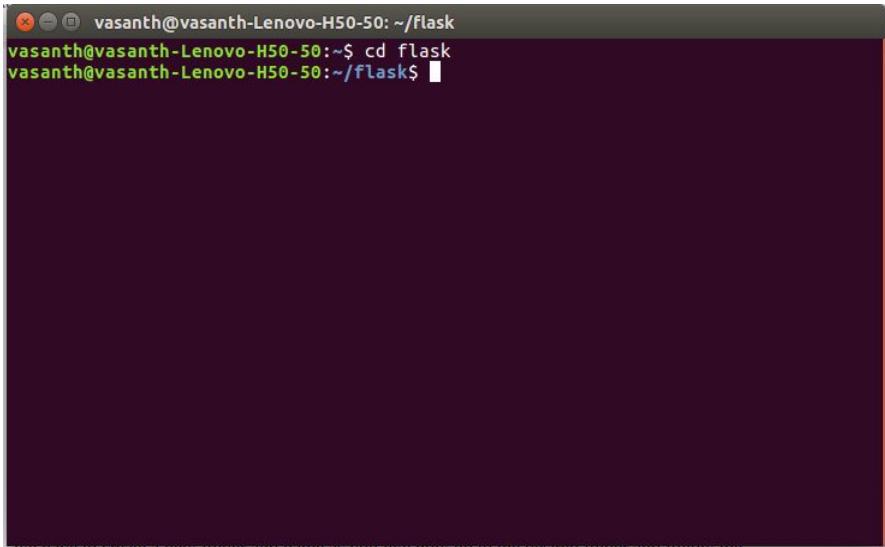


```
vasanth@vasanth-Lenovo-H50-50:~$ sudo apt-get install python3-pip
[sudo] password for vasanth:
Reading package lists... Done
Building dependency tree
Reading state information... Done
python3-pip is already the newest version (8.1.1-2ubuntu0.4).
The following package was automatically installed and is no longer required:
  libllvm5.0
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 5 not upgraded.
vasanth@vasanth-Lenovo-H50-50:~$
```

Installing Flask In the Machine :

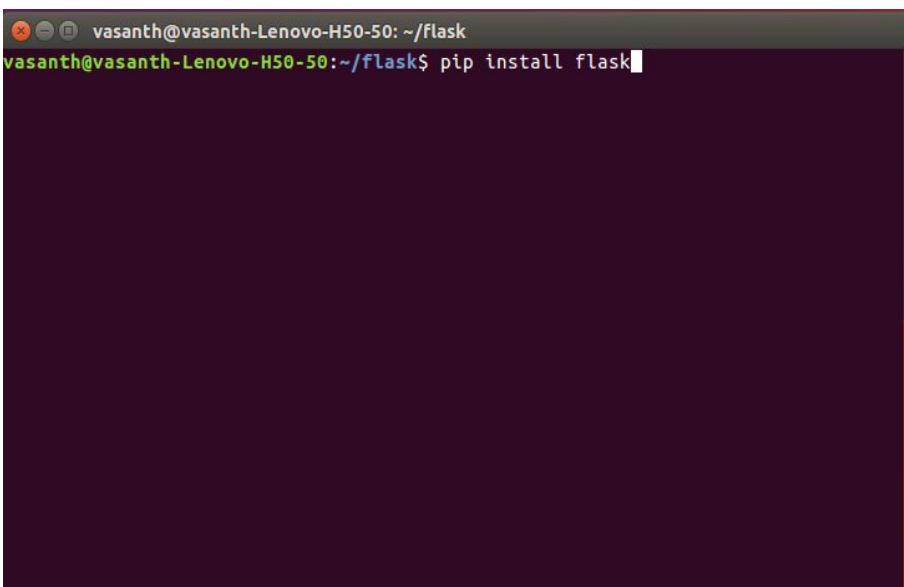
Now We are going to install the Flask in our machine ,first we have to create a new folder and name as you like,now go to the desired folder and follow the instructions as shown below :

In my case the folder i had created in the home directory now i changed my working directory to my flask folder where am going to install flask and develop the application .



```
vasanth@vasanth-Lenovo-H50-50: ~/flask
vasanth@vasanth-Lenovo-H50-50:~/flask$ cd flask$
```

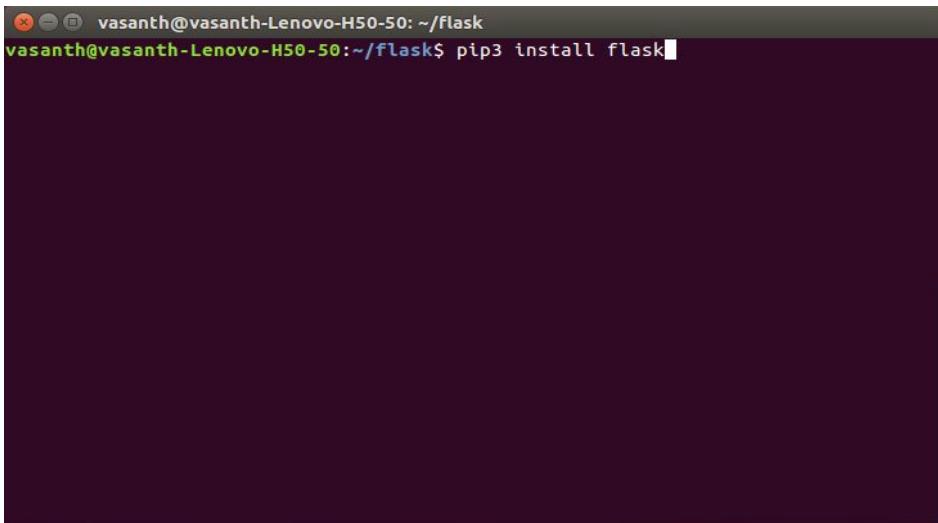
Now am installing the flask in the machine using the following command :



```
vasanth@vasanth-Lenovo-H50-50: ~/flask
vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install flask$
```

We can install flask using the pip python package manager . we have to install for python2 and python3

Now type the following command in the command prompt :

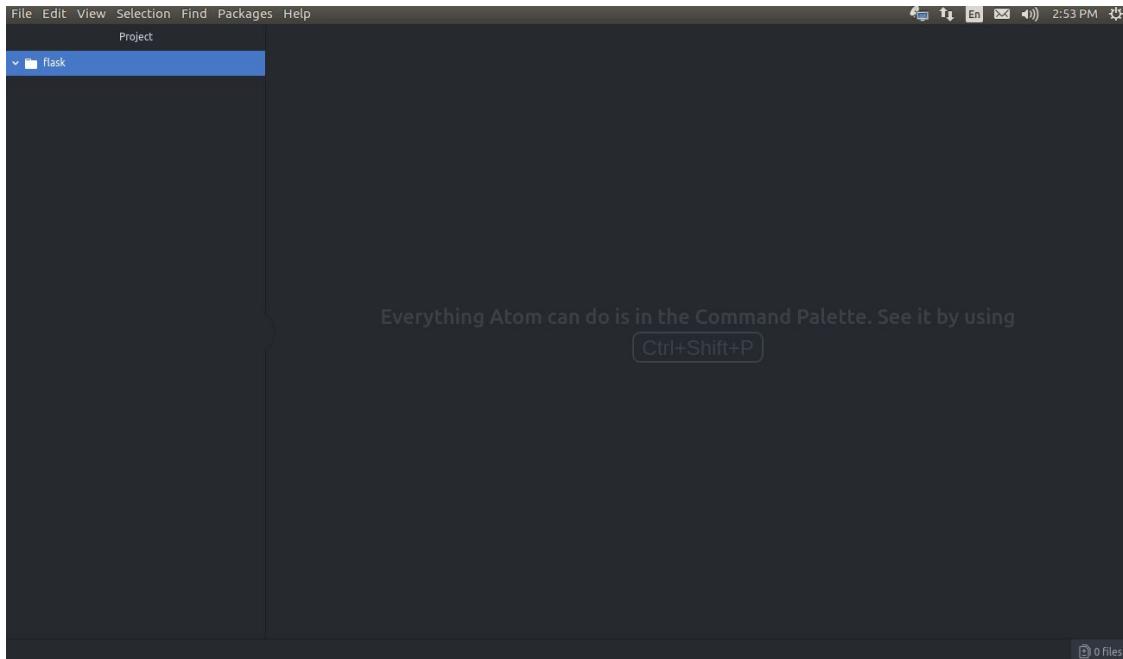


A screenshot of a terminal window titled 'vasanth@vasanth-Lenovo-H50-50: ~/flask'. The window shows the command 'pip3 install flask' being typed at the prompt.

Now open the flask project folder using any python IDE,here i use the atom ide ,its free and open source, if you want to download the atom ide ,please click the following link and download and install the atom in your machine , the link is : <https://atom.io/>

After installed the atom now open the flask folder in the file menu where we going to create the flask application , the example is shown below :

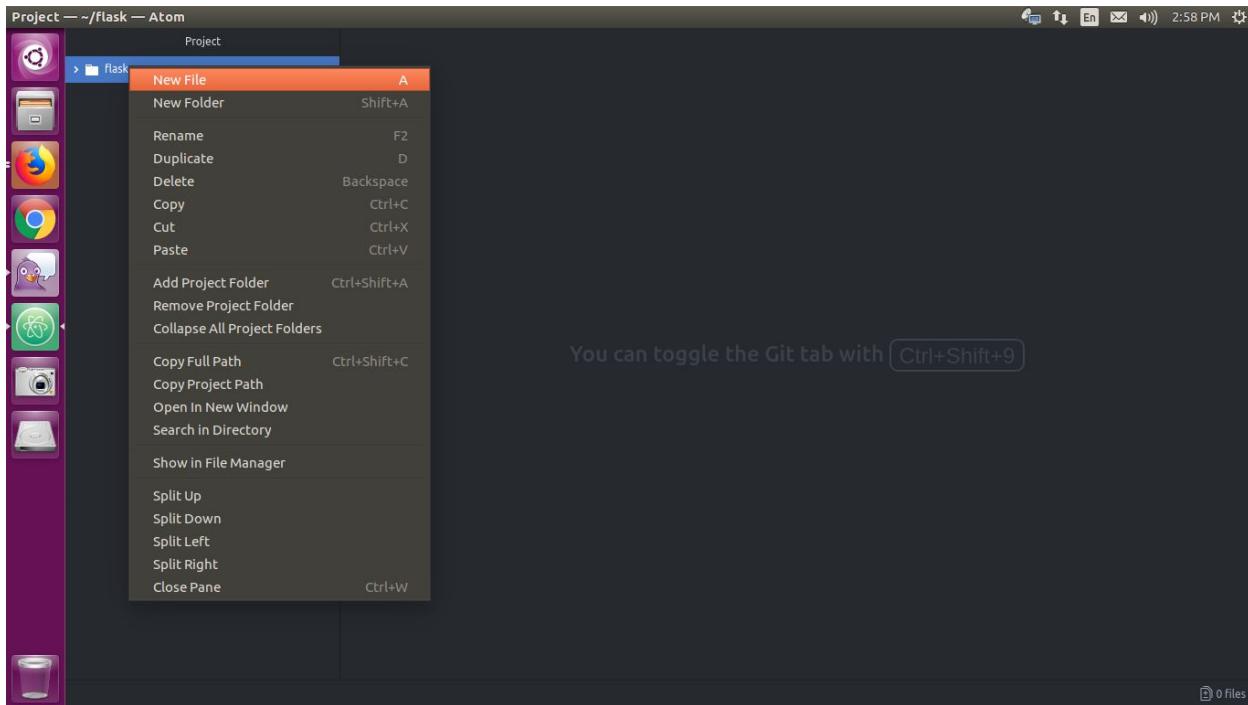
Use file ----- add project folder option in the file menu



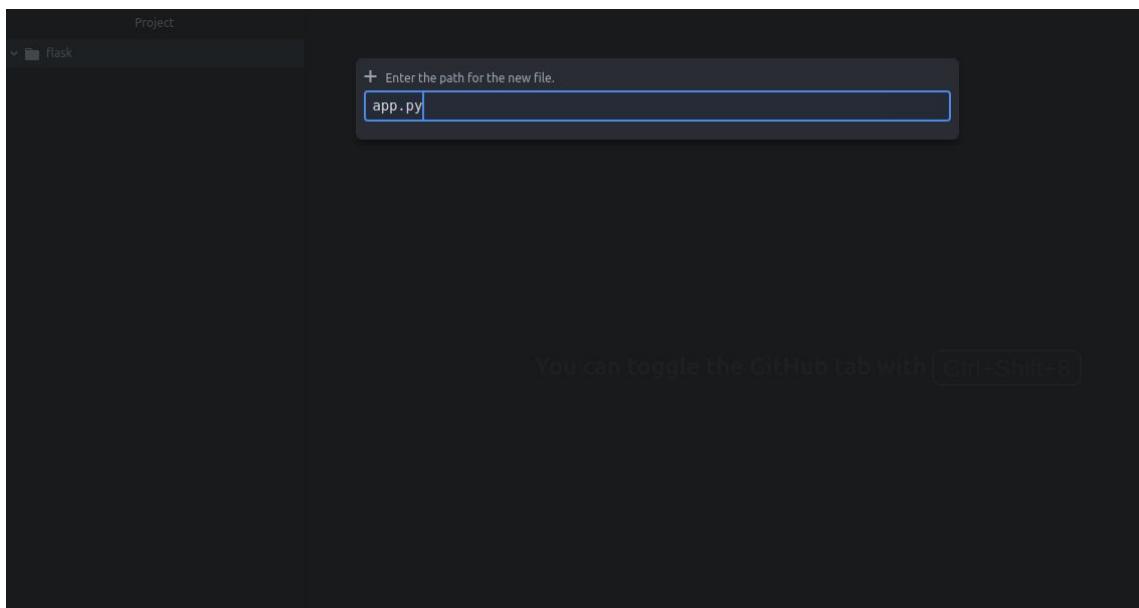
Creating First Flask Application :

Now we are going to create our first flask application ,follow the instructions as i said, if you have any queries regarding this you can mail me will reply you as soon as possible .

Now create a file in the ide inside the flask folder as show below :

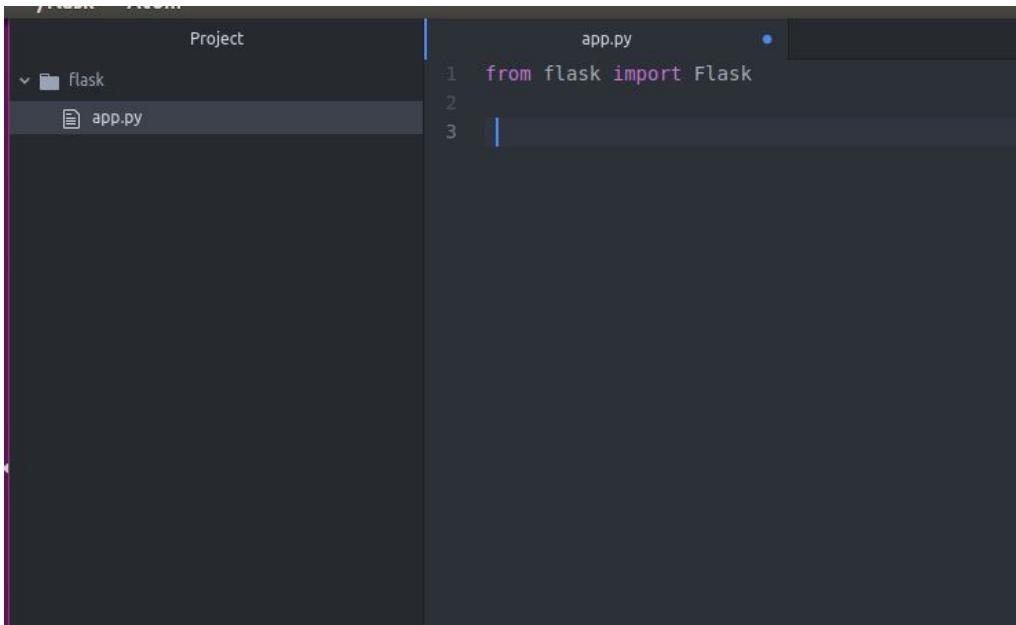


Now name the file as **app.py** NOTE : Python File Extensions will have .py as file format



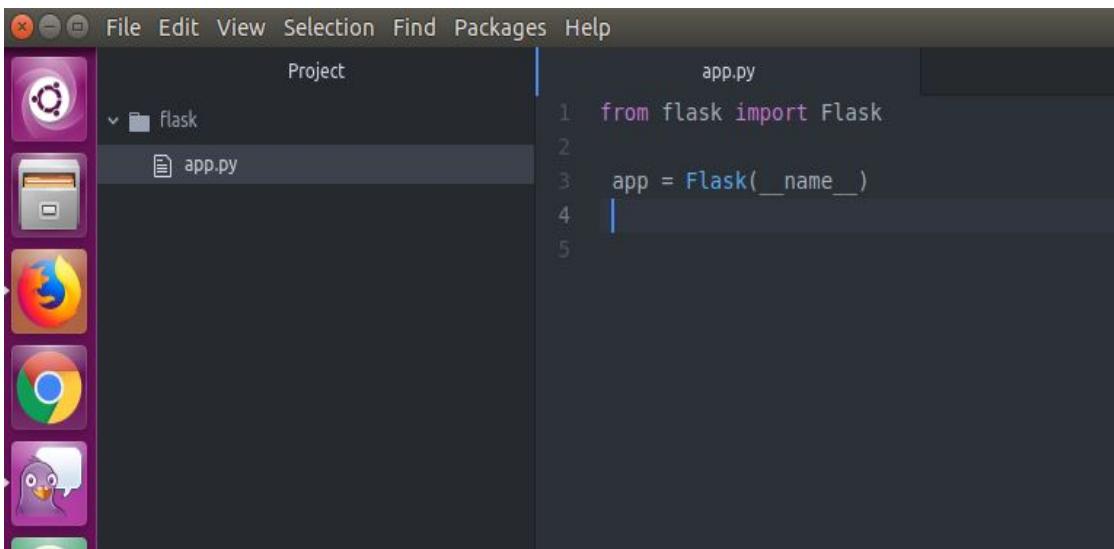
Now you have created a python file called **app.py** ,so this is the basic file or entry file for flask applications.

Now we have to import the flask to our app.py file for that you have to type the following command.



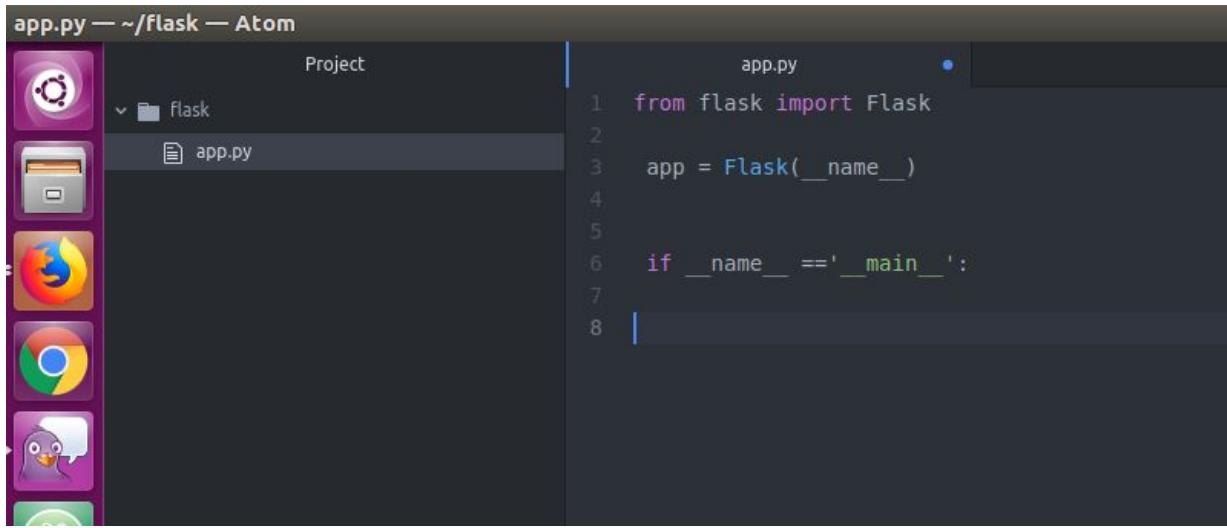
```
Project app.py
1 from flask import Flask
```

Now we want to create the instance of the flask class this is kind of place holder for the current module.



```
File Edit View Selection Find Packages Help
Project app.py
1 from flask import Flask
2
3 app = Flask(__name__)
4
5
```

And down at the bottom we want to test to see if that value that double underscore name value is equal to double underscore main ,that's the script that's going to be executed.



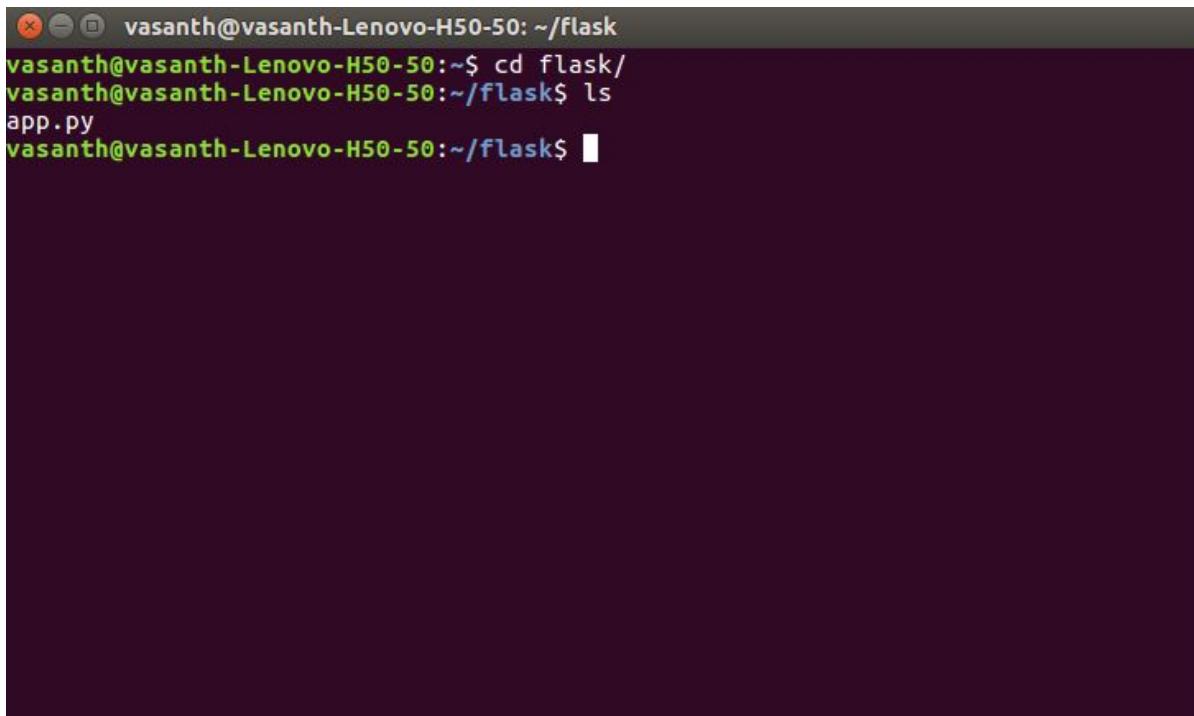
The screenshot shows the Atom code editor interface. The title bar says "app.py — ~/flask — Atom". On the left is a sidebar titled "Project" with a tree view showing a "Flask" folder containing an "app.py" file, which is currently selected. The main editor area has a dark theme and contains the following Python code:

```
1 from flask import Flask
2
3 app = Flask(__name__)
4
5
6 if __name__ == '__main__':
7
8     
```

Now type the code after the :

```
if __name__ == '__main__':
    app.run()
```

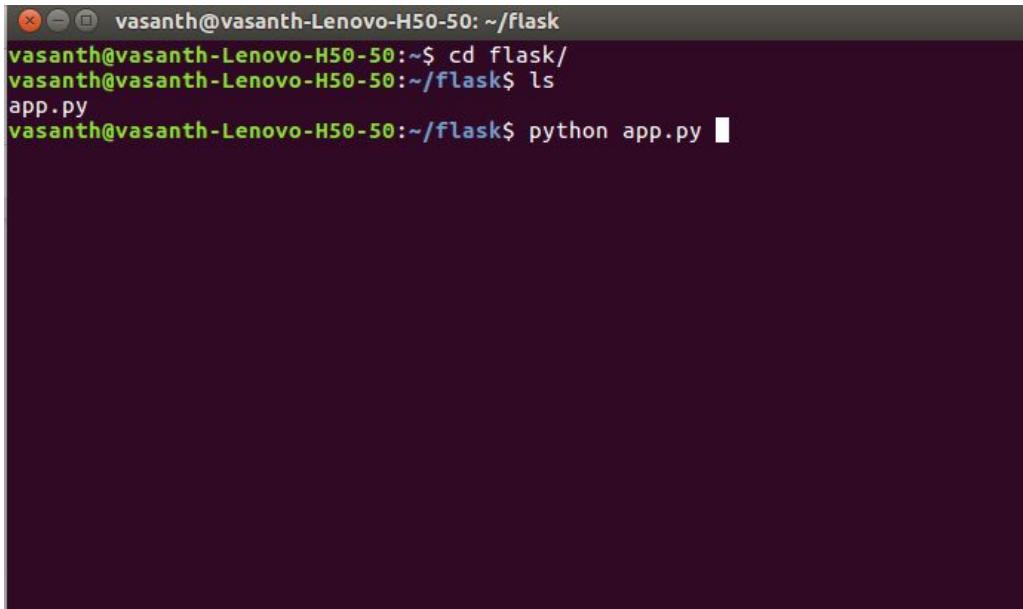
Now we are going to run our flask application, for that now we have to open a terminal using **ctrl+alt+T** now the terminal will open now navigate to our flask application folder where we have created the app.py file as shown below :



```
vasanth@vasanth-Lenovo-H50-50: ~/flask
vasanth@vasanth-Lenovo-H50-50:~$ cd flask/
vasanth@vasanth-Lenovo-H50-50:~/flask$ ls
app.py
vasanth@vasanth-Lenovo-H50-50:~/flask$ 
```

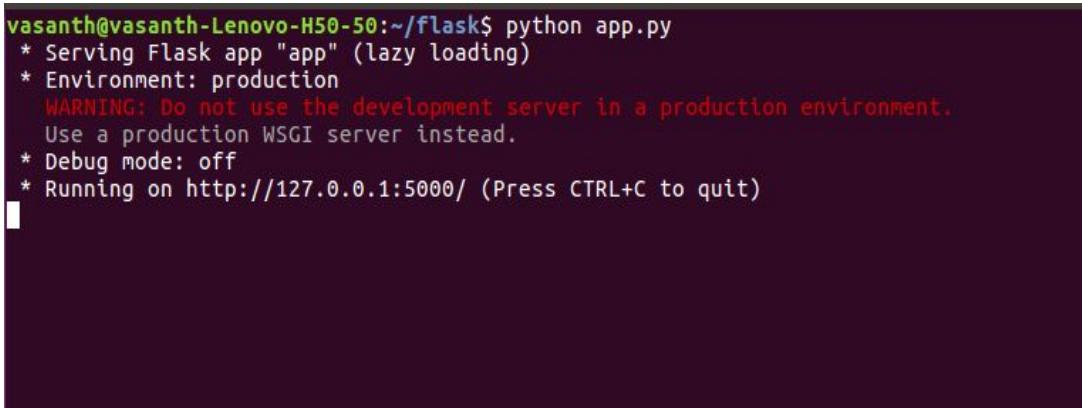
Now run our app.py file to check our flask application is working for that type the following command .

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ python app.py
```

A screenshot of a terminal window titled "vasanth@vasanth-Lenovo-H50-50: ~/flask". The window shows the command "python app.py" being run. The output is a single line: " * Serving Flask app "app" (lazy loading)".

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ python app.py
 * Serving Flask app "app" (lazy loading)
```

Now you can see the server is running without any errors as shown below :

A screenshot of a terminal window titled "vasanth@vasanth-Lenovo-H50-50: ~/flask". The window shows the command "python app.py" being run. The output includes a warning message: "WARNING: Do not use the development server in a production environment. Use a production WSGI server instead."

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ python app.py
 * Serving Flask app "app" (lazy loading)
 * Environment: production
   WARNING: Do not use the development server in a production environment.
           Use a production WSGI server instead.
 * Debug mode: off
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

Now you can type the above address in your web browser and press enter or you can type <http://localhost:5000/> in the browser and hit enter now the browser will display the following content :



Not Found

The requested URL was not found on the server. If you entered the URL manually please check your spelling and try again.

Now we need to create a route for our home page ,now go to our app.py file and type the following code :

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

And below that we have to create a function :

```
def index():
    return 'Hello World!!!'
```

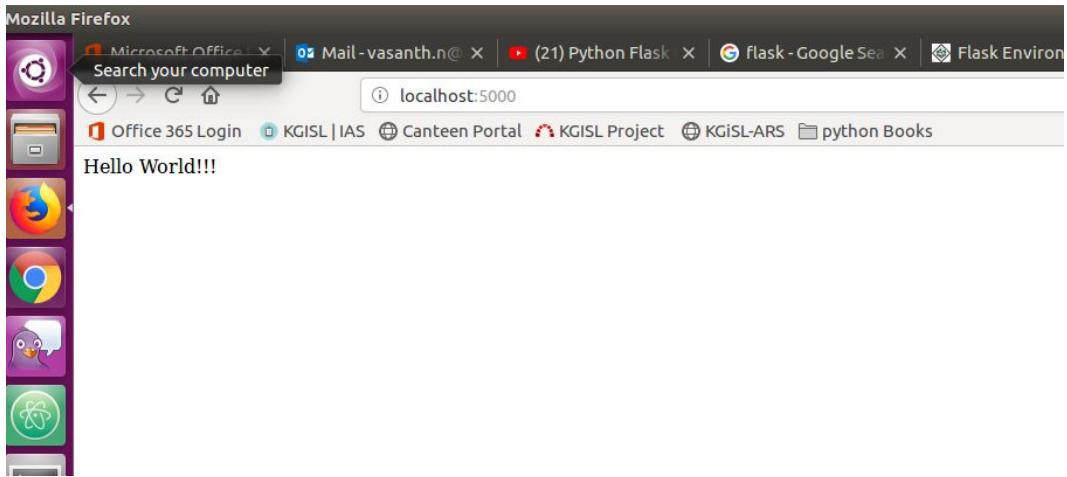
Now after typing the above code ,go to the terminal and stop the server using the following command **ctrl+c** .

