Python Full Stack

Project 01

S.No	Projects	Programming Languages	Topics Covered
1	Project - 01	HTML	1. Heading tag 2. Paragraph tag 3. Break tag 4. Horizontal tag 5. Center tag
		CSS	1. Inline CSS
		Java Script	1. Inner HTML 2. Get Element By ID
		Python	1. Variable and Values 2. List 3. Tuple 4. Functions
		Django	1. Project Setup 2. Python List and Tuple Values in HTML file

HTML

Project01.html

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Project 011</title>
</head>

<body>
    <center>
        <h1>Welcome Django</h1>
    </center>

    <hr>

    <p>Django is a back-end server side web framework.</p>

    <br>

    <p>Django makes it easier to build web pages using Python.</p>
</body>

</html>
```

HTML + Inline CSS

Project01.html

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Project 012</title>
</head>
```

```
<body>
    <center>
        <h1 style="color: blue; font-family: Algerian;">Welcome Django</h1>
    </center>

    <hr style="border: 1px solid black;width: 500px;">

    <p style="font-size: 18px; color: green;">
        Django is a back-end server side web framework.
    </p>

    <br>

    <p style="font-size: 18px; color: purple;">
        Django makes it easier to build web pages using Python.
    </p>
</body>

</html>
```

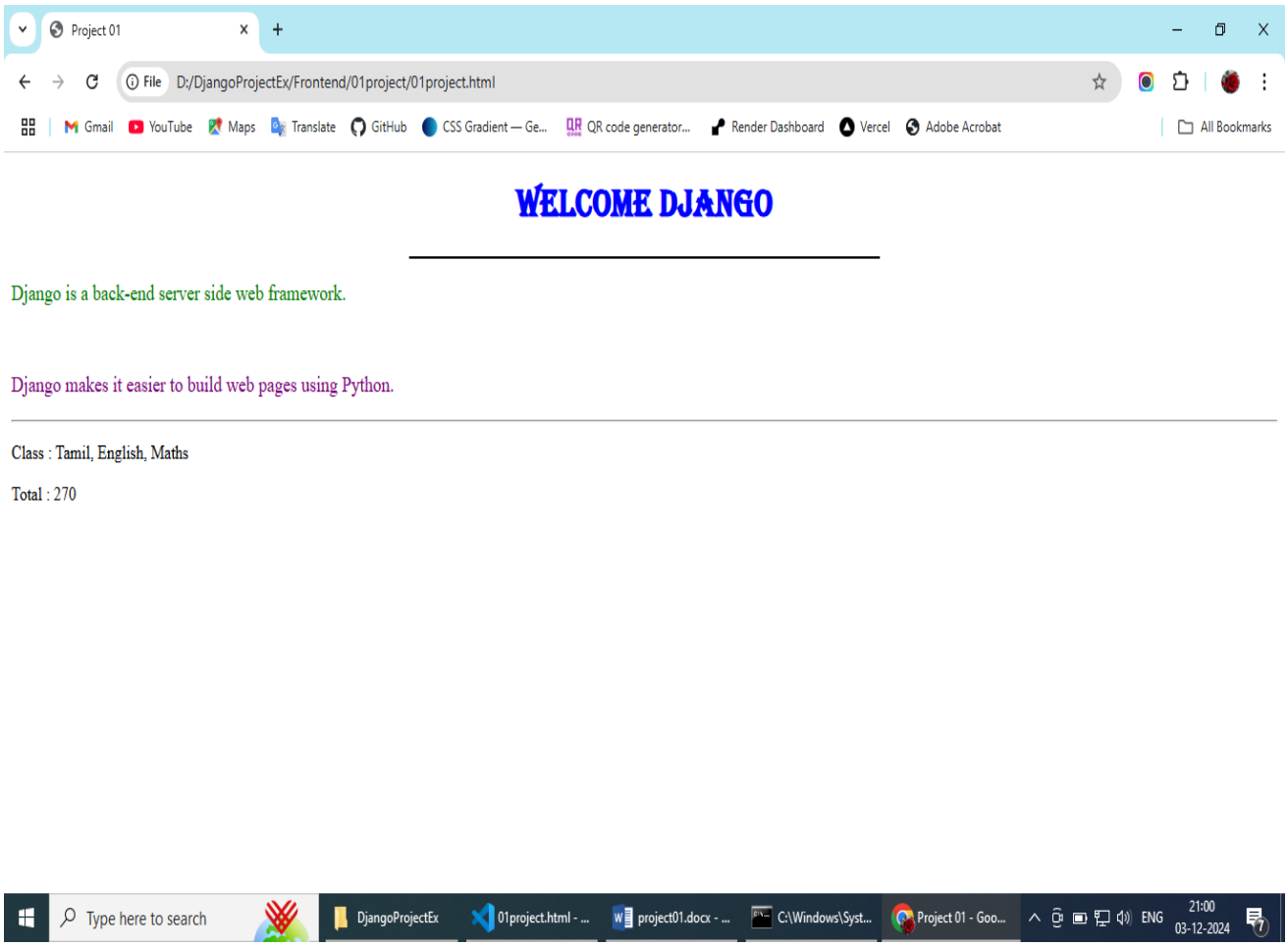
HTML + Inline CSS + Java Script

Project01.html

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Project 03</title>
</head>

<body>
    <center>
        <h1 style="color: blue; font-family: Algerian;">Welcome Django</h1>
    </center>

    <hr style="border: 1px solid black;width: 500px;">

    <p style="font-size: 18px; color: green;">
        Django is a back-end server side web framework.
    </p>
    <br>
```

```
    <p style="font-size: 18px; color: purple;">
        Django makes it easier to build web pages using Python.
    </p>

    <hr>

    <p id="id01"></p>

    <p id="id02"></p>

    <script>
        document.getElementById('id01').innerHTML = 'Class : Tamil, English';

