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TRICHY

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DEPARTMENT OF COMPUTER SCIENCE

PROJECT FILE 2021-2022

Topic: Student Marks Application

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Certificate

This is to certify that Master **Arjun G., Ashwin Balaji S., Aravind Chokalingham M.** of Class **XII** Section **B** Register No: **20666445, 20666446, 20666444** have completed their investigatory project in the subject of **Computer Science** as required according to the Central Board of Secondary Education for the academic session **2021-2022.**

Date:

Teacher in charge

Examiner's Signature

Principal

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I would also like to convey my thanks to our Principal **Mrs. Usha Raghavan** and our school management for providing the necessary materials.

I would like to extend my gratitude to everyone who helped me to complete this project.

Name of the Students: **Arjun G., Ashwin Balaji S., Aravind Chokalingham M.**

Register Nos: **20666445, 20666446, 20666444**

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1. Abstract

We aim to create a web application where teachers can enter the raw marks of the students and that will be stored in a cloud database and accessible by the teacher at any time. Additional information such as Rank, Percentage, Average, Grade, etc. can also be calculated. Teachers can access it whenever needed, wherever needed just with an Internet connection in a laptop or a desktop.

This project aims to provide this useful, elegant-looking web application that could be used by teachers intuitively and simply.

2. Introduction

Here we are going to explain the basic structure of our project i.e., how it works, what it uses to function, what are the components used, etc.

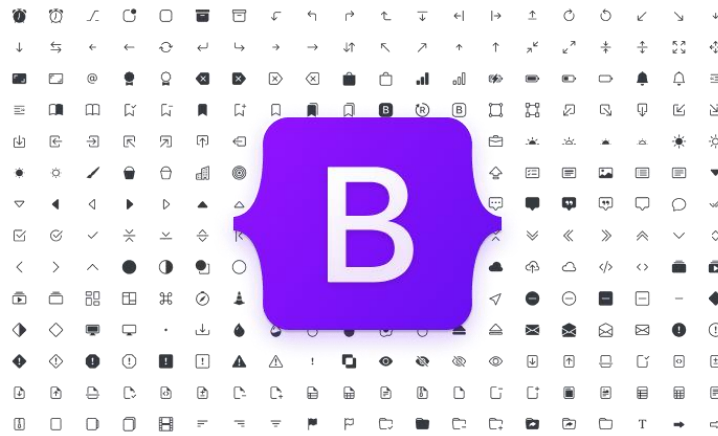
Firstly, a website that you can see on the internet consists of two parts. One is the *frontend* and the other is the *backend*. Frontend refers to the graphical user interface of a website. In this development, we create the view that a user would see when they visit our site. Frontend development is done using:

- a) **HTML** – Hyper Text Markup Language – The backbone, the raw text content of the website
- b) **CSS** – Cascading Style Sheets – The one that makes everything look beautiful
- c) **JavaScript** – The one which makes the site responsive to user interactions



F-1: Frontend development

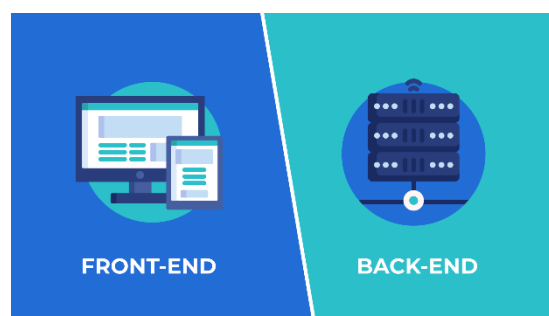
But here is the catch! CSS and JavaScript are whole other languages. Learning them enough to implement in the way we want in our project is an extensive and time-consuming task that would be impractical to do in a tightly scheduled 12th Grade life. It is indeed better to learn them and use them directly since that gives a much higher control over the GUI as well as it provides a ton of creative implementations. But that is not the most optimal and effective path for us. Instead, we found an alternative, highly efficient path to manage our frontend so that we can work more on the backend in Python and MySQL. And that is the use of *Bootstrap*.



F-2: Bootstrap

Bootstrap is a very popular, free and open-source CSS framework. Framework is a tool that provides ready-made components or solutions that are customized in order to speed up development. So, Bootstrap gave us a much easier way to design our frontend without going beyond the scope of our resources. But still, it had a learning curve and took considerable amount of time to develop the web pages that you are going to see in this project. In the end, it was a very efficient and manageable way to create good looking frontend.

Second is the *backend* our website. This is the part of the website that the users will not see. Here is where all the magic happens. The backend is the place where we decide what content to show to the user as well as many more tasks. It communicates with our database server, collects the info from that database and sends only the necessary info to our frontend which the user would see. There are variety of languages and utilities that works together to make the backend function as intended. In our project, we are going to utilize a massively popular backend web framework called as **Django** (pronounced as *jang-goh*).



F-3: Frontend and Backend



F-4: Django

Django is a Python based popular free and open-source web framework. Django enables us to execute all the necessary features that we want in our web application. It is organized very well, and the official documentation and YouTube tutorials provided the necessary help to understand Django's structure and functions. Django also required the use of something called "Jinja" template engine. Template language is the text we use in the source HTML in place of actual data. Instead of fixed values, we place variables or loops using template language in source and let these variables take values according to the backend instructions. For e.g., if an e-commerce website has different product cards, instead of typing each card, one card is written in template language, and it gets the data from backend in for loop and populates the entire page with all the values present in the database.



Now our frontend and backend are taken care of. The next part is database. We are using a remote MySQL database for storing all our student and teacher data. This means that the database is not in our computer but instead it is in a server somewhere on the world connected through Internet. This allows us to access the database from anywhere on the planet if we have Internet connection. As of now, we are using a developmental server for storage. In the future if the project proves to be economically feasible, we will rent our own server instances from one of the cloud providers such as Amazon Web Services, Microsoft Azure, Google Cloud, etc.



F-5: Cloud Services

Now, if we run the Django project that we created in our computer, it will create a website for us, but it will be hosted locally. That means only those who are connected to my computer directly can access that website. No one else could. And therefore, we need to use a web server to store and run our web applications. The very same cloud providers that we saw before also offer services to host web apps. But as expected they do cost some money and we wanted to keep the project free of cost. Thus, we found a free online cloud hosting solution known as **Heroku**. They offer free cloud server for running apps up to *500 Mb* of size. That means, we can host and run our app for free as long as we don't cross the *500 Mb* mark. And sure, we didn't. This means that we have an URL from the Heroku server that can be used anywhere on this world to access our website effortlessly. You only need an Internet connection.



App Name	
<input type="text" value="student-mark-app"/>	
Region	 United States
Stack	heroku-20
Framework	 Python
Slug size	106.6 MiB of 500 MiB

F-6: Heroku

With these said, let us now look at the next section where we have listed all the resources that we used to make this project possible.

3. Resources

The policy that we prefer is to use as much free and open-source software and libraries as possibly can because we want the project to be cost effective. We also want to have a wide community to rely on in case we face issues or bugs related to the software we use.

The following are the resources that we utilized to develop this project:

- I. **Visual Studio Code** – Amazing and Free source code editor
- II. **Python** – Our favourite language
- III. **Django** – Module that made this possible
- IV. **GitHub** – Source code controller

We use GitHub to store all our source code on the internet so that we can access them from different locations. It is also very much convenient and productive to use since it enables us to save progress stepwise and go back to old versions in case anything happens catastrophically.

A. Python Modules

```
asgiref==3.4.1
cycler==0.11.0
dj-database-url==0.5.0
Django==4.0.1
django-heroku==0.3.1
fonttools==4.28.5
gunicorn==20.1.0
install==1.3.5
kiwisolver==1.3.2
matplotlib==3.5.1
mysql-connector==2.2.9
mysqlclient==2.1.0
numpy==1.22.1
packaging==21.3
Pillow==9.0.0
```

```
psycopg2==2.9.3
pyparsing==3.0.7
python-dateutil==2.8.2
python-dotenv==0.19.2
six==1.16.0
sqlparse==0.4.2
tzdata==2021.5
whitenoise==5.3.0
```

Some of these modules are present for making the cloud app work. Some other notable functions performed by them are:

- Django==4.0.1 – Our backend web framework
- mysql-connector==2.2.9 – Connector for our database so that Django can retrieve and send info to it
- Pillow==9.0.0 – It is a Python image processing library
- python-dotenv==0.19.2– Used to store confidential data in .env file and prevent it from being pushed to our GitHub repo.

V. Hardware

We used normal computer hardware that was available with us and in school. No additional hardware was required to develop this project.

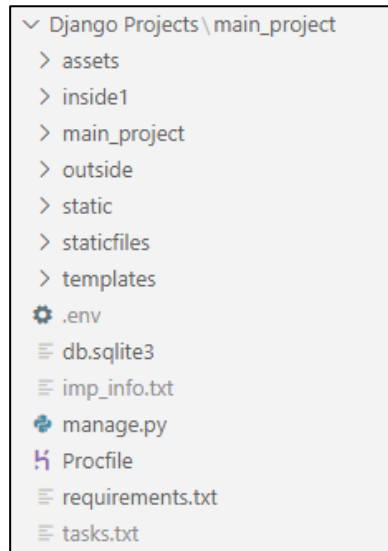
VI. Software Helpers

We used YouTube to learn the basics of Django (Refer *Bibliography*). After that we mostly relied on the official documentation of Django and Google Search for building our project. Open forums such as *Stack Overflow* helped us tremendously to find solutions for our bugs and deployment problems.