Now start the server again by typing :

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ python app.py
```

Now you can type the above address in your web browser and press enter or you can type <http://localhost:5000/> in the browser and hit enter now the browser will display the following content :

The browser will display the **Hello World !!!** as shown below



We have successfully installed the flask and we run the flask application as shown above , now the entire code will look like :

```
Project           app.py
  +-- Flask
    +-- app.py
```

```
1  from flask import Flask
2
3  app = Flask(__name__)
4
5  @app.route('/')
6  def index():
7      return 'Hello World!!!!'
8
9
10 if __name__ == '__main__':
11     app.run()
```

A screenshot of a code editor with a dark theme. On the left, there's a 'Project' sidebar showing a 'Flask' folder containing an 'app.py' file. The main editor area shows the following Python code for a Flask application:

We will make some changes often in the app.py file,each and once we have to stop and start the server manually, this is hepatic for this we can make the server auto refresh ,when each time the changes has been made ,for this we have to type the following code in the app.py file.

app.debug = True

The screenshot shows a code editor interface with a dark theme. On the left, there's a 'Project' sidebar with a 'Flask' folder containing an 'app.py' file. The main area is titled 'app.py' and contains the following Python code:

```
1 from flask import Flask
2
3 app = Flask(__name__)
4 app.debug = True
5
6 @app.route('/')
7 def index():
8     return 'Hello World!!!'
9
10
11 if __name__ == '__main__':
12     app.run()
13
```

Now we have seen how to create a simple hello world !! program in the flask and how to create a route and navigate the application but basically we are not going to return string like this in the router,we are going to return a template ,so we can use the function called the return template

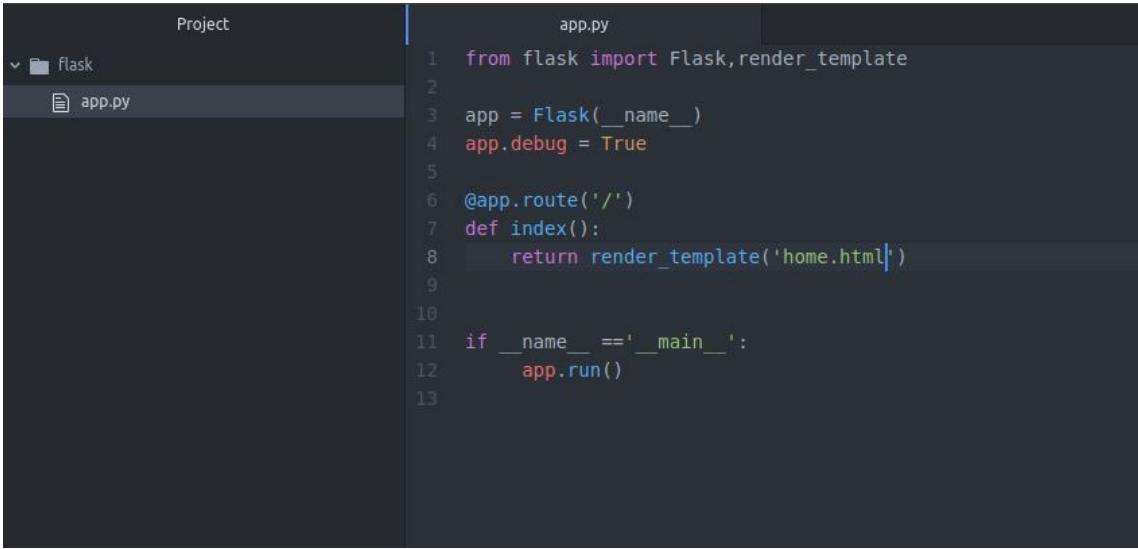
But that has to been imported first from the flask ,for that we have to add up the following code in the app.py file

```
from flask import Flask,render_template

app = Flask(__name__)
app.debug = True

@app.route('/')
def index():
    return render_template('home.html')

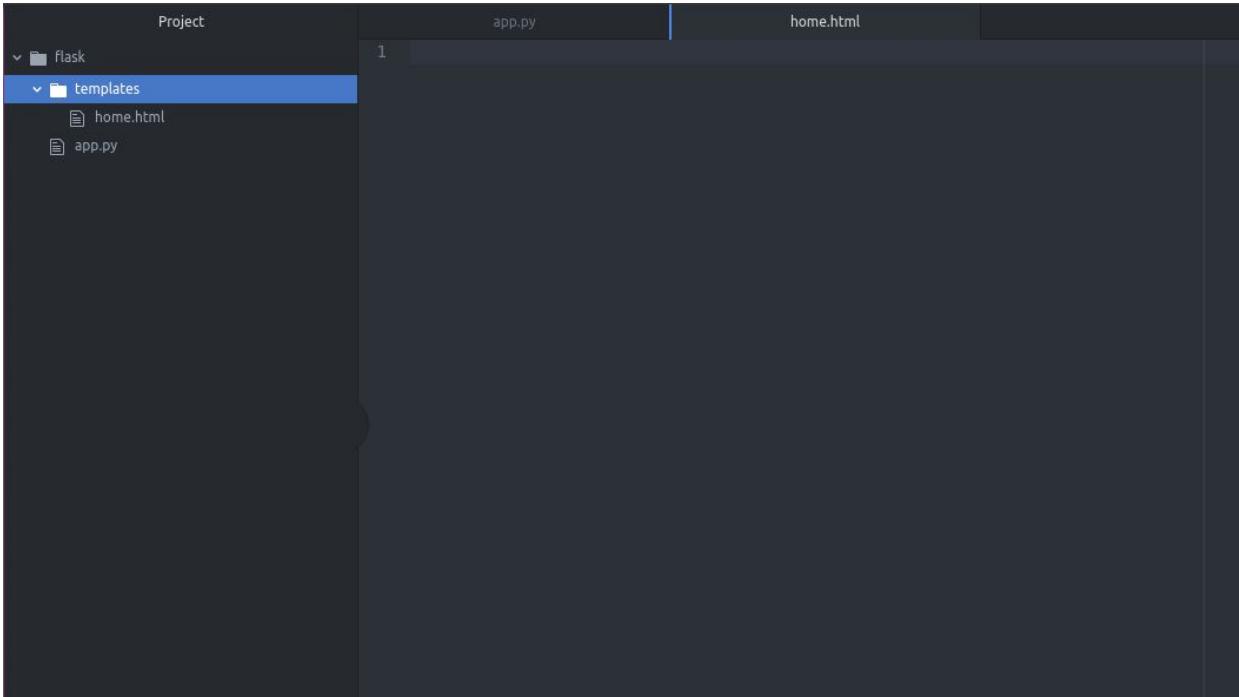
if __name__ == '__main__':
    app.run()
```



The screenshot shows a code editor interface with a dark theme. On the left, there's a 'Project' sidebar showing a 'Flask' folder containing an 'app.py' file. The main area displays the contents of 'app.py':

```
1 from flask import Flask, render_template
2
3 app = Flask(__name__)
4 app.debug = True
5
6 @app.route('/')
7 def index():
8     return render_template('home.html')
9
10 if __name__ == '__main__':
11     app.run()
12
```

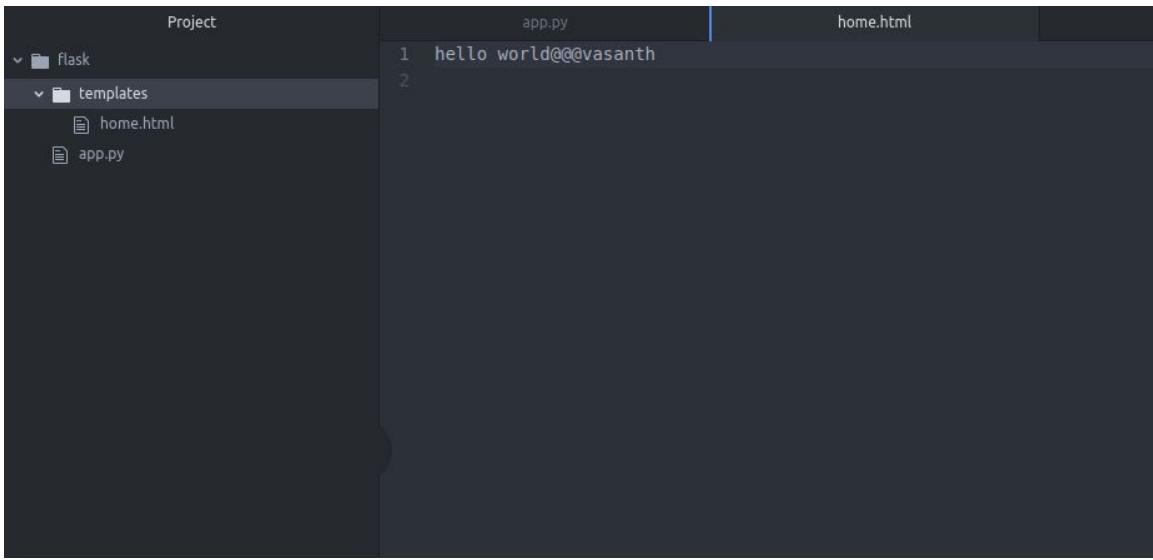
You have noticed that we used home.html in the above index function, so we have to create a template folder inside our flask app folder .



The screenshot shows a code editor interface with a dark theme. On the left, there's a 'Project' sidebar showing a 'Flask' folder containing a 'templates' folder which contains a 'home.html' file, and an 'app.py' file. The main area shows the 'app.py' file:

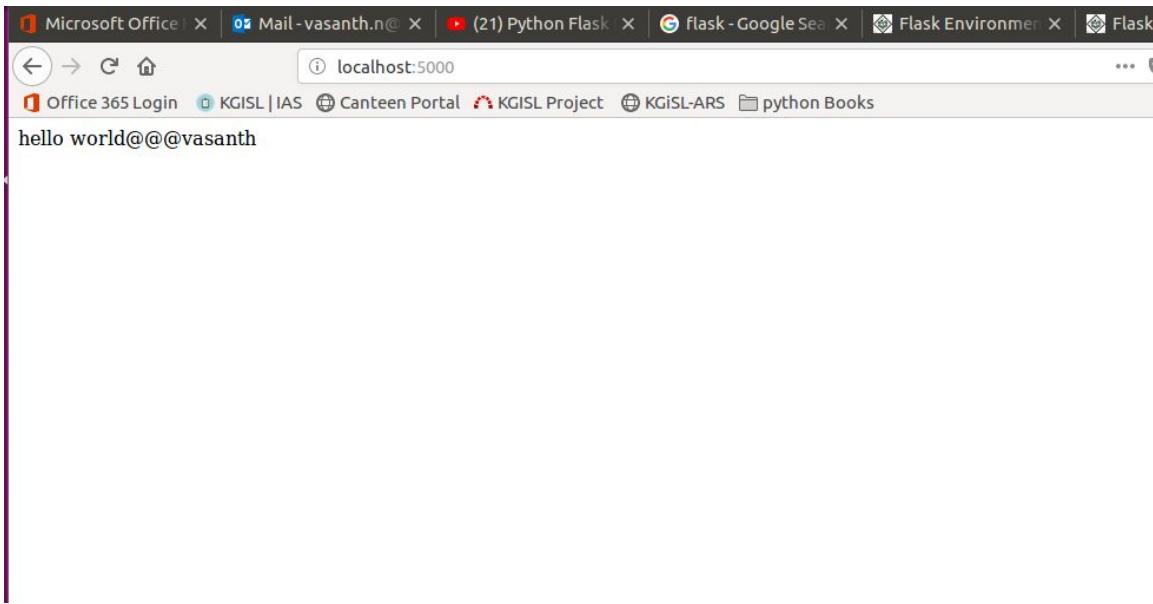
```
1
```

As shown above and inside the templates folder create a file called home.html as shown above. Inside the home.html file type as you like ,now save and refresh the browser the content now will display the new content that u have typed in the home.html



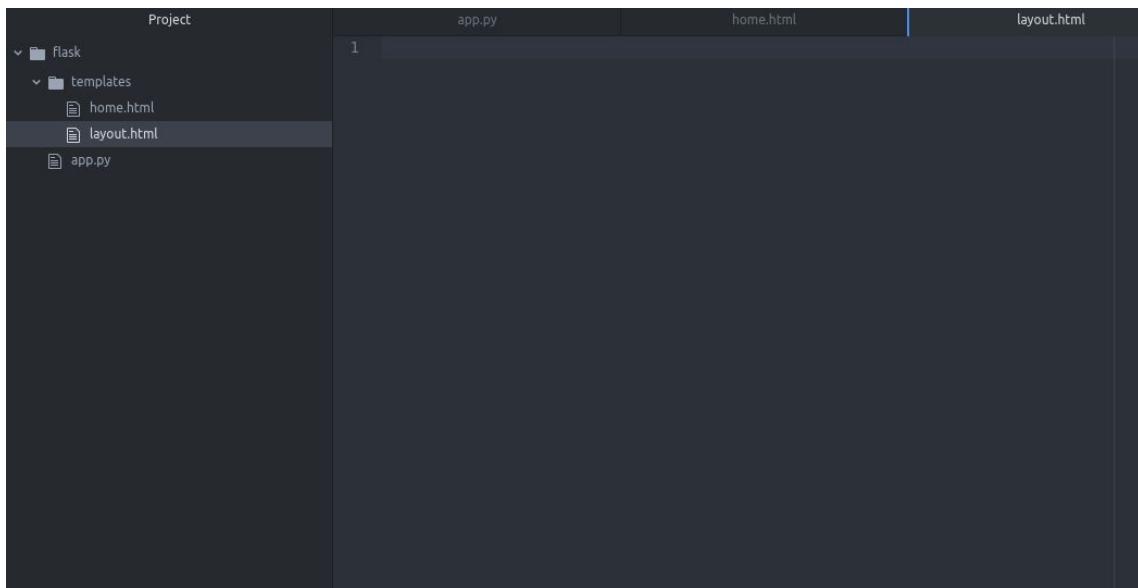
```
1 hello world@@@vasanth
```

The browser will display the content as :



The next thing is that we are going to create a layout ,this will save a lot of time by repeating the same content in each file ,we no need to create those contents ,layout will take care of those content.

For this we have to create a new file **layout.html** inside the templates folder as shown :



Inside the layout file you can type all the html content ,inside the layout.html file we have some special syntax `{% block body %} {% endblock %}`

This syntax helps to use the python scripts inside the html file . The `{% block body%}` is called the start tag and `{% endblock %}` is called the end tag .the python scripts will go inside between these blocks .

And we can extends the layout.html file in any number of pages this will be explained below .

Layout.html

```
<html>
<head>
    <title>Vasanth Flask App</title>
</head>
<body>
    {% block body %} {% endblock %}
</body>
</html>
```

Home.html

```
{% extends 'layout.html' %}
```

```
{% block body %}
```

```
Hello world!!!
```

```
{% endblock %}
```

Now save and refresh the browser you can see that the hello world!!! In the browser thus this how the templates works.



You can see that the title of the page will be render from the layouts.html and the entire code will look like :

The image shows a code editor interface with a dark theme. On the left, there is a 'Project' sidebar showing a directory structure with 'Flask' at the root, containing 'templates' (which has 'home.html' and 'layout.html'), and 'app.py'. The right side of the editor has three tabs: 'app.py', 'home.html', and 'layout.html'. The 'layout.html' tab is currently active and contains the following code:

```
<html>
<head>
    <title>Vasanth Flask App</title>
</head>
<body>
    {% block body %}{% endblock %}
</body>
</html>
```

The screenshot shows a code editor interface with a dark theme. On the left, there's a 'Project' sidebar with a tree view showing a 'Flask' folder containing 'templates' (with 'home.html' and 'layout.html') and 'app.py'. The main area has three tabs: 'app.py', 'home.html', and 'layout.html'. The 'home.html' tab is active and displays the following code:

```
1  {% extends 'layout.html' %}  
2  
3  {% block body %}  
4  Hello world!!!  
5  {% endblock %}  
6
```

Now we don't want to repeat the same html content in every page we can create, instead of that we can use the extends template, this save a lots of time in the project development .

BOOTSTRAP:

Initially we are going to use the bootstrap for our application .

For this let's go to :<http://blog.getbootstrap.com/2016/07/25/bootstrap-3-3-7-released/>

However you can find the latest bootstrap am using the 3.3.7 version , if you are familiar with bootstrap you can use any version as you like , but in this tutorial am using the 3.3.7 version .

Now copy the following code as shown :

CSS:

```
<link rel="stylesheet"  
href="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
```

JS :

```
<script src="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
```

Bootstrap CDN

After reviewing the changelog, update your CDN links to point to the v3.3.7 files:

```

<!-- Latest compiled and minified CSS -->
<link rel="stylesheet" href="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css" integrity="sha384-BVYiiSIFeK1gMnJRAkycuHAHRg32OmUcww7on3BYdaffQZCv锵
dq4Va+PmSTsz/K68vbDEjh4u" crossorigin="anonymous">

<!-- Optional theme -->
<link rel="stylesheet" href="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap-theme.min.css" integrity="sha384-rHyoNiiRsVXV4nD0JutlnGaslCJuC7uwjd
uW9SVrLwRYooPp2bWYgmgJQIXwl/Sp" crossorigin="anonymous">

<!-- Latest compiled and minified JavaScript -->
<script src="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"
integrity="sha384-Tc5IQib027qvyjSMfHjOMAlkfUWx2xUPhCJAy12mCWNipG9mGCD8wG9IC
PD77xa" crossorigin="anonymous"></script>
```

<3,
@cvrebert & team

slack
All the tools your team
needs in one place.
Slack: Where work
happens.

ads via Carbon

Now copy and paste the css file and js file inside our layout.html file

We have to paste the css file inside the head tag and the JS file in the end of the body tag as shown .

layout.html

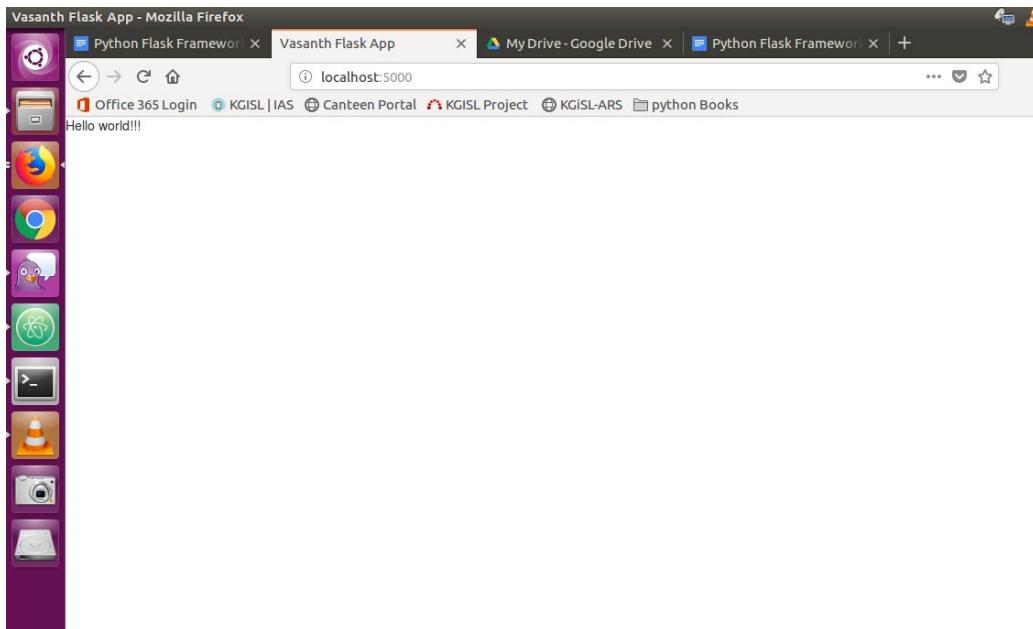
```

<html>
<head>
  <title>Vasanth Flask App</title>
  <link rel="stylesheet"
    href="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
</head>
<body>
  {% block body %} {% endblock %}

<script src="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
```

```
</body>  
</html>
```

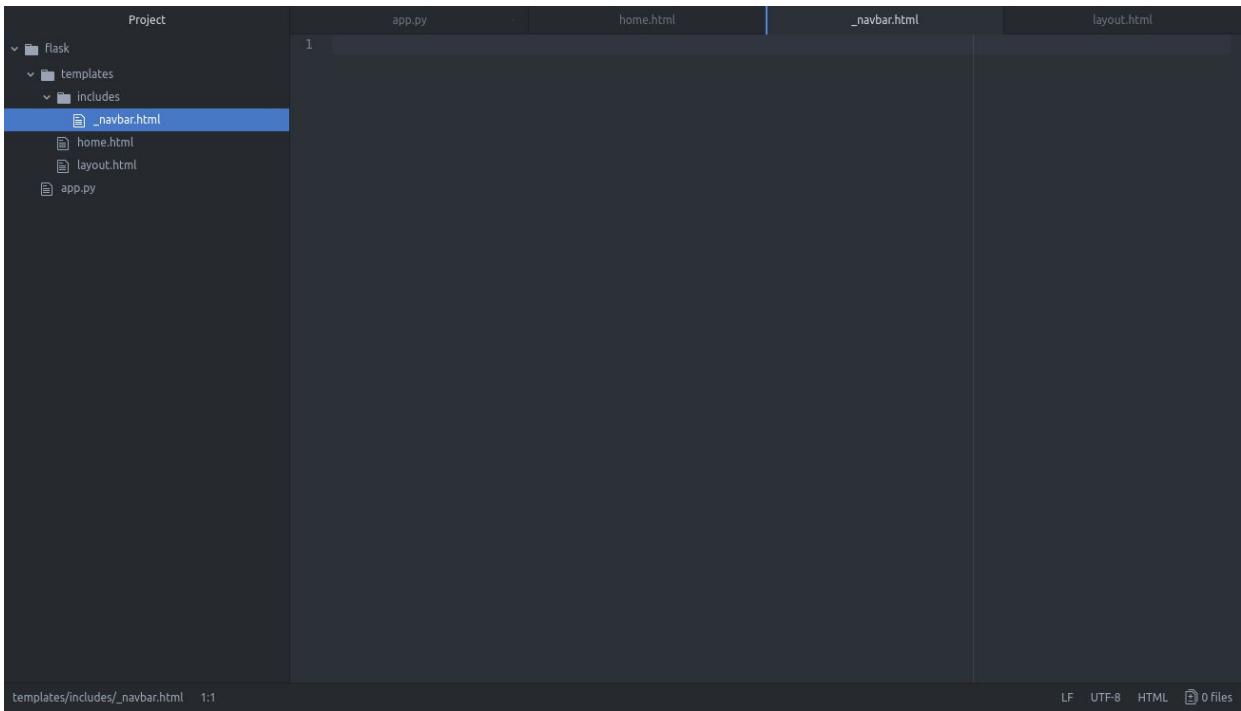
Now save and refresh the browser you can notice the bootstrap is enabled as you can see the change in fontsize.



Now we have to create a new folder called **includes** inside the template folder :

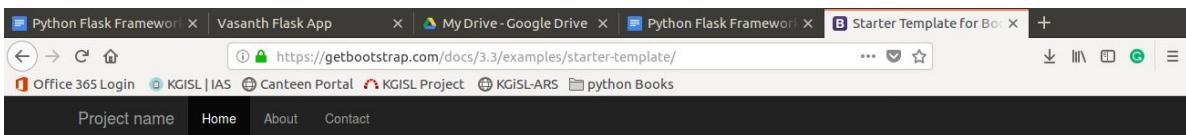
Create a new file inside the includes folder , the file name should be this

_navbar.html



We have used `_` because this file is partial file since we are going to use this `_navbar.html` only for creating the navbars .

Now go to the following link <https://getbootstrap.com/docs/3.3/examples/starter-template/>



Bootstrap starter template

Use this document as a way to quickly start any new project.
All you get is this text and a mostly barebones HTML document.

Now press **ctrl + u** in the keyboard now you will see the page that displayed as shown below :

```

1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="utf-8">
5     <meta http-equiv="X-UA-Compatible" content="IE=edge">
6     <meta name="viewport" content="width=device-width, initial-scale=1">
7     <!-- The above 3 meta tags *must* come first in the head; any other head content must come *after* these tags -->
8     <meta name="description" content="">
9     <meta name="author" content="">
10    <link rel="icon" href="../../favicon.ico">
11
12  <title>Starter Template for Bootstrap</title>
13
14  <!-- Bootstrap core CSS -->
15  <link href="../../dist/css/bootstrap.min.css" rel="stylesheet">
16
17  <!-- IE10 viewport hack for Surface/desktop Windows 8 bug -->
18  <link href="../../assets/css/ie10-viewport-bug-workaround.css" rel="stylesheet">
19
20  <!-- Custom styles for this template -->
21  <link href="starter-template.css" rel="stylesheet">
22
23  <!-- Just for debugging purposes. Don't actually copy these 2 lines! -->
24  <!--(if lt IE 9)><script src="../../assets/js/ie8-responsive-file-warning.js"></script><!--endif-->
25  <script src="../../assets/js/ie-emulation-modes-warning.js"></script>
26
27  <!-- HTML5 shim and Respond.js for IE8 support of HTML5 elements and media queries -->
28  <!--(if lt IE 9)>
29  <script src="https://oss.maxcdn.com/html5shiv/3.7.3/html5shiv.min.js"></script>
30  <script src="https://oss.maxcdn.com/respond/1.4.2/respond.min.js"></script>
31  <!--endif-->
32
33  </head>
34
35  <body>
36
37  <nav class="navbar navbar-inverse navbar-fixed-top">
38    <div class="container">
39      <div class="navbar-header">
40        <button type="button" class="navbar-toggle collapsed" data-toggle="collapse" data-target="#navbar" aria-expanded="false" aria-controls="navbar">
41          <span class="sr-only">Toggle navigation</span>
42          <span class="icon-bar"></span>
43          <span class="icon-bar"></span>
44          <span class="icon-bar"></span>
45        </button>
46        <a class="navbar-brand" href="#">Project name</a>
47      </div>
48
49      <div id="navbar" class="collapse navbar-collapse">
50        <ul class="nav navbar-nav">
51          <li class="active"><a href="#">Home</a></li>
52          <li><a href="#">About</a></li>
53          <li><a href="#">Contact</a></li>
54        </ul>
55      </div><!-- .nav-collapse -->
56    </div>
57  </nav>
58
59  <div class="container">
60
61    <div class="starter-template">
62      <h1>Bootstrap starter template</h1>
63      <p class="lead">Use this document as a way to quickly start any new project.<br> All you get is this text and a mostly barebones HTML document.</p>
64    </div>
65
66  </div>

```

In that contents copy the navbar contents as shown here :

```

<body>

<nav class="navbar navbar-inverse navbar-fixed-top">
  <div class="container">
    <div class="navbar-header">
      <button type="button" class="navbar-toggle collapsed" data-toggle="collapse" data-target="#navbar" aria-expanded="false" aria-controls="navbar">
        <span class="sr-only">Toggle navigation</span>
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
      </button>
      <a class="navbar-brand" href="#">Project name</a>
    </div>
    <div id="navbar" class="collapse navbar-collapse">
      <ul class="nav navbar-nav">
        <li class="active"><a href="#">Home</a></li>
        <li><a href="#">About</a></li>
        <li><a href="#">Contact</a></li>
      </ul>
    </div><!-- .nav-collapse -->
  </div>
</nav>

<div class="container">

  <div class="starter-template">
    <h1>Bootstrap starter template</h1>
    <p class="lead">Use this document as a way to quickly start any new project.<br> All you get is this text and a mostly barebones HTML document.</p>
  </div>

</div>

```

The copied code should look like this :

```

<nav class="navbar navbar-inverse navbar-fixed-top">
  <div class="container">
    <div class="navbar-header">
      <button type="button" class="navbar-toggle collapsed" data-toggle="collapse" data-target="#navbar" aria-expanded="false" aria-controls="navbar">

```

```

<span class="sr-only">Toggle navigation</span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
</button>
<a class="navbar-brand" href="#">Project name</a>
</div>
<div id="navbar" class="collapse navbar-collapse">
<ul class="nav navbar-nav">
<li class="active"><a href="#">Home</a></li>
<li><a href="#about">About</a></li>
<li><a href="#contact">Contact</a></li>
</ul>
</div><!--/.nav-collapse -->
</div>
</nav>

```

Now we have to make some changes in the above code let's follow as i explained below :

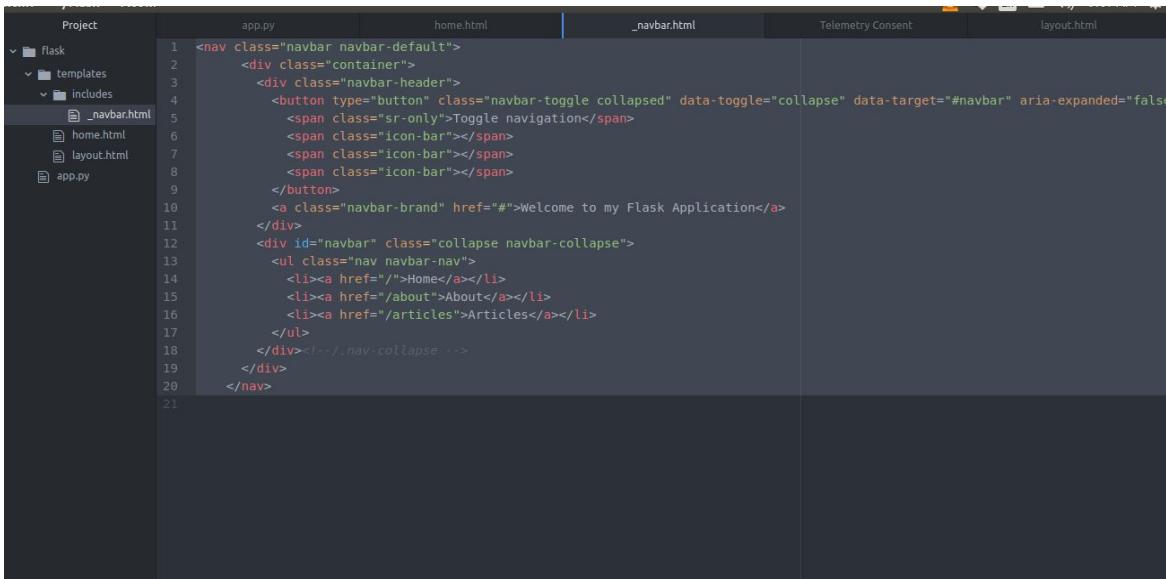
```

<nav class="navbar navbar-default">
<div class="container">
<div class="navbar-header">
<button type="button" class="navbar-toggle collapsed" data-toggle="collapse"
data-target="#navbar" aria-expanded="false" aria-controls="navbar">
<span class="sr-only">Toggle navigation</span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
</button>
<a class="navbar-brand" href="#">Welcome to my Flask Application</a>
</div>
<div id="navbar" class="collapse navbar-collapse">
<ul class="nav navbar-nav">
<li><a href="/">Home</a></li>
<li><a href="/about">About</a></li>
<li><a href="/articles">Articles</a></li>
</ul>
</div><!--/.nav-collapse -->

```

```
</div>
</nav>
```

The above Highlighted area are the code has been modified , now your code should look like this