        document.getElementById('id02').innerHTML = 'Total : 170';
    </script>
</body>

</html>
```

Output:



PYTHON

What is Python?

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.

It is used for:

- web development (server-side),
- software development,
- mathematics,
- system scripting.

Why Python?

- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
- Python has a simple syntax similar to the English language.

Example 01: example01.py

```
print('Hello Python')
```

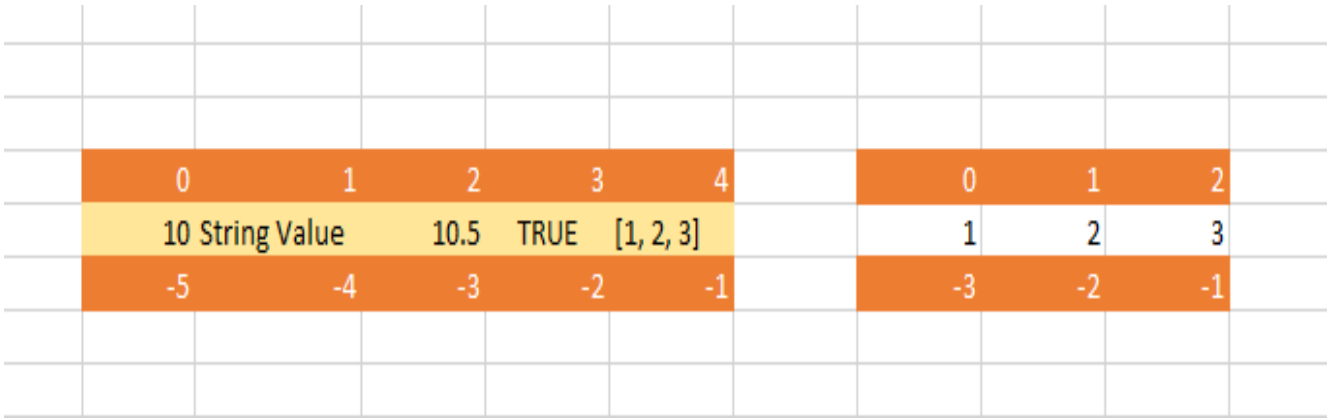
Example 02: example02.py

```
# Datatype & Variable & Values

a = 10

b = 10.5

c = "String Value"

d = True

print(a, type(a))

print(b, type(b))

print(c, type(c))

print(d, type(d))
```

Example 03: example03.py

```
# Python List
'''
------
List :
------

    1. Lists are used to store multiple values in a single variable.

    2. Lists are created using square brackets [ ]
'''

a = [10,20,30,40,50,60]

b = [10,'String Value',10.5,True,[1,2,3]]

print(a, type(a))

print(b, type(b))

print(b[0], type(b[0]))

print(b[1], type(b[1]))

print(b[2], type(b[2]))

print(b[3], type(b[3]))

print(b[4], type(b[4]))

print(b[4][0])
```

Python Index



Example 04: example04.py

```
a = [15,25,35,25,55,65,25,85,95]

print(a)

print('count (25) : ',a.count(25))

print('find the index value (25) : ',a.index(25))

print('Length of the value : ',len(a))

print('minimum value of the variable : ',min(a))

print('maximum value of the variable : ',max(a))

print('sum(a) : ',sum(a))

a.pop(0)

print(a)

a.remove(25)

print(a)
```

Example 05: example05.py

```
a = [1,2.5,True,"Tamil"]

print(a)

a.append("Info")

print(a)

a.insert(0,"insert particula place (index)")

print(a)
```

Example 06: example06.py

```
a = [20,10,30,20,40,50]

print(a)
```

```
a.sort()

print(a)

a.sort(reverse = True)

print(a)
```

Example 07: example07.py

```
# Python Tuple
'''
    1. Tuples are used to store multiple values in a single variable.