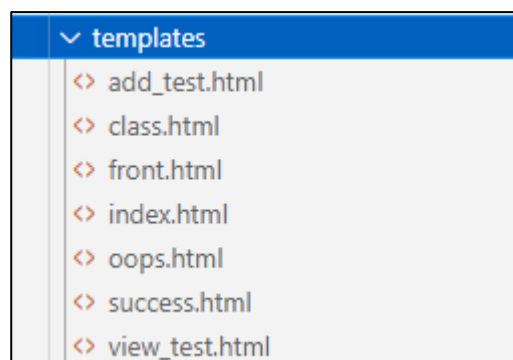
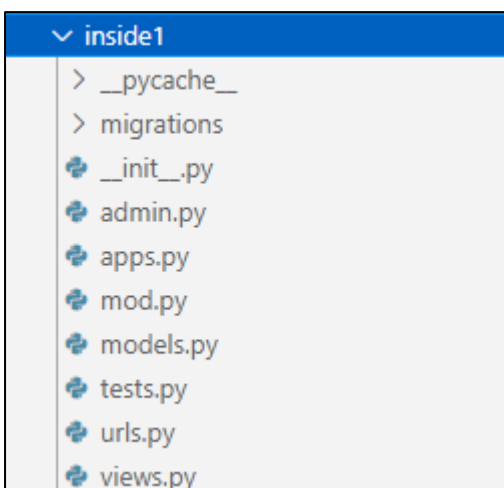
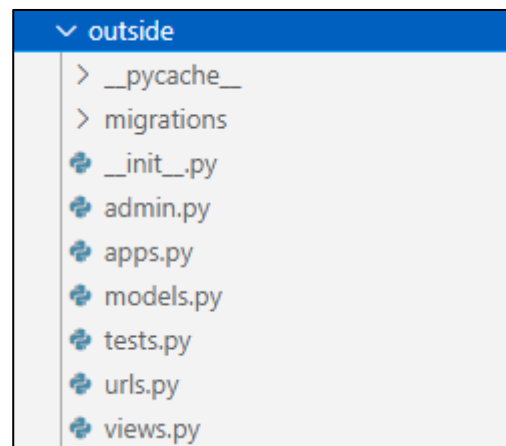
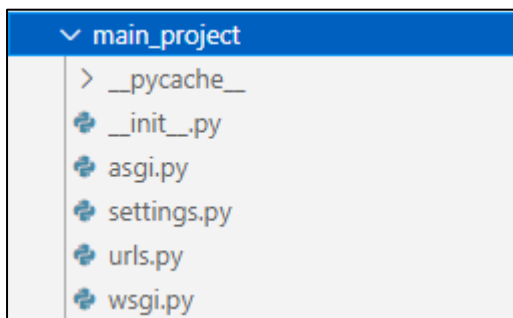
4. Coding

In this section, we showcase all our important pieces of code involved in this project. Some of them have some explanation beneath them for more clarity and understanding.

I. Overall Project Structure



II. Important Sub-Folders in “Django Projects\main_project”



III. manage.py - '\Django Projects\main_project\manage.py'

```
#!/usr/bin/env python
"""Django's command-line utility for administrative tasks."""
import os
import sys

def main():
    """Run administrative tasks."""
    os.environ.setdefault('DJANGO_SETTINGS_MODULE',
'main_project.settings')
    try:

        from django.core.management import
execute_from_command_line
    except ImportError as exc:
        raise ImportError(
            "Couldn't import Django. Are you sure it's
installed and "
            "available on your PYTHONPATH environment
variable? Did you "
            "forget to activate a virtual environment?"
        ) from exc
    execute_from_command_line(sys.argv)

if __name__ == '__main__':
    main()
```

As you can see, using this code only, we would execute all our command line statements to run and manage the server app. Example,

```
(cs_project) D:\CS Project\Code\Django Projects\main_project>python manage.py runserver
Watching for file changes with StatReloader
Performing system checks...

System check identified no issues (0 silenced).
January 24, 2022 - 16:43:58
Django version 4.0.1, using settings 'main_project.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
```

The (*cs_project*) that you see in front of the address in CMD refers to the Python *Virtual Environment* we are in. Virtual Environment in Python is basically a separate place other than the default Python space where we can install our required modules alone. These modules which are installed are only inside our environment, thus the normal default Python user of this computer would not be able to access or import these modules.

IV. settings.py - '`\Django Projects\main_project\main_project\settings.py`'

```
"""
Django settings for main_project project.

For more information on this file, see
https://docs.djangoproject.com/en/4.0/topics/settings/
"""

from pathlib import Path
from dotenv import load_dotenv
import os
import django_heroku

load_dotenv()

# Build paths inside the project like this: BASE_DIR /
# 'subdir'.
BASE_DIR = Path(__file__).resolve().parent.parent
```

```
# Quick-start development settings - unsuitable for
production
# See
https://docs.djangoproject.com/en/4.0/howto/deployment/checklist/

# SECURITY WARNING: keep the secret key used in production
secret!
# POINT 1 IN EXPLANATION
SECRET_KEY = str(os.getenv('SECRET_KEY'))

# SECURITY WARNING: don't run with debug turned on in
production!
DEBUG = True

ALLOWED_HOSTS = ['student-mark-app.herokuapp.com',
'localhost', '127.0.0.1']

# Application definition

INSTALLED_APPS = [
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
    'inside1.apps.Inside1Config'
]

MIDDLEWARE = [
```

```

'django.middleware.security.SecurityMiddleware',
'django.contrib.sessions.middleware.SessionMiddleware'
,
'django.middleware.common.CommonMiddleware',
'django.middleware.csrf.CsrfViewMiddleware',
'django.contrib.auth.middleware.AuthenticationMiddlewa
re',
'django.contrib.messages.middleware.MessageMiddleware'
,
'django.middleware.clickjacking.XFrameOptionsMiddlewar
e',
]

ROOT_URLCONF = 'main_project.urls'

TEMPLATES = [
    {
        'BACKEND':
'django.template.backends.django.DjangoTemplates',
        'DIRS': [os.path.join(BASE_DIR, 'templates')],
        'APP_DIRS': True,
        'OPTIONS': {
            'context_processors': [
                'django.template.context_processors.debug'
,
                'django.template.context_processors.reques
t',
                'django.contrib.auth.context_processors.au
th',
                'django.contrib.messages.context_processor
s.messages',
            ],
        },
    },
],

```



```

]

WSGI_APPLICATION = 'main_project.wsgi.application'

# Database
#
https://docs.djangoproject.com/en/4.0/ref/settings/#databases
# POINT 2 IN EXPLANATION

DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.mysql',
        'NAME': 'sepl3iQWc0',
        'USER': 'sepl3iQWc0',
        'PASSWORD': 'WwVwAgjSgd',
        'HOST': 'remotemysql.com',
        'PORT': '3306'
    }
}

# Password validation
#
https://docs.djangoproject.com/en/4.0/ref/settings/#auth-password-validators

AUTH_PASSWORD_VALIDATORS = [
    {
        'NAME':
        'django.contrib.auth.password_validation.UserAttributeSimilarityValidator',
    },

```

```

    {
        'NAME':
'django.contrib.auth.password_validation.MinimumLengthVali
dator',
    },
    {
        'NAME':
'django.contrib.auth.password_validation.CommonPasswordVal
idator',
    },
    {
        'NAME':
'django.contrib.auth.password_validation.NumericPasswordVa
lidator',
    },
]

```

Internationalization

<https://docs.djangoproject.com/en/4.0/topics/i18n/>

LANGUAGE_CODE = 'en-us'

TIME_ZONE = 'UTC'

USE_I18N = True

USE_TZ = True

Static files (CSS, JavaScript, Images)

<https://docs.djangoproject.com/en/4.0/howto/static-files/>

```

STATIC_URL = 'static/'
STATICFILES_DIRS = [os.path.join(BASE_DIR, 'static')]
STATIC_ROOT = os.path.join(BASE_DIR, 'assets')

# Default primary key field type
#
https://docs.djangoproject.com/en/4.0/ref/settings/#default-auto-field

DEFAULT_AUTO_FIELD = 'django.db.models.BigAutoField'

# Activate Django-Heroku.
django_heroku.settings(locals())

```

Refer the code near the comment **# POINT 1 IN EXPLANATION**

Here the secret key is obtained from the .env file present in our main_project folder. Since .env file is mentioned in .gitignore, it would not be pushed to our repository.

Refer the code near the comment **# POINT 2 IN EXPLANATION**

This is our details of the remote database that we are using for free for developmental purposes only and not for actual use when the application goes into production.

V. `urls.py` - `'\Django Projects\main_project\main_project\urls.py'`

```

"""main_project URL Configuration

```

```

The `urlpatterns` list routes URLs to views. For more
information please see:

```

```

    https://docs.djangoproject.com/en/4.0/topics/http/urls/
/
"""

```

```

from django.contrib import admin

```

```
from django.urls import path, include

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', include('outside.urls')),
    path('app1/', include('inside1.urls'))
]
```

In this page, we declare the main URL references for our entire web application. The first path 'admin/' is default and provides the URL for the admin page. The home directory or '/' URL is handled by 'outside' app i.e. 'outside.urls'. Similarly, all address starting with 'app1/' is taken care by 'inside1' app. All the further sub-addresses can be found in the respective app's urls.py code.

VI. urls.py - '`\Django Projects\main_project\outside\urls.py`'

Now, we are going to see some important files of the 'outside' app. An app in Django project refers to a group of python programs, that enables some specific functionalities. Here, the app 'outside' is used by us to show the user the front-login page and handle their login requests. We also have planned to add two sections (pages) in the future, one for 'News and Updates' and another for 'About Us'.

