Django

Use of Django

• Django framework is used to develop Dynamic websites with python.

- A web Framework is a software tool that provides a way to build and run dynamic websites and web enabled applications.
- Some other web framework are- ZEND, Flask, Ruby, Perl etc. •

Web Framework

- It provides four things-

- – URL Mapping –
- Database Manipulation –
- Templating –
- Security Measures •

Features of Django

- Django is pronounces as ‘Jango’, ‘D’ remains silent.

• This is a high level Python web framework which speeds up development of a website.

• This is a free and open source web application framework.

• For web development, it provides exiting components.

• It prevents repetition of work.

• The most amazing idea of this is reusability.

• Django is a trademark of Django Software Foundation.

Advantages of Django

- Object Relational Mapping (ORM) Support
- Supports No-SQL Database.
- Support to various languages.
- Support of Framework.
- Administration GUI
- Development Environment
- Loosely Coupled
- Less Coding
- Don’t Repeat Yourself (DRY)
- Scalable
- Secured

How a Website works?

• As we know that a website works **on client-server architecture.**

• Your browser acts as a client program , and the web server with which it interacts is the server. HTTP Get Request: Whenever the web client has to display a webpage, it makes a GET request and sends the URL of the webpage. The server responds by sending the HTML of the URL, if available. If no such URL exists, it returns an error (404).

- An HTTP GET request refers to a way of retrieving information from a web server using a given URL over web.

How a Website works?

HTTP POST Request:

Whenever a web client has to send some data, this data will be sent to the web server for storing in a database through a POST request. The HTTP response to a POST request is also either an error code, if not executed successfully.

How Django works?

1. It supports MVT or MTV architecture (Model Template View)

2. Request/Response System: Django has the software components which facilitates receiving and responding of web requests.

3. Web Request enters in django applications via URLs.

4. Request are processed by views.

5. And then web response returns.

Django-Projects and APPs

1. Two words are frequently used in Django-Project and app

- A project refers to an entire application.

- An app is a sub module catering to one part of the project.

- For ex- if you want to develop a project on school then its submodule or app may be-