    2. A tuple is a collection which is unchangeable.

    3. Tuples are written with round brackets ().
'''
a = (1, 2.5, True, "ram")

print(a,"type of",type(a))
```

Example 08: example08.py

```
a = (1, 2.5, True, "ram")

for i in a:
    print(i)

print('-----------------------------')

if "ram" in a:
    print("yes")

else:
    print("No")
```

Example 09: example09.py

```
'''
------------------
Python Functions :
------------------
    1. A function is a block of code which only runs when it is called.
    2. You can pass data, known as parameters, into a function.
'''
```

```
def welcome():
    print("Welcome to python")

# To call a function, use the function name followed by parenthesis:

welcome()
```

Example 10: example10.py

```
print("1. No return type without argument")
print('----------------------------------\n')

def add():
    a = int(input("Enter the number :"))
    b = int(input("Enter the number :"))
    c = a + b
    print("Total is :",c)

# To call a function, use the function name followed by parenthesis:

add()
```

Example 11: example11.py

```
print("2. No return type with argumaent")
print('--------------------------------\n')

def sub(a,b):
    c = a - b
    print("Difference is :", c)

# To call a function, use the function name followed by parenthesis:

sub(10,8)
```

Example 12: example12.py

```
print("3. Return type without argument")
print('-------------------------------\n')

def mul():
    a = int(input("Enter the number :"))
    b = int(input("Enter the number :"))
    c = a * b
    return c
```

```
# To call a function, use the function name followed by parenthesis:

d = mul()

print("The multiple of two number is :",d)
```

Example 13: example13.py

```
print("**4. Return type with argument**")
print('-------------------------------\n')

def div(a,b):
    d = a / b
    return d

# To call a function, use the function name followed by parenthesis:

e = div(10,2)

