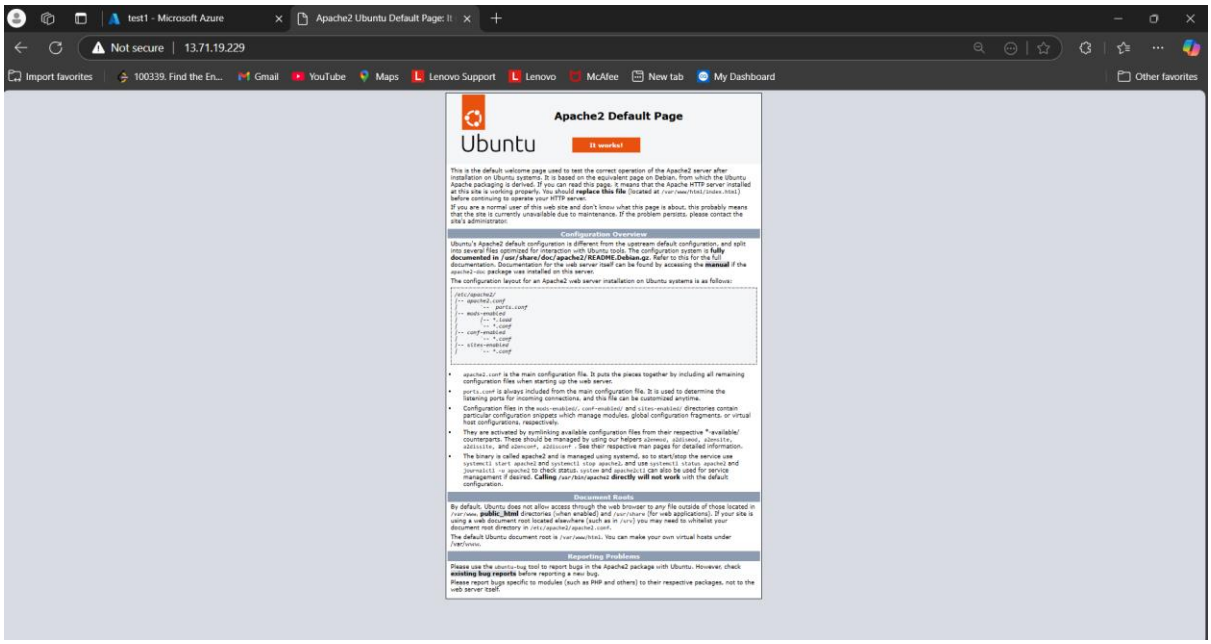
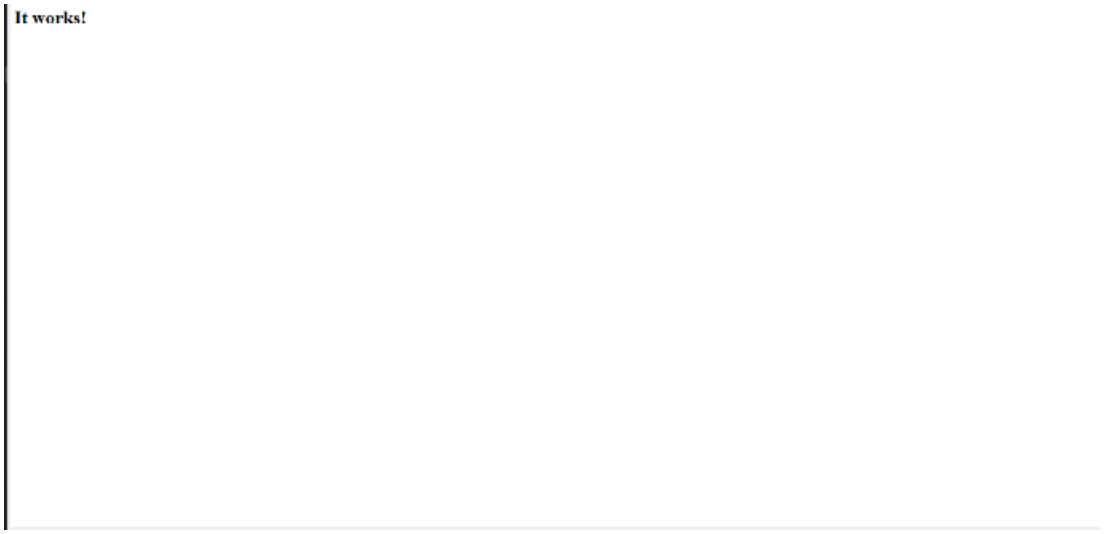
Exercise 1: Create and Configure a Virtual Machine