```
Project
Flask
templates
includes
 navbar.html
home.html
layout.html
app.py

1 <nav class="navbar navbar-default">
2   <div class="container">
3     <div class="navbar-header">
4       <button type="button" class="navbar-toggle collapsed" data-toggle="collapse" data-target="#navbar" aria-expanded="false"
5         <span class="sr-only">Toggle navigation</span>
6         <span class="icon-bar"></span>
7         <span class="icon-bar"></span>
8         <span class="icon-bar"></span>
9       </button>
10      <a class="navbar-brand" href="#">Welcome to my Flask Application</a>
11    </div>
12    <div id="navbar" class="collapse navbar-collapse">
13      <ul class="nav navbar-nav">
14        <li><a href="/">Home</a></li>
15        <li><a href="/about">About</a></li>
16        <li><a href="/articles">Articles</a></li>
17      </ul>
18    </div><!-- .nav-collapse -->
19  </div>
20 </nav>
21
```

Now we have to include this in our layout files ,for this just go to **layout.html** file as shown below :

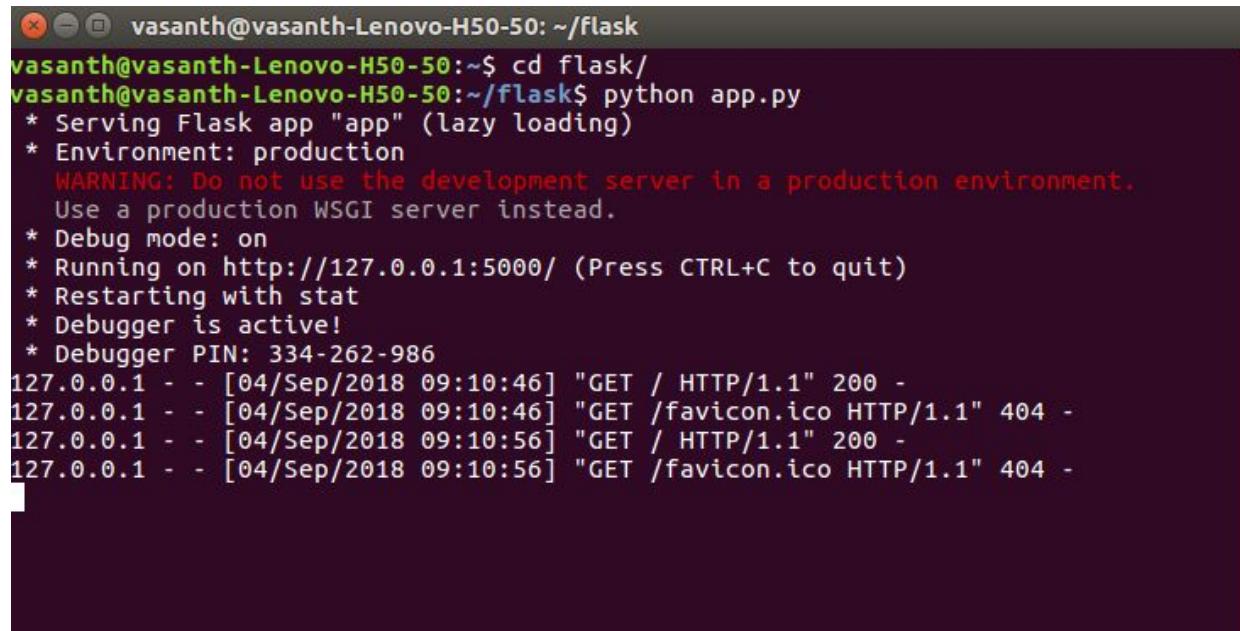
layout.html

```
<html>
<head>
  <title>Vasanth Flask App</title>
  <link rel="stylesheet"
href="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
</head>
<body>
  {% include 'includes/_navbar.html'%}

  {% block body %} {% endblock %}
```

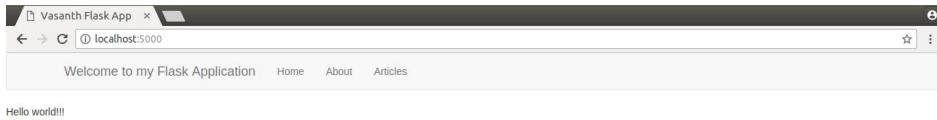
```
<script src="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>  
</body>  
</html>
```

In the above code we have add the highlighted line ,this line is to include or includes folder where our **_navbar.html** file exist ,now save the file and run the flask server by running the **app.py** file



```
vasanth@vasanth-Lenovo-H50-50:~/flask  
vasanth@vasanth-Lenovo-H50-50:~$ cd flask/  
vasanth@vasanth-Lenovo-H50-50:~/flask$ python app.py  
* Serving Flask app "app" (lazy loading)  
* Environment: production  
  WARNING: Do not use the development server in a production environment.  
  Use a production WSGI server instead.  
* Debug mode: on  
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)  
* Restarting with stat  
* Debugger is active!  
* Debugger PIN: 334-262-986  
127.0.0.1 - - [04/Sep/2018 09:10:46] "GET / HTTP/1.1" 200 -  
127.0.0.1 - - [04/Sep/2018 09:10:46] "GET /favicon.ico HTTP/1.1" 404 -  
127.0.0.1 - - [04/Sep/2018 09:10:56] "GET / HTTP/1.1" 200 -  
127.0.0.1 - - [04/Sep/2018 09:10:56] "GET /favicon.ico HTTP/1.1" 404 -
```

Now open the browser and type the address **localhost:5000** ,now you can see the bootstrap is working fine as shown below :



Now i want to move all the content inside the website into a container class ,for that add the following line in the **layout.html** file

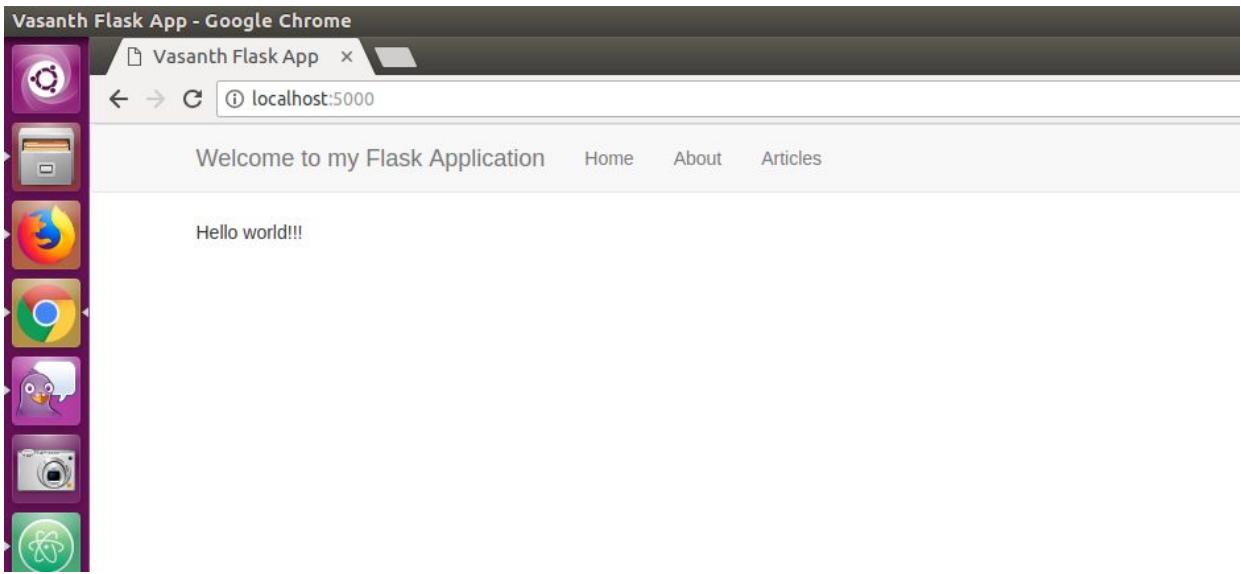
```
<html>
<head>
    <title>Vasanth Flask App</title>
    <link rel="stylesheet"
        href="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
</head>
<body>
    {% include 'includes/_navbar.html'%}

    <div class="container">
        {% block body %} {% endblock %}
    </div>

<script src="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>

</body>
</html>
```

Now add those lines in the **layout.html** and save the file , now refresh the browser and see the world hello will be moved a bit towards the right,you can see the changes after refreshing the browser.



Now lets add some content in the home.html file ,now open the home.html file and add the following inside that as shown below .

Home.html

```
{% extends 'layout.html' %}

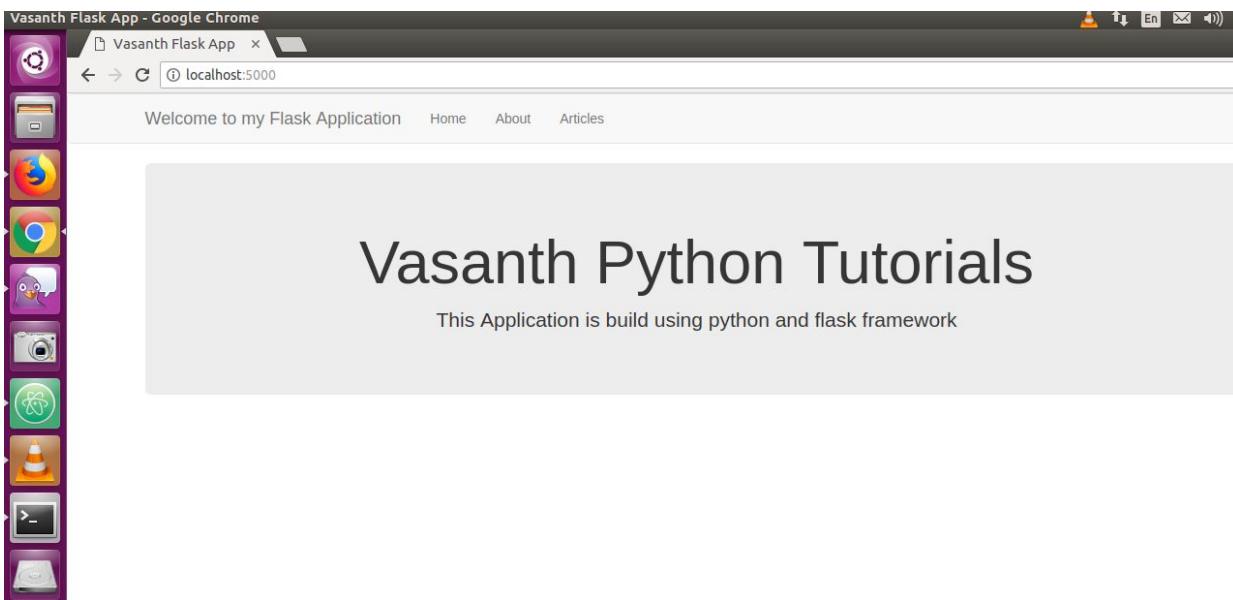
{% block body %}
<div class="jumbotron text-center">
  <h1>Vasanth Python Tutorials</h1>
  <p class="lead">This Application is build using python and flask framework</p>
</div>
{% endblock %}
```

Your code should look like this :

The screenshot shows the Atom code editor interface. On the left, the project tree displays a 'flask' directory containing 'app.py', 'home.html', 'layout.html', and '_navbar.html'. The main editor area has four tabs: 'app.py', 'home.html', and '_navbar.html' are visible, while '_nav_bar.html' is currently active. The code in 'home.html' is as follows:

```
1  [% extends 'layout.html' %]
2
3  {% block body %}
4  <div class="jumbotron text-center">
5    <h1>Vasanth Python Tutorials</h1>
6    <p class="lead">This Application is build using python and flask framework</p>
7  </div>
8  {% endblock %}
```

Now save the file home.html and refresh the browser you will see the changes as shown :



Now we have to create a navigation for the articles and about page for this ,add up the following code in the **app.py** file as shown below :

```
from flask import Flask,render_template

app = Flask(__name__)
app.debug = True

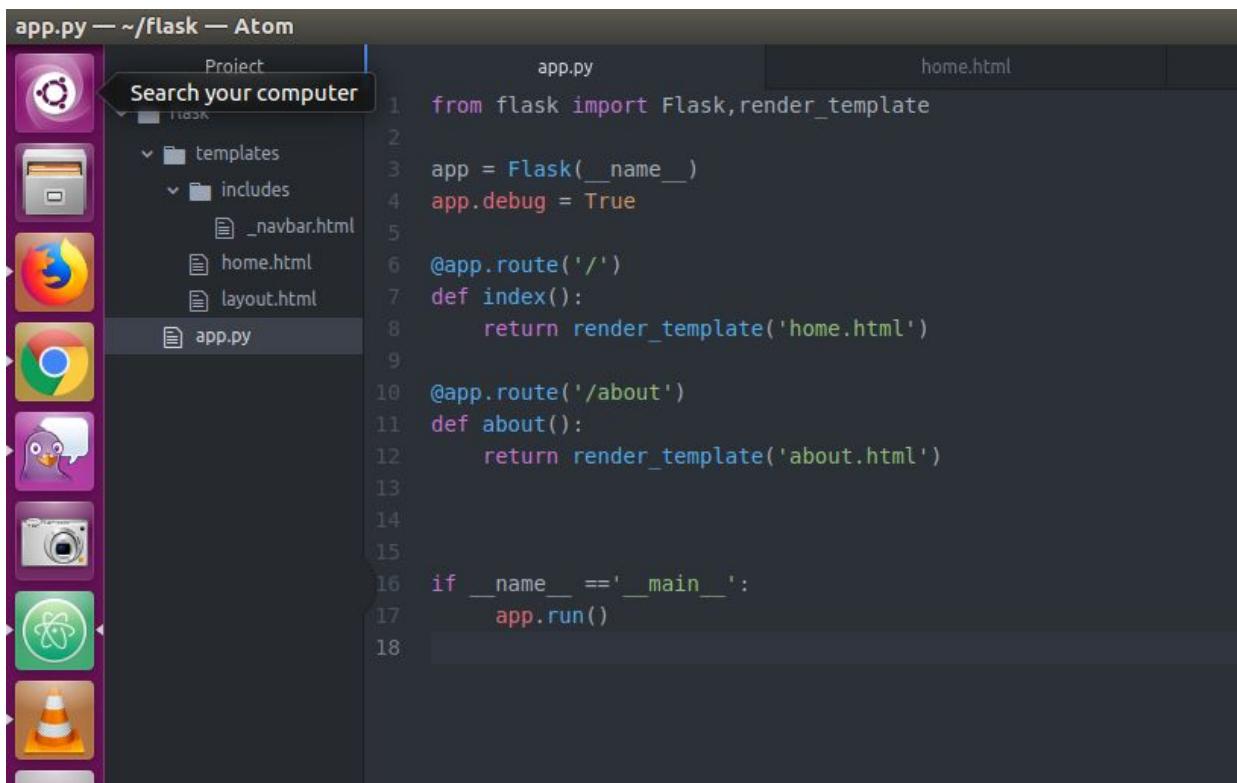
@app.route('/')
```

```
def index():
    return render_template('home.html')
```

```
@app.route('/about')
def about():
    return render_template('about.html')
```

```
if __name__ == '__main__':
    app.run()
```

Your code will look like this :



The screenshot shows the Atom IDE interface with the following structure:

- Project**: Shows icons for various applications like Terminal, File Explorer, and GitHub.
- Search your computer**: A search bar.
- app.py — ~/flask — Atom**: The current file being edited.
- File Explorer**: Shows the project structure:
 - templates (highlighted)
 - includes
 - _navbar.html
 - home.html
 - layout.html
 - app.py
- Editor**: The code editor window containing the following Python code:

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

@app.route('/about')
def about():
    return render_template('about.html')

if __name__ == '__main__':
    app.run()
```

Now create a about.html in the templates folder as shown:

Now copy the code that you have it in the home.html file and make the following changes :

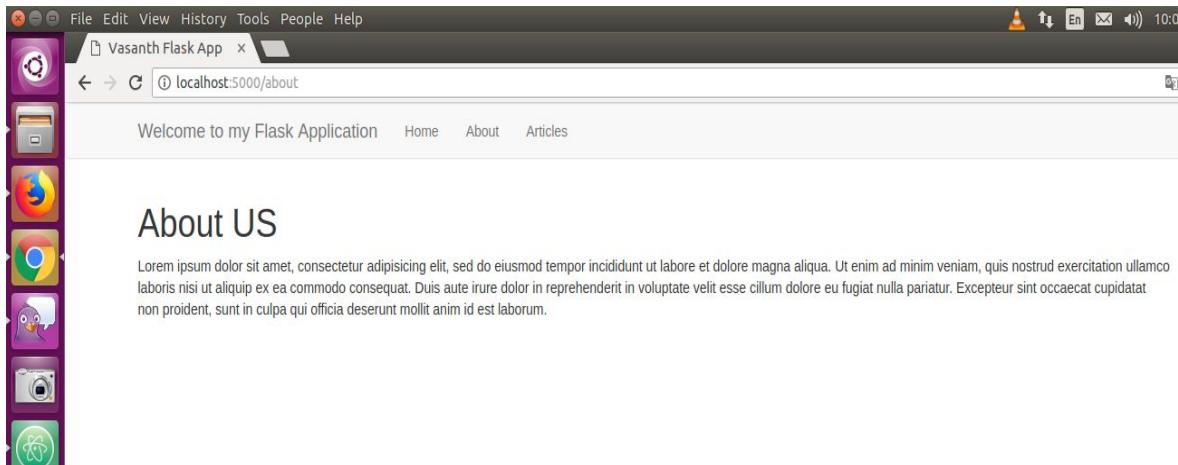
```

{% extends 'layout.html' %}

{% block body %}
<h1>About US </h1>
<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.</p>
{% endblock %}

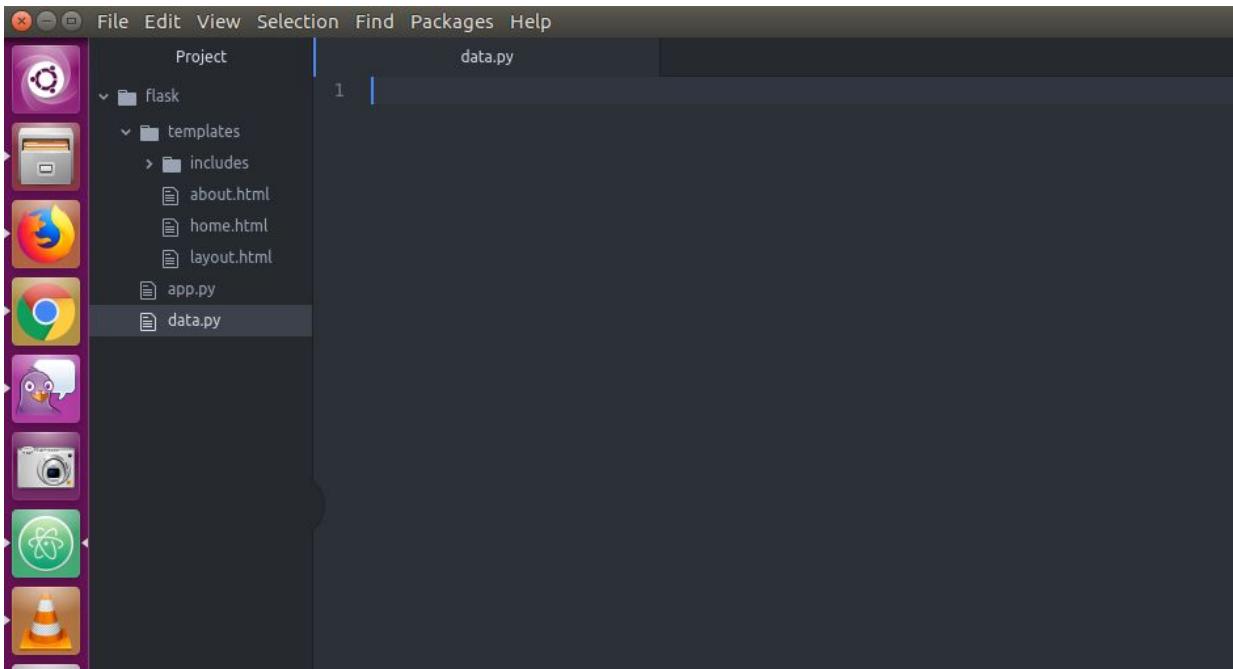
```

Here i have added the dummy text for the paragraph ,now save the about.html file and refresh the browser and click about in the home page ,now your about page will look like this :



Actually we need the login and register button for our page but as of now we are not going to create that, and we are not going to use any database right now ,but we will create it later ,what i gonna do is that we are going to create a file for articles ,that will hold the data for the articles .

Now we wanna create a new file in the root directory as shown below and save the file as **data.py**



Now add the following code in the **data.py** Now we are going to define a function called articles as shown below :add the code in the **data.py**

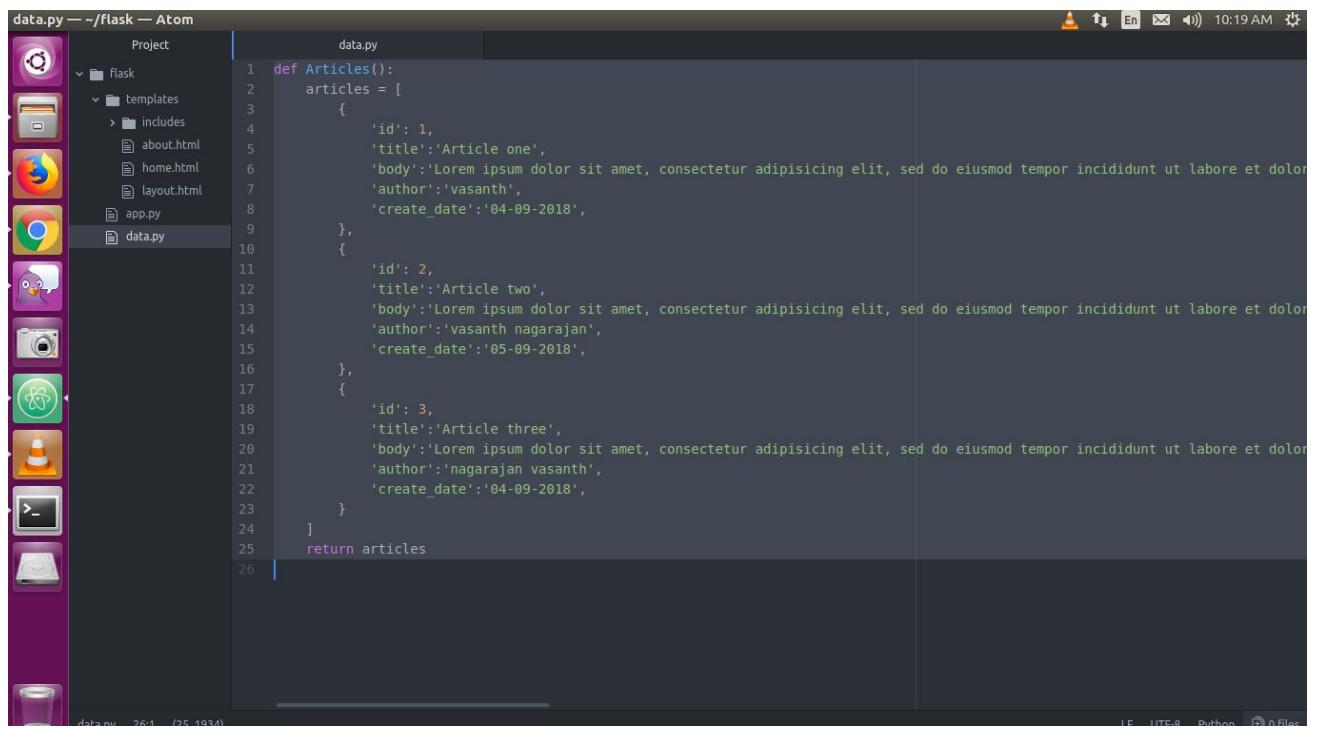
```
def Articles():
    articles = [
        {
            'id': 1,
            'title':'Article one',
            'body':'Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor
incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation
ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit
in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat
non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',
            'author':'vasanth',
            'create_date':'04-09-2018',
        },
        {
            'id': 2,
            'title':'Article two',
            'body':'Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor
incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation
ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit
```

in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',

```
'author':'vasanth nagarajan',
'create_date':'05-09-2018',
},
{
'id': 3,
'title':'Article three',
'body':'Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',

'author':'nagarajan vasanth',
'create_date':'04-09-2018',
}
]
return articles
```

Your code should look like this :



The screenshot shows the Atom code editor interface. On the left is a sidebar titled 'Project' showing a file tree for a 'Flask' project. The tree includes 'templates' (with 'about.html', 'home.html', and 'layout.html'), 'app.py', and 'data.py'. The right pane is the main editor window with the following Python code:

```
data.py — ~/flask — Atom
Project
  Flask
    templates
      about.html
      home.html
      layout.html
    app.py
    data.py
data.py
1 def Articles():
2     articles = [
3         {
4             'id': 1,
5             'title': 'Article one',
6             'body': 'Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',
7             'author': 'vasanth',
8             'create_date': '04-09-2018',
9         },
10        {
11            'id': 2,
12            'title': 'Article two',
13            'body': 'Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',
14            'author': 'vasanth nagarajan',
15            'create_date': '05-09-2018',
16        },
17        {
18            'id': 3,
19            'title': 'Article three',
20            'body': 'Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',
21            'author': 'nagarajan vasanth',
22            'create_date': '04-09-2018',
23        }
24    ]
25    return articles
26
```

Now go to the app.py file and import the data articles to our file ,this is done using the following code :

```
app.py
from flask import Flask,render_template
from data import Articles

app = Flask(__name__)
app.debug = True

Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

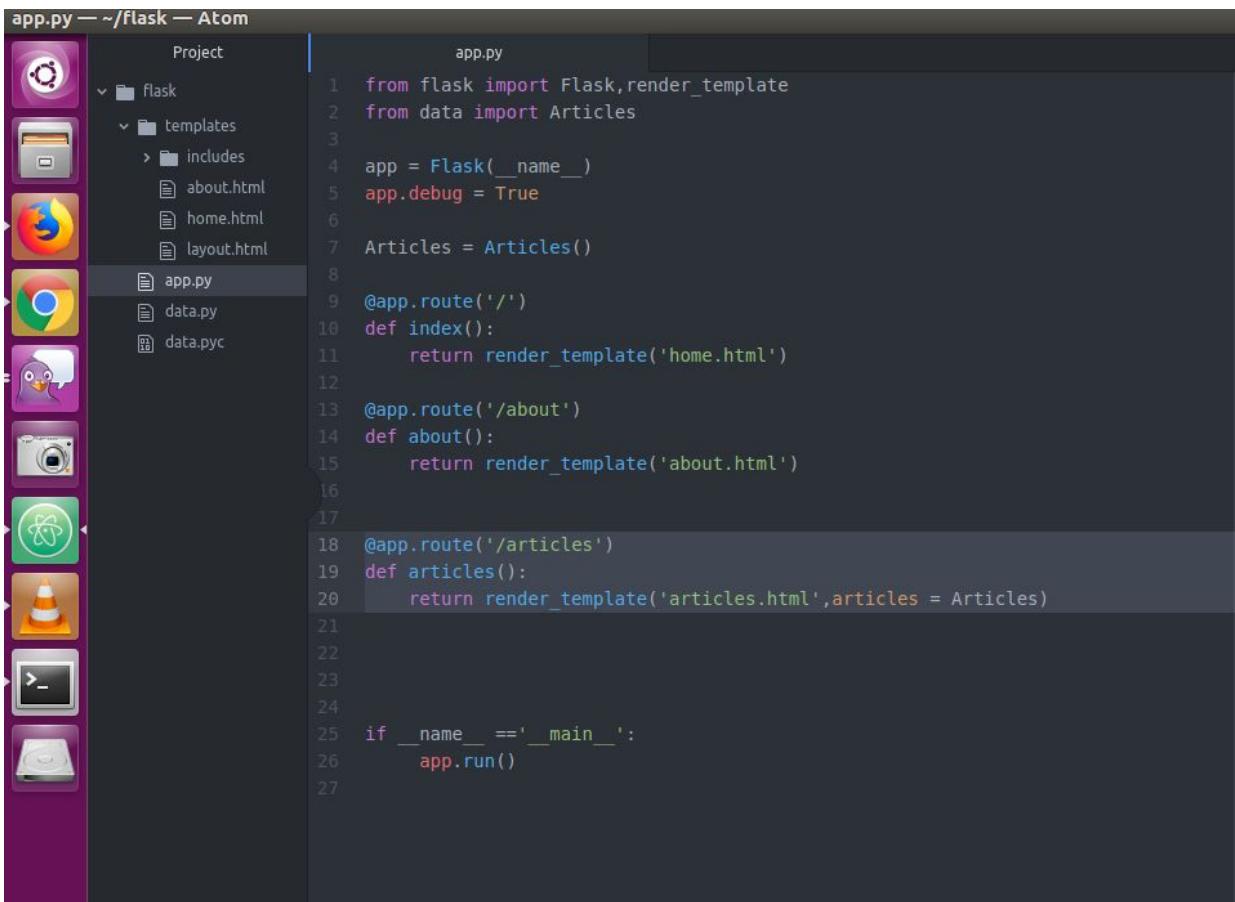
@app.route('/about')
def about():
    return render_template('about.html')

if __name__ == '__main__':
    app.run()
```

Now we have to create a route for the articles now add the following code in the app.py file :

```
@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)
```

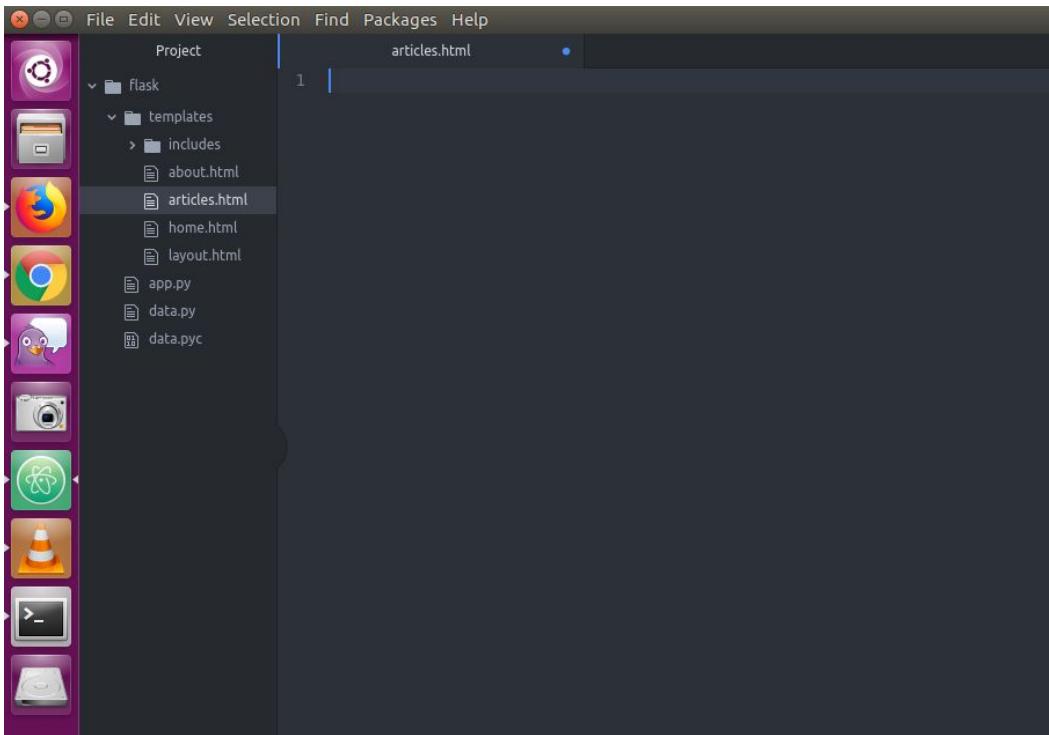
Now your code look like this :



The screenshot shows the Atom code editor interface. On the left is a sidebar titled "Project" containing icons for various files and folders. The main area has a tab bar with "app.py" selected. The code editor displays the following Python code:

```
app.py — ~/flask — Atom
Project
app.py
1 from flask import Flask,render_template
2 from data import Articles
3
4 app = Flask(__name__)
5 app.debug = True
6
7 Articles = Articles()
8
9 @app.route('/')
10 def index():
11     return render_template('home.html')
12
13 @app.route('/about')
14 def about():
15     return render_template('about.html')
16
17
18 @app.route('/articles')
19 def articles():
20     return render_template('articles.html',articles = Articles)
21
22
23
24
25 if __name__ == '__main__':
26     app.run()
27
```

Now create a articles.html file in the template folder and write the following code and save it.