print("The division is :",e)
```

DJANGO

What is Django?

Django is a Python framework that makes it easier to create web sites using Python.

Django takes care of the difficult stuff so that you can concentrate on building your web applications.

Django emphasizes reusability of components.

How does Django Work?

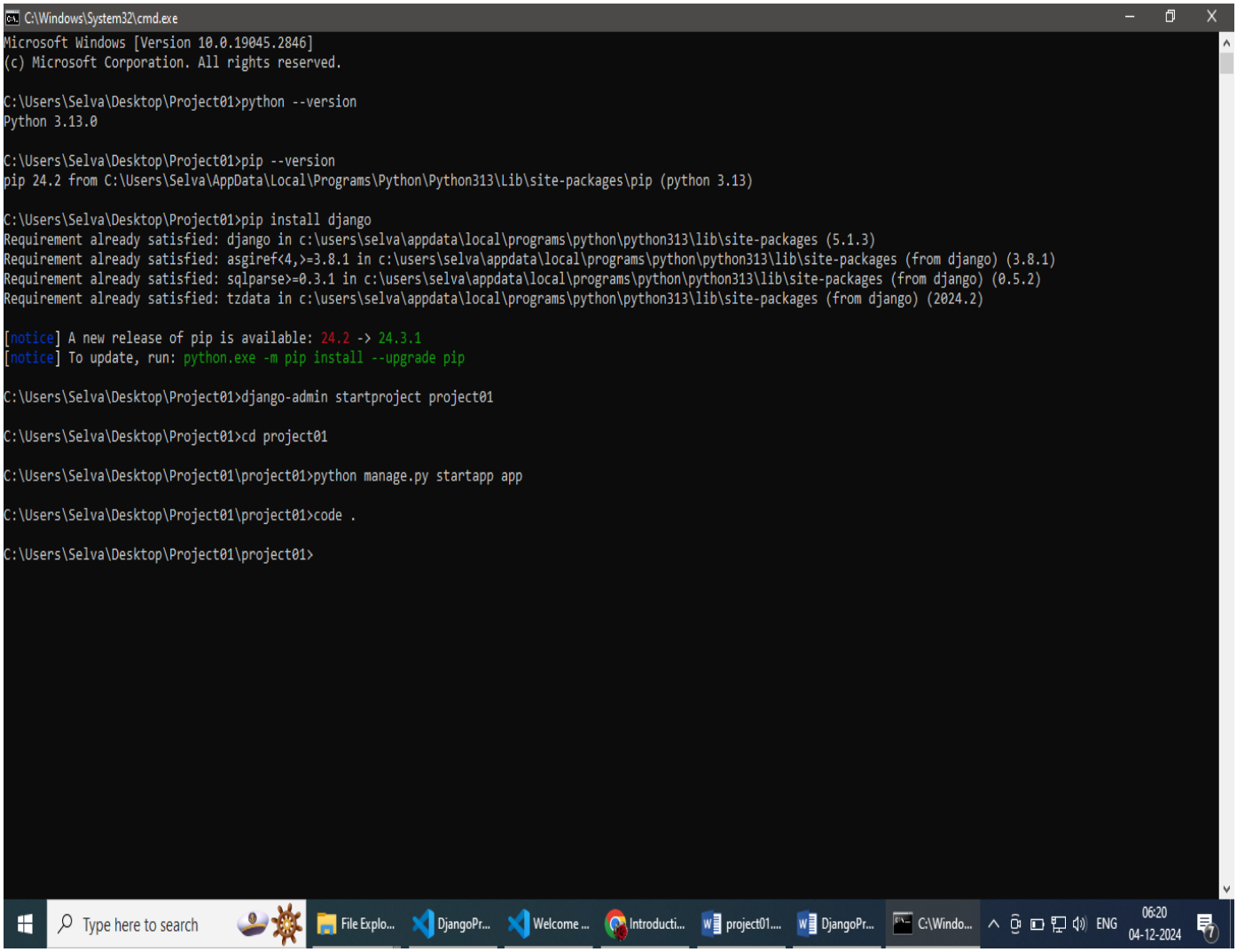
Django follows the MVT design pattern (Model View Template).

- Model - The data you want to present, usually data from a database.
- View - The View is the user interface — what you see in your browser when you render a website. It is represented by HTML/CSS/JavaScript...
- Template - A text file (like an HTML file) containing the layout of the web page, with logic on how to display the data.

Django Project Setup

Open Command Prompt from Project01 Folder and run the following command

1. python --version
2. pip --version
3. pip install django
4. django-admin startproject project01
5. cd project01
6. python manage.py startapp app
7. code .



Now the VS Code editor opened. Then Following the steps

Step 01 - Project01 / project01/ project01/ settings.py

App registration

settings.py :

```
# Application definition

INSTALLED_APPS = [
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
    'app'
]
```

Step 02 - Project01 / project01/ app / templates

Add all html files in templates folder

File 01:

Project01 / project01 / app / templates / index.html

index.html

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Project 03</title>
</head>

<body>
    <center>
        <h1 style="color: blue; font-family: Algerian;">Welcome Django</h1>
    </center>

    <hr style="border: 1px solid black;width: 500px;">

    <p style="font-size: 18px; color: green;">
        Django is a back-end server side web framework.
    </p>
```

```
    <br>

    <p style="font-size: 18px; color: purple;">
        Django makes it easier to build web pages using Python.
    </p>

    <hr>

    <p id="id01"></p>

    <p id="id02"></p>

    <script>
        document.getElementById('id01').innerHTML = 'Class : Tamil, English';

        document.getElementById('id02').innerHTML = 'Total : 170';
    </script>
</body>

</html>
```

Step 03 - Project01 / project01/ app / views.py

```
from django.shortcuts import render

# Create your views here.
def index(request):
    return render(request, 'index.html')
```