Objective: Create and configure Ubuntu and Windows Virtual Machines on Azure Portal.

1. **Create an Ubuntu VM:**
    - Log in to the Azure Portal.
    - Navigate to Virtual Machines > Create.
    - Choose Ubuntu Server 20.04 LTS.
    - **Configure:**
        - **Size:** Standard_B1s (or similar)
        - **Authentication Type:** SSH (generate a key pair if not available).
        - **Inbound Port:** Allow SSH (port 22).
    - Deploy and connect using SSH.
2. **Create a Windows VM:**
    - Follow similar steps, selecting Windows Server 2022.
    - **Configure:**
        - **Size:** Standard_B1s (or similar)
        - **Authentication Type:** Username and Password.
        - **Inbound Port:** Allow RDP (port 3389).
    - Deploy and connect using RDP.
3. **Task:**
    - Install Apache or IIS on the respective VMs.
    - Verify by accessing the default web page from your local browser.

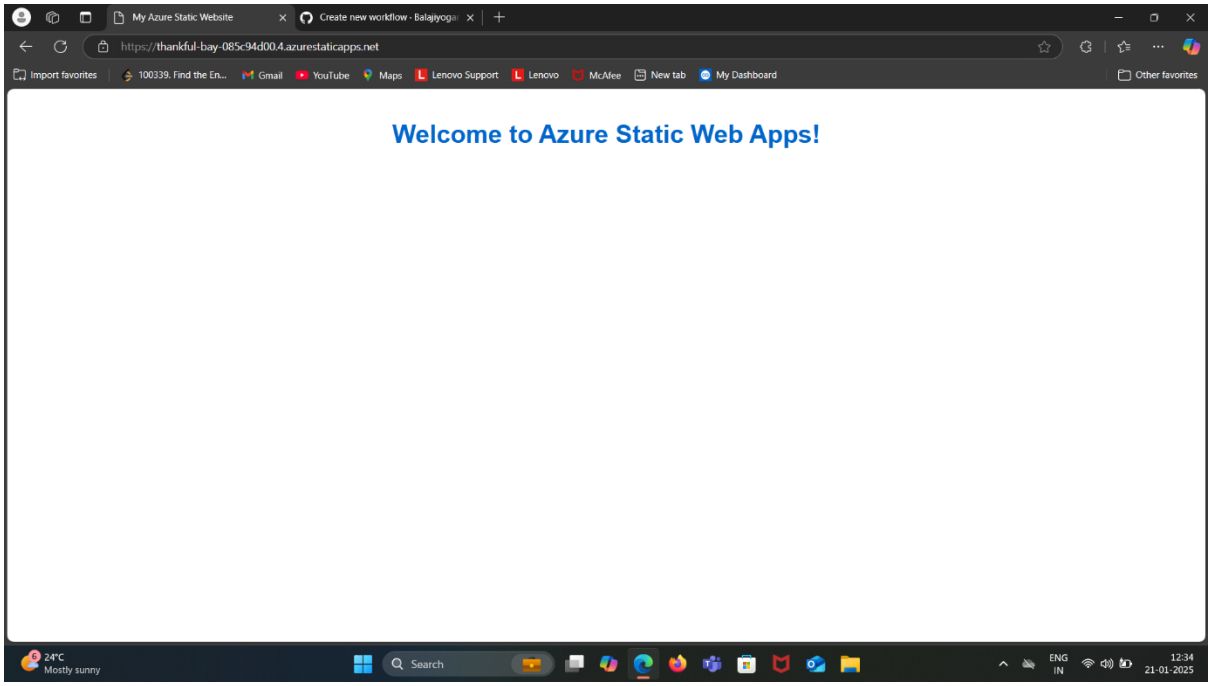




Exercise 2: Deploy a Static Web Application

Objective: Host a static website using Azure App Service.

