

✓ Master Checklist: Streamlit + Flask API + Postman

1. Backend (Flask API)

Files to check:

- flask_app.py → must contain routes / , /health , /predict
- best_model.pkl → trained model
- scaler.pkl → saved StandardScaler (or equivalent)
- requirements.txt → must include flask , joblib , pandas , scikit-learn

Steps before running:

1. **Activate conda env**

```
conda activate tfenv
```

2. **Check model + scaler present in same folder as flask_app.py** Or update paths in:

```
model = joblib.load("best_model.pkl")
scaler = joblib.load("scaler.pkl")
```

3. **Run Flask locally**

```
python flask_app.py
```

Should print:

```
* Running on http://127.0.0.1:5000
```

4. **Check endpoints locally**

- Open browser → http://127.0.0.1:5000/
- Open browser → http://127.0.0.1:5000/health

2. Frontend (Streamlit App)

Files to check:

- streamlit_app.py (or app.py)
- Must have **full JSON payload keys** matching Flask API:

```
{
  "Age": 30,
  "Diabetes": 0,
  "Blood_Pressure_Problems": 0,
  "Any_Transplants": 0,
  "Any_Chronic_Diseases": 0,
  "Height": 170,
  "Weight": 80,
  "Known_Allergies": 0,
  "History_of_Cancer_in_Family": 0,
  "Number_of_Major_Surgeries": 1
}
```

Steps before running:

1. **Activate same conda env**

```
conda activate tfenv
```

2. **Run Streamlit app**

```
streamlit run streamlit_app.py
```

3. **Check form submits to Flask API correctly**

- The request in your Streamlit button code must hit:

```
url = "https://insurance-cost-prediction-model.onrender.com/predict"
response = requests.post(url, json=payload)
```

3. Postman Testing

Use this to test **before frontend**.

Base URL

- **Local:** `http://127.0.0.1:5000/predict`
- **Deployed (Render):** `https://insurance-cost-prediction-model.onrender.com/predict`

Headers

Content-Type: application/json

POST Body (JSON)

```
{
  "Age": 35,
  "Diabetes": 1,
  "Blood_Pressure_Problems": 0,
  "Any_Transplants": 0,
  "Any_Chronic_Diseases": 1,
  "Height": 175,
  "Weight": 85,
  "Known_Allergies": 0,
  "History_of_Cancer_in_Family": 0,
  "Number_of_Major_Surgeries": 2
}
```

Expected Response

```
{
  "success": true,
  "prediction": 16500.23,
  "derived": {
    "BMI": 27.76,
    "Age_Group_30-39": 1,
    "Age_Group_40-49": 0,
    "Age_Group_50-59": 0,
    "Age_Group_60+": 0
  }
}
```

4. Final Pre-Demo Verification

Before you start **any session/demo**:

1. ☒ Conda environment activated
2. ☒ `flask_app.py` runs without `ModuleNotFoundError`
3. ☒ `best_model.pkl` + `scaler.pkl` exist in correct path
4. ☒ Test `/health` endpoint in browser/Postman → confirms model & scaler load correctly
5. ☒ Test `/predict` in Postman → confirm JSON prediction works
6. ☒ Run `streamlit run streamlit_app.py`
7. ☒ Fill form in Streamlit → confirm prediction works from deployed API
8. ☒ (Optional) Kill & restart apps before demo so logs are clean

⚡ With this checklist, you can test **locally (127.0.0.1)** or **on Render** with confidence.

Do you want me to also write a **README.md template** (with all commands + Postman test examples) so you can directly include it in your GitHub repo?