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

urlpatterns = [
    path('', views.home, name='Home'),
    path('login', views.login, name='Login')
]
```

Previously we saw that the 'outside' app was linked to '' URL. The sub-addresses from that point onwards are given in this code. This '' or '/' will call *home* function of views.py and '/login' will call the *login* function of views.py.

VII. views.py - '`\Django Projects\main_project\outside\views.py`'

```
from django.shortcuts import render, redirect
from django.contrib import messages
from django.contrib.auth.models import User, auth

def home(request):
    if request.user.is_authenticated:
        return redirect('app1/front')
    else:
        return render(request, 'index.html')

def login(request):
    if request.method == 'POST':
        uname = request.POST['username']
        pswd = request.POST['pswd']

        user = auth.authenticate(username=uname,
password=pswd)

        if user != None:
            auth.login(request, user)
            return redirect('app1/front')
        else:
            messages.info(request, 'Wrong Password or
Username!!')
            return redirect('/')
    else:
        return render(request, 'index.html')
```

In the first function (*home*), we can see that it is redirecting the user to ‘app1/front’ if the user is found to be authenticated. ‘app1/front’ is the front page of the main teacher UI. That is where the teachers can see all their classrooms and

start adding or viewing marks. So, in case the teacher is already logged in, i.e., authenticated, then we can directly go to the front page instead of logging in once again from the home page. (Also, once you login, the login details are stored as cookies thus you can go to front page in a device many times without logging in again) If you haven't logged in, the function renders i.e., shows you the home page's HTML which is 'index.html'.

Note: All the HTML files are stored in templates folder. Render method has access to the templates folder in order to fetch the file.

The next function *login* first checks if the request is in POST method. This is because, we have set the login form on the index.html to send a POST request when the user clicks Submit button. Thus, if the method is POST, we first fetch the entered Username and Password and send it to our auth app which is built into Django. If the auth returns a non-empty user, we direct them to our teacher front page. Or else, we send message to the 'messages' object that the credentials are wrong which in turn will be showed in the HTML page. If the request method was not POST, then we simply render the home page and display it using render.

VIII. index.html - '`\Django Projects\main_project\templates\index.html`'

```
{% load static %}

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width,
initial-scale=1">
    <title>Student Marks Application</title>
    <link
href="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/cs
s/bootstrap.min.css" rel="stylesheet">
    <script
src="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/js/
bootstrap.bundle.min.js"></script>
```

```

    <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/animate.css/4
.1.1/animate.min.css"/>
    <link rel="stylesheet" href="{% static 'css/main.css'
%}">
</head>

<body>
    <div class="d-flex mt-0 p-3 bg-secondary text-white
justify-content-center animate__animated animate__fadeIn
animate__slow">
        <div class="display-6"><strong>Student Marks
Application</strong></div>
    </div>

    <nav class='mt-0 navbar sticky-top navbar-expand-sm
bg-dark navbar-dark animate__animated animate__fadeInUp'>
        <div class='container-fluid'>
            <a class="navbar-brand" href="/">
                
            </a>
            <ul class='navbar-nav'>
                <li class="nav-item"><a class="nav-link
active" href="#">Home</a></li>
                <li class="nav-item"><a class="nav-link"
href="#">News and Updates</a></li>
                <li class="nav-item"><a class="nav-link"
href="#">About Us</a></li>
            </ul>
        </div>
    </nav>
    <div class='container-fluid mt-0 p-0 animate__animated
animate__fadeInUp animate__delay-1s'>

```

```

        <div class="carousel slide" data-bs-
ride="carousel">
            <div class="carousel-inner">
                <div class="carousel-item active">
                    <div class="carousel-caption display-
3"><strong>LOGIN</strong></div>
                    
                </div>
            </div>
        </div>

        {% if messages %}
        <div class='my-3 mx-5 alert alert-danger alert-
dismissible animate__animated animate__fadeInUp
animate__delay-2s'>
            <button type="button" class="btn-close" data-bs-
dismiss="alert"></button>
            {% for m in messages %}
                <strong>Sorry!</strong> Username and Password did
not match, Try again!
            {% endfor %}
        </div>
        {% endif %}

        <div class='container border border-2 border-primary
mt-3 rounded-3 shadow-lg bg-light p-4 animate__animated
animate__fadeInUp animate__delay-2s'>
            <form action="login" method='post'>
                {% csrf_token %}
                <div class="form-floating mb-3">
                    <input type="text" class="form-control"
placeholder="Enter Username" name="username">

```



```

        <label for="username">Username</label>
    </div>
    <div class="form-floating mb-3">
        <input type="password" class="form-control"
placeholder="Enter Password" name="pswd">
        <label for="password">Password</label>
    </div>
    <button type="submit" class="btn btn-
primary">Submit</button>
    </form>
</div>

<nav class="navbar mt-5 navbar-expand-sm bg-dark
navbar-dark animate__animated animate__fadeIn">
    <div class="container-fluid">
        <span class="navbar-text mx-auto">A Creation By
Arjun And His Team</span>
    </div>
</nav>
</body>
</html>

```

This is the index.html i.e., the home page of our web application. The jinja template language can be seen here in some places such as:

- {% for m in messages % }
- {% if messages % }
- {{ m }}
- {% endfor % }
- etc...

This is where the template language comes into use. They allow us to put dynamic things in the HTML page whose data are provided by Django in our views.py module. In this case, messages object is directly given to the page from Django instead of manual addition in views.py. It is a functionality of Django.

You can also notice the use of classes for most of the HTML elements. This is all bootstrap classes. They allow us to beautify the website without extensive CSS coding. Instead, we modify these classes to get the appearance that we want on our site.

IX. models.py - '`\Django Projects\main_project\inside1\models.py`'

Now we are entering the most important part of this project – the core. We are now looking at the important files of 'inside1' app. This app is right now responsible for all the internal functionalities of the web application such as displaying classes, adding marks, displaying marks etc.

```
# from tkinter import CASCADE
import matplotlib
matplotlib.use('Agg')
import matplotlib.pyplot as plt
from django.db import models
from django.contrib.auth.models import User

class Teacher(models.Model):
    user = models.OneToOneField(User,
on_delete=models.CASCADE)
    perm = models.CharField(max_length=30)
    subs = models.CharField(max_length=10)

class Student(models.Model):
    rollno = models.CharField(max_length=5,
primary_key=True)
    name = models.CharField(max_length=30)
    initial = models.CharField(max_length=5)
    address = models.TextField()
    phone1 = models.CharField(max_length=12)
    phone2 = models.CharField(max_length=12)
    std = models.CharField(max_length=2)
    sec = models.CharField(max_length=1)
    bg = models.CharField(max_length=3)
```

```

class Subject(models.Model):
    sub_code = models.CharField(max_length=2,
primary_key=True)
    sub_name = models.CharField(max_length=30)

class Test(models.Model):
    test_id = models.AutoField(primary_key=True)
    test_name = models.CharField(max_length=40)
    max_marks = models.CharField(max_length=50)
    test_subs = models.CharField(max_length=30)
    test_class = models.CharField(max_length=2)

class Marks(models.Model):
    student = models.ForeignKey(Student,
on_delete=models.CASCADE)
    test = models.ForeignKey(Test,
on_delete=models.CASCADE)
    sub = models.ForeignKey(Subject,
on_delete=models.CASCADE)
    marks = models.CharField(max_length=4)

```

As you might notice on the first line, Tkinter is commented out. Why so? It is because, Tkinter is not supported in Heroku server which is going to run our app. So instead, we had to do some alterations to make the app function inside Heroku.

In this file, we have we created our database models. These are in the form of Classes in Python. Each class here corresponds to a table in our database with the same name. The attributes that we have given to these classes are going to be the model reference fields of each table.

For e.g., refer class Student. This corresponds to the table created in the database. The fields of the table are as given: rollno, name, initial, address, std,

sec, etc. Each of their value type is also mentioned in the code. Also, rollno is set as the Primary Key for this table.

For convenience purpose, the class Teacher is linked with the User object. Thus, it can be considered as an extension of User object. Another thing to note is that, in the class Marks, the following are Foreign Keys and are referring to Primary Keys of different tables: *student*, *test* and *sub*.

The actual tables of these models are shown in the upcoming section below.

X. urls.py - '`\Django Projects\main_project\inside1\urls.py`'

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

urlpatterns = [
    path('front', views.front, name='Front'),
    path('logout', views.logout, name='Logout'),
    path('front/<str:code>', views.class_view,
name='Class'),
    path('front/<str:code>/add/<str:test_id>',
views.add_test, name='Add Test'),
    path('front/<str:code>/add/<str:test_id>/submit',
views.submit_test, name='Submit Test'),
    path('front/<str:code>/view/<str:test_id>',
views.view_test, name='View Test')
]
```

Same functionality as the previous urls.py. Only difference is that these are now sub-addresses of the path 'app1/'.

XI. mod.py - '`\Django Projects\main_project\inside1\mod.py`'

```
from django.contrib.auth.models import User

def classes(request):
    u = User.objects.get(username=request.user.username)
```

```

perms = u.teacher.perm
l = perms.split('-')
grade = {'0':'9', '1':'10', '2':'11', '3':'12'}
sec = {'0':'A', '1':'B', '2':'C', '3':'D', '4':'E'}
classes = []
for i in l:
    c = (grade[i[0]], sec[i[1]], i)
    classes.append(c)
return classes

def code_to_class(code):
    grade = {'0':'9', '1':'10', '2':'11', '3':'12'}
    sec = {'0':'A', '1':'B', '2':'C', '3':'D', '4':'E'}
    c = (grade[code[0]], sec[code[1]])
    return c

def class_alone(request):
    u = User.objects.get(username=request.user.username)
    perms = u.teacher.perm
    l = perms.split('-')
    grade = {'0':'9', '1':'10', '2':'11', '3':'12'}
    classes = []
    for i in l:
        c = grade[i[0]]
        if c not in classes:
            classes.append(c)
    return classes

```

This is a module for some general functions that we would be using in views.py of this app. These functions are used to figure out the teacher's assigned classes and sections from the code value which is stored. For e.g., we could convert perm = '31-32' as Class 12-B and Class 12-C respectively.