1. Navigate to App Services > Create.
2. Choose:
o Runtime Stack: Python 3.10 (or latest).
o Operating System: Linux.
o Region: Closest to your location.
3. Deploy the application.
4. Upload a simple static website (e.g., index.html and CSS files) using FTP or the Kudu console.
5. Task:
o Verify the deployment by accessing the site via its public URL.
o Modify the HTML to include a message like: "Welcome to Azure Static Web Apps!"



Exercise 3: Deploy a Flask Application (Dynamic Web App)

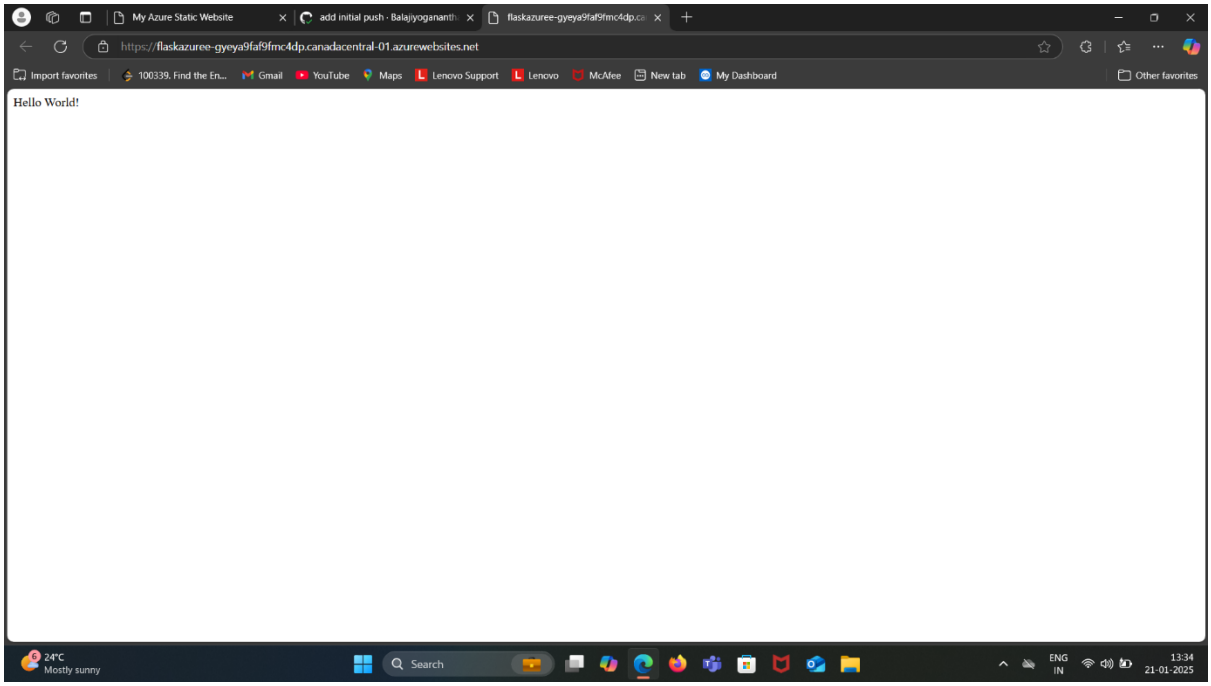
Objective: Deploy a Python Flask application using Azure App Service.

