**"Run the code on Docker and hit the API for the code"**

means:

1. **Run everything (FastAPI + Kafka + Consumer) inside Docker containers using docker-compose**  
   → So you don’t run the Python files manually on your local system — Docker runs everything.
2. **Access the FastAPI backend by calling its HTTP endpoint (the API)**  
   → You "hit the API" by sending a request to http://localhost:8000/send-emails, which will:
   * Read the Excel file.
   * Push messages to Kafka.
   * Your consumer.py (running in Docker) will receive those messages, generate letters, and send the emails.

**Final Project Architecture Summary**

|  |  |
| --- | --- |
| **Component** | **Function** |
| **FastAPI App** | Provides /send-emails API. Reads Excel → sends Kafka messages |
| **Kafka Broker** | Handles message queueing |
| **Consumer.py** | Listens to Kafka, generates Word doc, and sends email |
| **Docker** | Runs all the above in containers using docker-compose |

**Step 1: Build and Run Containers**

Open a terminal in Proj 8 folder and run:

**docker-compose up –build**

**or**

**docker-compose up --build -d**

Docker will:

* Build the app image
* Start Zookeeper, Kafka, FastAPI, and the consumer service

You should see logs like:

* Uvicorn running on 0.0.0.0:8000
* Kafka consumer started...

**Step 2: Hit the API (Trigger the code)**

Open browser or use curl or Postman to "hit the API":

**curl -X POST http://localhost:8000/send-emails**

Or go to:

http://localhost:8000/docs

Click POST /send-emails → Try it out → Execute.

This will:

* Send each user from the Excel sheet to Kafka
* The consumer will receive and process each one
* You will see logs saying:
  + “Email sent to [xyz@abc.com](mailto:xyz@abc.com)”
  + Or errors if any