# 🧬 Customer Mapping + UGC Matching Engine

## ✅ Module Overview

This module creates a unified identity graph that connects all customer touchpoints across platforms (Facebook comments, inbox DMs, WhatsApp replies, Instagram threads, and ecommerce activity). It ensures brands can:

* Recognize returning users across channels
* Associate past orders and behavior with new comments or inboxes
* Power personalization, loyalty, and analytics

## 🎯 Goals

* De-duplicate customer identities across platforms
* Link ecommerce (WooCommerce, Shopify) users to social interactions
* Auto-match UGC (comments, DMs) to customer profiles
* Enable personalized replies, targeted rewards, and predictive triggers

## 🧠 Key Features

### 1. **Customer Identity Graph Builder**

* **Input Sources**:
  + Website: Name, Email, Phone, Order History
  + Facebook: Comment name, Inbox name, Messenger ID
  + Instagram: IG handle, message threads
  + WhatsApp: Number, replies
* **Matching Algorithms**:
  + Email exact match
  + Phone fuzzy match (with +880, 880, 01 variations)
  + Name + IP/Device patterns
  + Inbox scraping for delivery address/history
* **Graph Node Storage**:
  + customer\_nodes table:
    - node\_id, platform\_id, platform\_type, name, email, phone, ig\_handle, wc\_user\_id, mapped\_to
* **Merging Engine**:
  + Background job that runs daily to consolidate identity clusters
  + Manual override interface for Admins

### 2. **UGC Matcher Engine**

* **Purpose**: Map a Facebook/Instagram comment to a real user profile
* **Triggers**:
  + New comment on campaign post
  + New message in Messenger/Inbox
* **Matching Logic**:
  + Match by Name + Existing Comment History
  + Fuzzy match by Delivery Address (scraped from past messages)
  + Phone/email extraction from UGC (if any)
* **Output**:
  + Mapped customer\_node\_id
  + Past orders summary
  + Loyalty tier & rewards
  + UGC history summary (comment counts, engagement)

### 3. **Manual Upload + Mapping Interface**

* Brands can bulk upload their past CRM/customer CSVs
  + Columns: Name, Phone, Email, Last Order, Total Orders, Notes
* System tries to map uploaded entries to existing social UGC profiles
* **Tools Provided**:
  + Conflict Resolver: Pick correct match if duplicate
  + Confidence Score Viewer: AI prediction confidence in linking
  + Edit/Add Notes for Customer Profiles

## 🔄 Workflow Example

1. A user comments on a giveaway: “Hi, I bought this 3 weeks ago!”
2. System sees name = “Fariha Rahman” and Messenger ID = X
3. Previously uploaded CRM has a “Farhia Rahman” with same phone
4. Fuzzy match (90%) → identity matched
5. Profile enriched with:
   * 2 past orders
   * Bronze loyalty tier
   * 4 past UGC comments
6. Auto-reply includes personalization: “Welcome back Fariha! 🎉”

## 🔐 Data Privacy & Security

* GDPR-compliant mapping only with brand-collected data
* Customer Upload explicitly consented
* Internal logs of all mapping actions
* Mapping can be disabled per brand

## 🔧 Tables & Backend Infra

* customer\_nodes
* ugc\_events
* mapping\_jobs
* manual\_uploads
* identity\_conflicts

### Services:

* Identity Mapper Engine
* UGC Extractor + Pattern Matcher
* Confidence Score Calculator (ML based)
* CRM Importer Service

## 💡 Benefits

* Personalized replies & auto-rewards
* Accurate campaign targeting (e.g., “Only for repeat buyers”)
* Clean, deduplicated CRM for remarketing
* Future prediction models can work better

✅ Module draft complete. Let me know if you want visual flows or integration maps next.