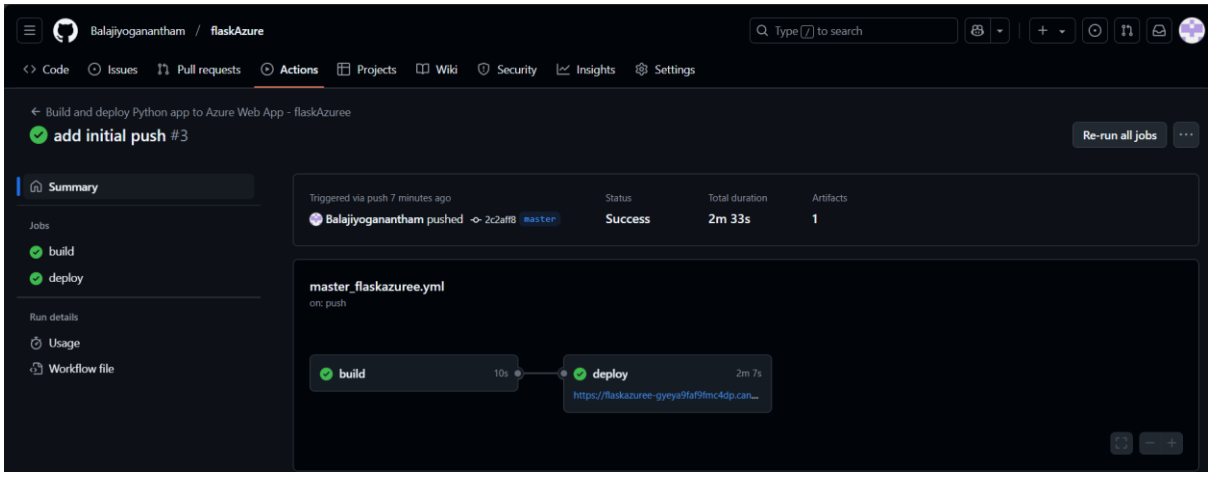
1. Create a Flask app:

```
from flask import Flask
app = Flask(__name__)
@app.route('/')
def home():
 return "Hello, Azure Flask App!"
if __name__ == '__main__':
 app.run(debug=True)
```

2. Push the code to a GitHub repository.
3. In the Azure Portal, navigate to App Services > Create.
4. Configure:
   - o Runtime Stack: Python 3.10 (or latest).
   - o Deployment Source: Connect your GitHub repository.
5. Deploy the Flask app and verify it by accessing the public URL.

My Azure Static Website





Exercise 4: Set Up and Use an Azure SQL Database

Objective: Create an Azure SQL Database and connect to it from your local machine.

1. Navigate to SQL Databases > Create.
2. Configure:
o Database Name: StudentDB.
o Server: Create a new server with username and password.
o Compute + Storage: Use the free tier.
3. Deploy the database.
4. Connect using Azure Data Studio or SQL Server Management Studio (SSMS).
5. Task:
o Create a table Students with columns ID, Name, and Age.
o Insert sample data and query it.

```
1  select * from Students;
```

Results Messages

Search to filter items...

ID	Name	Age
1	John Doe	20
2	Jane Smith	22
3	Bob Johnson	21

Exercise 5: Integrate Flask App with Azure SQL Database

Objective: Connect a Flask app to Azure SQL Database and perform CRUD operations.