XII. views.py - '`\Django Projects\main_project\inside1\views.py`'

```
import http
from http.client import HTTPResponse
import re
from django.http import HttpResponseRedirect
from django.shortcuts import render, redirect
from django.contrib.auth.models import User, auth
from inside1.mod import classes, code_to_class,
class_alone
from inside1.models import Test, Marks, Student, Subject

class Class():
    std : str
    sec : str
    code : str

# This function provides the front page for the teacher
def front(request):
    if request.user.is_authenticated:
        l = classes(request)
        classes_class = []
        for i in l:
            c = Class()
            c.std, c.sec, c.code = i
            classes_class.append(c)
        return render(request, 'front.html',
{'classes':classes_class})
    else:
        return render(request, 'oops.html')

# This shows the class' tests details for each class
def class_view(request, code):
```

```

    if request.user.is_authenticated and (code in
User.objects.get(username=request.user.username).teacher.p
erm):
        std, sec = code_to_class(code)
        tests = Test.objects.all()
        teacher_subs =
User.objects.get(username=request.user.username).teacher.s
ubs

        teacher_subs = teacher_subs.split('-')
        tests1 = []
        for i in teacher_subs:
            for j in tests:
                if int(i) in eval(j.test_subs) and
(j.test_class == std):
                    tests1.append(j)
        pending_tests = []
        comp_tests = []
        for i in tests1:
            marks = Marks.objects.all().filter(test=i)
            req_marks = []
            for m in marks:
                if m.student.std == std and m.student.sec
== sec:
                    req_marks.append(m)
            if not req_marks:
                pending_tests.append(i)
            else:
                comp_tests.append(i)
        return render(request, 'class.html', {'std':std,
'sec':sec, 'code':code, 'pending':pending_tests,
'comp':comp_tests})
    else:
        return render(request, 'oops.html')

```

```

# This function provides the adding marks page
def add_test(request, code, test_id):
    if request.user.is_authenticated and (code in
User.objects.get(username=request.user.username).teacher.p
erm):
        test = Test.objects.get(test_id = test_id)
        students =
Student.objects.all().filter(std=code_to_class(code)[0],
sec=code_to_class(code)[1])
        return render(request, 'add_test.html',
{'test':test, 'students':students, 'code':code})
    else:
        return render(request, 'oops.html')

# This function shows a confirmation when marks are added
def submit_test(request, code, test_id):
    if request.user.is_authenticated and (code in
User.objects.get(username=request.user.username).teacher.p
erm):
        test = Test.objects.get(test_id = test_id)
        students =
Student.objects.all().filter(std=code_to_class(code)[0],
sec=code_to_class(code)[1])
        c = 0
        for s in students:
            m = Marks()
            m.student = s
            m.test = test
            m.sub =
Subject.objects.get(sub_code=User.objects.get(username=req
uest.user.username).teacher.subs)
            m.marks = request.POST[s.name]
            m.save()
            c += 1

```



```

        return render(request, 'success.html', {'c':c,
'code':code})
    else:
        return render(request, 'oops.html')

# This function shows the previously entered details
def view_test(request, code, test_id):
    if request.user.is_authenticated and (code in
User.objects.get(username=request.user.username).teacher.p
erm):
        std, sec = code_to_class(code)
        test = Test.objects.get(test_id=test_id)
        marks = Marks.objects.all()
        req_marks = []
        students = Student.objects.all().filter(std=std,
sec=sec)
        sub =
Subject.objects.all().filter(sub_code=User.objects.get(use
rname=request.user.username).teacher.subs)
        for m in marks:
            if (m.student in students) and (m.sub in sub):
                req_marks.append(m)
        return render(request, 'view_test.html',
{'test':test, 'marks':req_marks, 'code':code})

# This function logs out an active user from the app
def logout(request):
    auth.logout(request)
    return redirect('/')

```

Like the previous views.py of ‘outside’ app, here also the views.py decides what to do when a user request some specific function. Refer the code above here for all the things that the application is providing the user wherever required.

Note: When a user tries to go into an 'inside1' app URL without logging in, we have created if clauses in each of these functions to show them 'oops.html' in those times. This is because we don't want someone without authorisation to view even the empty pages with no data.

XIII. front.html - '`\Django Projects\main_project\templates\front.html`'

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <title>App Home</title>
  <link
href="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/cs
s/bootstrap.min.css" rel="stylesheet">
  <script
src="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/js/
bootstrap.bundle.min.js"></script>
  <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/animate.css/4
.1.1/animate.min.css"/>
</head>
<body>

  <nav class='mt-0 navbar sticky-top navbar-expand-sm
bg-dark navbar-dark animate__animated animate__fadeInUp'>
    <div class='container-fluid'>
      <div class="navbar-brand">
        Hi, {{ user.first_name }}!
      </div>
      <ul class='navbar-nav'>
```

```

        <li class="nav-item"><strong><a
class="nav-link active"
href="/app1/front">Front</a></strong></li>
        <li class="nav-item"><strong><a
class="nav-link"
href="/app1/logout">Logout</a></strong></li>
    </ul>
</div>
</nav>

<div class='display-5 mt-4 ms-3 animate__animated
animate__fadeInUp animate__delay-1s'>Your Classes: </div>
    <div class='animate__animated animate__fadeInUp
animate__delay-2s'>
        {% for c in classes %}
        <div class='container border border-3 rounded-3 m-
4 w-25'
            <div class="card col">
                <div class="card-body">
                    <h4 class="card-title">Class {{c.std}}-
{{c.sec}}</h4>
                    <p class="card-text">This is Class
{{c.std}}-{{c.sec}}!</p>
                    <a href="front/{{c.code}}" class="btn btn-
primary">Edit Marks</a>
                </div>
            </div>
        {% endfor %}
    </div>
</body>
</html>

```

This is the HTML source of front page. All the elements are self-explanatory.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">
    <title>Class {{ std }}-{{ sec }}</title>
    <link
href="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/cs
s/bootstrap.min.css" rel="stylesheet">
    <script
src="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/js/
bootstrap.bundle.min.js"></script>
    <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/animate.css/4
.1.1/animate.min.css"/>
</head>
<body>
    <nav class='mt-0 navbar sticky-top navbar-expand-sm
bg-dark navbar-dark'>
        <div class='container-fluid'>
            <div class="navbar-brand">
                <strong>Class {{ std }}-{{ sec }}</strong>
            </div>
            <ul class='navbar-nav'>
                <li class="nav-item"><strong><a
class="nav-link"
href="/app1/front">Front</a></strong></li>
                <li class="nav-item"><strong><a
class="nav-link"
href="/app1/logout">Logout</a></strong></li>
```



```

</div>

<div class='container-fluid mt-4 p-0'>
    <div class="d-grid mt-4 mx-2">
        <button type='button' class='btn btn-primary
btn-lg btn-block' data-bs-toggle="collapse" data-bs-
target="#c2"><strong>Added Tests ☐

```

```
</html>
```

This is the HTML source of class view page. All the elements are self-explanatory.

Note: The tabs and indentation in HTML does not mean anything mostly. They are present here for readability and understanding purposes in VS Code or any other editor on a desktop.

XV. add_test.html - '`\Django Projects\main_project\templates\add_test.html`'

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">
    <title>Add</title>
    <link
href="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/cs
s/bootstrap.min.css" rel="stylesheet">
    <script
src="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/js/
bootstrap.bundle.min.js"></script>
    <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/animate.css/4
.1.1/animate.min.css"/>
</head>
<body>
    <nav class='mt-0 navbar sticky-top navbar-expand-sm
bg-dark navbar-dark'>
        <div class='container-fluid'>
            <div class="navbar-brand">
                <strong>{{test.test_name}}</strong>
```

```

        </div>
        <ul class='navbar-nav'>
            <li class="nav-item"><strong><a
class="nav-link"
href="/app1/front/{{code}}">Class</a></strong></li>
            <li class="nav-item"><strong><a
class="nav-link"
href="/app1/front">Front</a></strong></li>
            <li class="nav-item"><strong><a
class="nav-link"
href="/app1/logout">Logout</a></strong></li>
        </ul>
    </div>
</nav>

<div class='container-fluid p-4'>
    <form action='{{test.test_id}}/submit'
method="post" class='was-validated'>
        {% csrf_token %}

        {% for s in students %}
        <div class="row mt-3">
            <div class="col container bg-secondary
rounded-3 px-2 pt-3 text-white">
                <h4>{{s.name}}</h4>
            </div>
            <div class="col">
                <input type="text" class="form-control"
placeholder="Marks" maxlength="4" name="{{s.name}}"
required>

                <div class="invalid-feedback">Please
fill this.</div>
                <div class="valid-feedback">Done.</div>
            </div>

```



```

        </div>
        {% endfor %}

        <button type="submit" class="btn btn-primary
mt-4 ms-0">Submit</button>
    </form>
</div>
</body>
</html>

```

This is the HTML source of adding marks to test page. All the elements are self-explanatory.

XVI. success.html - '`\Django Projects\main_project\templates\success.html`'

```

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">
    <title>Success</title>
    <link
href="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/cs
s/bootstrap.min.css" rel="stylesheet">
    <script
src="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/js/
bootstrap.bundle.min.js"></script>
    <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/animate.css/4
.1.1/animate.min.css"/>
</head>

<body>

```

```

<div class="mt-4 mx-4 p-5 bg-success text-white
rounded animate__animated animate__fadeInUp">
    <h1>Added {{c}} students marks!</h1>
    <h4>Go back to class page <a
href='/app1/front/{{code}}'
style='color:white'>here</a></h4>
</div>
</body>
</html>

```

This is the HTML source of submission page. All the elements are self-explanatory.

XVII. view_test.html - '\Django Projects\main_project\templates\view_test.html'

```

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">
    <title>View</title>
    <link
href="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/cs
s/bootstrap.min.css" rel="stylesheet">
    <script
src="https://cdn.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/js/
bootstrap.bundle.min.js"></script>
    <link rel="stylesheet"
href="https://unpkg.com/bootstrap-
table@1.19.1/dist/bootstrap-table.min.css">
    <script
src="https://cdn.jsdelivrivr.net/npm/jquery/dist/jquery.min.j
s"></script>

```

```

    <script
src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js"></script>
    <script
src="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/js/bootstrap.min.js" integrity="sha384-
JjSmVgyd0p3pXB1rRibZUAYoIIy6OrQ6VrjIEaFf/njGzIxFDsf4x0xIM+
B07jRM" crossorigin="anonymous"></script>
    <script src="https://unpkg.com/bootstrap-
table@1.19.1/dist/bootstrap-table.min.js"></script>