– Student

– Teachers

– Exam

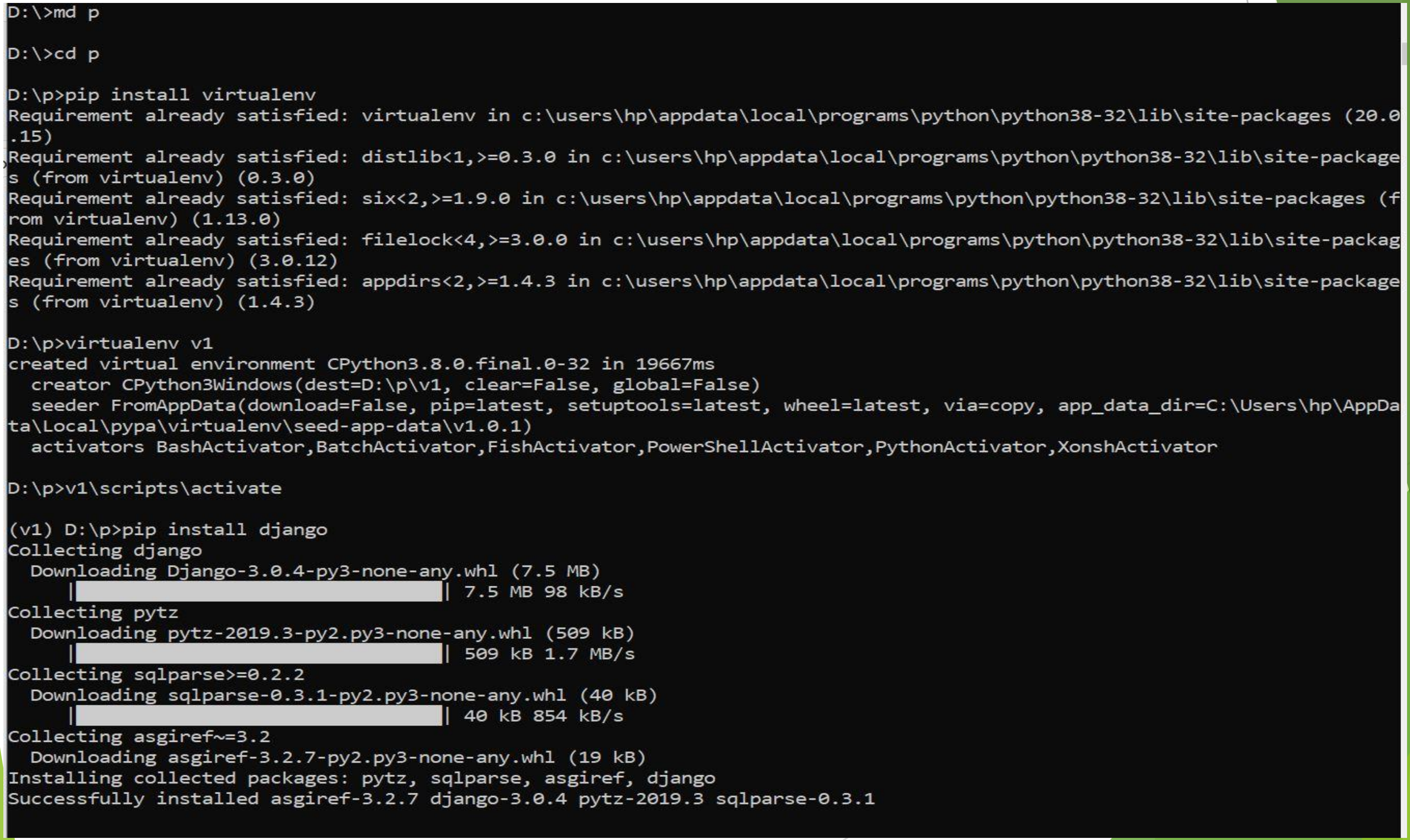
– Fee etc

Installation of Django

1. Run the following command on DOS prompt to install Django -

Before starting, create a folder at the location of your choice to store all Django projects.

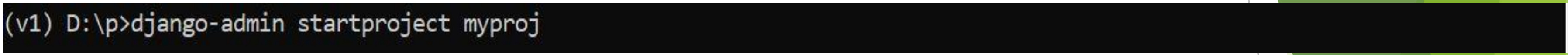
*Internet is needed while installing Django.



```
D:\>md p

D:\>cd p

D:\p>pip install virtualenv
Requirement already satisfied: virtualenv in c:\users\hp\appdata\local\programs\python\python38-32\lib\site-packages (20.0
.15)
Requirement already satisfied: distlib<1,>=0.3.0 in c:\users\hp\appdata\local\programs\python\python38-32\lib\site-package
s (from virtualenv) (0.3.0)
Requirement already satisfied: six<2,>=1.9.0 in c:\users\hp\appdata\local\programs\python\python38-32\lib\site-packages (f
rom virtualenv) (1.13.0)
Requirement already satisfied: filelock<4,>=3.0.0 in c:\users\hp\appdata\local\programs\python\python38-32\lib\site-packag
es (from virtualenv) (3.0.12)
Requirement already satisfied: appdirs<2,>=1.4.3 in c:\users\hp\appdata\local\programs\python\python38-32\lib\site-package
s (from virtualenv) (1.4.3)

D:\p>virtualenv v1
created virtual environment CPython3.8.0.final.0-32 in 19667ms
  creator CPython3Windows(dest=D:\p\v1, clear=False, global=False)
  seeder FromAppData(download=False, pip=latest, setuptools=latest, wheel=latest, via=copy, app_data_dir=C:\Users\hp\AppDa
ta\Local\pypa\virtualenv\seed-app-data\v1.0.1)
  activators BashActivator,BatchActivator,FishActivator,PowerShellActivator,PythonActivator,XonshActivator

D:\p>v1\scripts\activate

(v1) D:\p>pip install django
Collecting django
  Downloading Django-3.0.4-py3-none-any.whl (7.5 MB)
     |████████████████████████████████| 7.5 MB 98 kB/s
Collecting pytz
  Downloading pytz-2019.3-py2.py3-none-any.whl (509 kB)
     |████████████████████████████████| 509 kB 1.7 MB/s
Collecting sqlparse>=0.2.2
  Downloading sqlparse-0.3.1-py2.py3-none-any.whl (40 kB)
     |████████████████████████████████| 40 kB 854 kB/s
Collecting asgiref~=3.2
  Downloading asgiref-3.2.7-py2.py3-none-any.whl (19 kB)
Installing collected packages: pytz, sqlparse, asgiref, django
Successfully installed asgiref-3.2.7 django-3.0.4 pytz-2019.3 sqlparse-0.3.1
```

