

CLOUD COMPUTING SERVICES LAB (AWS)

WEEK 9.1: Deployment of Machine Learning Model

OBJECTIVE: Design, Development and Deployment FastAPI Application on Windows EC2

PROCEDURE:

Phase 1: Build Machine Learning Model and create Pickle file ([reg.pkl](#))

Phase 2: Create FastAPI Application

Phase 3: Create GitHub Repository

Phase 4: Create Windows EC2 Instance and Connect using RDP Client

Phase 5: Deploy FastAPI from GitHub Repository

PHASE 1: Build Machine Learning Model and create Pickle file ([reg.pkl](#))

PHASE 2: Create FastAPI Application

1. Download and Install Python from <https://www.python.org/downloads>
2. Create `FastAPIDemo` Folder
3. Copy `reg.pkl` file into the folder
4. Go to `FastAPIDemo` and type `code .` command to open project in VS Code
5. Create `app.py` file
6. Installing FastAPI Library and its Dependencies in Terminal
7. Create `index.js` file and Write “Hello World” JavaScript Code

```
# install libraries ---
# pip install fastapi uvicorn

# 1. Library imports
import uvicorn
from fastapi import FastAPI

from fastapi.middleware.cors import CORSMiddleware
import pickle

# 2. Create the app object
app = FastAPI()

app.add_middleware(
    CORSMiddleware,
    allow_origins=["*"],
    allow_credentials=True,
    allow_methods=["*"],
    allow_headers=["*"],
)
```

```

# 3. load the model
rgModel = pickle.load(open("reg.pkl", "rb"))

# 4. Index route, opens automatically on http://127.0.0.1:8000
@app.get('/')
def index():
    return {'message': 'Hello, World'}

@app.get("/predictPrice")
def gePredictPrice(Area: int, BedRooms: int, BathRooms: int):
    prediction = rgModel.predict([[Area,BedRooms,BathRooms]])
    return {'Price': prediction[0]}

# 5. Run the API with uvicorn
if __name__ == '__main__':
    uvicorn.run(app, port=80, host='0.0.0.0')

# uvicorn app:app --host 0.0.0.0 --port 80
# http://127.0.0.1/predictPrice?Area=1400&BedRooms=3&BathRooms=3

```

8. Run Project: **uvicorn app:app --host 0.0.0.0 --port 80**
9. Open Browser and Type 127.0.0.1/predictPrice?Area=1400&BedRooms=3&BathRooms=3

PHASE 3: Create GitHub Repository

1. Create GitHub Account
2. Login to your Account
3. Create Public Repository
4. Upload Files ([app.py](#) and [reg.pkl](#) only)

PHASE 4: Create Windows EC2 Instance and Connect using RDP Client

PHASE 5: Deploy FastAPI Application from GitHub Repository

1. Connect Windows EC2 instance using RDP Client
2. Download and Install Python from <https://www.python.org/downloads>
3. Download Git Repository (.zip) from <https://github.com/Rambabu1969/FastAPIDemo> → Extract into Project Folder
4. Go to Project Folder → run **pip install fastapi uvicorn** – to install dependencies
5. Run **uvicorn app:app --host 0.0.0.0 --port 80**
6. Open Browser and type <http://127.0.0.1/predictPrice?Area=1400&BedRooms=3&BathRooms=3>
7. Open Windows Firewall and Allow port 80
8. Configure AWS EC2 Security Group to allow Port 80
9. Browse Node.js Express Application using **http://Public IP Address**