</head>
<body>
    <nav class='mt-0 navbar sticky-top navbar-expand-sm
bg-dark navbar-dark'>
        <div class='container-fluid'>
            <div class="navbar-brand">
                <strong>{{test.test_name}}</strong>
            </div>
            <ul class='navbar-nav'>
                <li class="nav-item"><strong><a
class="nav-link"
href="/app1/front/{{code}}">Class</a></strong></li>
                <li class="nav-item"><strong><a
class="nav-link"
href="/app1/front">Front</a></strong></li>
                <li class="nav-item"><strong><a
class="nav-link"
href="/app1/logout">Logout</a></strong></li>
            </ul>
        </div>
    </nav>

    <div class="container mt-3">

```

```

        <table class='table table-striped table-bordered
table-hover '>
        <thead>
        <tr>
            <th>Name</th>
            <th>Roll No.</th>
            <th>Subject</th>
            <th>Marks</th>
        </tr>
        </thead>
        <tbody>
            {% for m in marks %}
            <tr>
                <td>{{m.student.name}}</td>
                <td>{{m.student.rollno}}</td>
                <td>{{m.sub.sub_name}}</td>
                <td>{{m.marks}}</td>
            </tr>
            {% endfor %}
        </tbody>
        </table>
    </div>

</body>
</html>

```

This is the HTML source of test viewing page. All the elements are self-explanatory.

XVIII. oops.html - '`\Django Projects\main_project\templates\oops.html`'