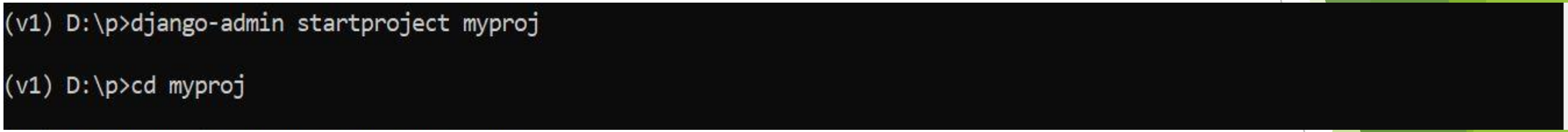
Django-Projects and APPs

- After this, use the command to create the project in Django



```
(v1) D:\p>django-admin startproject myproj
```

Now enter in folder using DOS command.

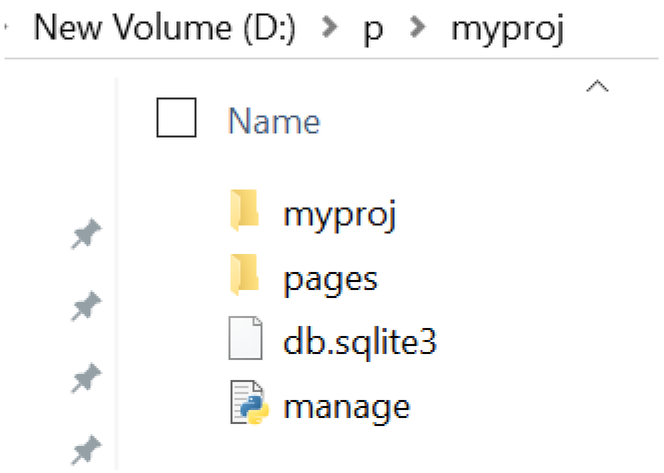


```
(v1) D:\p>django-admin startproject myproj

(v1) D:\p>cd myproj
```

Django-Projects and APPs

A folder named myproj will be created inside p which will have following components-

Now you can see an outer folder myproj containing a file following components.



