**🚀 WhatsApp Group Order Automation –**

**1️⃣ Objective**

* Automate order tracking for large WhatsApp groups (thousands of members).
* Extract **order details** (name, phone number, item, quantity) in any language.
* Summarize chat every 12 hours or on-demand.
* Provide a **dashboard UI** to view/export summaries.
* Minimize costs (avoid WhatsApp Business API high charges).

**2️⃣ System Architecture (Low-Cost Approach)**



**Explanation:**

* **WhatsApp Web Bot**: Connects to WhatsApp via Web → free, avoids API costs.
* **Message Queue / Preprocessor**: Collects messages in batches → reduces AI/API usage.
* **Local NLP Rules**: Filters irrelevant messages → reduces unnecessary processing.
* **AI Extractor & Summary Generator**: Processes ambiguous messages & generates 12h summaries.
* **Database**: Stores structured order info.
* **Frontend Dashboard**: Displays orders, allows filtering/search/export.

**3️⃣ Backend Stack**

* **Language / Framework:** Python + FastAPI / Flask
* **Database:** PostgreSQL / MySQL
* **Queue (optional):** Redis / RabbitMQ
* **Scheduler:** APScheduler / Celery for 12h summary generation
* **AI Integration:** OpenAI GPT / self-hosted LLaMA / GPT4All (optional for cost saving)

**4️⃣ WhatsApp Integration**

* **Tool:** Baileys or venom-bot (connects via WhatsApp Web)
* **Functionality:**
  + Receives group messages
  + Filters messages with keywords (order, qty, product names, numbers)
  + Sends filtered messages to processing pipeline

**Cost:** Free, just VPS + your WhatsApp account

**5️⃣ AI / Prompt Engineering**

* **Order Extraction Prompt Example:**

Extract only order details: name, phone, item, quantity.

Ignore greetings or irrelevant text.

Return as JSON.

Message: "<user\_message>"

* **Summary Prompt Example:**

Summarize all orders from last 12 hours, grouped by customer, showing items and quantities.

Output: JSON & human-readable summary.

* **Optimization:** Pre-filter with local rules → call AI only for complex cases or 12h summary → reduces cost.

**6️⃣ Frontend Dashboard**

* **Tech Stack:** React + Tailwind
* **Features:**
  + View all orders in table
  + Filter by user, item, date
  + Generate on-demand summaries
  + Export summary to Excel / PDF
  + Optional charts for top-selling items

**Simple Layout:**

+----------------------------------------+

| Dashboard | Filter | Generate Summary |

+----------------------------------------+

| Name | Phone | Item | Qty | Time |

| Raj | 99999 | Shirt| 10 | 10:05 AM |

| Priya| 88888 | Saree| 3 | 11:20 AM |

+----------------------------------------+

**7️⃣ Hosting / Deployment**

* **VPS:** $5–$10/month (Ubuntu server)
* **Deployment:** Docker + Nginx (frontend + backend)
* **Database:** PostgreSQL / MySQL
* **Optional:** Redis for queue management

**8️⃣ Cost Optimization**

1. Batch messages → reduce AI calls.
2. Filter irrelevant messages → reduce AI usage.
3. Local NLP rules before AI → cheap preprocessing.
4. Generate summaries only every 12 hours or on-demand.
5. Avoid official WhatsApp API → use WhatsApp Web automation.

**9️⃣ Summary Workflow**

1. **Receive Messages** → WhatsApp Web Bot
2. **Filter & Preprocess** → Regex / local NLP rules
3. **Extract Orders** → AI (JSON)
4. **Store Orders** → Database
5. **Generate Summaries** → AI (12h / on-demand)
6. **Display Dashboard** → React frontend

✅ **Outcome:**

* Complete automation for thousands of WhatsApp group messages
* Cost-effective
* Clear, easy-to-use dashboard
* AI-powered extraction & summarization