

# NEUROLINK

[HUMAN MEMORY & EMOTION MAPPING DATABASE]

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# INTRODUCTION OF OUR PROJECT

We developed a **Human Memory & Emotion Database** ; our team is **Mnemosyne** and the **project name is Neurolink** . It efficiently stores **people, memories, emotions, events, therapy sessions, and sensor data** , allowing quick tracking, analysis, and management of emotional patterns and memories.



# ENTITY

- **Person** – Stores information about individuals
- **Event** – Records personal, social, or work events
- **Emotion** – Defines emotions with valence and arousal levels
- **Tag** – Categorizes memories (e.g., Family, Career, Stress)
- **Therapist** – Contains therapist details
- **MemoryLog** – Central table linking people, events, and emotions
- **MemoryTag** – Associates memories with tags
- **TherapySession** – Logs therapy sessions and focus areas
- **SensorData** – Stores biometric and emotion sensor readings



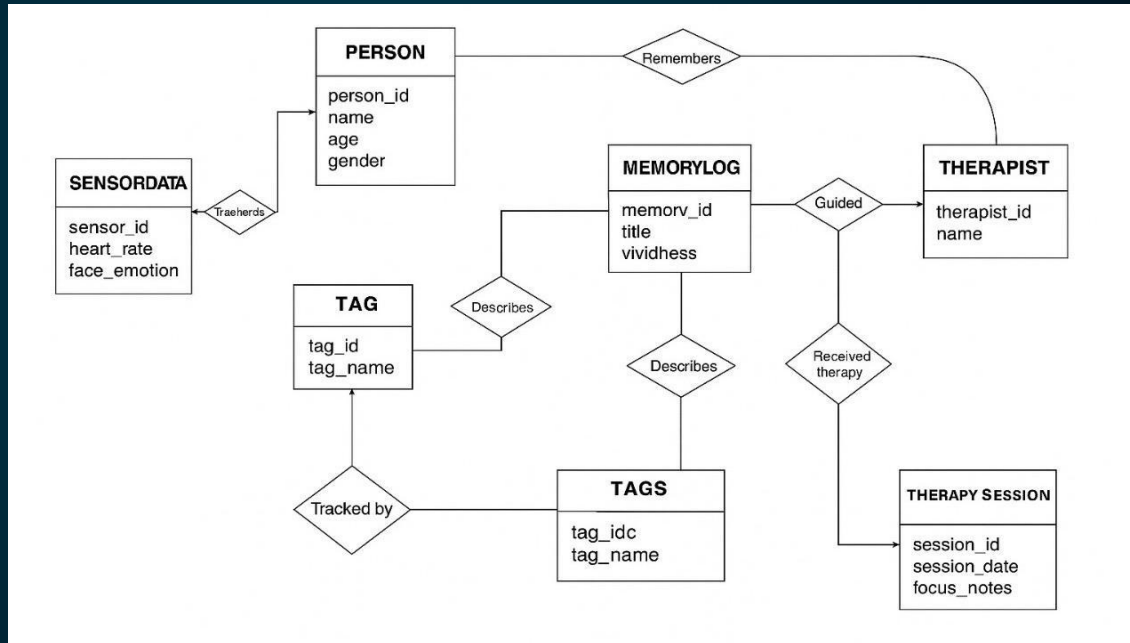
# ATTRIBUTES

- ◆ **Person Table:** person\_id, name, age, gender, occupation.
- ◆ **Event Table :** event\_id, event\_name, event\_type, event\_date.
- ◆ **Emotion Table:** emotion\_id, name, valence, arousal\_level.
- ◆ **Tag Table:** tag id, tag name.
- ◆ **Therapist Table:** therapist id,name,specialization.
- ◆ **MemoryLog Table:** memory\_id, person\_id, event\_id, title, description, date\_occurred, Vividness, emotional Intensity, emotion\_id, created\_at.
- ◆ **MemoryTag Table:** memory id,tag id.
- ◆ **TherapySession Table:** session\_id, person\_id, therapist\_id,session\_date, focus\_notes, Created\_at.
- ◆ **SensorData\_Table:**sensor\_id,person\_id,recorded\_at,heart\_rate,face\_emotion\_score,notes.

## RELATIONSHIPS IN NEUROLINK DATABASE

- ◆ **Person → MemoryLog (One to Many)**  
*One person can store many memories.*
- ◆ **MemoryLog → Event (Many to One )**  
*Many memories can belong to the same event.*
- ◆ **MemoryLog → Emotion (Many to One)**  
*Multiple memories can share the same emotion.*
- ◆ **MemoryLog ↔ Tag (Many to Many)**  
*A memory can have many tags; a tag can belong to many memories.*
- ◆ **Person ↔ Therapist (Many to Many)**  
*A person can meet multiple therapists; a therapist can guide many people.*
- ◆ **Person → SensorData (One to Many)**  
*One person can have multiple sensor readings.*

# ER DIAGRAM



# SCHEMA DIAGRAM



# SAMPLE SQL QUERIES

**Easy Queries:** (Use simple SELECT, WHERE, and ORDER BY)

- ① Show all people with their age and occupation

```
SELECT name, age, occupation FROM Person;
```