New Volume (D:) › p › myproj

□ Name

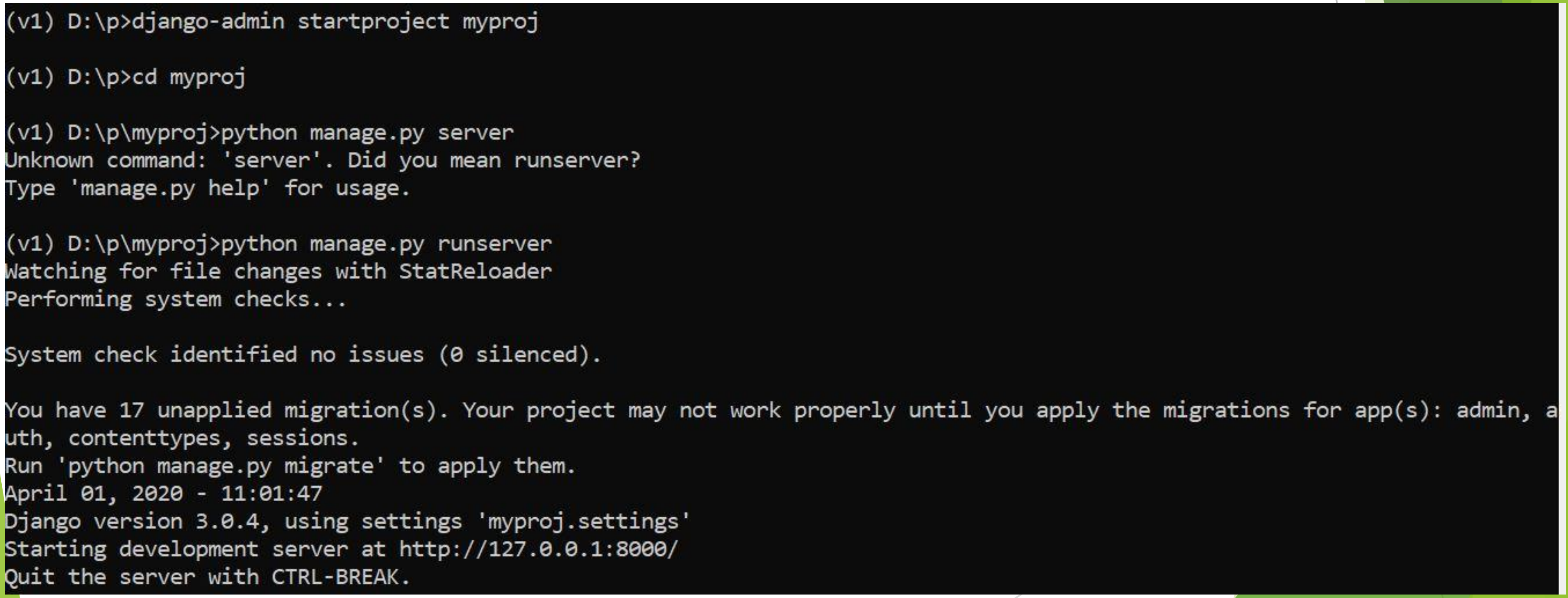
myproj
pages
db.sqlite3
manage

Running Django Server

- Now we will check whether Django server is working properly or not.

For this, following command needs to run after entering project folder –

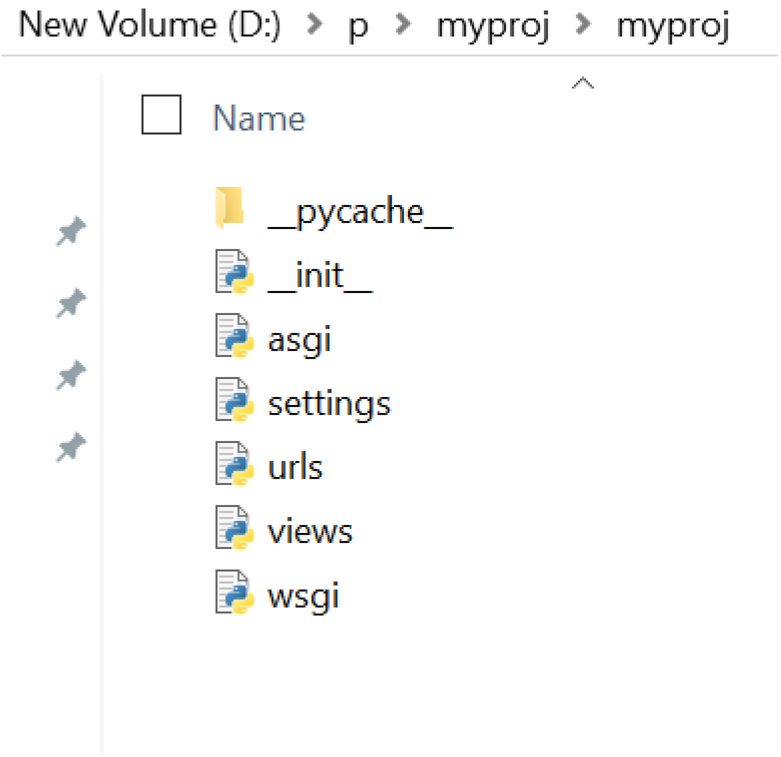
python manage.py runserver



```
(v1) D:\p>django-admin startproject myproj

(v1) D:\p>cd myproj

(v1) D:\p\myproj>python manage.py server
Unknown command: 'server'. Did you mean runserver?
Type 'manage.py help' for usage.

(v1) D:\p\myproj>python manage.py runserver
Watching for file changes with StatReloader
Performing system checks...

System check identified no issues (0 silenced).

You have 17 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin, a
uth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.
April 01, 2020 - 11:01:47
Django version 3.0.4, using settings 'myproj.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
```

Django-Projects and APPs

an inner folder myproj containing a file following components are inside the inner folder-