```

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">

```

```
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width,
initial-scale=1.0">
<title>Oops</title>
<link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/cs
s/bootstrap.min.css" rel="stylesheet">
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/
bootstrap.bundle.min.js"></script>
<link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/animate.css/4
.1.1/animate.min.css"/>
</head>
<div class="mt-4 mx-4 p-5 bg-primary text-white
rounded animate__animated animate__fadeInUp">
  <h1>Oops! You don't have access to this page!</h1>
  <h4>Here is the <a href='/'
style='color:white'>home page</a></h4>
</div>
```

This is the HTML source of Oops page. All the elements are self-explanatory.

5. Remote Database

In this section, we are going to show you the contents of the remote database that stores all our necessary information. This database is accessed by us using *phpMyAdmin*.

I. Overall Database

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> auth_group	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8_unicode_ci	32 KiB	-
<input type="checkbox"/> auth_group_permissions	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8_unicode_ci	48 KiB	-
<input type="checkbox"/> auth_permission	★ Browse Structure Search Insert Empty Drop	44	InnoDB	utf8_unicode_ci	32 KiB	-
<input type="checkbox"/> auth_user	★ Browse Structure Search Insert Empty Drop	2	InnoDB	utf8_unicode_ci	32 KiB	-
<input type="checkbox"/> auth_user_groups	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8_unicode_ci	48 KiB	-
<input type="checkbox"/> auth_user_user_permissions	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8_unicode_ci	48 KiB	-
<input type="checkbox"/> django_admin_log	★ Browse Structure Search Insert Empty Drop	23	InnoDB	utf8_unicode_ci	48 KiB	-
<input type="checkbox"/> django_content_type	★ Browse Structure Search Insert Empty Drop	11	InnoDB	utf8_unicode_ci	32 KiB	-
<input type="checkbox"/> django_migrations	★ Browse Structure Search Insert Empty Drop	23	InnoDB	utf8_unicode_ci	16 KiB	-
<input type="checkbox"/> django_session	★ Browse Structure Search Insert Empty Drop	4	InnoDB	utf8_unicode_ci	32 KiB	-
<input type="checkbox"/> inside1_marks	★ Browse Structure Search Insert Empty Drop	8	InnoDB	utf8_unicode_ci	64 KiB	-
<input type="checkbox"/> inside1_student	★ Browse Structure Search Insert Empty Drop	5	InnoDB	utf8_unicode_ci	16 KiB	-
<input type="checkbox"/> inside1_subject	★ Browse Structure Search Insert Empty Drop	10	InnoDB	utf8_unicode_ci	16 KiB	-
<input type="checkbox"/> inside1_teacher	★ Browse Structure Search Insert Empty Drop	1	InnoDB	utf8_unicode_ci	32 KiB	-
<input type="checkbox"/> inside1_test	★ Browse Structure Search Insert Empty Drop	2	InnoDB	utf8_unicode_ci	16 KiB	-
15 tables	Sum	133	InnoDB	utf8_unicode_ci	512 KiB	0 B

II. Tables' structure

Server: localhost » Database: sepl3iQWc0 » Table: inside1_teacher									
Browse Structure SQL Search Insert Export Import Operations									
Table structure Relation view									
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	id	bigint(20)			No	None		AUTO_INCREMENT	Change Drop More
<input type="checkbox"/> 2	perm	varchar(30)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 3	user_id	int(11)			No	None			Change Drop More
<input type="checkbox"/> 4	subs	varchar(10)	utf8_unicode_ci		No	None			Change Drop More

Server: localhost » Database: sep3iQWc0 » Table: auth_user

Browse Structure SQL Search Insert Export Import Operations

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
<input type="checkbox"/> 2	password	varchar(128)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 3	last_login	datetime(6)			Yes	NULL			Change Drop More
<input type="checkbox"/> 4	is_superuser	tinyint(1)			No	None			Change Drop More
<input type="checkbox"/> 5	username	varchar(150)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 6	first_name	varchar(150)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 7	last_name	varchar(150)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 8	email	varchar(254)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 9	is_staff	tinyint(1)			No	None			Change Drop More
<input type="checkbox"/> 10	is_active	tinyint(1)			No	None			Change Drop More
<input type="checkbox"/> 11	date_joined	datetime(6)			No	None			Change Drop More

Server: localhost » Database: sep3iQWc0 » Table: inside1_student

Browse Structure SQL Search Insert Export Import Operations