Articles.html

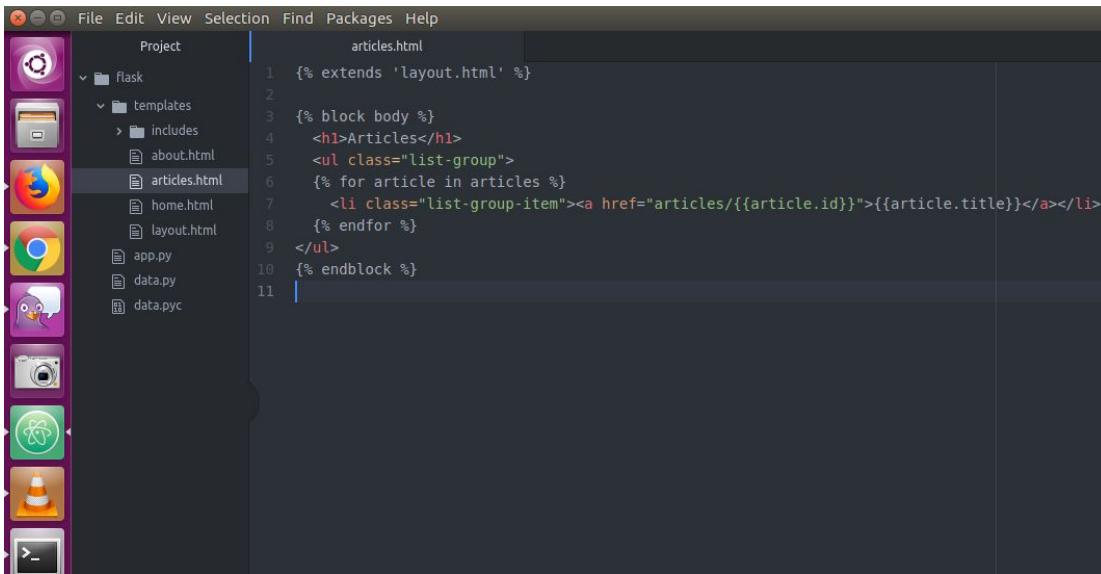
Now in this file we are going to use the for loop logic in this **articles.html** file :

Articles.html

```
{% extends 'layout.html' %}

{% block body %}
<h1>Articles</h1>
<ul class="list-group">
    {% for article in articles %}
        <li class="list-group-item"><a href="articles/{{article.id}}">{{article.title}}</a></li>
    {% endfor %}
</ul>
{% endblock %}
```

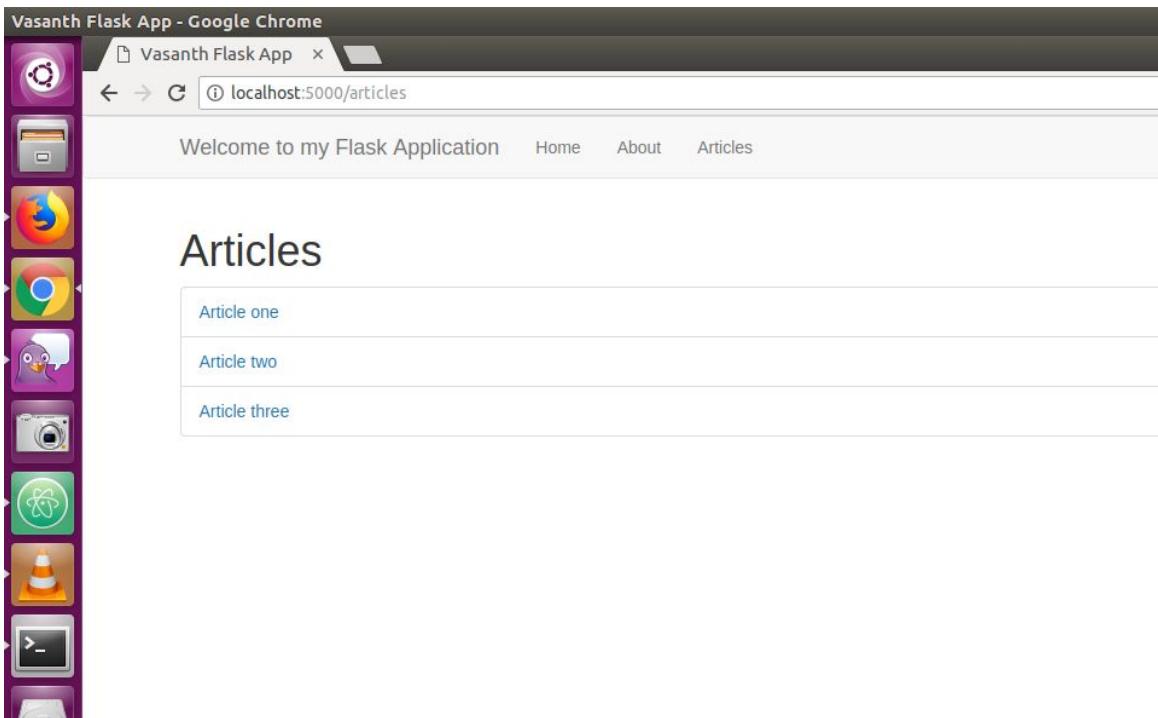
Your code will look like this :



```
Project
  Flask
    templates
      includes
        about.html
        articles.html
        home.html
        layout.html
    app.py
    data.py
    data.pyc

articles.html
1  {% extends 'layout.html' %}          articles.html
2
3  {% block body %}                   1
4    <h1>Articles</h1>             2
5    <ul class="list-group">          3
6      {% for article in articles %}  4
7        <li class="list-group-item"><a href="articles/{{article.id}}">{{article.title}}</a></li>
8      {% endfor %}
9    </ul>
10   {% endblock %}
```

Now save this file and refresh the browser and click the article option in th home page now the browser will display the article page as shown below :



Now we wanna create a links for each article for this we have to create a new route for the articles ,now open app.py file add the following routes in the file .

```
from flask import Flask,render_template
from data import Articles

app = Flask(__name__)
app.debug = True

Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

if __name__ == '__main__':
    app.run()
```

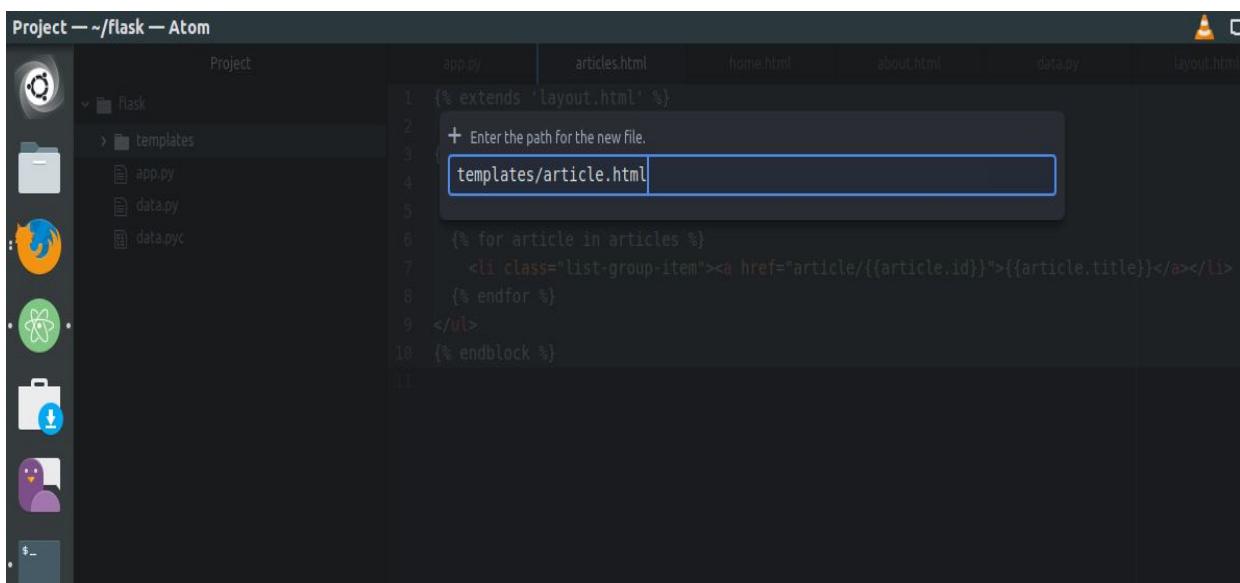
NOTE : Now **Articles.html** change the following code :

Your **articles.html** file should look like this :

```
{% extends 'layout.html' %}
```

```
{% block body %}
<h1>Articles</h1>
<ul class="list-group">
{% for article in articles %}
    <li class="list-group-item"><a href="article/{{article.id}}">{{article.title}}</a></li>
{% endfor %}
</ul>
{% endblock %}
```

Now Create a **article.html** file in the template folder as shown:

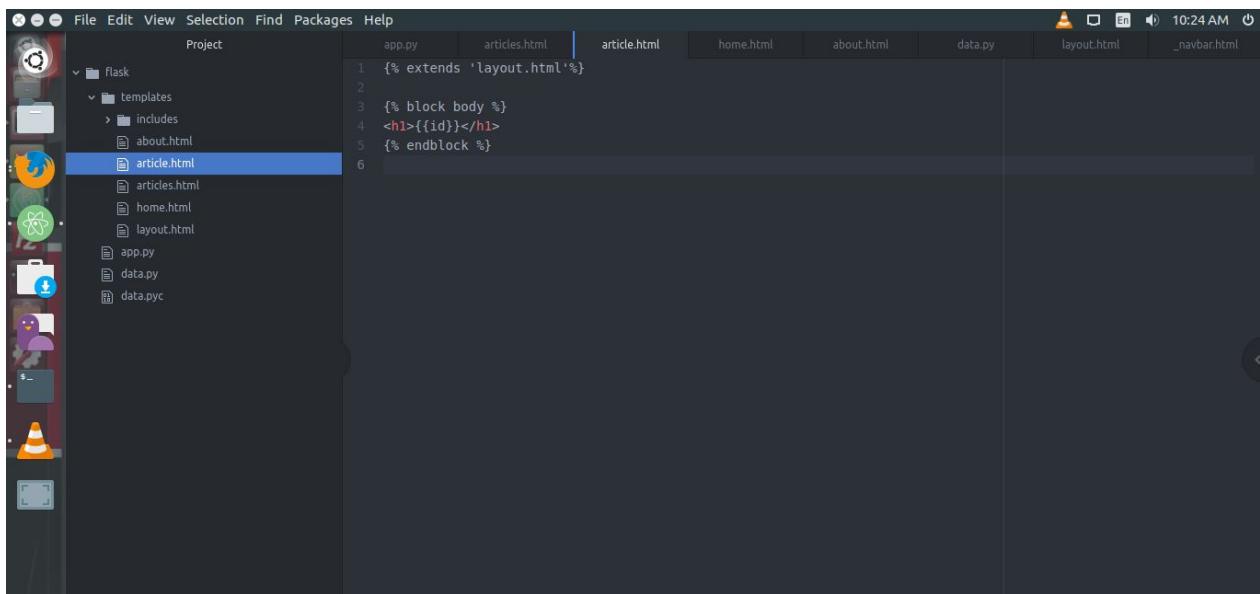


Now open the **article.html** file and add the following code in the file as shown below :

```
{% extends 'layout.html'%}
```

```
{% block body %}
<h1>{{id}}</h1>
{% endblock %}
```

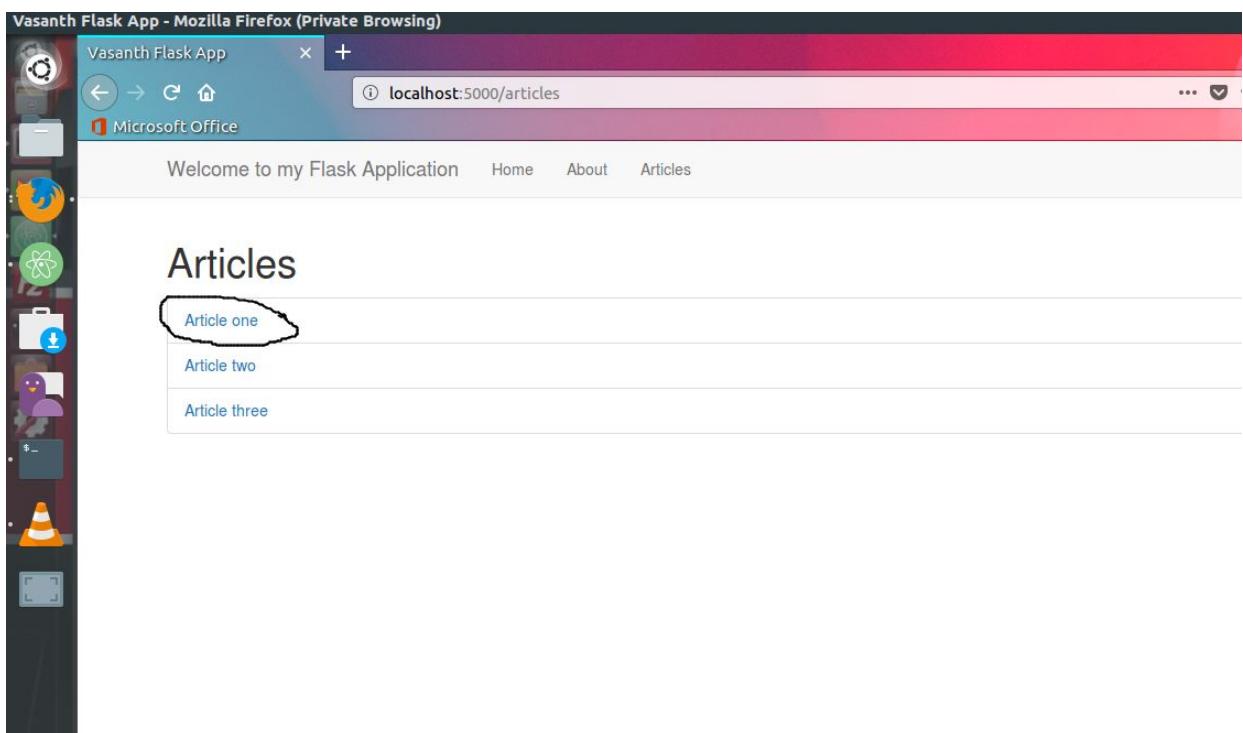
Your article code should look like this :

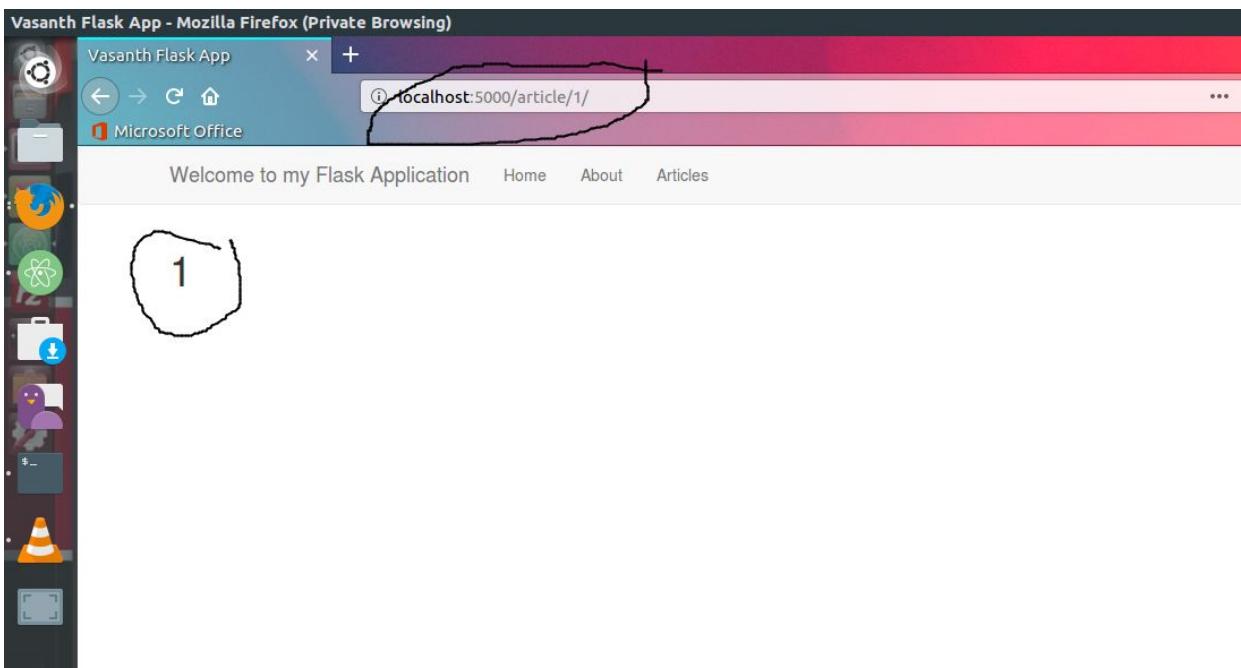


The screenshot shows a code editor interface with a dark theme. On the left is a sidebar titled "Project" containing a "Flask" folder with "templates", "includes", and files like "about.html", "app.py", "data.py", and "data.pyc". The main area shows an "article.html" file with the following code:

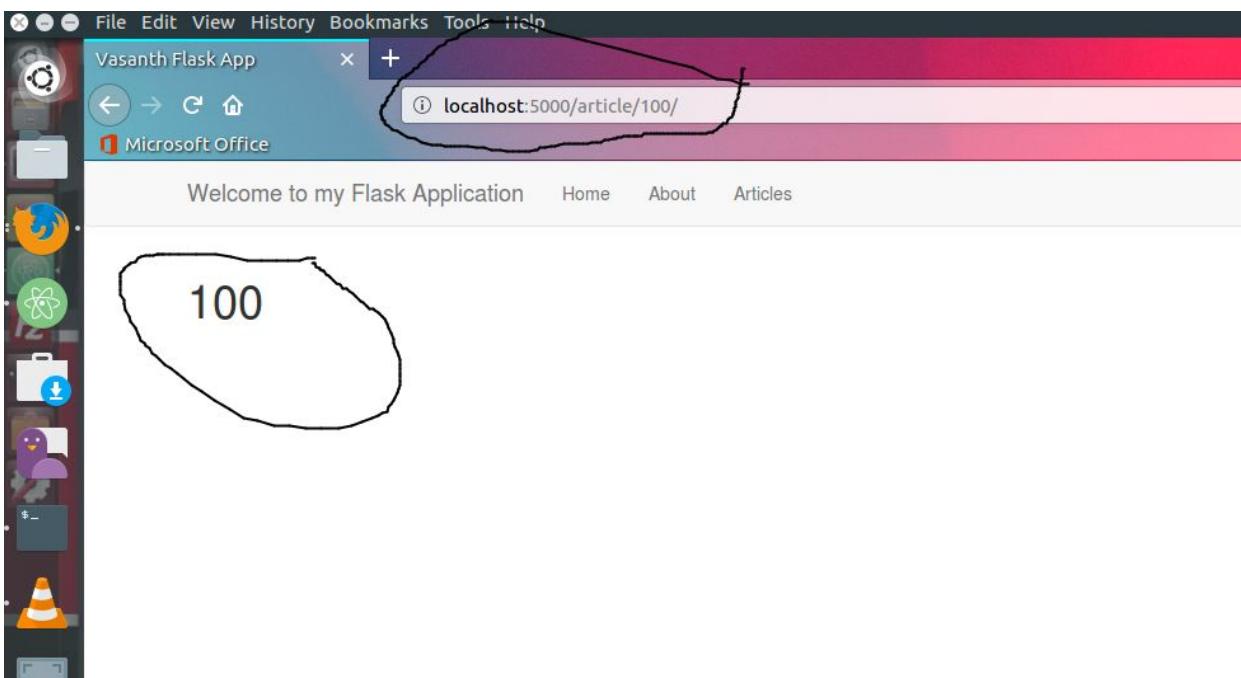
```
1  {% extends 'layout.html'%}
2
3  {% block body %}
4      <h1>{{id}}</h1>
5  {% endblock %}
```

Now save the file and start the python flask server and look at <http://localhost:5000> in your browser .





Now Type any number in the address bar it will display the number as id :



Setting Up With Database

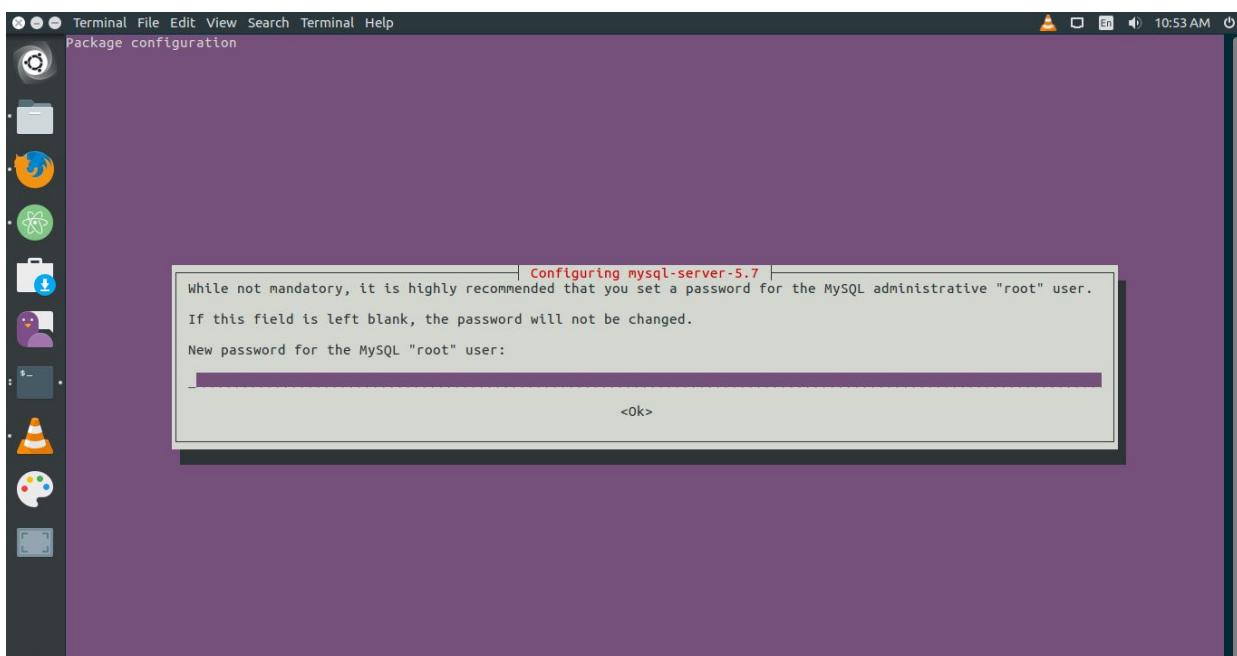
Now we are going to install the mysql server and the client for our application for this installation ,follow the steps that given below ,

NOTE: MYSQL SERVER and MYSQL CLIENT are need to be installed

vasanth@vasanth-Lenovo-H50-50:~/flask\$ sudo apt-get install mysql-server libmysqlclient-dev

Type the following command in the terminal , you have to type from the **sudo apt - get** command

While installing the MYSQL server , it will ask you to enter the root password .



For this enter **root** as password : **root**

Both the user name and the password will be the same.

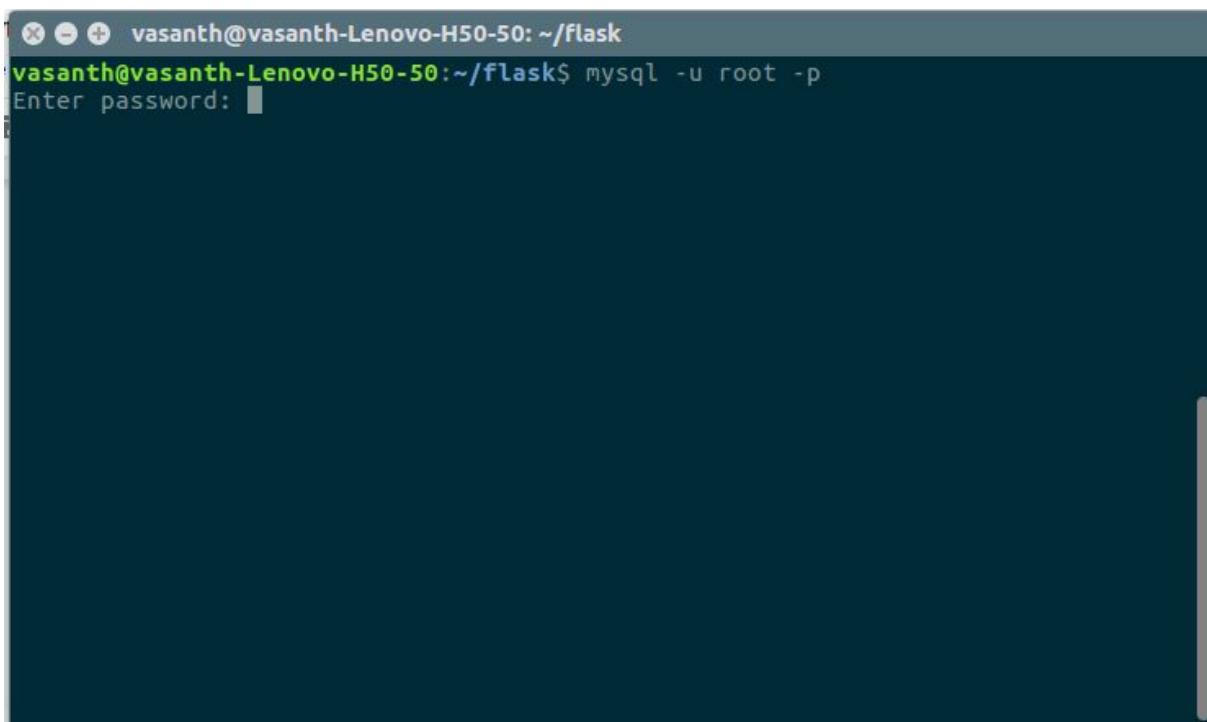
After Successfully Installed the Both the Mysql Server and client proceed as follows

Accessing the Database :

Now open the terminal and type the following code :

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ mysql -u root -p
```

Now you will be asked to enter the password as shown below : type **root** as in the password file



A screenshot of a terminal window titled "vasanth@vasanth-Lenovo-H50-50: ~/flask". The window contains the command "mysql -u root -p" followed by the prompt "Enter password:". The password field is currently empty.

Now the Sql server will opened as shown below :

```
vasanth@vasanth-Lenovo-H50-50: ~/flask
Processing triggers for libc-bin (2.23-0ubuntu10) ...
Processing triggers for systemd (229-4ubuntu21.4) ...
Processing triggers for ureadahead (0.100.0-19) ...
vasanth@vasanth-Lenovo-H50-50:~/flask$ clear

vasanth@vasanth-Lenovo-H50-50:~/flask$ mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
vasanth@vasanth-Lenovo-H50-50:~/flask$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 5
Server version: 5.7.23-0ubuntu0.16.04.1 (Ubuntu)

Copyright (c) 2000, 2018, Oracle and/or its affiliates. All rights reserved.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql> ■
```

Now type the following command in the mysql terminal :

```
mysql> SHOW DATABASES;
```

Now list of databases will be displayed :

```
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 5
Server version: 5.7.23-0ubuntu0.16.04.1 (Ubuntu)

Copyright (c) 2000, 2018, Oracle and/or its affiliates. All rights reserved.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

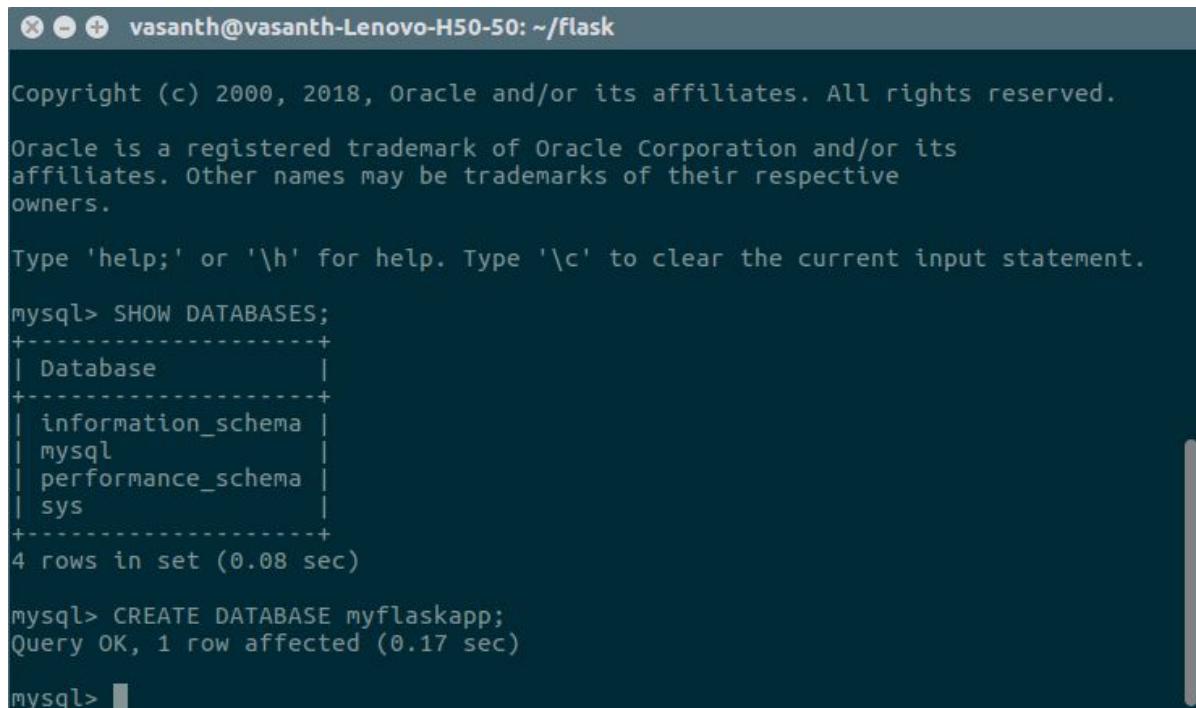
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0.08 sec)

mysql> ■
```

Now Create a database for our application for this type the following command in the mysql server

```
mysql> CREATE DATABASE myflaskapp;
```



```
vasanth@vasanth-Lenovo-H50-50: ~/flask
Copyright (c) 2000, 2018, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0.08 sec)

mysql> CREATE DATABASE myflaskapp;
Query OK, 1 row affected (0.17 sec)

mysql> 
```

Now Select our database to work with it,for that type the following command in the terminal .

```
mysql> USE myflaskapp;
```

Now the database has been selected as shown below .