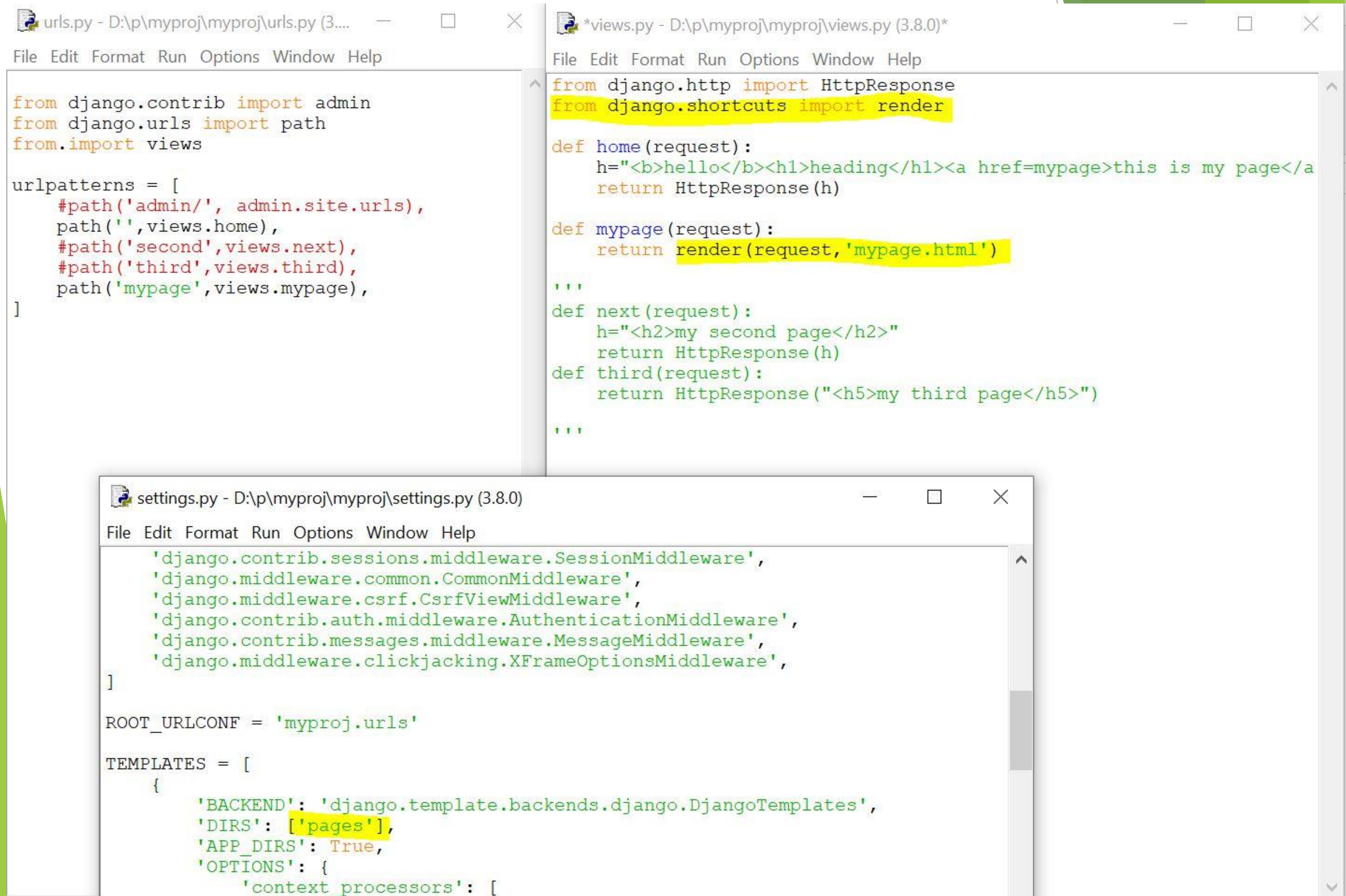


New Volume (D:) › p › myproj › myproj

□ Name

- __pycache__
- __init__
- asgi
- settings
- urls
- views
- wsgi

Calling Separate Pages of HTML

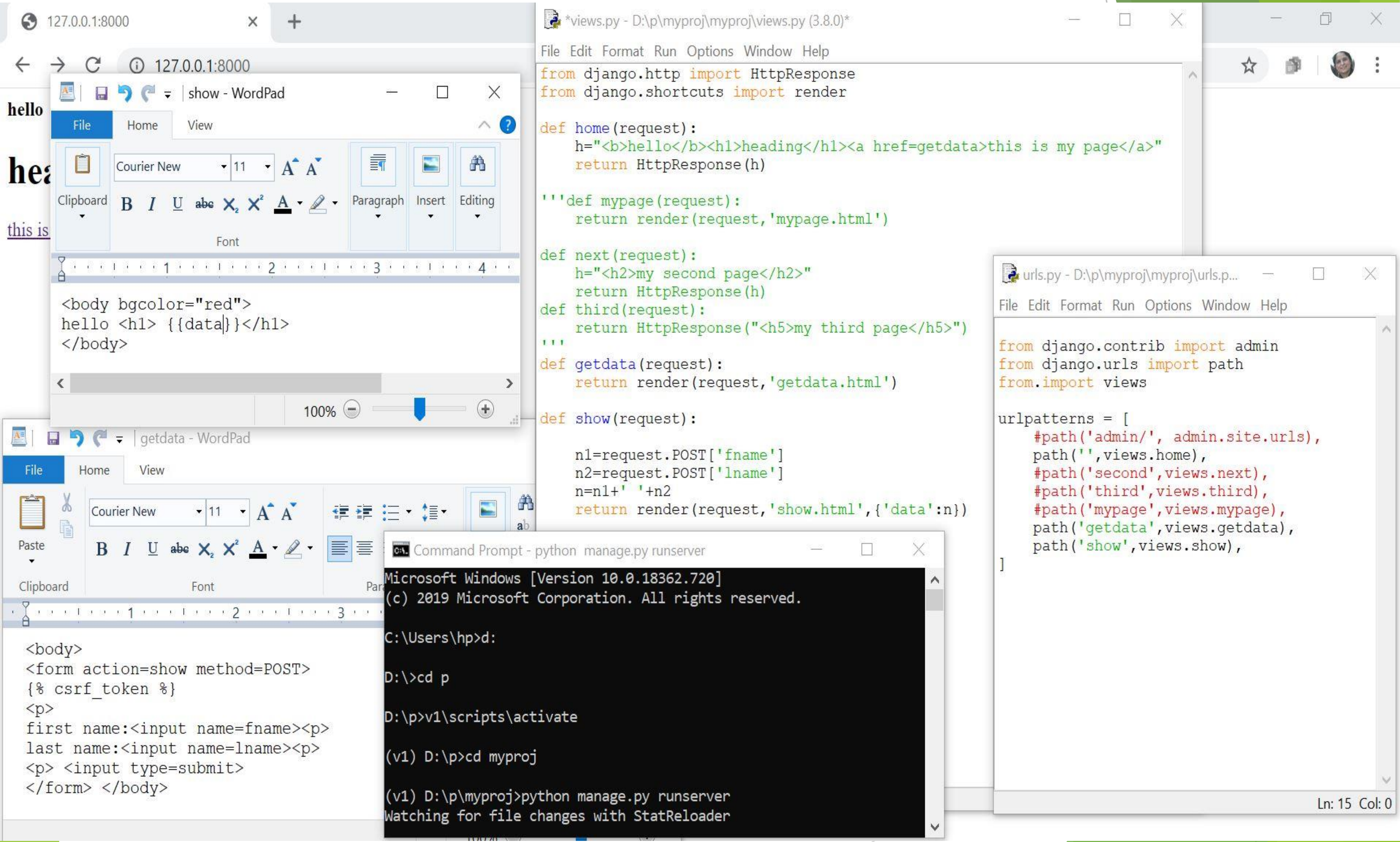

urls.py - D:\p\myproj\myproj\urls.py (3....
File Edit Format Run Options Window Help
views.py - D:\p\myproj\myproj\views.py (3.8.0)
File Edit Format Run Options Window Help
settings.py - D:\p\myproj\myproj\settings.py (3.8.0)
File Edit Format Run Options Window Help

```python
from django.contrib import admin
from django.urls import path
from.import views

urlpatterns = [
    #path('admin/', admin.site.urls),
    path('',views.home),
    #path('second',views.next),
    #path('third',views.third),
    path('mypage',views.mypage),
]
```

```python
from django.http import HttpResponse
from django.shortcuts import render

def home(request):
    h="<b>hello</b><h1>heading</h1><a href=mypage>this is my page</a
    return HttpResponse(h)

def mypage(request):
    return render(request,'mypage.html')

'''
def next(request):
    h="<h2>my second page</h2>"
    return HttpResponse(h)
def third(request):
    return HttpResponse("<h5>my third page</h5>")

'''
```

```python
    'django.contrib.sessions.middleware.SessionMiddleware',
    'django.middleware.common.CommonMiddleware',
    'django.middleware.csrf.CsrfViewMiddleware',
    'django.contrib.auth.middleware.AuthenticationMiddleware',
    'django.contrib.messages.middleware.MessageMiddleware',
    'django.middleware.clickjacking.XFrameOptionsMiddleware',
]

ROOT_URLCONF = 'myproj.urls'

TEMPLATES = [
    {
        'BACKEND': 'django.template.backends.django.DjangoTemplates',
        'DIRS': ['pages'],
        'APP_DIRS': True,
        'OPTIONS': {
            'context_processors': [
```

