Project Structure

Telecom_data_anomaly_Agent/

```
├── Agent.py
├── MCP_server.py
├── app.py              # Gradio frontend
├── tools.py            # Custom LangChain tools
├── requirements.txt
├── .gitignore
├── Data/
│   ├── df_ensemble.csv
│   └── KPI_data_cleaned.csv
├── README.md
```

1. Prerequisites:

- Python 3.9–3.11 recommended
- Git installed
- NVIDIA API Key and Tavily API Key (free signup from NVIDIA and Tavily)

2. Install Requirements:

pip install -r requirements.txt

3. Add API Keys:

Since .env is excluded using .gitignore, either:

Option A: Set keys inside Agent.py

nvidia_key = "your-nvidia-api-key"

tavily_key = "your-tavily-api-key"

Option B: Or use .env file (if you prefer secrets-based setup)

NVIDIA_API_KEY=your-nvidia-api-key

TAVILY_API_KEY=your-tavily-api-key

4. Launch the MCP Server (Backend for LangChain Agent)

python MCP_server.py

➞ This will start a FastAPI server on: http://localhost:8000/invoke

5. Launch the Gradio Frontend

In a separate terminal:

python app.py

➞ The Gradio UI will launch at: http://127.0.0.1:7860

You can ask questions like:

- "Were there anomalies in DL_Throughput last week?"
- "Which site had highest packet loss?"
- "Show anomaly pattern in SINR."

6. Run Both with a .bat File (for Windows)

Initlize run_app.bat.

Thank you!