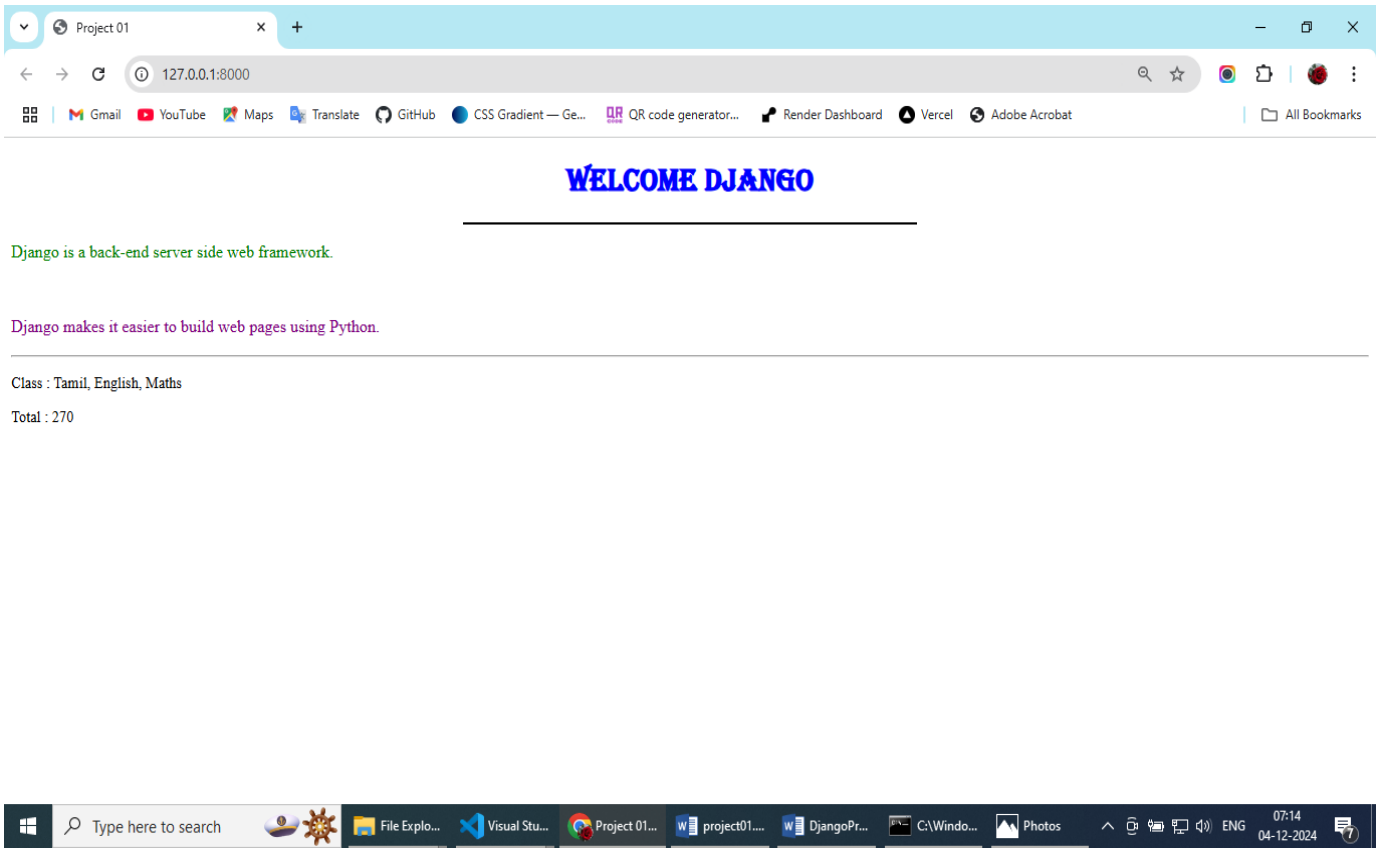
Step 04 - Project01 / project01/ project01/ urls.py

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

from app import views

urlpatterns = [
    path('admin/', admin.site.urls),
    path('',views.index)
]
```

Step 05 – Open Terminal in VS Code Editor and Run the command

python manage.py runserver

Output :



Step 06 - Project01 / project01/ app / views.py

Add List Values in views.py file

```
from django.shortcuts import render

# Create your views here.

def index(request):
    # Define the list of subjects and total
    subjects = ['Tamil', 'English', 'Maths']

    Tamil = 50
    English = 65
    Maths = 75

    total = Tamil + English + Maths

    # Pass the values to the template through context
    return render(request, 'index.html', {'subjects': subjects, 'total': total})
```

Step 07 - Project01 / project01/ app / templates / index.html

Update the index.html file

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Project 03</title>
</head>

<body>
    <center>
        <h1 style="color: blue; font-family: Algerian;">Welcome Django</h1>
    </center>

    <hr style="border: 1px solid black;width: 500px;">

    <p>Class : {{ subjects }}</p>

    <p id="id01"></p>

    <p id="id02"></p>

    <script>
        document.getElementById('id01').innerHTML = 'Class : {{
subjects|join:", " }}';

        document.getElementById('id02').innerHTML = 'Total : {{ total }}';
    </script>
</body>

</html>
```

Step 08 – Open the browser and refresh the page

Output