GET and POST methods in HTML


127.0.0.1:8000
127.0.0.1:8000
hello
hea
this is
show - WordPad
File Home View
Courier New 11
Clipboard Font Paragraph Insert Editing
100%
getdata - WordPad
Paste
views.py - D:\p\myproj\myproj\views.py (3.8.0)
File Edit Format Run Options Window Help
urls.py - D:\p\myproj\myproj\urls.p...
Ln: 15 Col: 0
Command Prompt - python manage.py runserver

```
<body bgcolor="red">
hello <h1> {{data}}</h1>
</body>
```

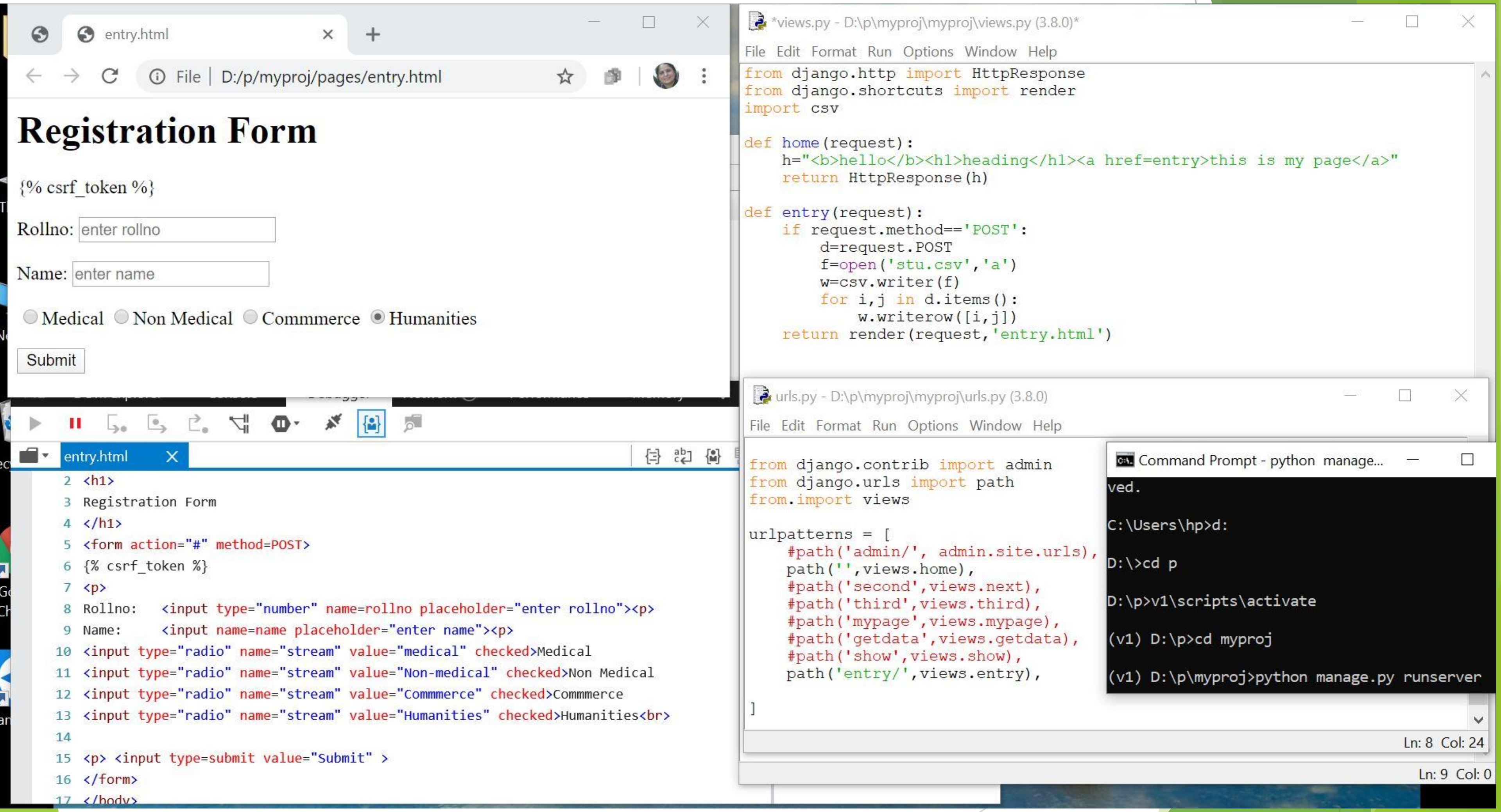
```
<body>
<form action=show method=POST>
{% csrf_token %}
<p>
first name:<input name=fname><p>
last name:<input name=lname><p>
<p> <input type=submit>
</form> </body>
```

```
from django.http import HttpResponse
from django.shortcuts import render

def home(request):
    h="<b>hello</b><h1>heading</h1><a href=getdata>this is my page</a>"
    return HttpResponse(h)

'''def mypage(request):
    return render(request,'mypage.html')

def next(request):
    h="<h2>my second page</h2>"
    return HttpResponse(h)
def third(request):
    return HttpResponse("<h5>my third page</h5>")
'''
def getdata(request):
    return render(request,'getdata.html')

def show(request):

    n1=request.POST['fname']
    n2=request.POST['lname']
    n=n1+' '+n2
    return render(request,'show.html',{'data':n})
```

```
from django.contrib import admin
from django.urls import path
from.import views

urlpatterns = [
    #path('admin/', admin.site.urls),
    path('',views.home),
    #path('second',views.next),
    #path('third',views.third),
    #path('mypage',views.mypage),
    path('getdata',views.getdata),
    path('show',views.show),
]
```