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	rollno	varchar(5)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 2	name	varchar(30)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 3	initial	varchar(5)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 4	address	longtext	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 5	phone1	varchar(12)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 6	phone2	varchar(12)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 7	std	varchar(2)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 8	sec	varchar(1)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 9	bg	varchar(3)	utf8_unicode_ci		No	None			Change Drop More

Server: localhost » Database: sep3iQWc0 » Table: inside1_subject

Browse Structure SQL Search Insert Export Import Operations

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	sub_code	varchar(2)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 2	sub_name	varchar(30)	utf8_unicode_ci		No	None			Change Drop More

Server: localhost » Database: sep3iQWc0 » Table: inside1_test

Browse Structure SQL Search Insert Export Import Operations

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	test_id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
<input type="checkbox"/> 2	test_name	varchar(40)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 3	max_marks	varchar(50)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 4	test_subs	varchar(30)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 5	test_class	varchar(2)	utf8_unicode_ci		No	None			Change Drop More

Server: localhost » Database: sep3iQWc0 » Table: inside1_marks

Browse Structure SQL Search Insert Export Import Operations

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	id	bigint(20)			No	None		AUTO_INCREMENT	Change Drop More
<input type="checkbox"/> 2	marks	varchar(4)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 3	student_id	varchar(5)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 4	sub_id	varchar(2)	utf8_unicode_ci		No	None			Change Drop More
<input type="checkbox"/> 5	test_id	int(11)			No	None			Change Drop More

III. auth_user table

		id	password	last_login	is_superuser	username	first_name	last_name	email	is_staff	is_active	date_joined
<input type="checkbox"/>	Edit Copy Delete	1	pbkdf2_sha	2022-1	1	admin			arjun@arjun.com	1	1	2022-01-19 05:07:42.559641
<input type="checkbox"/>	Edit Copy Delete	2	pbkdf2_sha	2022-1	0	nithya	Nithya			0	1	2022-01-19 15:57:55.000000

































IV. inside1_teacher table

		id	perm	user_id	subs
<input type="checkbox"/>	Edit Copy Delete	1	31-32	2	9









V. inside1_student table

		rollno	name	initial	address	phone1	phone2	std	sec	bg
<input type="checkbox"/>	Edit Copy Delete	12B01	Arun	F	47, Whites Road, Royapeetah, Chennai, Tamil Nadu,...	04428514337	None	12	B	O+
<input type="checkbox"/>	Edit Copy Delete	12B02	Bala	A	Cenotaph Road, T Nagar Chennai, Tamil Nadu, 60001...	04424338412	None	12	B	O+
<input type="checkbox"/>	Edit Copy Delete	12B03	Kiran	D	130, Kodambakkam High Road, Nungambakkam Chennai, ...	04428231897	None	12	B	A1+
<input type="checkbox"/>	Edit Copy Delete	12C01	David	F	EARTH	123456789	None	12	C	O+
<input type="checkbox"/>	Edit Copy Delete	12C02	Dabid	D	Planet Earth	1234	None	12	C	A1+



























VI. inside1_subject table

 	sub_code	sub_name
<input type="checkbox"/>  Edit  Copy  Delete	0	English
<input type="checkbox"/>  Edit  Copy  Delete	10	KTPI
<input type="checkbox"/>  Edit  Copy  Delete	11	Accountancy
<input type="checkbox"/>  Edit  Copy  Delete	12	Economics
<input type="checkbox"/>  Edit  Copy  Delete	13	Business Studies
<input type="checkbox"/>  Edit  Copy  Delete	5	Physics
<input type="checkbox"/>  Edit  Copy  Delete	6	Chemistry
<input type="checkbox"/>  Edit  Copy  Delete	7	Maths-Standard
<input type="checkbox"/>  Edit  Copy  Delete	8	Maths-Applied
<input type="checkbox"/>  Edit  Copy  Delete	9	Computer Science

VII. inside1_test table

 	test_id	test_name	max_marks	test_subs	test_class
<input type="checkbox"/>  Edit  Copy  Delete	1	Pre-term Test 1	0:40, 5:35, 6:35, 7:40, 9:35	[0,5,6,7,9]	12
<input type="checkbox"/>  Edit  Copy  Delete	2	Pre term test 2	9:45	[9, 0]	12

VIII. inside1_marks table

 	id	marks	student_id	sub_id	test_id
<input type="checkbox"/>  Edit  Copy  Delete	2	12	12B01	9	1
<input type="checkbox"/>  Edit  Copy  Delete	3	12	12B02	9	1
<input type="checkbox"/>  Edit  Copy  Delete	4	12	12B03	9	1
<input type="checkbox"/>  Edit  Copy  Delete	5	42	12C01	9	1
<input type="checkbox"/>  Edit  Copy  Delete	6	30	12C02	9	1
<input type="checkbox"/>  Edit  Copy  Delete	7	67	12B01	9	2
<input type="checkbox"/>  Edit  Copy  Delete	8	45	12B02	9	2
<input type="checkbox"/>  Edit  Copy  Delete	9	36	12B03	9	2

6. Results

In this section, we are going to look the outcome of this project.

I. GitHub Repo - https://github.com/Arjun-G-04/students_marks_application

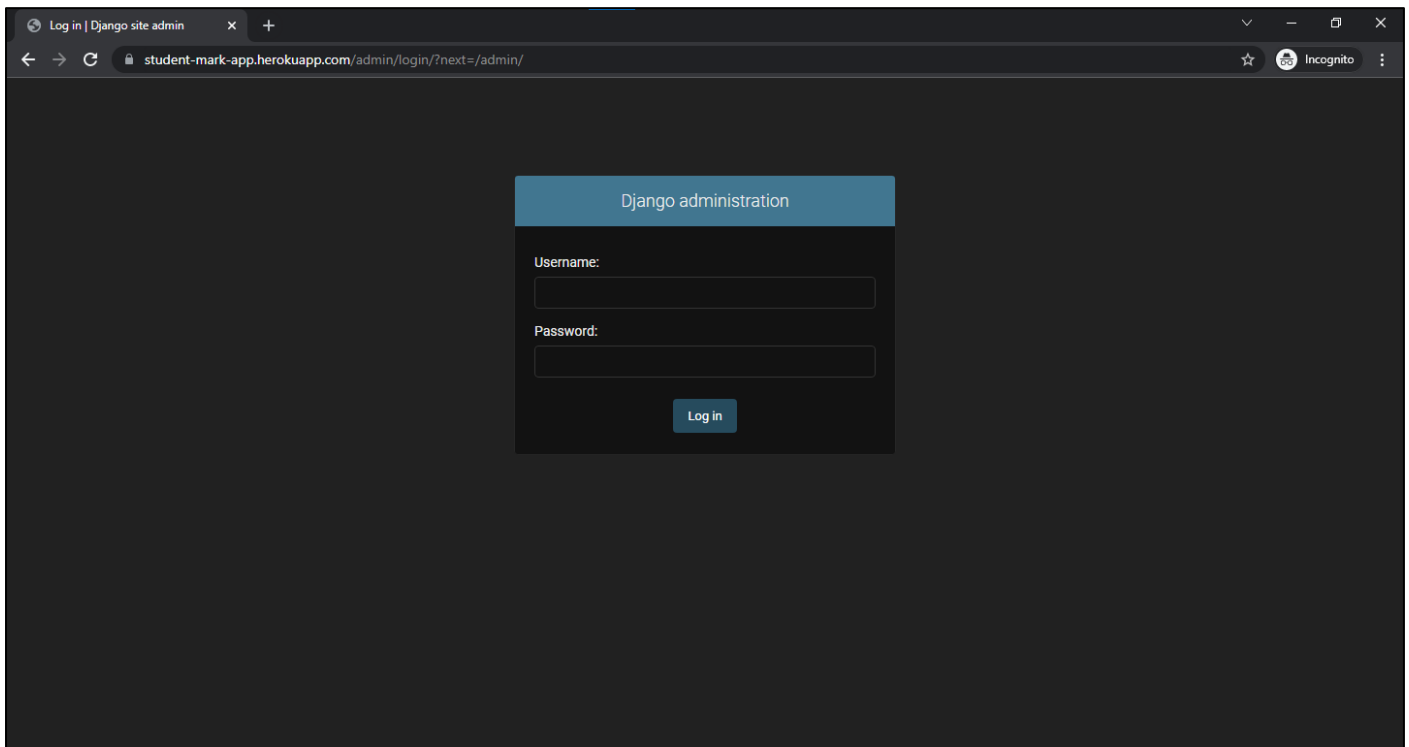
