Kalamna - AI Customer Support Egyptian Service ERD V1

Overview

The AI Customer Support Egyptian Service enables Business to integrate a smart AI chatbot into their websites or apps through an embeddable web widget.
It supports text (and future voice) communication in Egyptian Arabic, allowing businesses to automate responses based on their knowledge base, while admins can manage settings, analyze reports, and respond manually when needed.
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**1. **Business

Field	Type	Description
id	UUID	Primary key
name	String	Business name
email	String	Contact email
description	Text	Business overview
industry	String	Business industry type
domain_url	String	Website domain where widget is integrated
bot_name	String	Custom chatbot name
created_at	Timestamp	Record creation date
updated_at	Timestamp	Last update timestamp

Notes:

- Each Business represents one client using the service.
- The Business owns its chatbot, knowledge base, and analytics.

2. Business Admin

Field	Type	Description
id	UUID	Primary key
name	String	Admin's full name
email	String	Login email (unique)

Field	Type	Description
password	String	Encrypted password
role	String	"owner" or "staff"
business_id	FK → Company	Belongs to one company
created_at	Timestamp	Account creation date

Notes:

- Admins manage chatbot setup, upload data, and view reports.
- A Business can have multiple admins.

3. End User

Field	Type	Description
id	UUID	Primary key
business_id	FK → Company	The company this user interacts with
external_id	String	For WhatsApp or Messenger integration (optional)
created_at	Timestamp	When user first interacted
updated_at	Timestamp	Last interaction timestamp

Notes:

- Represents a real customer chatting with the Business bot.
- Data may be minimal since users don't need to register. SO optional to add name , phone , email fields

4. Chat Session

Field	Type	Description
id	UUID	Primary key
business_id	FK → Company	Chat belongs to one company
end_user_id	FK → EndUser	Chat belongs to one user
session_token	String	Unique session identifier
status	String	"active", "closed", or "expired"
started_at	Timestamp	When chat started
ended_at	Timestamp	When chat ended

Field	Type	Description
feedback_id	FK → Feedback	Optional feedback link

Notes:

- Represents a single conversation between user and bot.
- One user can have multiple sessions over time.

5. Chat Message

Field	Type	Description
id	UUID	Primary key
session_id	FK → ChatSession	Belongs to a chat session
sender_type	String	"user", "bot", or "admin"
content	Text	Message content
ai_model_used	String	Model name used for reply (e.g., NileChat, Gemini) "auto added with AI layer"
emotion_detected	String	Optional emotion tag "auto added with AI layer"
timestamp	Timestamp	Message timestamp

Notes:

- Every message exchanged is stored here.
- Helps with analytics, AI improvement, and conversation replay.

6. Feedback

Field	Type	Description
id	UUID	Primary key
session_id	FK → ChatSession	Related chat session
rating	Integer	Rating from 1 to 5
comment	Text	User feedback message
submitted_at	Timestamp	Feedback submission time

Notes:

- Captures end-user satisfaction after each chat.
- Used in analytics reports.

7. Knowledge Base

Field	Type	Description
id	UUID	Primary key
business_id	FK → Company	Belongs to one company
base_type	String	"text" or "file"
content_json	JSON	Structured data (FAQs, policies, etc.) >> used for text only
file_url	String	Path to uploaded PDF, doc, or image >> null if type is text
file_type	String	File MIME type >> only when needed
embedding_vector	Vector	Auto-generated embedding for RAG
created_at	Timestamp	Upload or creation date

Notes:

- Knowledge is used by the AI to generate accurate answers.
- Embeddings are created automatically using LangChain and stored in the database.

8. Analytics Report

Field	Type	Description
id	UUID	Primary key
business_id	FK → Company	The company owning the report
total_chats	Integer	Number of sessions in the period
avg_response_time	Float	Average bot response time
user_satisfaction	Float	Calculated from feedback ratings
report_period_start	Date	Start date of report range
report_period_end	Date	End date of report range
generated_at	Timestamp	When the report was generated

Notes:

- Used by admins for performance tracking and decision-making.
- Generated automatically by background analytics jobs.

- example for output : In October, Company {{company_id}} handled {{total_chats}} chats, responded in ~1.8s on average, and received an average satisfaction rating of 4.3/5.

9. Voice Interaction (Future Feature)

Field	Type	Description
id	UUID	Primary key
session_id	FK → ChatSession	Belongs to one chat session
audio_file_url	String	Stored path for the voice file
transcription_text	Text	Speech-to-text output
detected_emotion	String	Optional emotion tag
created_at	Timestamp	Timestamp of voice input

Notes:

- Supports future voice-based communication (STT & TTS).
- Linked directly to existing chat sessions.

** Relationships Summary**

Relationship	Type	Description
Business → Business Admin	1 → Many	One Business can have multiple admins.
Business → End User	1 → Many	Many users can interact with one Business bot.
Business → Knowledge Base	1 → Many	Each Business has multiple data sources.
Business → Analytics Report	1 → Many	Reports are generated per company.
End User → Chat Session	1 → Many	A user can have multiple chat sessions.
Chat Session → Chat Message	1 → Many	A chat session holds many messages.
Chat Session → Feedback	1 → 1	Each session can have one feedback entry.
Chat Session → Voice Interaction	1 → Many	Each chat may have multiple voice exchanges.

** Data & AI Flow Summary**

1. **Registration:** Business admin registers → new Business and admin record created.

2. **Integration:** Business embeds chat widget on their site (auto-authenticated by Business token).

3. **Chat Start:** End user opens widget → new chat session + user created.

4. **Conversation:**

  - User sends messages → stored in `ChatMessage` .
  - AI retrieves company-specific data from `KnowledgeBase` .
  - Response returned and logged (with model name).

5. **Feedback:** After session ends, user can rate and comment → stored in `Feedback` .

6. **Analytics:** System aggregates chat data into `AnalyticsReport` .

7. **Future Support:** Voice data captured in `VoiceInteraction` for AI processing.