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

C:\Users\hp>d:

D:\>cd p

D:\p>v1\scripts\activate

(v1) D:\p>cd myproj

(v1) D:\p\myproj>python manage.py runserver
Watching for file changes with StatReloader
```

Saving Form Data in CSV file



entry.html
File | D:/p/myproj/pages/entry.html

Registration Form

{% csrf_token %}

Rollno: enter rollno

Name: enter name

○ Medical ○ Non Medical ○ Commmerce ● Humanities

Submit

```
<h1>
Registration Form
</h1>
<form action="#" method=POST>
{% csrf_token %}
<p>
Rollno:    <input type="number" name=rollno placeholder="enter rollno"><p>
Name:      <input name=name placeholder="enter name"><p>
<input type="radio" name="stream" value="medical" checked>Medical
<input type="radio" name="stream" value="Non-medical" checked>Non Medical
<input type="radio" name="stream" value="Commmerce" checked>Commmerce
<input type="radio" name="stream" value="Humanities" checked>Humanities<br>

<p> <input type=submit value="Submit" >
</form>
</body>
```

views.py - D:\p\myproj\myproj\views.py (3.8.0)
File Edit Format Run Options Window Help

```
from django.http import HttpResponse
from django.shortcuts import render
import csv

def home(request):
    h="<b>hello</b><h1>heading</h1><a href=entry>this is my page</a>"
    return HttpResponse(h)

def entry(request):
    if request.method=='POST':
        d=request.POST
        f=open('stu.csv','a')
        w=csv.writer(f)
        for i,j in d.items():
            w.writerow([i,j])
    return render(request,'entry.html')
```

urls.py - D:\p\myproj\myproj\urls.py (3.8.0)
File Edit Format Run Options Window Help

```
from django.contrib import admin
from django.urls import path
from.import views

urlpatterns = [
    #path('admin/', admin.site.urls),
    path('',views.home),
    #path('second',views.next),
    #path('third',views.third),
    #path('mypage',views.mypage),
    #path('getdata',views.getdata),
    #path('show',views.show),
    path('entry/',views.entry),

]
```

```
ved.

C:\Users\hp>d:

D:\>cd p

D:\p>v1\scripts\activate

(v1) D:\p>cd myproj

(v1) D:\p\myproj>python manage.py runserver
```