1. Use the Flask app from Exercise 3.
2. Install required libraries:

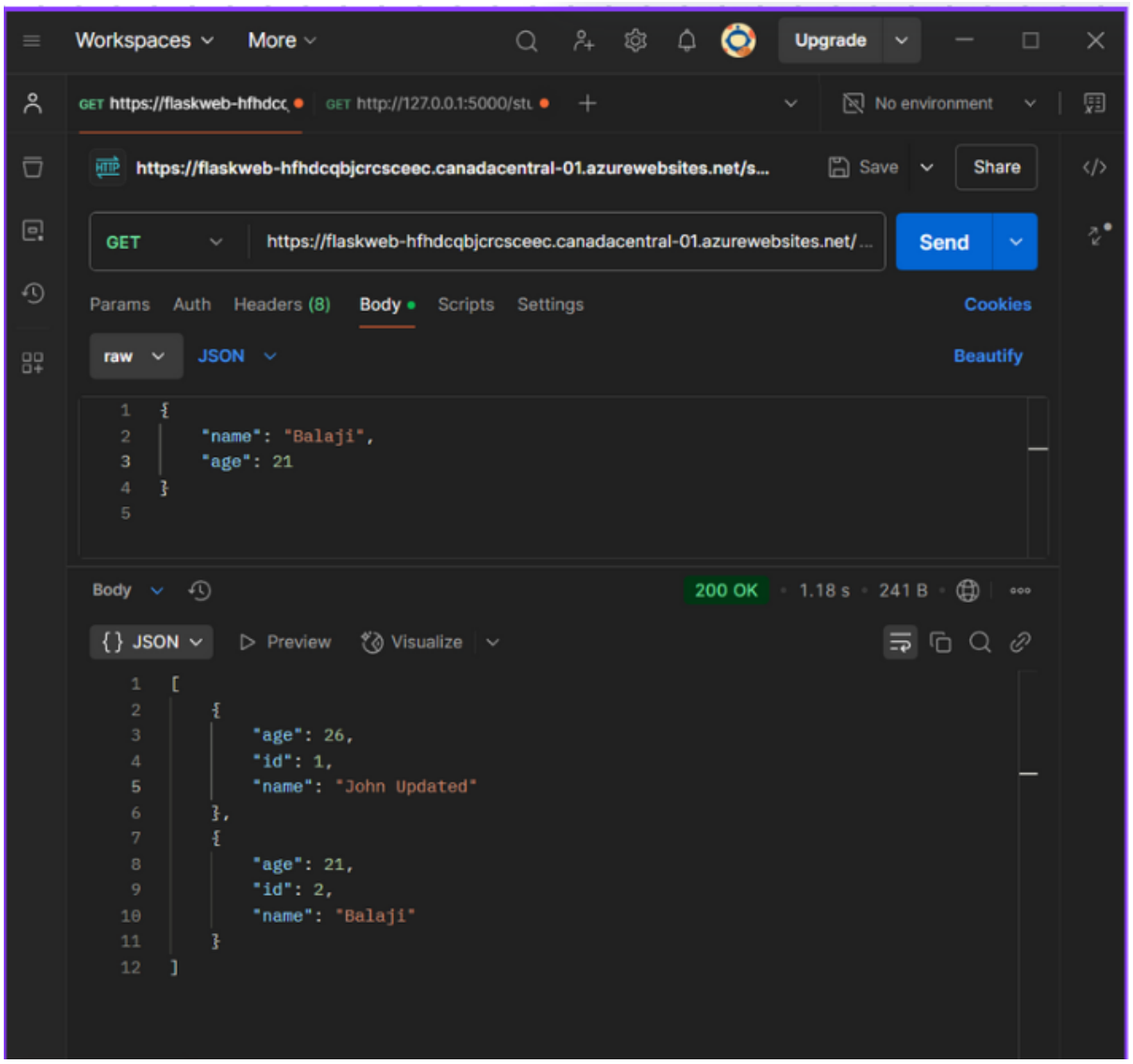
pip install flask pyodbc

3. Modify the app to connect to the SQL Database:

```
import pyodbc
conn = pyodbc.connect(
 'DRIVER={ODBC Driver 17 for SQL Server};'
 'SERVER=<your_server>.database.windows.net;'
 'DATABASE=StudentDB;'
 'UID=<your_username>;'
 'PWD=<your_password>'
)
cursor = conn.cursor()
```

4. Add a route to fetch and display data from the Students table.
5. Deploy the updated app to Azure App Service.
6. Task:

o Verify CRUD functionality by interacting with the app via its public URL.


Workspaces
More
Upgrade
GET https://flaskweb-hfhdcc
GET http://127.0.0.1:5000/stu
No environment
https://flaskweb-hfhdcqbjcrcsceec.canadacentral-01.azurewebsites.net/s...
Save
Share
GET
https://flaskweb-hfhdcqbjcrcsceec.canadacentral-01.azurewebsites.net/...
Send
Params
Auth
Headers (8)
Body
Scripts
Settings
Cookies
raw
JSON
Beautify
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}
Body
200 OK
1.18 s
241 B
{} JSON
Preview
Visualize
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{
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}
]