```
vasanth@vasanth-Lenovo-H50-50: ~/flask
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SHOW DATABASES;
+-----+
| Database      |
+-----+
| information_schema |
| mysql          |
| performance_schema |
| sys            |
+-----+
4 rows in set (0.08 sec)

mysql> CREATE DATABASE myflaskapp;
Query OK, 1 row affected (0.17 sec)

mysql> USE myflaskapp;
Database changed
mysql>
```

Now we have to create the user table ,use the following command and type in the sql server

```
mysql> CREATE TABLE users(id INT(11) AUTO_INCREMENT PRIMARY KEY,
-> name VARCHAR(100),email VARCHAR(100),username VARCHAR(30),password
VARCHAR(100),register_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP);
```

Now the table has been created successfully as shown below :

```
vasanth@vasanth-Lenovo-H50-50: ~/flask
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SHOW DATABASES;
+-----+
| Database      |
+-----+
| information_schema |
| mysql          |
| performance_schema |
| sys            |
+-----+
4 rows in set (0.08 sec)

mysql> CREATE DATABASE myflaskapp;
Query OK, 1 row affected (0.17 sec)

mysql> USE myflaskapp;
Database changed
mysql> CREATE TABLE users(id INT(11) AUTO_INCREMENT PRIMARY KEY,
   -> name VARCHAR(100),email VARCHAR(100),username VARCHAR(30),password VARCHAR(100),register_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP);
Query OK, 0 rows affected (0.71 sec)

mysql>
```

Now type the following command in the mysql server to list database :

```
mysql> SHOW DATABASES;
```

```
vasanth@vasanth-Lenovo-H50-50: ~/flask

mysql> CREATE DATABASE myflaskapp;
Query OK, 1 row affected (0.17 sec)

mysql> USE myflaskapp;
Database changed
mysql> CREATE TABLE users(id INT(11) AUTO_INCREMENT PRIMARY KEY,
   -> name VARCHAR(100),email VARCHAR(100),username VARCHAR(30),password VARCHAR(100),register_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP);
Query OK, 0 rows affected (0.71 sec)

mysql> SHOW DATABASES;
+-----+
| Database      |
+-----+
| information_schema |
| myflaskapp     |
| mysql          |
| performance_schema |
| sys            |
+-----+
5 rows in set (0.00 sec)

mysql>
```

Now we can list our table by using the following command :

mysql> SHOW TABLES;

```
vasanth@vasanth-Lenovo-H50-50: ~/flask

Database      |
+-----+
| information_schema |
| myflaskapp     |
| mysql          |
| performance_schema |
| sys            |
+-----+
5 rows in set (0.00 sec)

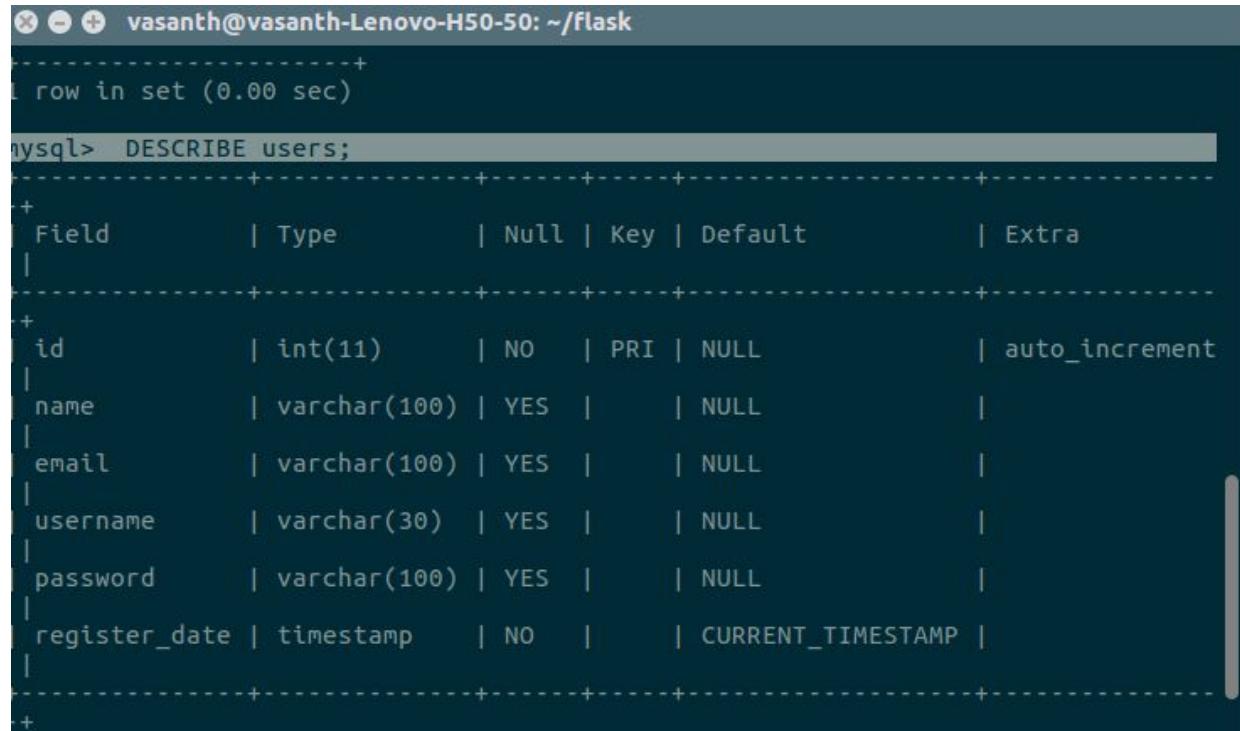
mysql> USE myflaskapp;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> SHOW TABLES;
+-----+
| Tables_in_myflaskapp |
+-----+
| users                |
+-----+
1 row in set (0.00 sec)

mysql>
```

Now we can describe our users table by typing the following command in the mysql server :

mysql> DESCRIBE users;



```
vasanth@vasanth-Lenovo-H50-50: ~/flask
+-----+
1 row in set (0.00 sec)

mysql> DESCRIBE users;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| id | int(11) | NO | PRI | NULL | auto_increment |
| name | varchar(100) | YES | | NULL | |
| email | varchar(100) | YES | | NULL | |
| username | varchar(30) | YES | | NULL | |
| password | varchar(100) | YES | | NULL | |
| register_date | timestamp | NO | | CURRENT_TIMESTAMP | |
+-----+-----+-----+-----+-----+
```

Now we have to install few things using pip ,so now we have to stop the python flask server by pressing ctrl c .

Now we want to install flask mysql that basically communicates with the flask and mysql ,to install this type the following command in the terminal .

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install flask-mysqldb --user
on2.7/site-packages (from Jinja2>=2.10->Flask>=0.10->flask-mysqldb) (1.0)
Installing collected packages: mysqlclient, flask-mysqldb
Could not install packages due to an EnvironmentError: [Errno 13] Permission denied: '/usr/local/lib/python2.7/dist-packages/_mysql_exceptions.py'
Consider using the '--user' option or check the permissions.

vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install flask-mysqldb --user
Collecting flask-mysqldb
Requirement already satisfied: Flask>=0.10 in /home/vasanth/.local/lib/python2.7
/site-packages (from flask-mysqldb) (1.0.2)
Collecting mysqlclient (from flask-mysqldb)
Requirement already satisfied: Jinja2>=2.10 in /home/vasanth/.local/lib/python2.
7/site-packages (from Flask>=0.10->flask-mysqldb) (2.10)
Requirement already satisfied: itsdangerous>=0.24 in /home/vasanth/.local/lib/py
thon2.7/site-packages (from Flask>=0.10->flask-mysqldb) (0.24)
Requirement already satisfied: Werkzeug>=0.14 in /home/vasanth/.local/lib/python
2.7/site-packages (from Flask>=0.10->flask-mysqldb) (0.14.1)
Requirement already satisfied: click>=5.1 in /home/vasanth/.local/lib/python2.7/
site-packages (from Flask>=0.10->flask-mysqldb) (6.7)
Requirement already satisfied: MarkupSafe>=0.23 in /home/vasanth/.local/lib/pyth
on2.7/site-packages (from Jinja2>=2.10->Flask>=0.10->flask-mysqldb) (1.0)
Installing collected packages: mysqlclient, flask-mysqldb
Successfully installed flask-mysqldb-0.2.0 mysqlclient-1.3.13
vasanth@vasanth-Lenovo-H50-50:~/flask$
```

Now we have to install **WTFORMS** ,For that type the following command in the terminal ,

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install flask-wtf --user
```

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install flask-wtf --user
Consider using the '--user' option or check the permissions.

vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install flask-wtf --user
Collecting flask-wtf
  Using cached https://files.pythonhosted.org/packages/60/3a/58c629472d10539ae51
  57dc7c1fecfa95dd7d0b7864623931e3776438a24/Flask_WTF-0.14.2-py2.py3-none-any.whl
    Requirement already satisfied: Flask in /home/vasanth/.local/lib/python2.7/site-
    packages (from flask-wtf) (1.0.2)
Collecting WTForms (from flask-wtf)
  Using cached https://files.pythonhosted.org/packages/9f/c8/dac5dce9908df1d9d48
  ec0e26e2a250839fa36ea2c602cc4f85ccfeb5c65/WTForms-2.2.1-py2.py3-none-any.whl
    Requirement already satisfied: Jinja2>=2.10 in /home/vasanth/.local/lib/python2.
    7/site-packages (from Flask->flask-wtf) (2.10)
    Requirement already satisfied: itsdangerous>=0.24 in /home/vasanth/.local/lib/pyt
    hon2.7/site-packages (from Flask->flask-wtf) (0.24)
    Requirement already satisfied: Werkzeug>=0.14 in /home/vasanth/.local/lib/python2.
    7/site-packages (from Flask->flask-wtf) (0.14.1)
    Requirement already satisfied: click>=5.1 in /home/vasanth/.local/lib/python2.7/
    site-packages (from Flask->flask-wtf) (6.7)
    Requirement already satisfied: MarkupSafe>=0.23 in /home/vasanth/.local/lib/pyt
    hon2.7/site-packages (from Jinja2>=2.10->Flask->flask-wtf) (1.0)
  Installing collected packages: WTForms, flask-wtf
    Successfully installed WTForms-2.2.1 flask-wtf-0.14.2
vasanth@vasanth-Lenovo-H50-50:~/flask$
```

Now we are going to install passlib, which is going to encrypt the password that stored in the database .

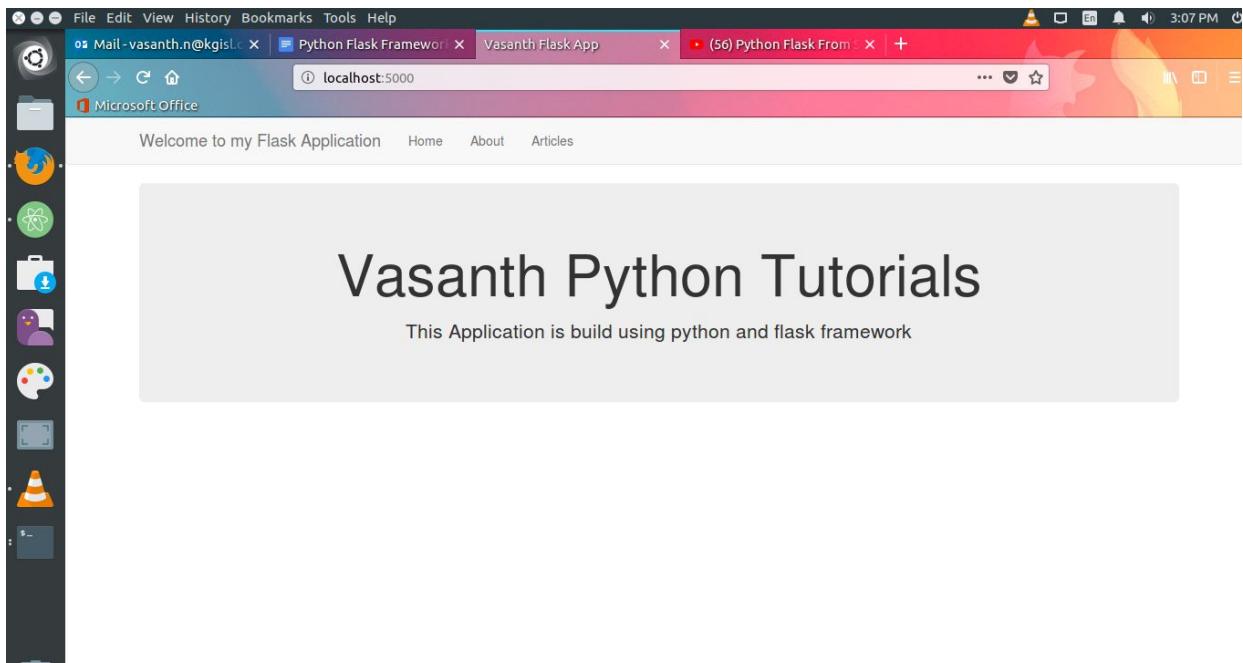
Type the command in the terminal :

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install passlib --user
```

```
vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install passlib --user
Requirement already satisfied: click>=5.1 in /home/vasanth/.local/lib/python2.7/
site-packages (from Flask->flask-wtf) (6.7)
Requirement already satisfied: MarkupSafe>=0.23 in /home/vasanth/.local/lib/pyt
hon2.7/site-packages (from Jinja2>=2.10->Flask->flask-wtf) (1.0)
  Installing collected packages: WTForms, flask-wtf
    Successfully installed WTForms-2.2.1 flask-wtf-0.14.2
vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install passlib
Collecting passlib
  Downloading https://files.pythonhosted.org/packages/ee/a7/d6d238d927df355d4e4e
  0000670342ca4705a72f0bf694027cf67d9bcf5af/passlib-1.7.1-py2.py3-none-any.whl (498
  kB)
    100% |██████████| 501kB 518kB/s
  Installing collected packages: passlib
  Could not install packages due to an EnvironmentError: [Errno 13] Permission den
  ied: '/usr/local/lib/python2.7/dist-packages/passlib'
  Consider using the '--user' option or check the permissions.

vasanth@vasanth-Lenovo-H50-50:~/flask$ pip install passlib --user
Collecting passlib
  Using cached https://files.pythonhosted.org/packages/ee/a7/d6d238d927df355d4e4
  e0000670342ca4705a72f0bf694027cf67d9bcf5af/passlib-1.7.1-py2.py3-none-any.whl
  Installing collected packages: passlib
  Successfully installed passlib-1.7.1
vasanth@vasanth-Lenovo-H50-50:~/flask$
```

Now we can run the app, lets start the python flask server



Now we have to import some modules from flask .now go to app.py file and add the following in the app.py file .

App.py

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request,  
logging  
from flask_mysqldb import MySQL  
from data import Articles  
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators  
from passlib.hash import sha256_crypt
```

```
app = Flask(__name__)  
app.debug = True  
mysql = MySQL(app)
```

```
Articles = Articles()
```

```
@app.route('/')  
def index():
```

```

        return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired()
    ,validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

```

Here we have created the Register form for our website , and now we have to create a route for the register form ,for that type the following code as given below in app.py file below the class register form :

```

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():

        return render_template('register.html',form=form)

```

Now the entire code of app.py look like this :

```

from flask import Flask,render_template, flash, redirect , url_for , session ,request,
logging

```

```

from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt

app = Flask(__name__)
app.debug = True
mysql = MySQL(app)

Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired()
0,validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():

```

```

form = RegisterForm(request.form)
if request.method == 'POST' and form.validate():
    return render_template('register.html')
    return render_template('register.html',form=form)

```

```

if __name__ == '__main__':
    app.run()

```

The code looks like :

```

Project
  flask
    templates
      about.html
      article.html
      articles.html
      home.html
      layout.html
    app.py
    data.py
    data.pyc

app.py
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_sqlalchemy import SQLAlchemy
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
app = Flask(__name__)
app.debug = True
mysql = MySQL(app)
Articles = Articles()
@app.route('/')
def index():
    return render_template('home.html')
@app.route('/about')
def about():
    return render_template('about.html')
@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)
@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)
class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])

```

LF UTF-8 Python 0 files

```
Project: flask
app.py register.html articles.html article.html home.html about.html data.py layout.html _navbar.html

17 @app.route('/about')
18     def about():
19         return render_template('about.html')
20
21
22 @app.route('/articles')
23     def articles():
24         return render_template('articles.html',articles = Articles)
25
26
27 @app.route('/article/<string:id>/')
28     def article(id):
29         return render_template('article.html',id=id)
30
31 class RegisterForm(Form):
32     name = StringField('Name',[validators.Length(min=1,max=50)])
33     username = StringField('Username',[validators.Length(min=4,max=25)])
34     email = StringField('Email',[validators.Length(min=4,max=25)])
35     password = PasswordField('Password', [ validators.DataRequired (),validators.EqualTo('confirm',message ='passwords do not match')])
36     confirm = PasswordField('Confirm password')
37
38 @app.route('/register', methods=['GET','POST'])
39     def register():
40         form = RegisterForm(request.form)
41         if request.method == 'POST' and form.validate():
42             return render_template('register.html')
43         return render_template('register.html',form=form)
44
45
46 if __name__ == '__main__':
47     app.run()
48
```

app.py 44:1

LF UTF-8 Python 0 files

Now the next step is that we have to create a register.html page in the templates folder for that follow the steps as defined :

Project: flask

+ Enter the path for the new file.

templates/register.html

```
Project: flask
app.py register.html articles.html article.html home.html about.html data.py

17 @app.route('/about')
18     def about():
19         return render_template('about.html')
20
21
22 @app.route('/articles')
23     def articles():
24         return render_template('articles.html',articles = Articles)
25
26
27 @app.route('/article/<string:id>/')
28     def article(id):
29         return render_template('article.html',id=id)
30
31 class RegisterForm(Form):
32     name = StringField('Name',[validators.Length(min=1,max=50)])
33     username = StringField('Username',[validators.Length(min=4,max=25)])
34     email = StringField('Email',[validators.Length(min=4,max=25)])
35     password = PasswordField('Password', [ validators.DataRequired (),validators.EqualTo('confirm',message ='passwords do not match')])
36     confirm = PasswordField('Confirm password')
37
38 @app.route('/register', methods=['GET','POST'])
39     def register():
40         form = RegisterForm(request.form)
41         if request.method == 'POST' and form.validate():
42             return render_template('register.html')
43         return render_template('register.html',form=form)
44
45
46 if __name__ == '__main__':
47     app.run()
```

Now type the following code in the register.html file as shown below :

```
{% extends 'layout.html' %}

{% block body %}
<h1>Register</h1>
{% from "includes/_formhelpers.html" import render_field%}
<form method="POST" action="">
    <div class="form-group">
        {{render_field(form.name,class="form-control")}}
    </div>
    <div class="form-group">
        {{render_field(form.email,class="form-control")}}
    </div>
    <div class="form-group">
        {{render_field(form.username,class="form-control")}}
    </div>
    <div class="form-group">
        {{render_field(form.password,class="form-control")}}
    </div>
    <div class="form-group">
        {{render_field(form.confirm,class="form-control")}}
    </div>
    <p><input type="submit" class="btn btn-primary" value="Submit"></p>
</form>
{% endblock %}
```

The Code should look like this :

register.html — ~/flask — Atom

The screenshot shows the Atom code editor interface. The left sidebar displays a project structure for a Flask application, including files like app.py, register.html, _formhelpers.html, articles.html, article.html, home.html, about.html, and layout.html. The right pane shows the content of register.html:

```
1  {% extends 'layout.html' %} 2 3  {% block body %} 4  <h1>Register</h1> 5  {% from "includes/_formhelpers.html" import render_field%} 6  <form method="POST" action=""> 7  <div class="form-group"> 8  {{render_field(form.name,class="form-control")}} 9  </div> 10 <div class="form-group"> 11 {{render_field(form.email,class="form-control")}} 12 </div> 13 <div class="form-group"> 14 {{render_field(form.username,class="form-control")}} 15 </div> 16 <div class="form-group"> 17 {{render_field(form.password,class="form-control")}} 18 </div> 19 <div class="form-group"> 20 {{render_field(form.confirm,class="form-control")}} 21 </div> 22 <p><input type="submit" class="btn btn-primary" value="Submit"></p> 23 </form> 24 {% endblock %} 25
```

Now go to the includes folder and create a file as **_formhelpers.html** as shown below :

Project — ~/flask — Atom

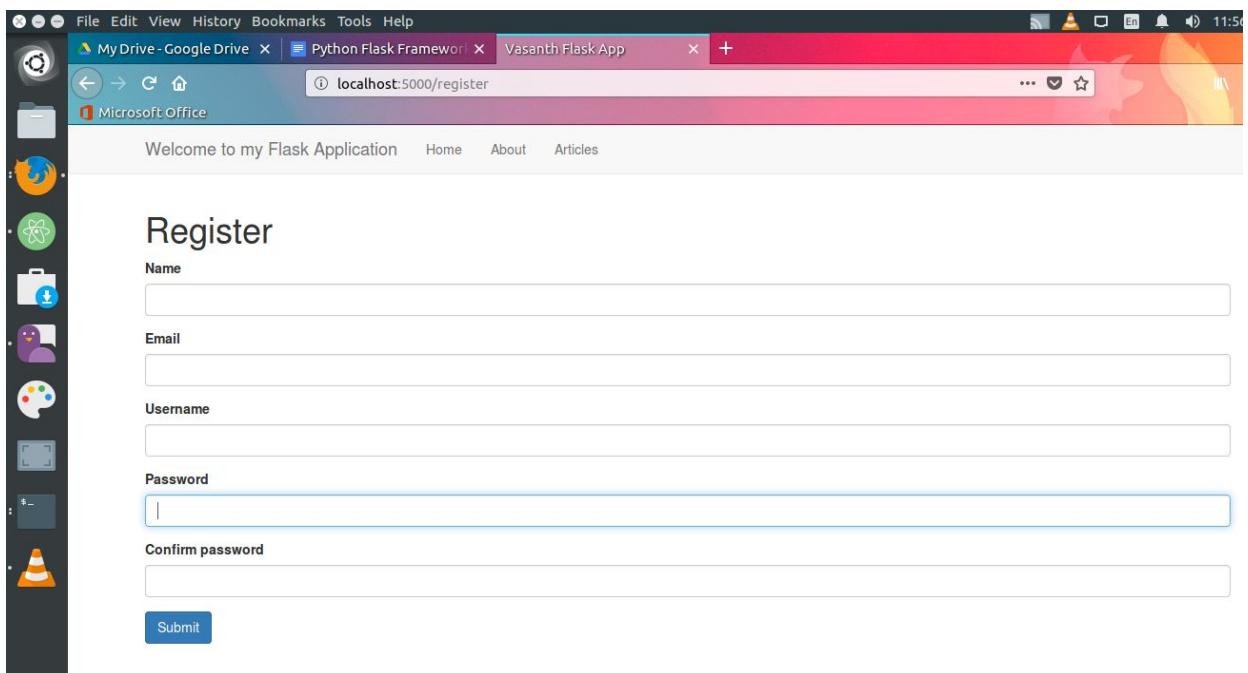
The screenshot shows the Atom code editor interface. The left sidebar displays a project structure for a Flask application, including files like app.py, register.html, _formhelpers.html, articles.html, article.html, home.html, about.html, and data.py. The right pane shows the content of register.html, with a modal dialog open asking for the path to create a new file. The path entered is "templates/includes/_formhelpers.html".

```
1  {% extends 'layout.html' %} 2 3  {% block body %} 4  <h1>Register</h1> 5  <form method="POST" action=""> 6  <div class="form-group"> 7  {{render_field(form.name,class="form-control")}} 8  </div> 9  <div class="form-group"> 10 {{render_field(form.email,class="form-control")}} 11 </div> 12 <div class="form-group"> 13 {{render_field(form.username,class="form-control")}} 14 </div> 15 <div class="form-group"> 16 {{render_field(form.password,class="form-control")}} 17 </div> 18 <div class="form-group"> 19 {{render_field(form.confirm,class="form-control")}} 20 </div> 21 <p><input type="submit" class="btn btn-primary" value="Submit"></p> 22 </form> 23 {% endblock %} 24
```

Now type the following code inside the `_formhelpers.html`

```
{% macro render_field(field) %}
{{ field.label }}
{{ field(**kwargs)|safe }}
{% if field.errors %}
    {% for error in field.errors %}
        <span class="help-inline">{{ error }}</span>
    {% endfor %}
{% endif %}
{% endmacro %}
```

And now save the file and run the python flask server and navigate to the register page and the register page will look like as :



Now we are going to connect the page with our mysql database for that we have to go to `app.py` file and add the configuration details in the `app.py` file as shown below :

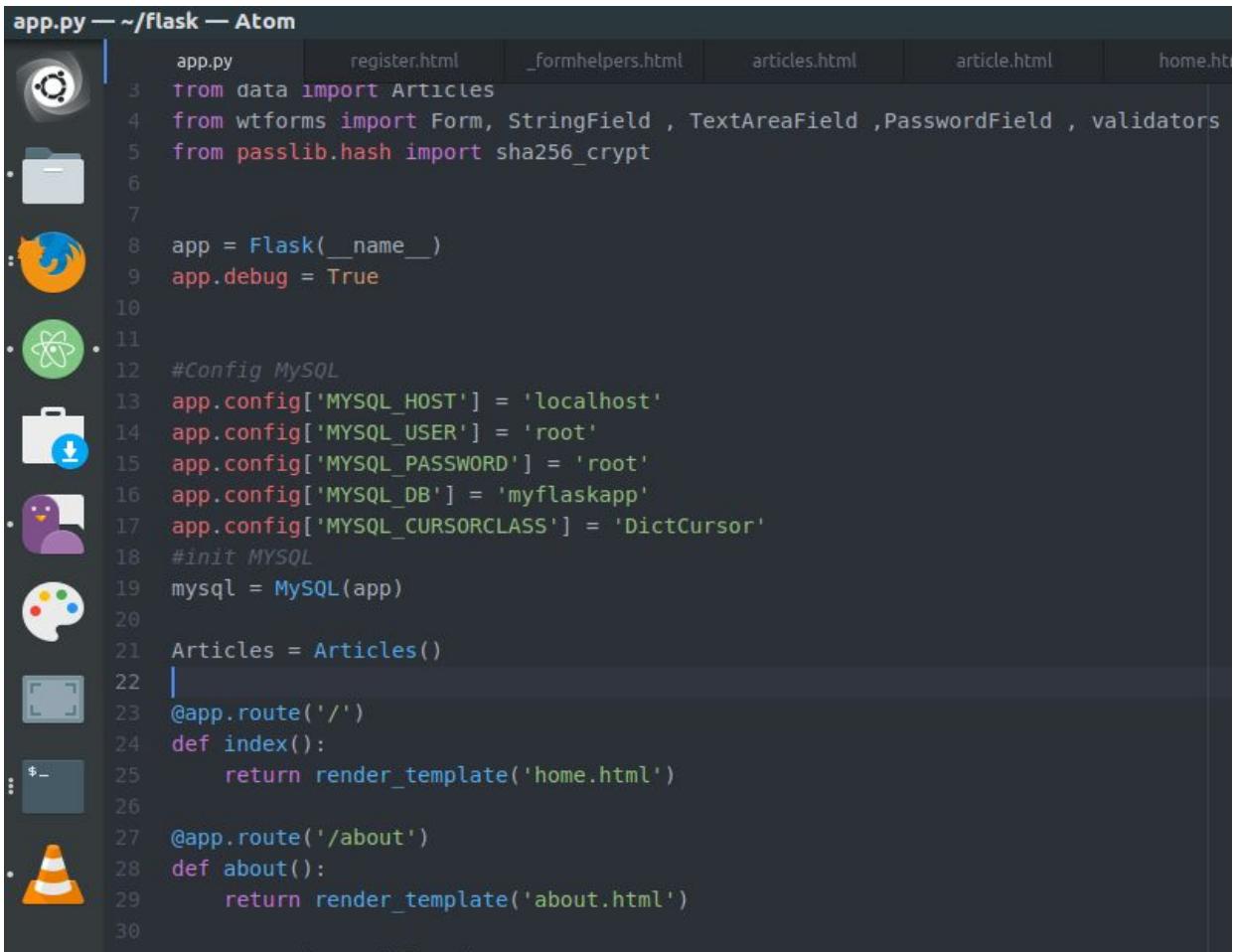
```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
```

```
app = Flask(__name__)
app.debug = True
```

```
#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)
```

```
Articles = Articles()
```

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



The screenshot shows the Atom code editor interface. The title bar says "app.py — ~/flask — Atom". The left sidebar lists several icons corresponding to files in the project directory: a terminal icon, a folder icon, a MySQL icon, a React icon, a download icon, a penguin icon, a palette icon, a square icon, and a VLC media player icon. The main editor area displays the following Python code:

```
app.py — ~/flask — Atom
1  app.py      register.html  _formhelpers.html  articles.html  article.html  home.html
2
3  from data import Articles
4  from wtforms import Form, StringField, TextAreaField, PasswordField, validators
5  from passlib.hash import sha256_crypt
6
7
8  app = Flask(__name__)
9  app.debug = True
10
11
12 #Config MySQL
13 app.config['MYSQL_HOST'] = 'localhost'
14 app.config['MYSQL_USER'] = 'root'
15 app.config['MYSQL_PASSWORD'] = 'root'
16 app.config['MYSQL_DB'] = 'myflaskapp'
17 app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
18 #init MySQL
19 mysql = MySQL(app)
20
21 Articles = Articles()
22
23 @app.route('/')
24 def index():
25     return render_template('home.html')
26
27 @app.route('/about')
28 def about():
29     return render_template('about.html')
30
```

Now we want to configure the register form function in the app.py file ,follow the instructions and make the changes in the app.py file

```
@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()
```

```

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

# commit to DB
mysql.connection.commit()
#close connection
cur.close()

flash("You are now Registered and you can login", 'success')

redirect(url_for('index'))

return render_template('register.html')
return render_template('register.html',form=form)

```

The Entire Code of `app.py` will look like as :

```

from flask import Flask,render_template, flash, redirect , url_for , session ,request,
logging
from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt

```

```

app = Flask(__name__)
app.debug = True

#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)

```

```

Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired()
    0,validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()

```

```

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

# commit to DB
mysql.connection.commit()
#close connection
cur.close()

flash("You are now Registered and you can login", 'success')

redirect(url_for('index'))
return render_template('register.html',form=form)

```

```

if __name__ == '__main__':
    app.run()

```

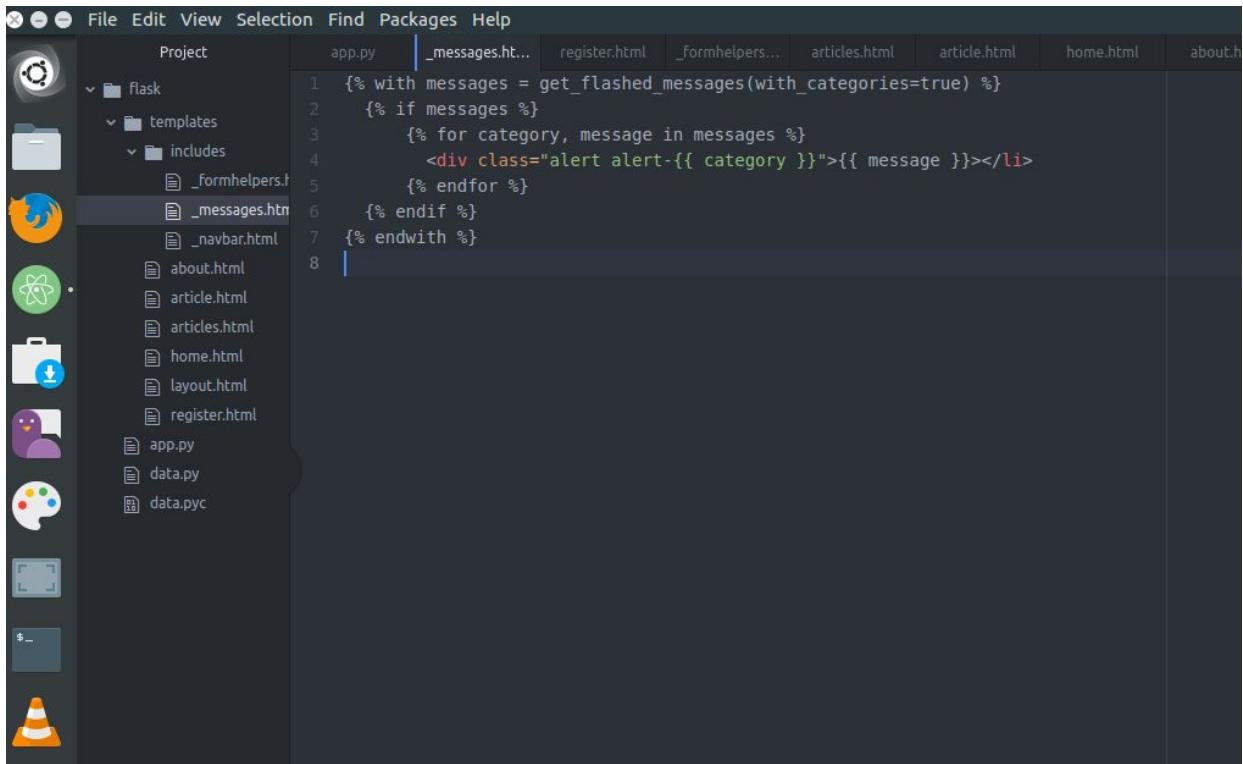
Now We have to create a file for messages for that we have create a new file in the includes folder and name the file as **_messages.html**

```

{% with messages = get_flashed_messages(with_categories=true) %}
  {% if messages %}
    {% for category, message in messages %}
      <div class="alert alert-{{ category }}">{{ message }}</div>
    {% endfor %}
  {% endif %}
  {% endwith %}

```

The file will look like :



```
File Edit View Selection Find Packages Help
Project
app.py _messages.html register.html _formhelpers... articles.html article.html home.html about.html
1  {% with messages = get_flashed_messages(with_categories=true) %}
2  {% if messages %}
3      {% for category, message in messages %}
4          <div class="alert alert-{{ category }}>{{ message }}</div>
5      {% endfor %}
6  {% endif %}
7  {% endwith %}
```

Now we have to add this in the layouts ,now go to layouts.html file and add up the following code in that .

