**🔁 Overall CRM Logic Flow (Data Lifecycle)**

**🧩 0. Data Import Layer**

**✅ Nguồn dữ liệu:**

* Users (đã có sẵn — nhân viên công ty)
* Customer – danh sách khách hàng do User upload hoặc nhập tay.
* sessions.csv, events.csv, items.csv – file mô tả hành vi khách hàng.

**🔄 Flow:**

1. User đăng nhập vào hệ thống.
2. Tải lên file CSV hoặc nhập từng bản ghi thủ công (qua form).
3. Hệ thống:
   * Validate schema.
   * Map dữ liệu đúng bảng (Customer, Lead, sessions, events, items,…).
   * Gắn dữ liệu Customer với user\_id (ai upload thì gán họ làm owner mặc định).
   * Trigger pipeline xử lý dữ liệu.

**📥 1. User Input or CSV Upload**

* A User (business employee) logs in to the web interface.
* They can:
  + Manually input a contact.
  + Upload a .csv file (e.g. session logs).
  + Let the system auto-ingest based on clean\_data.csv.

**🔄 2. Contact Record Creation/Update**

* For each unique session\_group\_id or identifiable customer behavior:
  + A new row is added to Contacts if email doesn't exist yet.
  + Otherwise, the record is updated (e.g., region, city, status).
* Status logic:
  + If contact has only browsing behavior → status = 'Lead'.
  + If contact has at least one purchase event → status = 'Customer'.

**🔁 3. Sessions & Events Tracking**

* Sessions are created from input data (with city, region, etc.).
* Each session links to one contact (via inferred ID/grouping).
* Events like view\_item, add\_to\_cart, purchase are saved and linked to the session.
* This allows behavioral analytics later.

**📣 4. Campaign Engagement**

* Campaigns are created manually by business users.
* Each campaign can be associated with multiple contacts.
* When a contact engages with a campaign (e.g., comes from an ad link):
  + A row is added to Contacts\_Campaigns.
* **Campaign Mapping (Optional)**
  + Sau khi contact được tạo, hệ thống có thể tự động:
    - Gán contact vào các Campaign hiện tại nếu thoả điều kiện.

**👤 5. Ownership & Segmentation**

* owner\_user\_id in Contacts points to the User who "owns" or manages that contact.
* Useful for assigning leads to different sales reps or teams.

**✅ Schema Recap:**

* Users: CRM system users (employees).
* Contacts: Unified lead/customer table.
* Sessions: Behavioral session data.
* Events: User actions.
* Campaigns: Marketing initiatives.
* Contacts\_Campaigns: Links contacts to campaigns they've seen/joined.