## ✅ **Project 2: FastAPI WebSocket Chat App**

### 🔧 **Technologies & Features**

* FastAPI with WebSocket support.
* PostgreSQL + SQLAlchemy ORM for users, messages, and groups.
* Custom ConnectionManager to track active users.
* Personal & Group chat with permission checks.
* Image messages sent via Base64 encoding.
* Group user validation, duplicate ID handling.

### 🗂️ **DB Models**

* User: user\_id, username
* Group: group\_id, group\_name, user\_ids
* ChatMessages: sender, receiver/group, text/image, type

### 🚀 **How to Run**

1. Install requirements:

pip install fastapi uvicorn sqlalchemy psycopg2-binary

1. Create a database in postgresSql and configure that details in database.py
2. Run server:

uvicorn main:app –reload

1. USE RestAPIs for adding Users AND Creating groups
2. Connect WebSocket (example):

* open this link <https://piehost.com/websocket-tester>
* goto WebSocket client extension for browsers
* Then Add to Chrome(add extension tochrome and pin it)
* inside WS URL add this ws://localhost:8000/ws/{user\_id}
* after connecting u have to add different JSON formats accoding to message

1. Test with JSON messages: \*note - from\_user\_id will be mentioned in the URL.

{

"type": "group",

"message": "Hi group",

"group\_id": 1,

}

{

"type": "group",

"image":"convert the image to base64 in online and put that code here",

"group\_id": 1,

}

{

"type": "personal",

"message": "Hi mrs id number 2",

"to\_user\_id": 2,

}

{

"type": "personal",

"image": "convert the image to base64 in online and put that code here",

"to\_user\_id": 2,

}