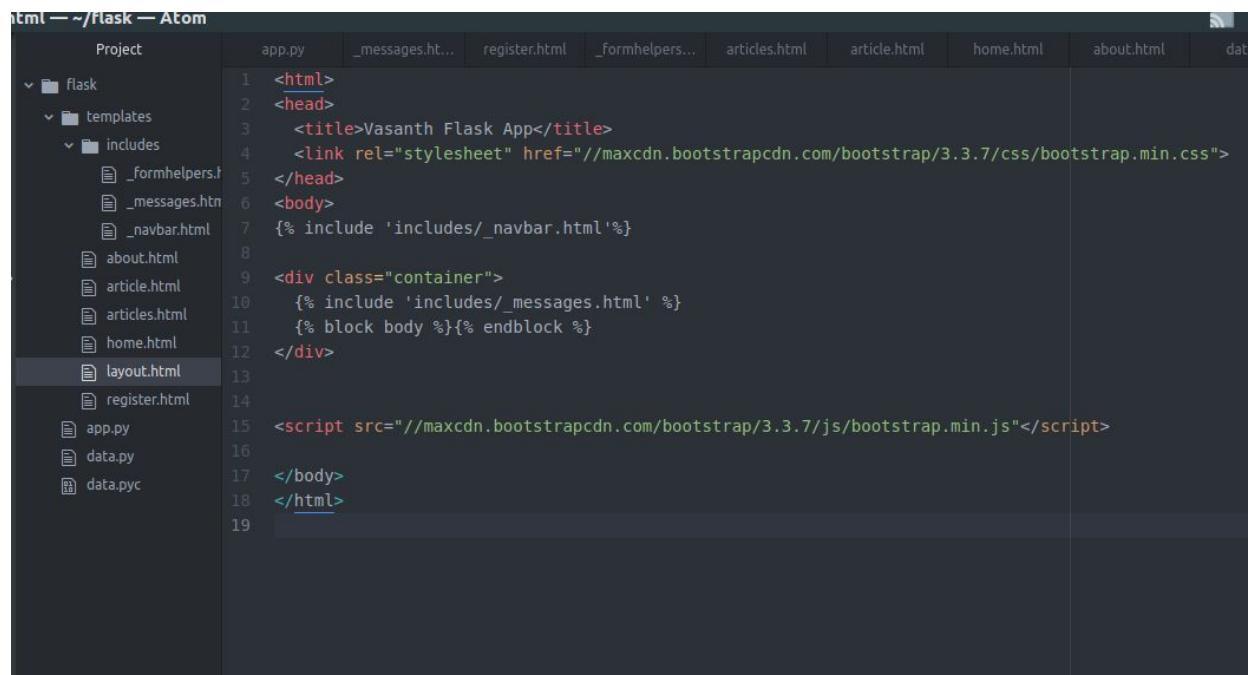
```
<html>
<head>
    <title>Vasanth Flask App</title>
    <link rel="stylesheet"
        href="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
</head>
<body>
    {% include 'includes/_navbar.html'%}

    <div class="container">
        {% include 'includes/_messages.html' %}
        {% block body %} {% endblock %}
    </div>
```

```
<script src="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
```

```
</body>  
</html>
```

Add the following changes and save the file ,now the file should look like this :



The screenshot shows the Atom code editor interface. On the left is a tree view of the project structure:

- Project
- Flask
 - templates
 - includes
 - _formhelpers.html
 - _messages.html
 - _navbar.html
 - about.html
 - article.html
 - articles.html
 - home.html
 - layout.html
 - register.html
 - app.py
 - data.py
 - data.pyc

```
1 <html>  
2 <head>  
3   <title>Vasantha Flask App</title>  
4   <link rel="stylesheet" href="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">  
5 </head>  
6 <body>  
7   {% include 'includes/_navbar.html'%}  
8  
9   <div class="container">  
10    {% include 'includes/_messages.html' %}  
11    {% block body %}{% endblock %}  
12  </div>  
13  
14  
15  <script src="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>  
16  
17 </body>  
18 </html>  
19
```

Now run the python server ,make sure there should be no errors .

```

vasanth@vasanth-Lenovo-H50-50: ~/flask
    redirect(url_for('index'))
    ^
IndentationError: unexpected indent
vasanth@vasanth-Lenovo-H50-50:~/flask$ python app.py
  File "app.py", line 68
    redirect(url_for('index'))
    ^
IndentationError: unexpected indent
vasanth@vasanth-Lenovo-H50-50:~/flask$ python app.py
  * Serving Flask app "app" (lazy loading)
  * Environment: production
    WARNING: Do not use the development server in a production environment.
    Use a production WSGI server instead.
  * Debug mode: on
  * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
  * Restarting with stat
  * Debugger is active!
  * Debugger PIN: 305-295-152
127.0.0.1 - - [11/Sep/2018 12:50:07] "GET /register HTTP/1.1" 200 -
  * Detected change in '/home/vasanth/flask/app.py', reloading
  * Restarting with stat
  * Debugger is active!
  * Debugger PIN: 305-295-152

```

Now we need the register link in the home page for that just go the _navbar.html file and add the following code in this file as shown below :

```

<nav class="navbar navbar-default">
  <div class="container">
    <div class="navbar-header">
      <button type="button" class="navbar-toggle collapsed" data-toggle="collapse"
data-target="#navbar" aria-expanded="false" aria-controls="navbar">
        <span class="sr-only">Toggle navigation</span>
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
      </button>
      <a class="navbar-brand" href="#">Welcome to my Flask Application</a>
    </div>
    <div id="navbar" class="collapse navbar-collapse">
      <ul class="nav navbar-nav">
        <li><a href="/">Home</a></li>
        <li><a href="/about">About</a></li>
        <li><a href="/articles">Articles</a></li>
      </ul>

      <ul class="nav navbar-nav navbar-right">
        <li><a href="/register">Register</a></li>
      
```

```

</ul>

```

```

</div><!--.nav-collapse -->
```

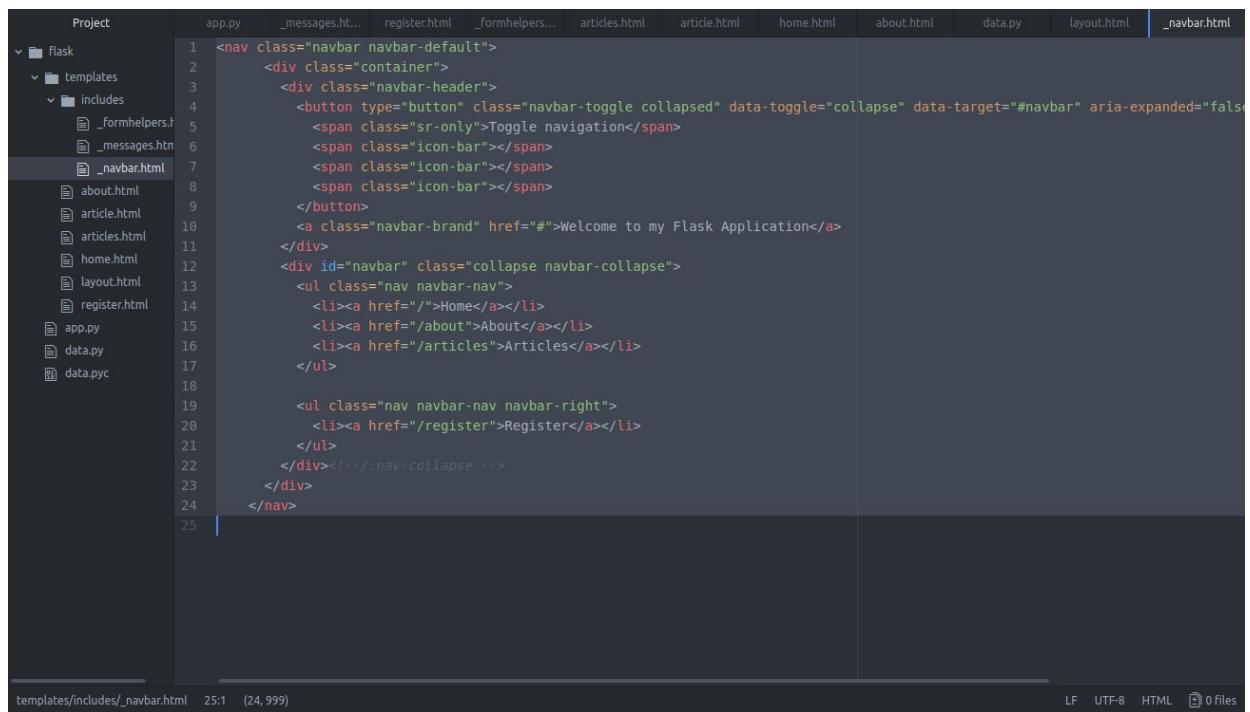
```

</div>
```

```

</nav>
```

The code should look like this :



```

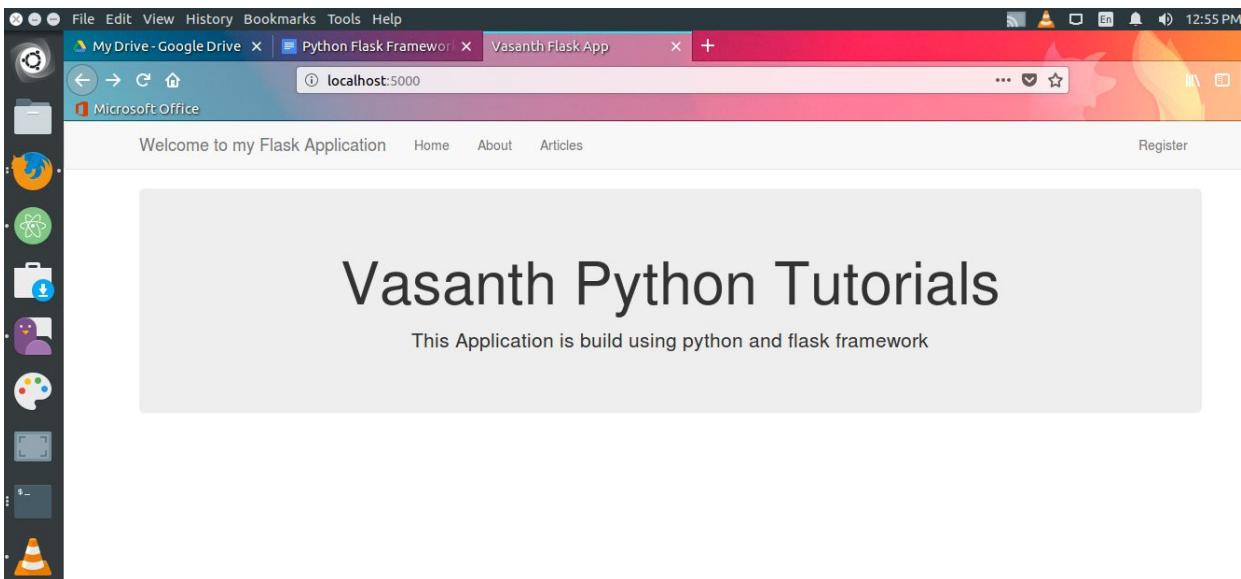
Project
app.py _messages.htm register.html _formhelpers... articles.html article.html home.html about.html data.py layout.html _navbar.html

1 <nav class="navbar navbar-default">
2   <div class="container">
3     <div class="navbar-header">
4       <button type="button" class="navbar-toggle collapsed" data-toggle="collapse" data-target="#navbar" aria-expanded="false" aria-controls="navbar">
5         <span class="sr-only">Toggle navigation</span>
6         <span class="icon-bar"></span>
7         <span class="icon-bar"></span>
8         <span class="icon-bar"></span>
9       </button>
10      <a class="navbar-brand" href="#">Welcome to my Flask Application</a>
11    </div>
12    <div id="navbar" class="collapse navbar-collapse">
13      <ul class="nav navbar-nav">
14        <li><a href="/">Home</a></li>
15        <li><a href="/about">About</a></li>
16        <li><a href="/articles">Articles</a></li>
17      </ul>
18      <ul class="nav navbar-nav navbar-right">
19        <li><a href="/register">Register</a></li>
20      </ul>
21    </div><!--.nav-collapse -->
22  </div>
23 </nav>
24
25

```

templates/includes/_navbar.html 25:1 (24, 999) LF UTF-8 HTML 0 Files

Now save and run the file ,ie. Run the python server and you will be seeing the register option that on the right top side of the website as shown below .



Now Click the registration you will see the following form :

Register

Name

Email

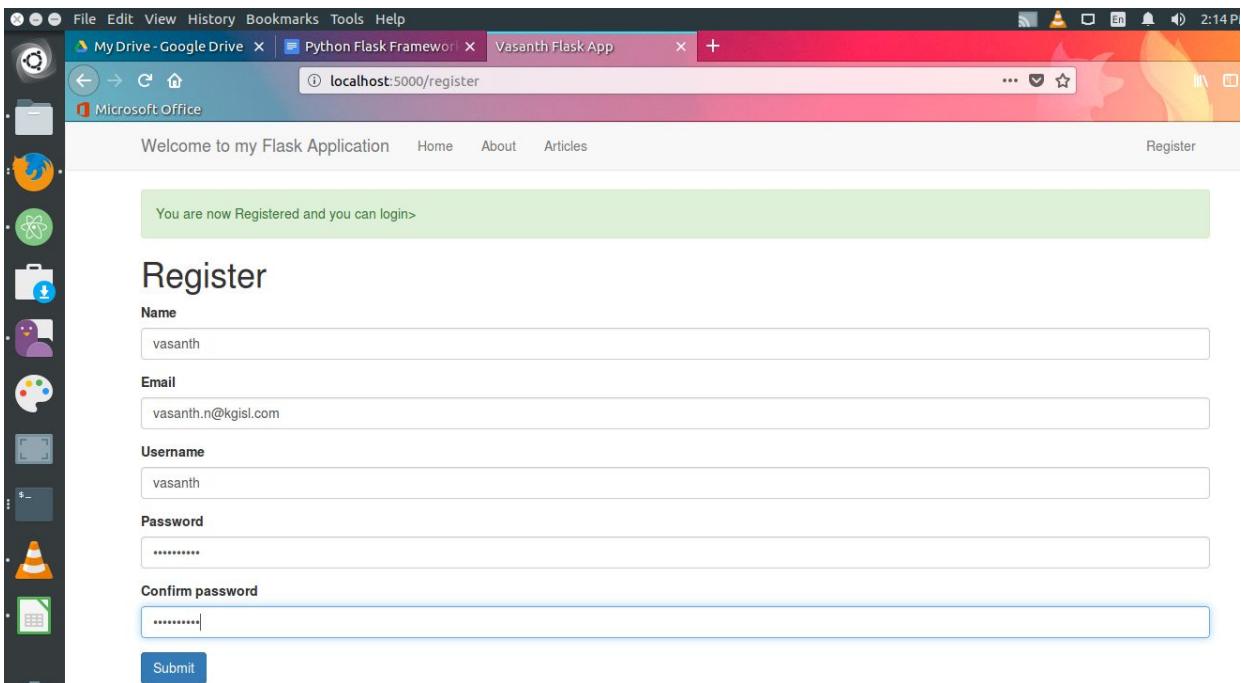
Username

Password

Confirm password

Submit

Now fill up the data and click submit ,



After filled up the data and once the submit button has been clicked the data will be saved in the database, now we can check our database by using the following command .

Type the following sql query in the mysql shell :

mysql> SELECT * FROM users;

```

vasanth@vasanth-Lenovo-H50-50: ~
+-----+-----+-----+
| 3 rows in set (0.00 sec)

mysql> SELECT * FROM users;
+-----+-----+-----+-----+-----+
| id | name      | email           | username | password          | register_date   |
+-----+-----+-----+-----+-----+
| 1  | vasanth   | vasanth.n@kgisl.com | vasanth | $$rounds=535000$uAZCdNDl3iJn
9eK.$UGcm1Eve.1hZT.J4MjEzCF760Hu0HCzY2Qcdk0gksIA | 2018-09-11 13:02:22 |
| 2  | vasanth   | vasanth.n@kgisl.com | vasanth | $$rounds=535000$u6ZmZBGF7C46
5iqr$YdqF/dSl09KRuPVZbQBnXhktbHQsyS2N9RYwOGvPUN. | 2018-09-11 13:04:00 |
| 3  | vasanth   | vasanth.n@kgisl.com | vasanth | $$rounds=535000$7pGXhd2J4b9K
3ZCi$BfeIS2n2SCNC3kvIIhkgxhQ.kWJykCpyAyc0lV7G5 | 2018-09-11 13:07:32 |
| 4  | vasanth   | vasanth.n@kgisl.com | vasanth | $$rounds=535000$AbFQ5rZE3ig
WqBI$mm6AbY6dyF59z8d0DoCt2a2PsdG7SYUgdq.SWScl7/. | 2018-09-11 14:12:44 |
+-----+-----+-----+-----+-----+
4 rows in set (0.02 sec)

mysql> 

```

You can see that our data are stored in the database and our password has been encrypted and stored in the database .

Now once we submitted the page has been to redirect to login form,for that we have change the following in the **app.py** file

```

def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

        # commit to DB

```

```

mysql.connection.commit()
#close connection
cur.close()

flash("You are now Registered and you can login" , 'success')

redirect(url_for('login'))
return render_template('register.html',form=form)

```

Now we have to create the login page for our website ,for this follow the below instruction to create a login page :

Go to **app.py** file and write the following code :(we are creating the route for the login)

```

# user login
@app.route('/login',methods=['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s"
,[username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()
            password = data['password']

```

```

# Compare Passwords
if sha256_crypt.verify(password_candidate,password):
    app.logger.info('PASSWORD MATCHED')
else:
    app.logger.info('NO USER')

return render_template('login.html')

```

Now we have to create a login.html page for our application for that now go to template and create the **login.html** as shown below :

```

{% extends 'layout.html' %}

{% block body %}
<h1>Login</h1>
<form action="" method="POST">
    <div class="form-group">
        <label>Username</label>
        <input type="text" name="username" class="form-control"
value={{request.form.username}}>
    </div>
    <div class="form-group">
        <label>Password</label>
        <input type="password" name="password" class="form-control"
value={{request.form.password}}>
    </div>
    <button type="submit" class="btn btn-primary">Submit</button>
</form>
{% endblock %}

```

Your code should look like this :

The screenshot shows a code editor interface with a dark theme. On the left is a sidebar titled 'Project' showing the directory structure:

```

Project
└── flask
    ├── templates
    │   ├── includes
    │   │   ├── _formhelpers.html
    │   │   ├── _messages.html
    │   │   └── _navbar.html
    │   ├── about.html
    │   ├── article.html
    │   ├── articles.html
    │   ├── home.html
    │   ├── layout.html
    │   ├── login.html
    │   └── register.html
    ├── app.py
    └── data.py

```

The main pane displays the content of `login.html`:

```

app.py      login.html      _messages...  register.html  articles.html  article.html  home.html  about.html  data.py      layout.html      _navbar.html  Welcome
1  {% extends 'layout.html' %}          18:1
2
3  {% block body %}                  18:1
4      <h1>Login</h1>
5      {% include 'includes/_messages.html' %}
6      <form action="" method="POST">
7          <div class="form-group">
8              <label>Username</label>
9              <input type="text" name="username" class="form-control" value="{{request.form.username}}>
10             </div>
11             <div class="form-group">
12                 <label>Password</label>
13                 <input type="password" name="password" class="form-control" value="{{request.form.password}}>
14             </div>
15             <button type="submit" class="btn btn-primary">Submit</button>
16         </form>
17     {% endblock %}

```

At the bottom of the editor, it says "templates/login.html 18:1". To the right, there are buttons for "LF", "UTF-8", "HTML", and "0 files".

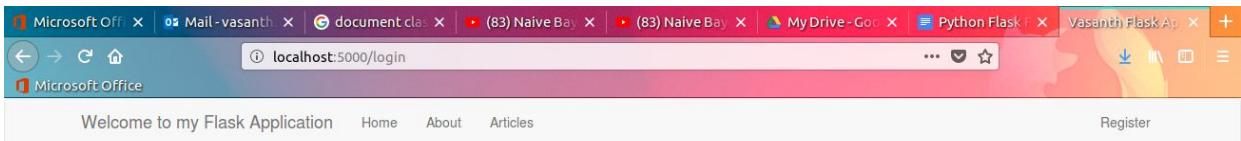
Now save your file and run the python server ,now the server should run without any errors :

```

vasanth@vasanth-Lenovo-H50-50:~/flask$ python app.py
 * Serving Flask app "app" (lazy loading)
 * Environment: production
   WARNING: Do not use the development server in a production environment.
   Use a production WSGI server instead.
 * Debug mode: on
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 305-295-152
127.0.0.1 - - [12/Sep/2018 14:22:18] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [12/Sep/2018 14:22:19] "GET /favicon.ico HTTP/1.1" 404 -
127.0.0.1 - - [12/Sep/2018 14:22:23] "GET /login HTTP/1.1" 200 -

```

Now you can see the browser that our application running and type the login.html in the url ,now you can see the login page as shown below :



Now we are going to load the templates and create the session ,once the user login we have use the session to store the user name of the user whomever login .

Now go back to app.py and make the following changes :

App.py

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
```

```
app = Flask(__name__)
app.debug = True
```

```
#Config MySQL
```

```

app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)

Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
    ()],validators.EqualTo('confirm',message ='passwords do not match'))
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)

```

```

if request.method == 'POST' and form.validate():
    name = form.name.data
    email = form.email.data
    username = form.username.data
    password = sha256_crypt.encrypt(str(form.password.data))

    # Create cursor
    cur = mysql.connection.cursor()

    cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

    # commit to DB
    mysql.connection.commit()
    #close connection
    cur.close()

    flash("You are now Registered and you can login" , 'success')

    redirect(url_for('login'))
    return render_template('register.html',form=form)

# user login
@app.route('/login',methods=['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s",[username])

        if result > 0:

```

```

# Get Stored hash
data = cur.fetchone()
password = data['password']

# Compare Passwords
if sha256_crypt.verify(password_candidate,password):
    app.logger.info('PASSWORD MATCHED')
else:
    error = 'Username not found'
    return render_template('login.html',error=error)
else:
    error = 'Username not found'
    return render_template('login.html',error=error)

return render_template('login.html')

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

We need to output the errors somewhere within the templates ,so now go back to the messages file ,in the includes for messages and make the following changes

_messages.html

```

{% with messages = get_flashed_messages(with_categories=true) %}

{% if messages %}

    {% for category, message in messages %}

        <div class="alert alert-{{ category }}>{{ message }}</div>

    {% endfor %}

    {% endif %}

{% endwith %}

```

```

{% if error %}

    <div class="alert alert-danger">{{ error }}</div>

{% endif %}

```

```
{% if msg %}  
    <div class="alert alert-success">{ {msg} }</div>  
{% endif %}
```

After making the changes in the above file now save the file and now we have add the login link to the navbar ,so now go to navbar.html file and make the following changes .

_navbar.html

```
<nav class="navbar navbar-default">  
    <div class="container">  
        <div class="navbar-header">  
            <button type="button" class="navbar-toggle collapsed" data-toggle="collapse"  
data-target="#navbar" aria-expanded="false" aria-controls="navbar">  
                <span class="sr-only">Toggle navigation</span>  
                <span class="icon-bar"></span>  
                <span class="icon-bar"></span>  
                <span class="icon-bar"></span>  
            </button>  
            <a class="navbar-brand" href="#">Welcome to my Flask Application</a>  
        </div>  
        <div id="navbar" class="collapse navbar-collapse">  
            <ul class="nav navbar-nav">  
                <li><a href="/">Home</a></li>  
                <li><a href="/about">About</a></li>  
                <li><a href="/articles">Articles</a></li>  
            </ul>  
  
            <ul class="nav navbar-nav navbar-right">  
                <li><a href="/register">Register</a></li>  
                <li><a href="/login">Login</a></li>  
            </ul>  
        </div><!--/.nav-collapse -->  
    </div>  
</nav>
```

Now go to app.py and make the following changes :

app.py

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
```

```
app = Flask(__name__)
app.debug = True
```

```
#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)
```

```
Articles = Articles()
```

```
@app.route('/')
def index():
    return render_template('home.html')
```

```
@app.route('/about')
def about():
    return render_template('about.html')
```

```
@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)
```

```

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
() ,validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

        # commit to DB
        mysql.connection.commit()
        #close connection
        cur.close()

        flash("You are now Registered and you can login" , 'success')

        redirect(url_for('login'))
        return render_template('register.html',form=form)

```

```

# user login
@app.route('/login',methods=['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s", [username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()
            password = data['password']

            # Compare Passwords
            if sha256_crypt.verify(password_candidate,password):
                #Passed
                session['logged_in'] = True
                session['username'] = username

                flash('You are now logged in ','success')
                return redirect(url_for('dashboard'))

            else:
                error = 'Username not found'
                return render_template('login.html',error=error)
                #close connection
                cur.close()

        else:
            error = 'Username not found'
            return render_template('login.html',error=error)

```

```
        return render_template('login.html')
if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()
```

Now we are going to create a dashboard link in the app.py for that make the following changes in the app.py

App.py

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
```

```
app = Flask(__name__)
app.debug = True

#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)
```

```
Articles = Articles()
```

```
@app.route('/')
def index():
```

```

        return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
    ()],validators.EqualTo('confirm',message ='passwords do not match'))
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

        # commit to DB

```

```

mysql.connection.commit()
#close connection
cur.close()

flash("You are now Registered and you can login" , 'success')

redirect(url_for('login'))
return render_template('register.html',form=form)

# user login
@app.route('/login',methods =['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s" ,[username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()
            password = data['password']

            # Compare Passwords
            if sha256_crypt.verify(password_candidate,password):
                #Passed
                session['logged_in'] = True
                session['username'] = username

                flash('You are now logged in ','success')
                return redirect(url_for('dashboard'))

            else:

```

```

        error = 'Username not found'
        return render_template('login.html',error=error)
        #close connection
    cur.close()

    else:
        error = 'Username not found'
        return render_template('login.html',error=error)

    return render_template('login.html')

@app.route('/dashboard')
def dashboard():
    return render_template('dashboard.html')

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

Now we need to create the dashboard.html file in the templates for that go to the templates folder and create a new file called dashboard.html

Dashboard.html

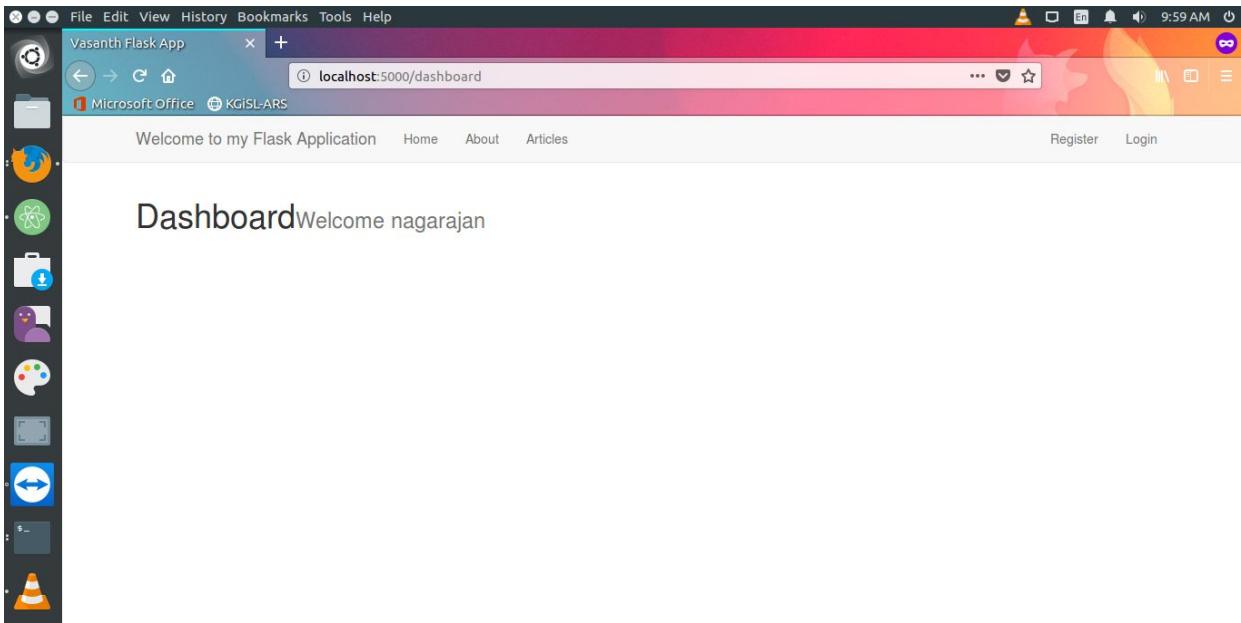
```

{% extends 'layout.html' %}

{% block body %}
<h1>Dashboard<small>Welcome {{session.username}}</small></h1>
{% endblock %}

```

Now save the file and run the app.py server once you have successfully logged in ,you will get the user name in the dashboard as shown below .



Now we have created a logout option ,so now go to **app.py** and make the following changes in the app.py

App.py

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt

app = Flask(__name__)
app.debug = True

#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
```

```

#init MYSQL
mysql = MySQL(app)

Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
0,validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

```

```

# Create cursor
cur = mysql.connection.cursor()

cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

# commit to DB
mysql.connection.commit()
#close connection
cur.close()

flash("You are now Registered and you can login" , 'success')

redirect(url_for('login'))
return render_template('register.html',form=form)

# user login
@app.route('/login',methods=['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s"
,[username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()
            password = data['password']

```

```

# Compare Passwords
if sha256_crypt.verify(password_candidate,password):
    #Passed
    session['logged_in'] = True
    session['username'] = username

    flash('You are now logged in ','success')
    return redirect(url_for('dashboard'))

else:
    error = 'Username not found'
    return render_template('login.html',error=error)
    #close connection
cur.close()

else:
    error = 'Username not found'
    return render_template('login.html',error=error)

return render_template('login.html')

#logout
@app.route('/logout')
def logout():
    session.clear()
    flash('you are now logged out ','success')
    return redirect(url_for('login'))

@app.route('/dashboard')
def dashboard():
    return render_template('dashboard.html')

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

Now make the above changes and save the file and now we have to create a link in the navbar for logout,for that now go to the navbar.html and make the following changes .