The screenshot shows the GitHub repository page for 'students_marks_application' by user 'Arjun-G-04'. The repository is public and has 1 star, 0 forks, and 1 watching. The main branch is 'main' with 2 branches and 0 tags. The repository description states: 'This is our CS Project. By Aravind, Arjun, and Ashwin.' The repository contains files: 'Django Projects/main_project' (Modified readme.md and cleaned up main folders! 20 minutes ago), '.gitignore' (Git ignore update 7 days ago), and 'readme.md' (Modified readme.md and cleaned up main folders! 20 minutes ago). The README file is open, showing the title 'README', a section 'Who are we?' with a bullet point 'We are Arjun, Ashwin and Aravind from Amrita Vidyalayam, Trichy studying 12th standard (2021-2022)', and a section 'What is this project?' with two bullet points: 'The aim of this project is to provide an useful, elegant looking web application that could be used by teachers in an intuitive and simple way' and 'The purpose of the application is to provide a portal for the teachers to enter and access data related to students' marks'. The right sidebar shows 'Releases' (No releases published), 'Packages' (No packages published), and 'Languages' (JavaScript 45.7%, CSS 39.0%, Python 8.7%, HTML 6.6%).

II. Main Website - <https://student-mark-app.herokuapp.com>

a. Home page - <https://student-mark-app.herokuapp.com/>

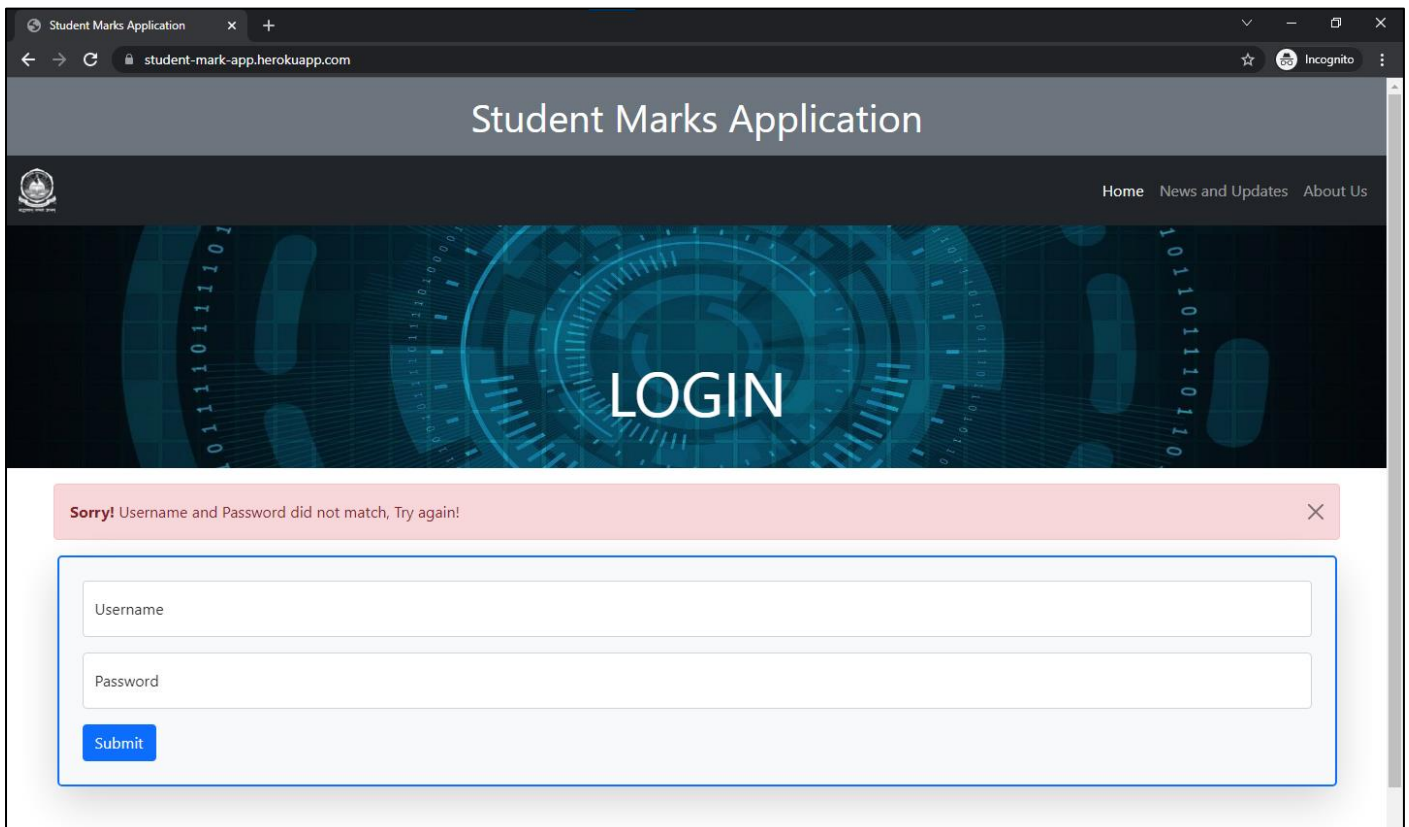
The screenshot shows the home page of the 'Student Marks Application'. The page has a dark blue header with the title 'Student Marks Application' and navigation links 'Home', 'News and Updates', and 'About Us'. Below the header is a large banner with a background of binary code and a circular pattern, featuring the word 'LOGIN' in large white letters. Below the banner is a login form with two input fields: 'Username' and 'Password', and a blue 'Submit' button. At the bottom of the page, there is a footer that reads 'A Creation By Arjun And His Team'.

b. Admin login page - </admin/login/?next=/admin/>



The screenshot shows a web browser window with the address bar displaying `student-mark-app.herokuapp.com/admin/login/?next=/admin/`. The page has a dark background. In the center, there is a light blue box titled "Django administration". Inside this box, there are two input fields: "Username:" and "Password:". Below these fields is a blue button labeled "Log in".

c. Login incorrect page - <https://student-mark-app.herokuapp.com/>



The screenshot shows a web browser window with the address bar displaying `student-mark-app.herokuapp.com`. The page has a dark background with a large "LOGIN" text in the center. Below the login area, there is a red error message box that says "Sorry! Username and Password did not match, Try again!". Below the error message, there is a white box containing two input fields: "Username" and "Password". Below these fields is a blue button labeled "Submit".

d. Front Page - /app1/front

App Home

student-mark-app.herokuapp.com/app1/front

Hi, Nithya! Front Logout

Your Classes:

Class 12-B
This is Class 12-B!
[Edit Marks](#)

Class 12-C
This is Class 12-C!
[Edit Marks](#)

e. Class Page (12-B) - /app1/front/31

Class 12-B

Front Logout

Pending Test(s) to be added ▼

Hurray! You are up to date! No tests to be added as of now!!

Added Tests ▼

Pre-term Test 1 Pre term test 2

f. Added Test Page (Pre-term Test 1) - /app1/front/31/view/1

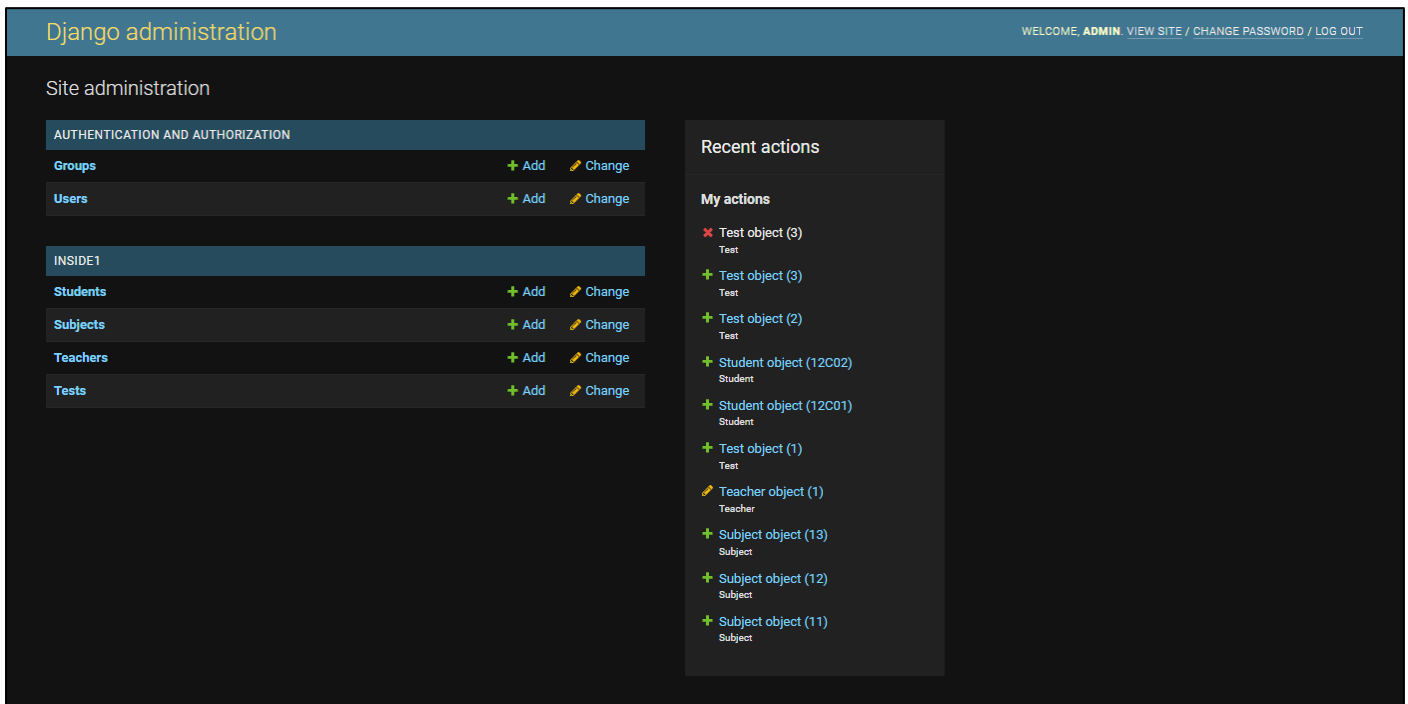
View

student-mark-app.herokuapp.com/app1/front/31/view/1

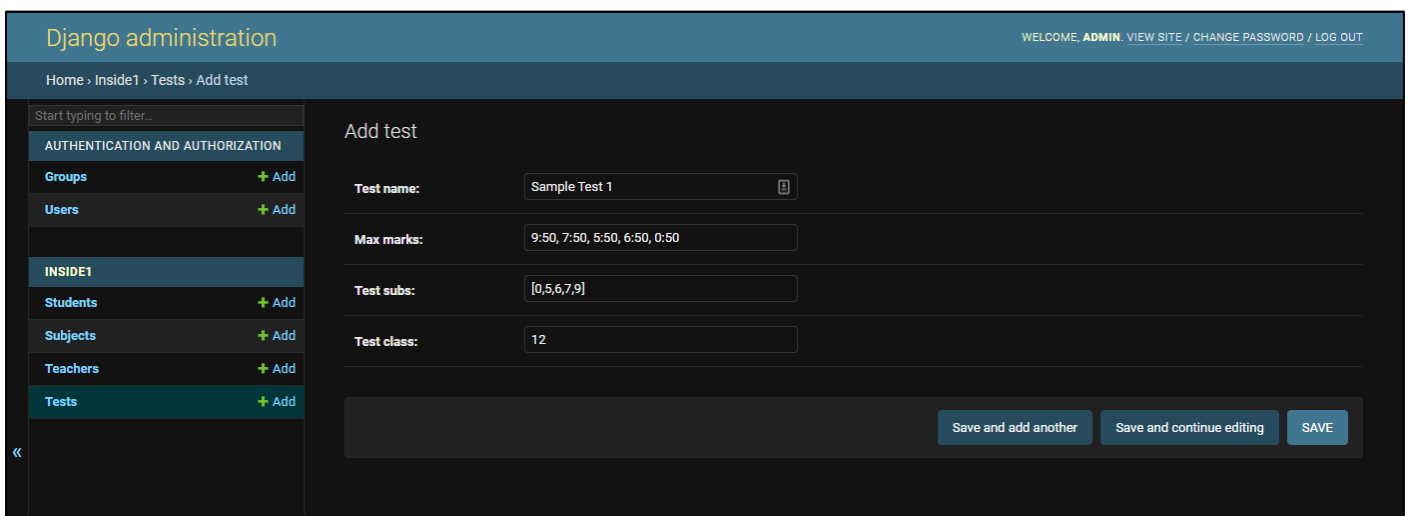
Pre-term Test 1 Class Front Logout

Name	Roll No.	Subject	Marks
Arun	12B01	Computer Science	12
Bala	12B02	Computer Science	12
Kiran	12B03	Computer Science	12

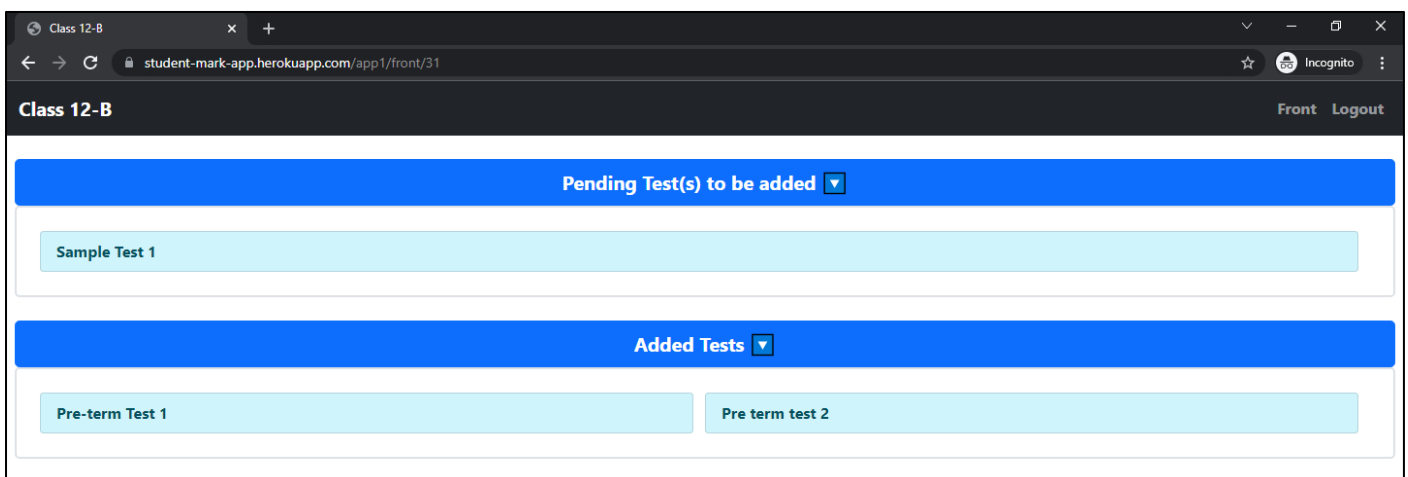
g. Admin home page - /admin



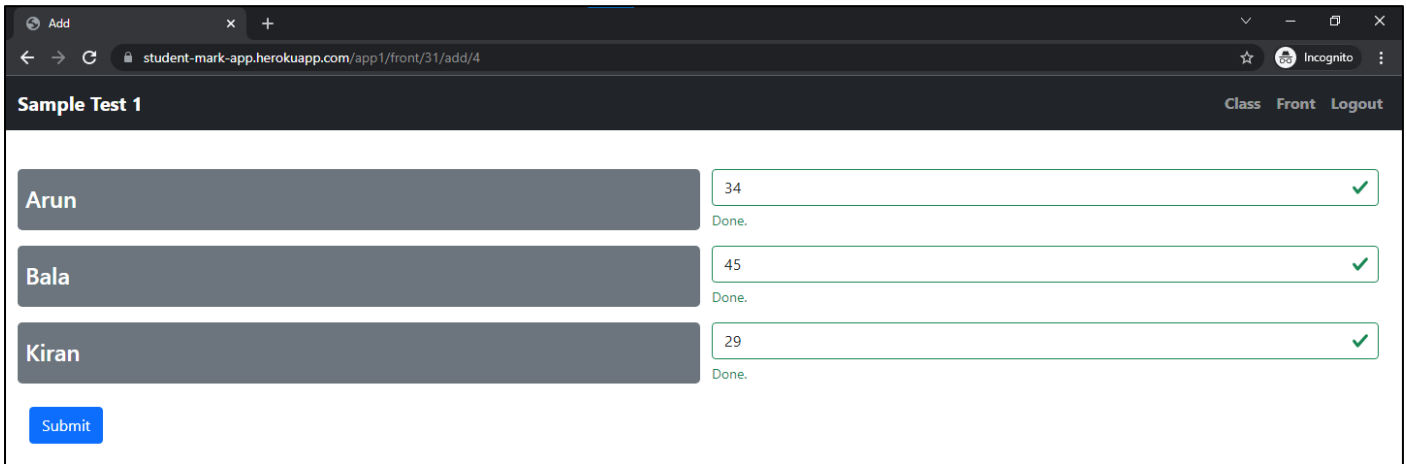
h. Test addition in Admin page - /admin/inside1/test/add/



i. New pending test in Class page - /app1/front/31



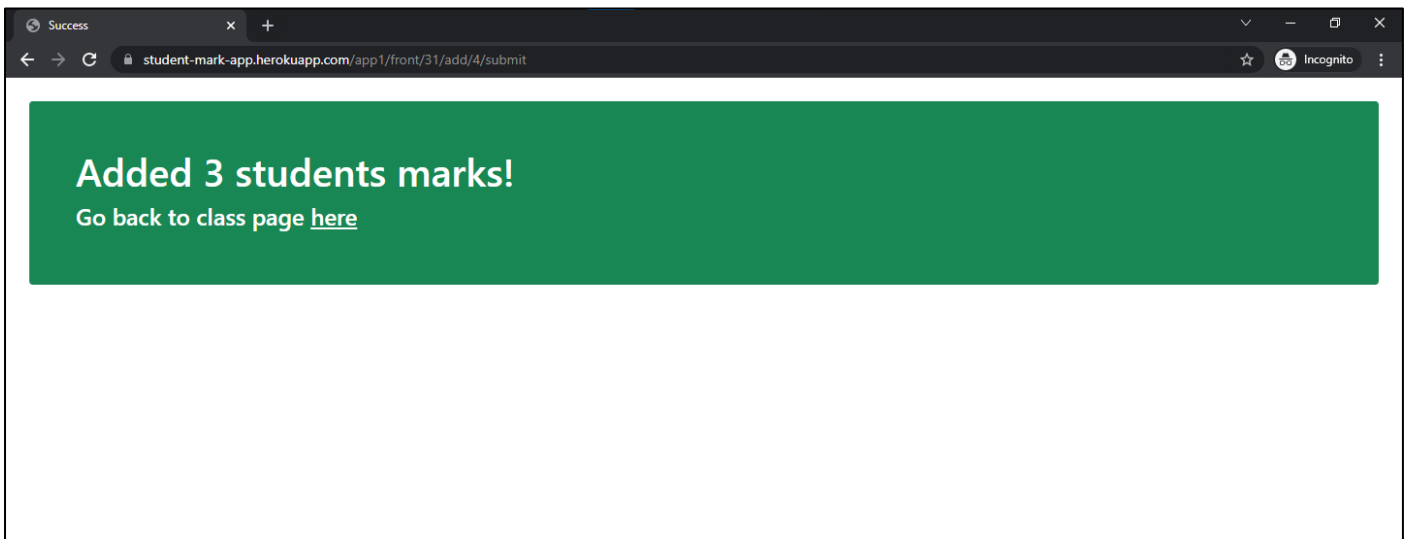
j. Adding marks to test - </app1/front/31/add/4>



Student Name	Mark	Status
Arun	34	Done. ✓
Bala	45	Done. ✓
Kiran	29	Done. ✓

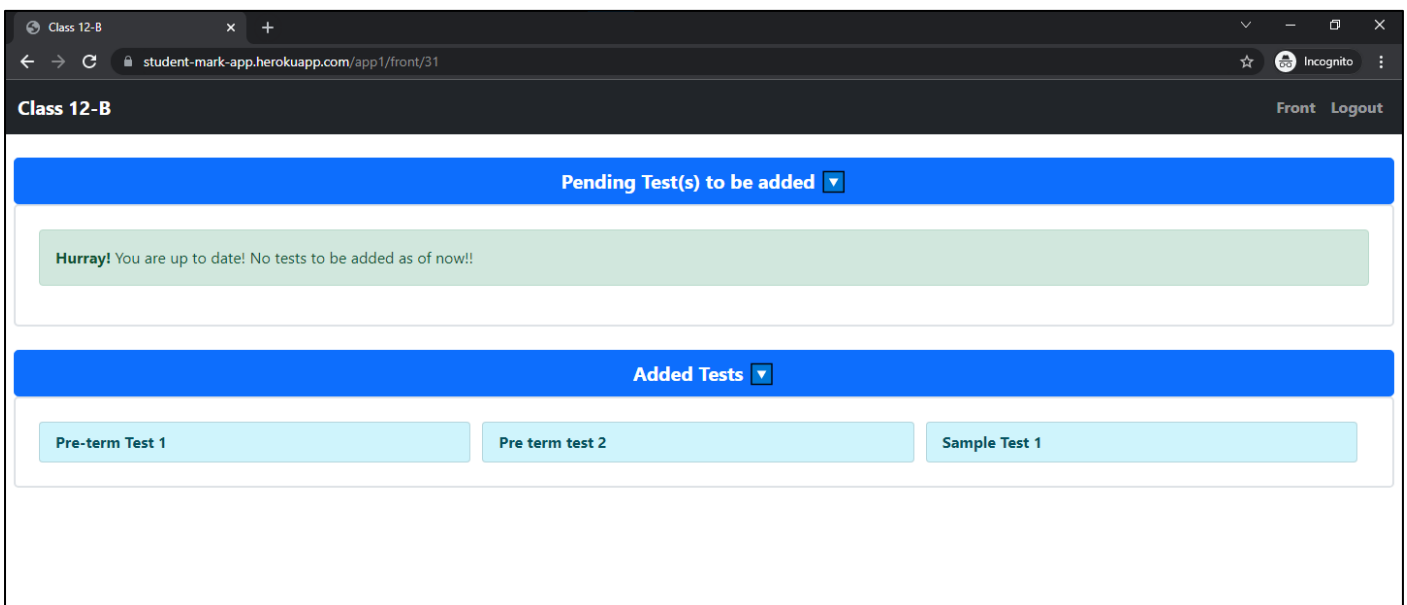
[Submit](#)

k. Submission Page - </app1/front/31/add/4/submit>



Added 3 students marks!
Go back to class page [here](#)

l. Updated Class Page (12-B) - </app1/front/31>



Class 12-B

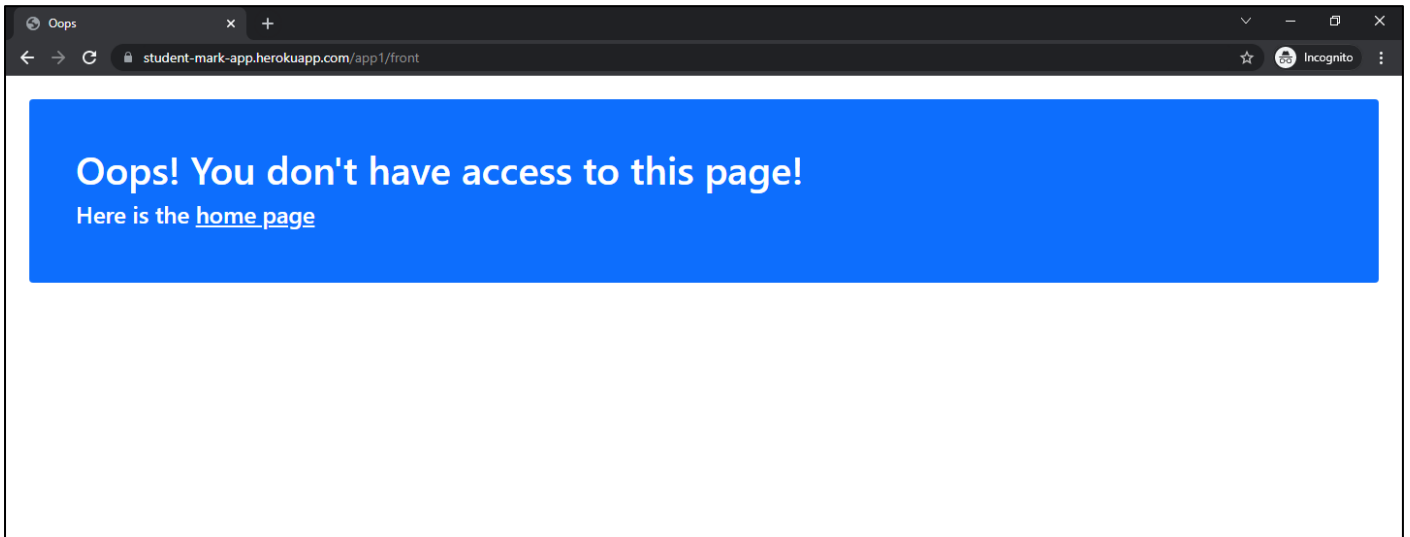
Pending Test(s) to be added ▼

Hurray! You are up to date! No tests to be added as of now!!

Added Tests ▼

Pre-term Test 1 Pre term test 2 Sample Test 1

m. Oops page - </app1/front/31>



7. Bibliography

- **YouTube Videos List** - <https://bit.ly/3Fd7gk8>
- **Bootstrap 5 Tutorial** - <https://bit.ly/3tYHA8w>
- **Stackoverflow** - <https://bit.ly/3o0AyMH>
- **Computer Science With Python Textbook For Class 12** -
by Sumita Arora