```

.navbar.html
<nav class="navbar navbar-default">
    <div class="container">
        <div class="navbar-header">
            <button type="button" class="navbar-toggle collapsed" data-toggle="collapse"
data-target="#navbar" aria-expanded="false" aria-controls="navbar">
                <span class="sr-only">Toggle navigation</span>
                <span class="icon-bar"></span>
                <span class="icon-bar"></span>
                <span class="icon-bar"></span>
            </button>
            <a class="navbar-brand" href="#">Welcome to my Flask Application</a>
        </div>
        <div id="navbar" class="collapse navbar-collapse">
            <ul class="nav navbar-nav">
                <li><a href="/">Home</a></li>
                <li><a href="/about">About</a></li>
                <li><a href="/articles">Articles</a></li>
            </ul>

            <ul class="nav navbar-nav navbar-right">
                {% if session.logged_in %}
                    <li><a href="/login">Logout</a></li>
                {% else %}
                    <li><a href="/register">Register</a></li>
                    <li><a href="/login">Login</a></li>
                {% endif %}
            </ul>
        </div><!--/.nav-collapse -->
    </div>
</nav>
```

Now save the file and run the app.py server and navigate to the browser and now see the application, its look like as shown below :

Home page of our application



Register page of our application :

A screenshot of a web browser window titled "Vasanth Flask App". The address bar shows "localhost:5000/register". The page content is a form titled "Register" with fields for "Name", "Email", "Username", "Password", and "Confirm password", each with an associated input field. A "Submit" button is at the bottom.

The screenshot shows a web browser window titled "Vasanth Flask App". The address bar displays "localhost:5000/register". The page content is a registration form with the following fields:

- Name: vasanth nagarajan
- Email: vasa@vasa.com
- Username: vasanth@vasanth
- Password: (obscured)
- Confirm password: (obscured)

A blue "Submit" button is located at the bottom left of the form.

After entering the details and once clicked the submit button ,

The screenshot shows a web browser window titled "Vasanth Flask App". The address bar displays "localhost:5000/register". The page content includes a green success message: "You are now Registered and you can login>". Below the message is the same registration form as the previous screenshot, with the same fields and layout.

Now we have successfully registered ,and now we are going to login in to our application :



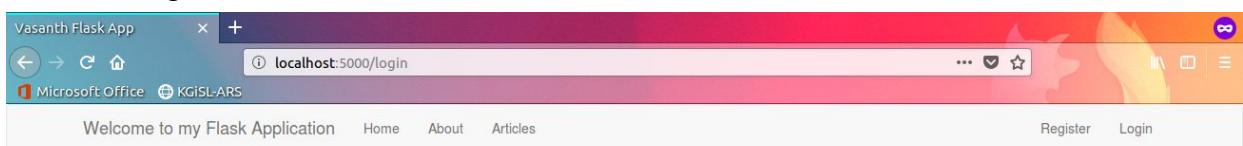
Login

Username

Password

Submit

After entering the credentials ,



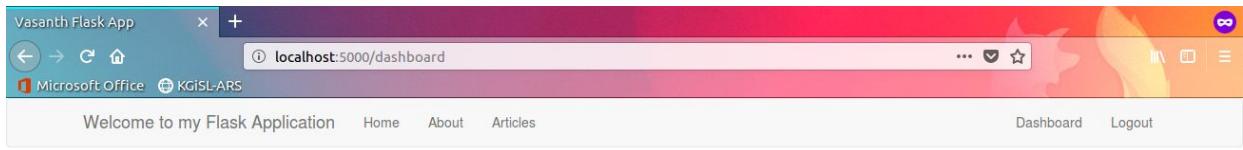
Login

Username

Password

Submit

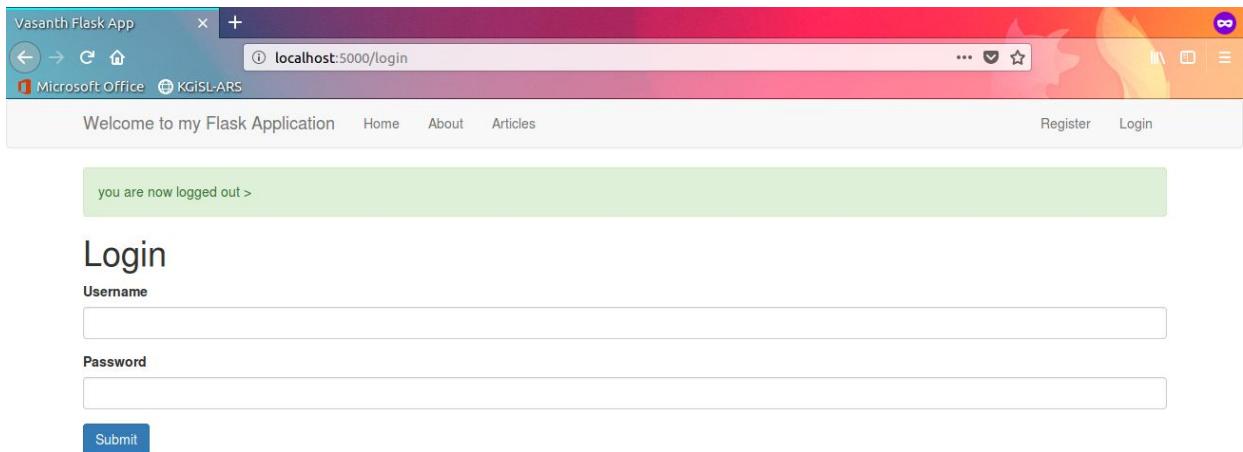
Once logged in :



Dashboard

Welcome vasanth@vasanth

The dashboard displays the user name of the current logged in person and we can see the logout option at the right top of the page .



After clicked the logout button the above screen will be displayed .

But when we type the url directly in the browser the browser will navigate to the exact page that we requested, but this is not fair , for example when we type the /dashboard in the url , the browser will take u to the dashboard page automatically , as shown below :



Dashboard

so we have to use the decorators, for that do the following steps in the program .

Now go to app.py and make the following changes :

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
from functools import wraps

app = Flask(__name__)
app.debug = True
```

```

#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)

Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
    ()],validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():

```

```

form = RegisterForm(request.form)
if request.method == 'POST' and form.validate():
    name = form.name.data
    email = form.email.data
    username = form.username.data
    password = sha256_crypt.encrypt(str(form.password.data))

    # Create cursor
    cur = mysql.connection.cursor()

    cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

    # commit to DB
    mysql.connection.commit()
    #close connection
    cur.close()

    flash("You are now Registered and you can login" , 'success')

    redirect(url_for('login'))
    return render_template('register.html',form=form)

# user login
@app.route('/login',methods=['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s"
,[username])

```

```

if result > 0:
    # Get Stored hash
    data = cur.fetchone()
    password = data['password']

    # Compare Passwords
    if sha256_crypt.verify(password_candidate,password):
        #Passed
        session['logged_in'] = True
        session['username'] = username

        flash('You are now logged in ','success')
        return redirect(url_for('dashboard'))

    else:
        error = 'Username not found'
        return render_template('login.html',error=error)
        #close connection
    cur.close()

else:
    error = 'Username not found'
    return render_template('login.html',error=error)

return render_template('login.html')

#check if user logged in

def is_logged_in(f):
    @wraps(f)
    def wrap(*args,**kwargs):
        if 'logged_in' in session:
            return f(*args, **kwargs)
        else:
            flash('Unauthorized, please login','danger')
            return redirect(url_for('login'))
    return wrap

```

```

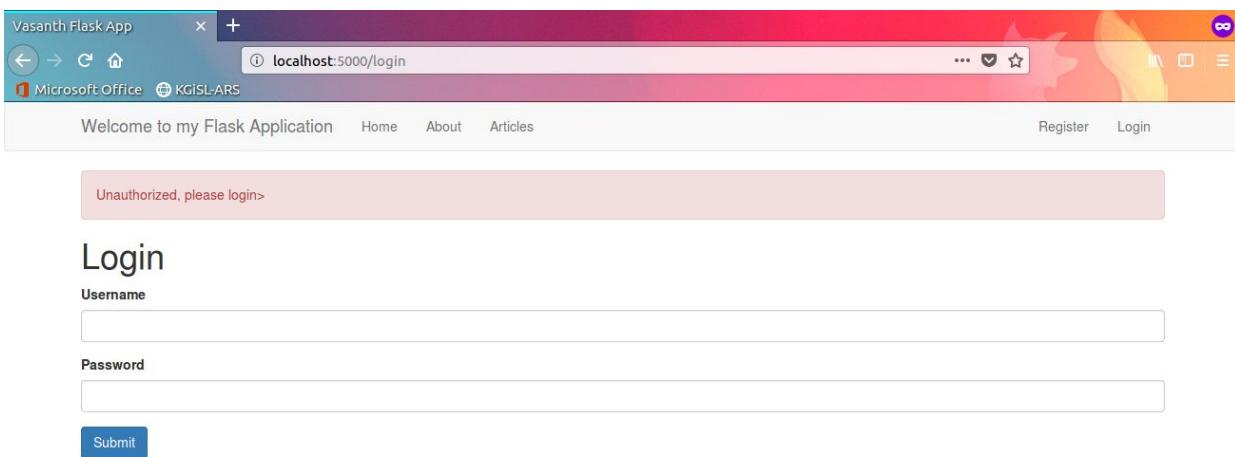
#logout
@app.route('/logout')
def logout():
    session.clear()
    flash('you are now logged out ','success')
    return redirect(url_for('login'))

# Dashboard
@app.route('/dashboard')
@is_logged_in
def dashboard():
    return render_template('dashboard.html')

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

Now save and run the file , you will see the unauthorized message when you to try to navigate to dashboard without login

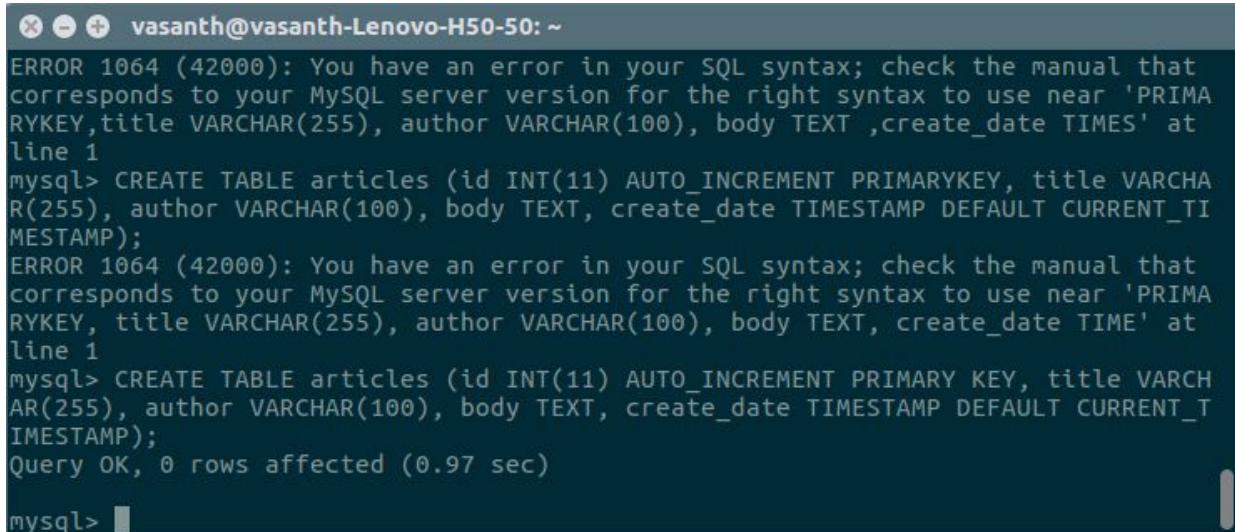


Now we are going to work on articles :

Still the data for the articles are coming from the file called data.py ,but we need those data to come from the database .

So now go to mysql console ,and now create a table for the articles :

```
mysql> CREATE TABLE articles (id INT(11) AUTO_INCREMENT PRIMARY KEY, title  
VARCHAR(255), author VARCHAR(100), body TEXT, create_date TIMESTAMP DEFAULT  
CURRENT_TIMESTAMP);  
Query OK, 0 rows affected (0.97 sec)
```



```
vasanth@vasanth-Lenovo-H50-50: ~  
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that  
corresponds to your MySQL server version for the right syntax to use near 'PRIMA  
RYKEY,title VARCHAR(255), author VARCHAR(100), body TEXT ,create_date TIMES' at  
line 1  
mysql> CREATE TABLE articles (id INT(11) AUTO_INCREMENT PRIMARYKEY, title VARCHA  
R(255), author VARCHAR(100), body TEXT, create_date TIMESTAMP DEFAULT CURRENT_T  
IMESTAMP);  
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that  
corresponds to your MySQL server version for the right syntax to use near 'PRIMA  
RYKEY, title VARCHAR(255), author VARCHAR(100), body TEXT, create_date TIME' at  
line 1  
mysql> CREATE TABLE articles (id INT(11) AUTO_INCREMENT PRIMARY KEY, title VARCH  
AR(255), author VARCHAR(100), body TEXT, create_date TIMESTAMP DEFAULT CURRENT_T  
IMESTAMP);  
Query OK, 0 rows affected (0.97 sec)  
mysql>
```

Now type the sql query for showing the tables :

```
mysql> SHOW TABLES;
```

```

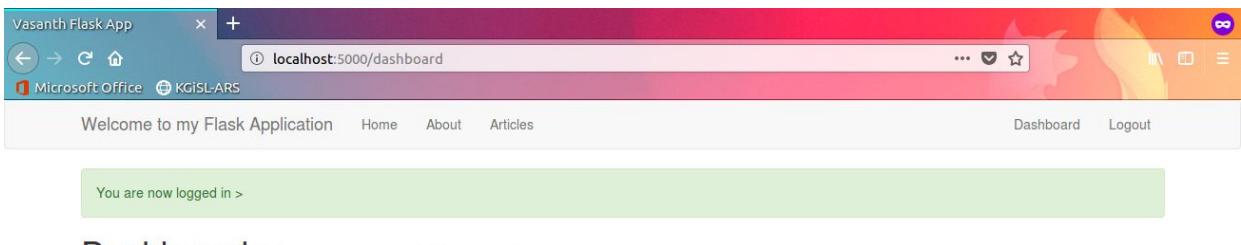
vasanth@vasanth-Lenovo-H50-50: ~
RYKEY, title VARCHAR(255), author VARCHAR(100), body TEXT, create_date TIME' at
line 1
mysql> CREATE TABLE articles (id INT(11) AUTO_INCREMENT PRIMARY KEY, title VARCH
AR(255), author VARCHAR(100), body TEXT, create_date TIMESTAMP DEFAULT CURRENT_T
IMESTAMP);
Query OK, 0 rows affected (0.97 sec)

mysql> SHOW TABLES;
+-----+
| Tables_in_myflaskapp |
+-----+
| articles           |
| users              |
+-----+
2 rows in set (0.00 sec)

mysql> 

```

Now we can add the article functionality ,for that first login in to our application ,the dashboard page will be displayed as shown below :



Now we have to add the article button in the dashboard ,now go to dashboard.html page

Dashboard.html

```
{% extends 'layout.html' %}
```

```
{% block body %}
<h1>Dashboard<small>Welcome {{ session.username }}</small></h1>
<a class="btn btn-success" href="/add_article">Add Articles</a>
<hr>
{% endblock %}
```

Now we have to add the route inside the app.py so now navigate to app.py and add the following commands in the **app.py**

```
from flask import Flask, render_template, flash, redirect, url_for, session, request, logging
from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField, TextAreaField, PasswordField, validators
from passlib.hash import sha256_crypt
from functools import wraps
```

```
app = Flask(__name__)
app.debug = True

#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)
```

```
Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

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

```

def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
    ()],validators.EqualTo('confirm',message ='passwords do not match'))
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

        # commit to DB
        mysql.connection.commit()
        #close connection
        cur.close()

```

```

flash("You are now Registered and you can login" , 'success')

redirect(url_for('login'))
return render_template('register.html',form=form)

# user login
@app.route('/login',methods =['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s" ,[username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()
            password = data['password']

            # Compare Passwords
            if sha256_crypt.verify(password_candidate,password):
                #Passed
                session['logged_in'] = True
                session['username'] = username

                flash('You are now logged in ','success')
                return redirect(url_for('dashboard'))

            else:
                error = 'Username not found'
                return render_template('login.html',error=error)
                #close connection

```

```
    cur.close()

else:
    error = 'Username not found'
    return render_template('login.html',error=error)

return render_template('login.html')
```

```
#check if user logged in
```

```
def is_logged_in(f):
    @wraps(f)
    def wrap(*args, **kwargs):
        if 'logged_in' in session:
            return f(*args, **kwargs)
        else:
            flash('Unauthorized, please login','danger')
            return redirect(url_for('login'))
    return wrap
```

```
#logout
@app.route('/logout')
@is_logged_in
def logout():
    session.clear()
    flash('you are now logged out ','success')
    return redirect(url_for('login'))

# Dashboard
@app.route('/dashboard')
@is_logged_in
def dashboard():
    return render_template('dashboard.html')
```

```
#Article form class
```

```
class ArticleForm(Form):
    title = StringField('Title',[validators.Length(min=1,max=50)])
```

```

body = TextAreaField('Body',[validators.Length(min=30,max=25)])

#Add Article

@app.route('/add_article', methods=['GET','POST'])
@is_logged_in
def add_article():
    form = ArticleForm(request.form)
    if request.method == 'POST' and form.validate():
        title = form.title.data
        body = form.body.data

        # Create a cursor

        cur = mysql.connection.cursor()

        #execute

        cur.execute("INSERT INTO articles(title,body,author) VALUES(%s, %s, %s)",(title,
        body, session['username']))

        #commit to db

        mysql.connection.commit()

        #close connection
        cur.close()

        flash('Article created ','success')

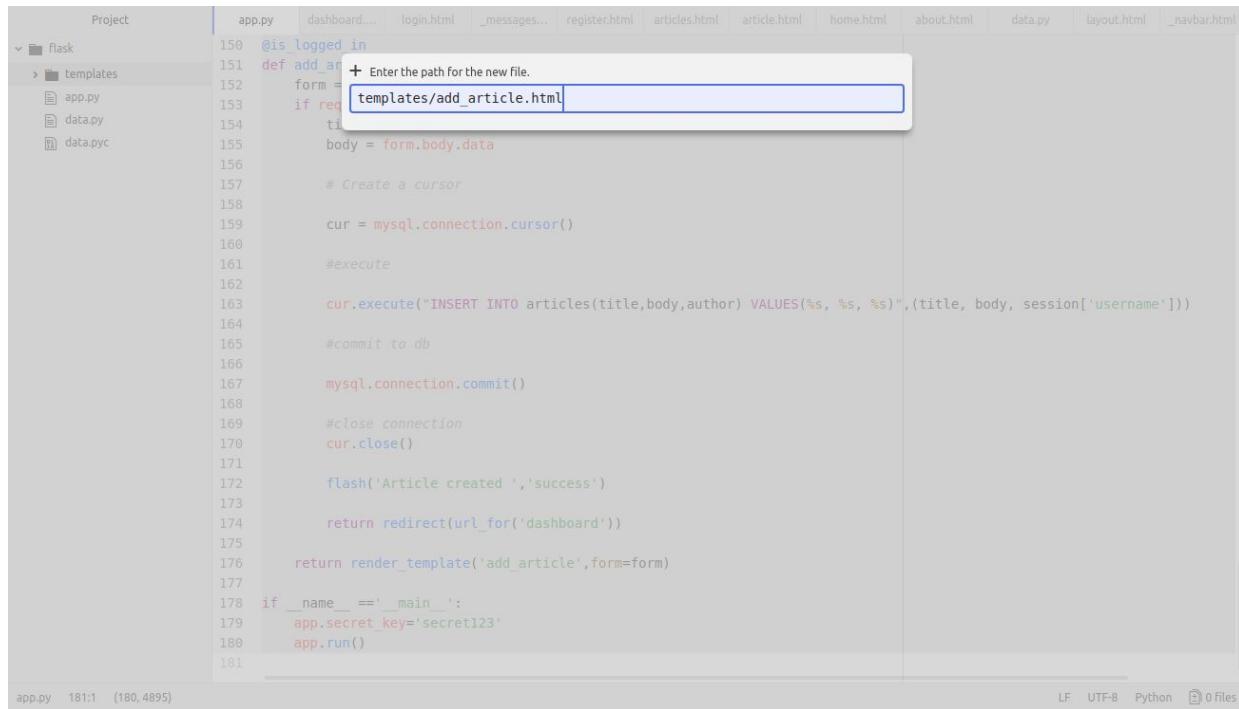
        return redirect(url_for('dashboard'))

    return render_template('add_article.html',form=form)

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

Now we have to create the actual form for that we have to go to templates and create a new file **add_article.html**



```
Project
  Flask
    templates
      app.py
      data.py
      data.pyc
    app.py
    data.py
    data.pyc

app.py 181:1 (180, 4895)

150 @is_logged_in
151 def add_article():
152     form = + Enter the path for the new file.
153     if request.method == 'POST':
154         title = request.form['title']
155         body = form.body.data
156
157         # Create a cursor
158
159         cur = mysql.connection.cursor()
160
161         #execute
162
163         cur.execute("INSERT INTO articles(title,body,author) VALUES(%s, %s, %s)",(title, body, session['username']))
164
165         #commit to db
166
167         mysql.connection.commit()
168
169         #close connection
170         cur.close()
171
172         flash('Article created ','success')
173
174         return redirect(url_for('dashboard'))
175
176     return render_template('add_article',form=form)
177
178 if __name__ == '__main__':
179     app.secret_key='secret123'
180     app.run()

LF  UTF-8  Python  0 Files
```

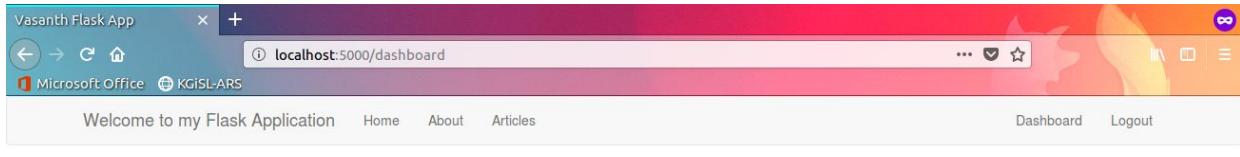
Add_article.html

```
{% extends 'layout.html' %}

{% block body %}
    <h1> Add Articles</h1>
    {% from "includes/_formhelpers.html" import render_field %}
    <form method="POST" action="">
        <div class="form-group">
            {{ render_field(form.title, class_="form-control") }}
        </div>
        <div class="form-group">
            {{ render_field(form.body, class_="form-control") }}
        </div>
```

```
<p><input class="btn btn-primary" type="submit" value="Submit">
</form>
{% endblock %}
```

Now type the above code and save those file in the templates .now run the app.py and see the browser



Now click on add article button and type the title and add some dummy text in the article page .

Now click submit ..

The screenshot shows a Microsoft Edge browser window with a pink gradient background. The title bar says "Vasantha Flask App". The address bar shows "localhost:5000/dashboard". Below the address bar, there are icons for Microsoft Office and KGISL-ARS. The main content area has a light gray header with "Welcome to my Flask Application" and navigation links for "Home", "About", and "Articles". To the right of the header are "Dashboard" and "Logout" links. A green success message box contains "Article created >". Below the message, the word "Dashboard" is displayed in large letters, followed by the welcome message "Welcome vasantha@vasanth". At the bottom left is a green button labeled "Add Articles".

Now go to mysql and check the database using the following query :

```
mysql> SELECT * FROM articles;
```

```
vasanth@vasanth-Lenovo-H50-50: ~
mysql>
mysql>
mysql> SELECT * FROM articles;
+----+-----+-----+-----+
| id | title      | author      | body
+----+-----+-----+-----+
| 1  | Article 1  | vasanth@vasanth | dummy text dummy text dummy text dummy tex
t dummy text d
ummy text dummy text dum
y text dummy text dummy text dummy text | 2018-09-15 11:39:03 |
| 2  | context 2   | vasanth@vasanth | aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
```

Now we are going to add an editor in our page ,its cke editor

Now go to our layout.html file and add the following command in the layout.html file as shown below :

Layout.html:

```
<html>
<head>
  <title>Vasanth Flask App</title>
  <link rel="stylesheet"
    href="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
</head>
<body>
  {% include 'includes/_navbar.html'%}

  <div class="container">
    {% include 'includes/_messages.html' %}
    {% block body %}{% endblock %}
  </div>
```

```

<script src="//maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
<script src="//cdn.ckeditor.com/4.6.2/basic/ckeditor.js"></script>
<script type="text/javascript">
    CKEDITOR.replace('editor')
</body>
</html>

```

And now go to add article and make the following changes in the add article page as follows :

Add_article.html

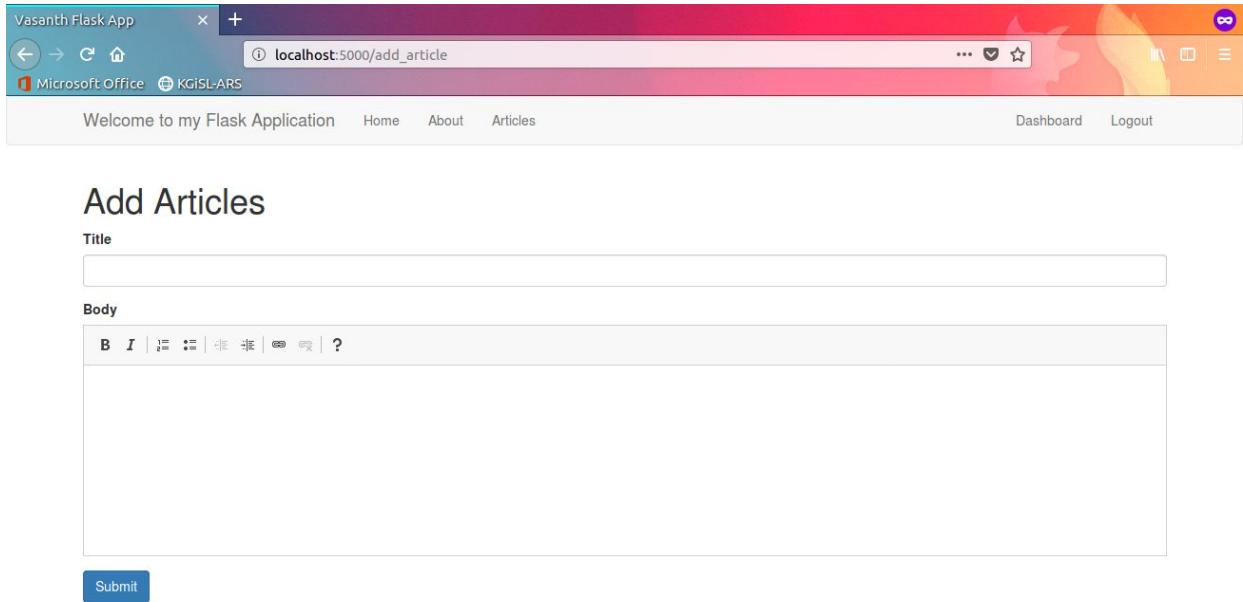
```

{% extends 'layout.html' %}

{% block body %}
    <h1> Add Articles</h1>
    {% from "includes/_formhelpers.html" import render_field %}
    <form method="POST" action="">
        <div class="form-group">
            {{ render_field(form.title, class_="form-control") }}
        </div>
        <div class="form-group">
            {{ render_field(form.body, class_="form-control", id="editor") }}
        </div>
        <p><input class="btn btn-primary" type="submit" value="Submit">
    </form>
    {% endblock %}

```

Now save and run the python server ,you can see some formatting options for the editor as shown below .



Now in the dashboard we have to see the articles as we did that before when we clicked the articles as the list of articles contents will be displayed as same we have to do now ,but this time the articles should shown up in the homepage (dashboard).

Now go to `app.py` ,navigate to the dashboard route and make the following changes and save the `app.py` file

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
from functools import wraps
```

```
app = Flask(__name__)
app.debug = True
```

```
#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
```

```

app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)

Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():
    return render_template('articles.html',articles = Articles)

@app.route('/article/<string:id>/')
def article(id):
    return render_template('article.html',id=id)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
    ()],validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data

```

```

email = form.email.data
username = form.username.data
password = sha256_crypt.encrypt(str(form.password.data))

# Create cursor
cur = mysql.connection.cursor()

    cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

# commit to DB
mysql.connection.commit()
#close connection
cur.close()

flash("You are now Registered and you can login" , 'success')

redirect(url_for('login'))
return render_template('register.html',form=form)

# user login
@app.route('/login',methods=['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s" ,[username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()

```

```

password = data['password']

# Compare Passwords
if sha256_crypt.verify(password_candidate,password):
    #Passed
    session['logged_in'] = True
    session['username'] = username

    flash('You are now logged in ','success')
    return redirect(url_for('dashboard'))

else:
    error = 'Username not found'
    return render_template('login.html',error=error)
    #close connection
cur.close()

else:
    error = 'Username not found'
    return render_template('login.html',error=error)

return render_template('login.html')

#check if user logged in

def is_logged_in(f):
    @wraps(f)
    def wrap(*args,**kwargs):
        if 'logged_in' in session:
            return f(*args, **kwargs)
        else:
            flash('Unauthorized, please login','danger')
            return redirect(url_for('login'))
    return wrap

#logout
@app.route('/logout')
@is_logged_in

```

```

def logout():
    session.clear()
    flash('you are now logged out ','success')
    return redirect(url_for('login'))
# Dashboard
@app.route('/dashboard')
@is_logged_in
def dashboard():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")

    articles = cur.fetchall()

    if result > 0:
        return render_template('dashboard.html',articles=articles)
    else:
        msg = 'No Articles Found'
        return render_template('dashboard.html',msg=msg)
    #close connection
    cur.close()

```

#Article form class

```

class ArticleForm(Form):
    title = StringField('Title',[validators.Length(min=1,max=50)])
    body = TextAreaField('Body',[validators.Length(min=30,max=1000)])

```

#Add Article

```

@app.route('/add_article', methods=['GET','POST'])
@is_logged_in
def add_article():
    form = ArticleForm(request.form)
    if request.method == 'POST' and form.validate():
        title = form.title.data

```

```

body = form.body.data

# Create a cursor

cur = mysql.connection.cursor()

#execute

cur.execute("INSERT INTO articles(title,body,author) VALUES(%s, %s, %s)",(title,
body, session['username']))

#commit to db

mysql.connection.commit()

#close connection
cur.close()

flash('Article created ','success')

return redirect(url_for('dashboard'))

return render_template('add_article.html',form=form)

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

Now navigate to dashboard.html page that's in templates folder and make the following changes
:

Dashboard.html

```

{% extends 'layout.html' %}

{% block body %}
<h1>Dashboard<small>Welcome {{session.username}}</small></h1>
<a class="btn btn-success" href="/add_article">Add Articles</a>
<hr>

```

```

<table class="table table-striped">
    <tr>
        <th>ID</th>
        <th>Title</th>
        <th>Author</th>
        <th>Date</th>
        <th></th>
        <th></th>
    </tr>
    {% for article in articles %}<br>
    <tr>
        <td>{{article.id}}</td>
        <td>{{article.title}}</td>
        <td>{{article.author}}</td>
        <td>{{article.create_date}}</td>
        <td><a href="edit_article/{{article.id}}" class="btn btn-default pullright">Edit</a></td>
        <td><a href="#" class="btn btn-danger">Delete</a></td>
    {% endfor %}
</table>
{% endblock %}

```

Now save the dashboard.html file and run the app.py server and navigate to dashboard page in the browser , now your dashboard will display the articles content that are fetched from the database and you can see the edit and delete button as shown .

Now go to app.py and make the following changes in **articles route**

App.py

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
# from data import Articles
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
from functools import wraps
```

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

```
app.debug = True
```

#Config MySQL

```
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MYSQL
```

```
mysql = MySQL(app)
```

```
#Articles = Articles()
```

```
@app.route('/')
def index():
    return render_template('home.html')
```

```
@app.route('/about')
def about():
    return render_template('about.html')
```

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

```
def articles():
```

```
#create cursor
cur = mysql.connection.cursor()
```

```
#get articles
result = cur.execute("SELECT * FROM articles")
```

```
articles = cur.fetchall()
```

```
if result > 0:
    return render_template('articles.html',articles=articles)
else:
    msg = 'No Articles Found'
    return render_template('articles.html',msg=msg)
#close connection
cur.close()
```

```
@app.route('/article/<string:id>/')
```

```
def article(id):
    return render_template('article.html',id=id)
```

```
class RegisterForm(Form):
```

```

name = StringField('Name',[validators.Length(min=1,max=50)])
username = StringField('Username',[ validators.Length(min=4,max=25)])
email = StringField('Email',[validators.Length(min=4,max=25)])
password = PasswordField('Password', [ validators.DataRequired
() ,validators.EqualTo('confirm',message ='passwords do not match')])
confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

        # commit to DB
        mysql.connection.commit()
        #close connection
        cur.close()

        flash("You are now Registered and you can login" , 'success')

        redirect(url_for('login'))
        return render_template('register.html',form=form)

# user login
@app.route('/login',methods =['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

```

```

# Create cursor

cur = mysql.connection.cursor()

#Get user by username

result = cur.execute("SELECT * FROM users WHERE username = %s" ,[username])

if result > 0:
    # Get Stored hash
    data = cur.fetchone()
    password = data['password']

    # Compare Passwords
    if sha256_crypt.verify(password_candidate,password):
        #Passed
        session['logged_in'] = True
        session['username'] = username

        flash('You are now logged in ','success')
        return redirect(url_for('dashboard'))

    else:
        error = 'Username not found'
        return render_template('login.html',error=error)
        #close connection
    cur.close()

else:
    error = 'Username not found'
    return render_template('login.html',error=error)

return render_template('login.html')

#check if user logged in

def is_logged_in(f):
    @wraps(f)
    def wrap(*args,**kwargs):

```

```

if 'logged_in' in session:
    return f(*args, **kwargs)
else:
    flash('Unauthorized, please login','danger')
    return redirect(url_for('login'))
return wrap

#logout
@app.route('/logout')
@is_logged_in
def logout():
    session.clear()
    flash('you are now logged out ','success')
    return redirect(url_for('login'))

# Dashboard
@app.route('/dashboard')
@is_logged_in
def dashboard():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")

    articles = cur.fetchall()

    if result > 0:
        return render_template('dashboard.html',articles=articles)
    else:
        msg = 'No Articles Found'
        return render_template('dashboard.html',msg=msg)
    #close connection
    cur.close()

#Article form class

```

```

class ArticleForm(Form):
    title = StringField('Title',[validators.Length(min=1,max=50)])
    body = TextAreaField('Body',[validators.Length(min=30,max=1000)])

#Add Article

@app.route('/add_article', methods=['GET','POST'])
@is_logged_in
def add_article():
    form = ArticleForm(request.form)
    if request.method == 'POST' and form.validate():
        title = form.title.data
        body = form.body.data

    # Create a cursor

    cur = mysql.connection.cursor()

    #execute

    cur.execute("INSERT INTO articles(title,body,author) VALUES(%s, %s, %s)",(title,
body, session['username']))

    #commit to db

    mysql.connection.commit()

    #close connection
    cur.close()

    flash('Article created ','success')

    return redirect(url_for('dashboard'))

    return render_template('add_article.html',form=form)

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

Now save the app.py and run the python server, now you can see the content inside the articles that are fetched from the database as shown below :

The screenshot shows a web browser window titled "Vasanth Flask App". The address bar displays "localhost:5000/articles". The main content area has a header "Welcome to my Flask Application" and a navigation menu with links "Home", "About", "Articles", "Dashboard", and "Logout". Below the header, there is a table with two rows: "Article 1" and "context 2".

Now we have make some other changes in the app.py lets do that ! ,

App.py

```
from flask import Flask, render_template, flash, redirect, url_for, session, request, logging
from flask_mysqldb import MySQL
from wtforms import Form, StringField, TextAreaField, PasswordField, validators
from passlib.hash import sha256_crypt
from functools import wraps
```

```
app = Flask(__name__)
app.debug = True

#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
```

```

app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)

#Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")

    articles = cur.fetchall()

    if result > 0:
        return render_template('articles.html',articles=articles)
    else:
        msg = 'No Articles Found'
        return render_template('articles.html',msg=msg)
    #close connection
    cur.close()

@app.route('/article/<string:id>/')

```

```

def article(id):
    #create cursor
    cur = mysql.connection.cursor()

    #get article
    result = cur.execute("SELECT * FROM articles WHERE id= %s",[id])

    article = cur.fetchone()

    return render_template('article.html',article=article)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
() ,validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

        # commit to DB
        mysql.connection.commit()
        #close connection
        cur.close()

```

```

flash("You are now Registered and you can login" , 'success')

redirect(url_for('login'))
return render_template('register.html',form=form)

# user login
@app.route('/login',methods =['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s" ,[username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()
            password = data['password']

            # Compare Passwords
            if sha256_crypt.verify(password_candidate,password):
                #Passed
                session['logged_in'] = True
                session['username'] = username

                flash('You are now logged in ','success')
                return redirect(url_for('dashboard'))

            else:
                error = 'Username not found'
                return render_template('login.html',error=error)
                #close connection
        cur.close()

```

```

else:
    error = 'Username not found'
    return render_template('login.html',error=error)

return render_template('login.html')

#check if user logged in

def is_logged_in(f):
    @wraps(f)
    def wrap(*args,**kwargs):
        if 'logged_in' in session:
            return f(*args, **kwargs)
        else:
            flash('Unauthorized, please login','danger')
            return redirect(url_for('login'))
    return wrap

#logout
@app.route('/logout')
@is_logged_in
def logout():
    session.clear()
    flash('you are now logged out ','success')
    return redirect(url_for('login'))

# Dashboard
@app.route('/dashboard')
@is_logged_in
def dashboard():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")

```

```

articles = cur.fetchall()

if result > 0:
    return render_template('dashboard.html',articles=articles)
else:
    msg = 'No Articles Found'
    return render_template('dashboard.html',msg=msg)
#close connection
cur.close()

#Article form class

class ArticleForm(Form):
    title = StringField('Title',[validators.Length(min=1,max=50)])
    body = TextAreaField('Body',[validators.Length(min=30,max=1000)])

#Add Article

@app.route('/add_article', methods=['GET','POST'])
@is_logged_in
def add_article():
    form = ArticleForm(request.form)
    if request.method == 'POST' and form.validate():
        title = form.title.data
        body = form.body.data

        # Create a cursor

        cur = mysql.connection.cursor()

        #execute

        cur.execute("INSERT INTO articles(title,body,author) VALUES(%s, %s, %s)",(title,
        body, session['username']))

        #commit to db

        mysql.connection.commit()

```

```

#close connection
cur.close()

flash('Article created ''success')

return redirect(url_for('dashboard'))

return render_template('add_article.html',form=form)

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

After making the changes in the app.py file ,now go to **article.html** file and add the following code :

Article.html

```

{% extends 'layout.html'%}

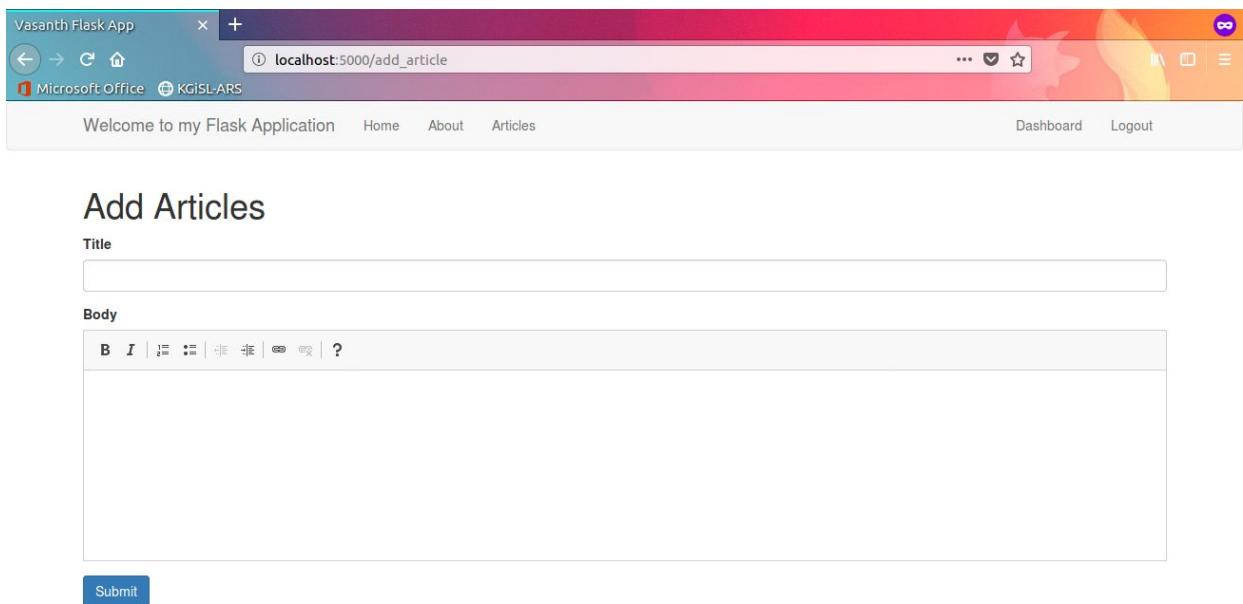
{% block body %}
<h1>{{article.title}}</h1>
<small> Written by {{article.author}} on {{article.create_date}}</small>
<hr>
<div>
    {{article.body | safe}}
</div>
{% endblock %}

```

Now save the article.html file and reload the article tab in the browser now the contents are displayed as shown below :



Now to test it out ,go to dashboard and add a new article by clicking add article button as shown below :





Now we have to add the button in the dashboard ,now go to home.html

```
{% extends 'layout.html' %}

{% block body %}
<div class="jumbotron text-center">
    <h1>Vasanth Python Tutorials</h1>
    <p class="lead">This Application is build using python and flask framework</p>
    {% if session.logged_in == NULL %}
        <a href="/register" class="btn btn-primary btn-lg">Register</a>
        <a href="/login" class="btn btn-success btn-lg">Login</a>
    {% endif %}
</div>
{% endblock %}
```

Now save the file and run the app.py file ,

Logout the page if you are logged in ,now go to home page ,you will see the two button as shown below :



Now we have to work on the editing of the articles , now go to app.py file and make the following changes .

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
from functools import wraps
```

```
app = Flask(__name__)
app.debug = True
```

```
#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
```

```

mysql = MySQL(app)

#Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")

    articles = cur.fetchall()

    if result > 0:
        return render_template('articles.html',articles=articles)
    else:
        msg = 'No Articles Found'
        return render_template('articles.html',msg=msg)
    #close connection
    cur.close()

@app.route('/article/<string:id>/')
def article(id):
    #create cursor
    cur = mysql.connection.cursor()

```

```

#get article
result = cur.execute("SELECT * FROM articles WHERE id = %s",[id])

article = cur.fetchone()

return render_template('article.html',article=article)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[ validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired()
(),validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

        # commit to DB
        mysql.connection.commit()
        #close connection
        cur.close()

        flash("You are now Registered and you can login" , 'success')

        redirect(url_for('login'))
        return render_template('register.html',form=form)

```

```

# user login
@app.route('/login',methods=['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s" ,[username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()
            password = data['password']

            # Compare Passwords
            if sha256_crypt.verify(password_candidate,password):
                #Passed
                session['logged_in'] = True
                session['username'] = username

                flash('You are now logged in ','success')
                return redirect(url_for('dashboard'))

            else:
                error = 'Username not found'
                return render_template('login.html',error=error)
                #close connection
                cur.close()

        else:
            error = 'Username not found'
            return render_template('login.html',error=error)

```

```

        return render_template('login.html')

#check if user logged in

def is_logged_in(f):
    @wraps(f)
    def wrap(*args, **kwargs):
        if 'logged_in' in session:
            return f(*args, **kwargs)
        else:
            flash('Unauthorized, please login','danger')
            return redirect(url_for('login'))
    return wrap

#logout
@app.route('/logout')
@is_logged_in
def logout():
    session.clear()
    flash('you are now logged out ','success')
    return redirect(url_for('login'))

# Dashboard
@app.route('/dashboard')
@is_logged_in
def dashboard():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")

    articles = cur.fetchall()

    if result > 0:
        return render_template('dashboard.html',articles=articles)

```

```

else:
    msg = 'No Articles Found'
    return render_template('dashboard.html',msg=msg)
#close connection
cur.close()

#Article form class

class ArticleForm(Form):
    title = StringField('Title',[validators.Length(min=1,max=50)])
    body = TextAreaField('Body',[validators.Length(min=30,max=1000)])

#Add Article

@app.route('/add_article', methods=['GET','POST'])
@is_logged_in
def add_article():
    form = ArticleForm(request.form)
    if request.method == 'POST' and form.validate():
        title = form.title.data
        body = form.body.data

        # Create a cursor

        cur = mysql.connection.cursor()

        #execute

        cur.execute("INSERT INTO articles(title,body,author) VALUES(%s, %s, %s)",(title,
        body, session['username']))

        #commit to db

        mysql.connection.commit()

        #close connection
        cur.close()

        flash('Article created ','success')

```

```

        return redirect(url_for('dashboard'))

        return render_template('add_article.html', form=form)

#Edit Article

@app.route('/edit_article/<string:id>', methods=['GET','POST'])
@is_logged_in
def edit_article(id):
    # Create cursor
    cur = mysql.connection.cursor()
    #get article by id
    result = cur.execute("SELECT * FROM articles WHERE id = %s", [id])

    article = cur.fetchone()

    #get form
    form = ArticleForm(request.form)

    #populate article form fields
    form.title.data = article['title']
    form.body.data = article['body']

    if request.method == 'POST' and form.validate():
        title = form.title.data
        body = form.body.data

        # Create a cursor
        cur = mysql.connection.cursor()

        #execute
        cur.execute("UPDATE articles SET name=%s, body=%s WHERE id = %s" ,
        (name,body))

        #commit to db

```

```

mysql.connection.commit()

#close connection
cur.close()

flash('Article Updated ','success')

return redirect(url_for('dashboard'))

return render_template('edit_article.html',form=form)

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

After making the above changes in the app.py file save the file and now go to templates and create a new file as edit_article.html as shown below :

The screenshot shows a code editor interface with a 'Project' sidebar on the left containing files like app.py, data.py, and data.pyc. The main area displays the content of app.py. A new file named 'edit_article.html' is being created in the templates directory, indicated by a blue selection bar and a plus sign icon.

```

Project
Flask
templates
app.py
data.py
data.pyc

app.py
175     return render_template('dashboard.html',msg=msg)
176     #close
177     cur.cl
178     templates/edit_article.html
179     #Article
180
181     class ArticleForm(Form):
182         title = StringField('Title',[validators.Length(min=1,max=50)])
183         body = TextAreaField('Body',[validators.Length(min=30,max=1000)])
184
185     #Add Article
186
187     @app.route('/add_article', methods=['GET','POST'])
188     @is_logged_in
189     def add_article():
190         form = ArticleForm(request.form)
191         if request.method == 'POST' and form.validate():
192             title = form.title.data
193             body = form.body.data
194
195             # Create a cursor
196
197             cur = mysql.connection.cursor()
198
199             #execute
200
201             cur.execute("INSERT INTO articles(title,body,author) VALUES(%s, %s, %s)",(title, body, session['username']))
202
203             #commit to db
204
205             mysql.connection.commit()
206
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263:1 (262,6772)

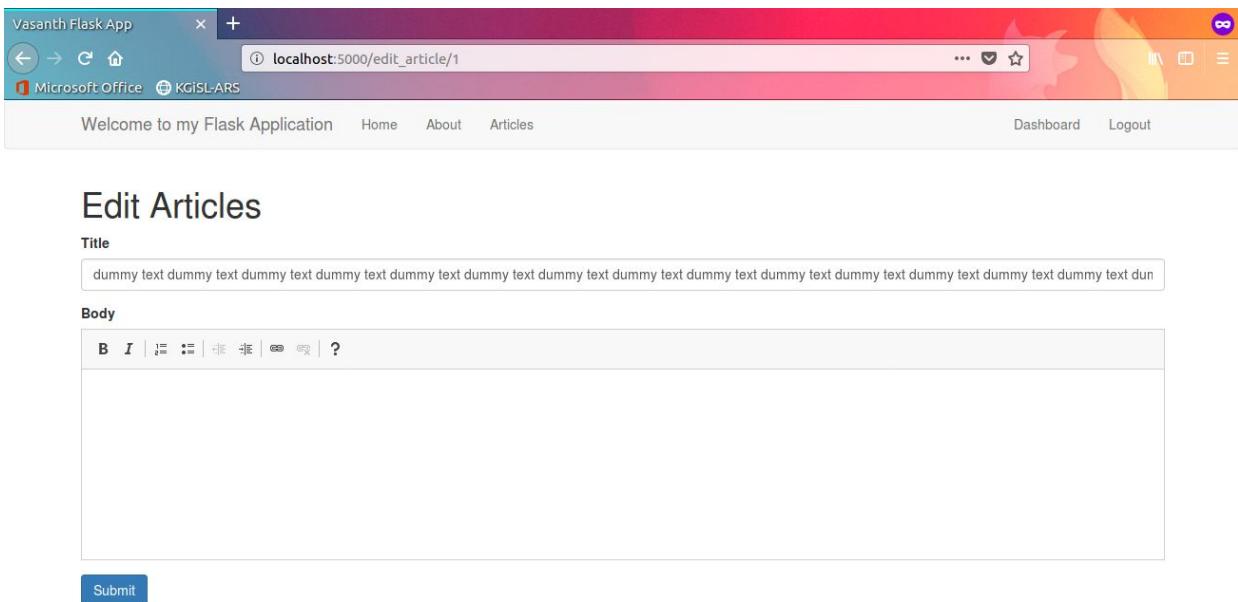
```

Now type the following code in the edit_article.html as shown below :

```
{% extends 'layout.html' %}

{% block body %}
<h1> Edit Articles</h1>
{% from "includes/_formhelpers.html" import render_field %}
<form method="POST" action="">
    <div class="form-group">
        {{ render_field(form.title, class_="form-control") }}
    </div>
    <div class="form-group">
        {{ render_field(form.body, class_="form-control", id="editor") }}
    </div>
    <p><input class="btn btn-primary" type="submit" value="Submit">
</form>
{% endblock %}
```

Now save the file and now execute the app.py file ,now you can edit the following content as shown below :



And now we have to make some changes in the `app.py` file as shown below :

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
from functools import wraps
```

```
app = Flask(__name__)
app.debug = True
```

```
#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)
```

```
#Articles = Articles()
```

```
@app.route('/')
def index():
    return render_template('home.html')
```

```
@app.route('/about')
def about():
    return render_template('about.html')
```

```
@app.route('/articles')
def articles():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")
```

```

articles = cur.fetchall()

if result > 0:
    return render_template('articles.html',articles=articles)
else:
    msg = 'No Articles Found'
    return render_template('articles.html',msg=msg)
#close connection
cur.close()

@app.route('/article/<string:id>/')
def article(id):
    #create cursor
    cur = mysql.connection.cursor()

    #get article
    result = cur.execute("SELECT * FROM articles WHERE id = %s",[id])

    article = cur.fetchone()

    return render_template('article.html',article=article)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
    ()],validators.EqualTo('confirm',message ='passwords do not match'))
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data

```

```

username = form.username.data
password = sha256_crypt.encrypt(str(form.password.data))

# Create cursor
cur = mysql.connection.cursor()

cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

# commit to DB
mysql.connection.commit()
#close connection
cur.close()

flash("You are now Registered and you can login" , 'success')

redirect(url_for('login'))
return render_template('register.html',form=form)

# user login
@app.route('/login',methods=['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s" ,[username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()
            password = data['password']

```

```

# Compare Passwords
if sha256_crypt.verify(password_candidate,password):
    #Passed
    session['logged_in'] = True
    session['username'] = username

    flash('You are now logged in ','success')
    return redirect(url_for('dashboard'))
else:
    error = 'Username not found'
    return render_template('login.html',error=error)
    #close connection
cur.close()

else:
    error = 'Username not found'
    return render_template('login.html',error=error)

return render_template('login.html')

#check if user logged in

def is_logged_in(f):
    @wraps(f)
    def wrap(*args,**kwargs):
        if 'logged_in' in session:
            return f(*args, **kwargs)
        else:
            flash('Unauthorized, please login','danger')
            return redirect(url_for('login'))
    return wrap

#logout
@app.route('/logout')
@is_logged_in
def logout():

```

```

    session.clear()
    flash('you are now logged out ','success')
    return redirect(url_for('login'))

# Dashboard
@app.route('/dashboard')
@is_logged_in
def dashboard():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")

    articles = cur.fetchall()

    if result > 0:
        return render_template('dashboard.html',articles=articles)
    else:
        msg = 'No Articles Found'
        return render_template('dashboard.html',msg=msg)
    #close connection
    cur.close()

```

#Article form class

```

class ArticleForm(Form):
    title = StringField('Title',[validators.Length(min=1,max=50)])
    body = TextAreaField('Body',[validators.Length(min=30,max=1000)])

```

#Add Article

```

@app.route('/add_article', methods=['GET','POST'])
@is_logged_in
def add_article():
    form = ArticleForm(request.form)
    if request.method == 'POST' and form.validate():
        title = form.title.data
        body = form.body.data

```

```

# Create a cursor

cur = mysql.connection.cursor()

#execute

    cur.execute("INSERT INTO articles(title,body,author) VALUES(%s, %s, %s)",(title,
body, session['username']))

#commit to db

mysql.connection.commit()

#close connection
cur.close()

flash('Article created ','success')

return redirect(url_for('dashboard'))

return render_template('add_article.html',form=form)

#Edit Article

@app.route('/edit_article/<string:id>', methods=['GET','POST'])
@is_logged_in
def edit_article(id):
    # Create cursor
    cur = mysql.connection.cursor()
    #get article by id
    result = cur.execute("SELECT * FROM articles WHERE id = %s", [id])

    article = cur.fetchone()

    #get form
    form = ArticleForm(request.form)

    #populate article form fields

```

```

form.title.data = article['title']
form.body. data = article['body']

if request.method == 'POST' and form.validate():
    title = request.form['title']
    body = request.form['body']

    # Create a cursor

    cur = mysql.connection.cursor()

    #execute

    cur.execute("UPDATE articles SET title=%s, body=%s WHERE id = %s" ,
    (title,body,id))

    #commit to db

    mysql.connection.commit()

    #close connection
    cur.close()

    flash('Article Updated ','success')

    return redirect(url_for('dashboard'))

    return render_template('edit_article.html',form=form)

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

Now save the app.py file and refresh the browser and edit the articles and make some changes and click submit now we can see that we can edit the content of the article and we can make the changes that reflect in the database as shown

The screenshot shows a web browser window titled "Vasanth Flask App" with the URL "localhost:5000/dashboard". The page header includes "Welcome to my Flask Application", "Home", "About", "Articles", "Dashboard", and "Logout". A green banner at the top says "Article Updated >". Below it, the word "Dashboard" is followed by the email "Welcome vasanth@vasanth". A green button labeled "Add Articles" is visible. A table lists three articles with columns: ID, Title, Author, and Date. Each article has "Edit" and "Delete" buttons.

ID	Title	Author	Date	
1	Article twwwww	vasanth@vasanth	2018-09-15 11:39:03	<button>Edit</button> <button>Delete</button>
2	context 2	vasanth@vasanth	2018-09-15 11:43:07	<button>Edit</button> <button>Delete</button>
3	welcome to my blog	vasanth@vasanth	2018-09-17 10:10:53	<button>Edit</button> <button>Delete</button>

Now we want to create the functionality for the delete button now go to app.py and make the following changes in the file :

App.py

```
from flask import Flask,render_template, flash, redirect , url_for , session ,request, logging
from flask_mysqldb import MySQL
from wtforms import Form, StringField , TextAreaField ,PasswordField , validators
from passlib.hash import sha256_crypt
from functools import wraps
```

```
app = Flask(__name__)
app.debug = True

#Config MySQL
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'root'
app.config['MYSQL_DB'] = 'myflaskapp'
```

```

app.config['MYSQL_CURSORCLASS'] = 'DictCursor'
#init MySQL
mysql = MySQL(app)

#Articles = Articles()

@app.route('/')
def index():
    return render_template('home.html')

@app.route('/about')
def about():
    return render_template('about.html')

@app.route('/articles')
def articles():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")

    articles = cur.fetchall()

    if result > 0:
        return render_template('articles.html',articles=articles)
    else:
        msg = 'No Articles Found'
        return render_template('articles.html',msg=msg)
    #close connection
    cur.close()

@app.route('/article/<string:id>/')
def article(id):
    #create cursor

```

```

cur = mysql.connection.cursor()

#get article
result = cur.execute("SELECT * FROM articles WHERE id = %s",[id])

article = cur.fetchone()

return render_template('article.html',article=article)

class RegisterForm(Form):
    name = StringField('Name',[validators.Length(min=1,max=50)])
    username = StringField('Username',[validators.Length(min=4,max=25)])
    email = StringField('Email',[validators.Length(min=4,max=25)])
    password = PasswordField('Password', [ validators.DataRequired
() ,validators.EqualTo('confirm',message ='passwords do not match')])
    confirm = PasswordField('Confirm password')

@app.route('/register', methods=['GET','POST'])
def register():
    form = RegisterForm(request.form)
    if request.method == 'POST' and form.validate():
        name = form.name.data
        email = form.email.data
        username = form.username.data
        password = sha256_crypt.encrypt(str(form.password.data))

        # Create cursor
        cur = mysql.connection.cursor()

        cur.execute("INSERT INTO users(name,email,username,password)
VALUES(%s,%s,%s,%s)",(name,email,username,password))

        # commit to DB
        mysql.connection.commit()
        #close connection
        cur.close()

        flash("You are now Registered and you can login" , 'success')

```

```

    redirect(url_for('login'))
    return render_template('register.html',form=form)

# user login
@app.route('/login',methods=['GET','POST'])
def login():
    if request.method == 'POST':
        #Get Form Fields
        username = request.form['username']
        password_candidate = request.form['password']

        # Create cursor

        cur = mysql.connection.cursor()

        #Get user by username

        result = cur.execute("SELECT * FROM users WHERE username = %s" ,[username])

        if result > 0:
            # Get Stored hash
            data = cur.fetchone()
            password = data['password']

            # Compare Passwords
            if sha256_crypt.verify(password_candidate,password):
                #Passed
                session['logged_in'] = True
                session['username'] = username

                flash('You are now logged in ','success')
                return redirect(url_for('dashboard'))
            else:
                error = 'Username not found'
                return render_template('login.html',error=error)
                #close connection
        cur.close()

    else:

```

```

        error = 'Username not found'
        return render_template('login.html',error=error)

    return render_template('login.html')

#check if user logged in

def is_logged_in(f):
    @wraps(f)
    def wrap(*args,**kwargs):
        if 'logged_in' in session:
            return f(*args, **kwargs)
        else:
            flash('Unauthorized, please login','danger')
            return redirect(url_for('login'))
    return wrap

```

```

#logout
@app.route('/logout')
@is_logged_in
def logout():
    session.clear()
    flash('you are now logged out ','success')
    return redirect(url_for('login'))

# Dashboard
@app.route('/dashboard')
@is_logged_in
def dashboard():

    #create cursor
    cur = mysql.connection.cursor()

    #get articles
    result = cur.execute("SELECT * FROM articles")

    articles = cur.fetchall()

```

```

if result > 0:
    return render_template('dashboard.html',articles=articles)
else:
    msg = 'No Articles Found'
    return render_template('dashboard.html',msg=msg)
#close connection
cur.close()

#Article form class

class ArticleForm(Form):
    title = StringField('Title',[validators.Length(min=1,max=50)])
    body = TextAreaField('Body',[validators.Length(min=30,max=1000)])

#Add Article

@app.route('/add_article', methods=['GET','POST'])
@is_logged_in
def add_article():
    form = ArticleForm(request.form)
    if request.method == 'POST' and form.validate():
        title = form.title.data
        body = form.body.data

    # Create a cursor

    cur = mysql.connection.cursor()

    #execute

    cur.execute("INSERT INTO articles(title,body,author) VALUES(%s, %s, %s)",(title,
body, session['username']))

    #commit to db

    mysql.connection.commit()

    #close connection
    cur.close()

```

```

flash('Article created ','success')

return redirect(url_for('dashboard'))

return render_template('add_article.html',form=form)

#Edit Article

@app.route('/edit_article/<string:id>', methods=['GET','POST'])
@is_logged_in
def edit_article(id):
    # Create cursor
    cur = mysql.connection.cursor()
    #get article by id
    result = cur.execute("SELECT * FROM articles WHERE id = %s", [id])

    article = cur.fetchone()

    #get form
    form = ArticleForm(request.form)

    #populate article form fields
    form.title.data = article['title']
    form.body. data = article['body']

    if request.method == 'POST' and form.validate():
        title = request.form['title']
        body = request.form['body']

        # Create a cursor

        cur = mysql.connection.cursor()

        #execute

        cur.execute("UPDATE articles SET title=%s, body=%s WHERE id = %s" ,
        (title,body,id))

```

```

#commit to db

mysql.connection.commit()

#close connection
cur.close()

flash('Article Updated ','success')

return redirect(url_for('dashboard'))

return render_template('edit_article.html',form=form)

#Delete article
@app.route('/delete_article/<string:id>', methods=['POST'])
@is_logged_in
def delete_article(id):
    # Create cursor
    cur = mysql.connection.cursor()

    #Execute
    cur.execute("DELETE FROM articles WHERE id = %s",[id])

    #Commit to DB

    mysql.connection.commit()
    #close connection

    cur.close()

    flash('Article Deleted ','success')

    return redirect(url_for('dashboard'))

if __name__ == '__main__':
    app.secret_key='secret123'
    app.run()

```

Now go to dashboard.html and make the following changes :

Dashboard.html :

```
{% extends 'layout.html' %}

{% block body %}
<h1>Dashboard<small>Welcome {{session.username}}</small></h1>
<a class="btn btn-success" href="/add_article">Add Articles</a>
<hr>
<table class="table table-striped">
    <tr>
        <th>ID</th>
        <th>Title</th>
        <th>Author</th>
        <th>Date</th>
        <th></th>
        <th></th>
    </tr>
    {% for article in articles %}
    <tr>
        <td>{{article.id}}</td>
        <td>{{article.title}}</td>
        <td>{{article.author}}</td>
        <td>{{article.create_date}}</td>
        <td><a href="/edit_article/{{article.id}}" class="btn btn-default pullright">Edit</a></td>
        <td>
            <form action="{{url_for('delete_article', id=article.id)}}" method="post">
                <input type="hidden" name="_method" value="DELETE">
                <input type="submit" value="Delete" class="btn btn-danger">
            </form>
        </td>
    </tr>
    {% endfor %}
</table>
{% endblock %}
```

And now save the file and execute the app.py file server now you can delete the post that already present in the database ,thus we can add and delete the post in the articles .

The screenshot shows a web application interface. At the top, there is a header bar with the text "Welcome to my Flask Application" and navigation links for "Home", "About", and "Articles". Below the header, a green banner displays the message "Article Deleted >". The main content area is titled "Dashboard" and includes a welcome message "Welcome vasanth@vasanth". There is a green button labeled "Add Articles". Below these elements is a table with three columns: "ID", "Title", "Author", and "Date". The table contains two rows of data:

ID	Title	Author	Date
2	context 2	vasanth@vasanth	2018-09-15 11:4
3	welcome to my blog	vasanth@vasanth	2018-09-17 10:1

Thus we have successfully created a web application using the python and flask .

If you need the source code for this mail me , will send you the entire source code for this :
Mail id :

vasanth.n@kgisl.com
nvasanthnagarajan@gmail.com

If you found any errors in this book,please free to inform me so that i can make those changes .

Thankyou

Vasanth Nagarajan

*Thank
you!*