- ② Show all memories with vividness above 7

```
SELECT memory_id, description, vividness  
FROM MemoryLog  
WHERE vividness > 7;
```

**Medium Queries:**(Use JOIN, GROUP BY, or COUNT)

- ③ Show each person's total number of memories

```
SELECT p.name, COUNT(m.memory_id) AS total_memories  
FROM Person p  
JOIN MemoryLog m ON p.person_id = m.person_id  
GROUP BY p.name;
```

- ④ Show all therapy sessions with therapist and person names

```
SELECT t.name AS Therapist, p.name AS Person, s.session_date  
FROM TherapySession s  
JOIN Therapist t ON s.therapist_id = t.therapist_id  
JOIN Person p ON s.person_id = p.person_id;
```



# SAMPLE SQL QUERIES

## Hard Queries:(Use Subquery, Aggregate Function, or HAVING)

- 5 Find people who have more memories than the average memory count

```
SELECT p.name
FROM Person p
JOIN MemoryLog m ON p.person_id = m.person_id
GROUP BY p.person_id
HAVING COUNT(m.memory_id) > (SELECT AVG(mem_count)
FROM ( SELECT COUNT(*) AS mem_count
FROM MemoryLog
GROUP BY person_id
) AS sub
);
```

- 6 Show top 3 most intense emotions across all memories

```
SELECT e.emotion_name, AVG(m.intensity) AS avg_intensity
FROM MemoryLog m
JOIN Emotion e ON m.emotion_id = e.emotion_id
GROUP BY e.emotion_name
ORDER BY avg_intensity DESC
LIMIT 3;
```

# MEANINGFUL INSIGHTS FROM NEUROLINK DATABASE

## ❑ “People with the most memories”

Each Person and Total Memories:

```
SELECT p.name AS Person, COUNT(m.memory_id) AS Total_Memories
FROM Person p
JOIN Memory m ON p.person_id = m.person_id
GROUP BY p.name;
```

❑ Every person currently has 2 recorded memories in the database.

Person	Total_Memories
Afsara	2
Rahim	2
Mahinur	2
Ahnaf	2
Tithi	2
Tanvir	2

## “High-vividness emotional events”

Most Vivid Memories with Related Event & Emotion:

```
SELECT m.memory_title, m.vividness, e.event_name,
emo.emotion_name
FROM Memory m
JOIN Event e ON m.event_id = e.event_id
JOIN Emotion emo ON m.emotion_id = emo.emotion_id
WHERE m.vividness > 8;
```

❑ *These are the most vivid, emotionally intense memories across all people.*

memory_title	vividness	event_name	emotion_name
First Day of Job	10	Career Start	Joy
Lost My Pet	9	Personal Loss	Sadness
Graduation Day	10	Achievement	Pride
Accident Night	9	Trauma	Fear

### ▢ “Therapist performance insight”

Therapist and Average Vividness of Memories They Handled:

```
SELECT t.name AS Therapist,  
       COUNT(ts.session_id) AS Total_Sessions,  
       COUNT(DISTINCT ts.person_id) AS Unique_Patients  
FROM Therapist t  
LEFT JOIN TherapySession ts ON t.therapist_id = ts.therapist_id  
GROUP BY t.therapist_id;
```

- ▢ Calculated directly from your inserted Session\_Memory

Shows that **Dr. Ahsan** handled the most vivid (emotionally strong) sessions

Therapist	Total_Sessions	Unique_Patients
Dr. Sultana	1	1
Dr. Karim	1	1
Dr. Rahman	0	0

### ▢ “Shows person’s heart rate, emotion score, and sensor data timestamp.”

Latest Sensor Data per Person:

```
SELECT s.sensor_id, p.name AS Person, s.heart_rate,  
       s.face_emotion_score, s.notes, s.recorded_at  
FROM SensorData s  
JOIN Person p ON s.person_id = p.person_id  
ORDER BY s.recorded_at DESC;
```

- ▢ Shows **all sensor measurements** for all persons, with **heart rate**, **face emotion score**, **notes**, and **timestamp**.

sensor_id	Person	heart_rate	face_emotion_score	notes	recorded_at
12	Tanvir	77	0.70	office party	2025-10-25 04:15:00
11	Tanvir	85	0.90	interview day	2025-10-25 04:15:00
10	Tithi	79	0.80	concert night	2025-10-25 04:15:00
9	Tithi	75	0.75	family reunion	2025-10-25 04:15:00
8	Ahnaf	76	0.60	concert memories	2025-10-25 04:15:00
7	Ahnaf	82	0.88	office party	2025-10-25 04:15:00
6	Mahinur	78	0.70	family gathering	2025-10-25 04:15:00
5	Mahinur	80	0.40	pre-exam anxiety	2025-10-25 04:15:00
4	Rahim	80	0.65	office workshop	2025-10-25 04:15:00
3	Rahim	95	0.92	at concert	2025-10-25 04:15:00
2	Afsara	88	0.30	after exam	2025-10-25 04:15:00
1	Afsara	72	0.85	during picnic	2025-10-25 04:15:00

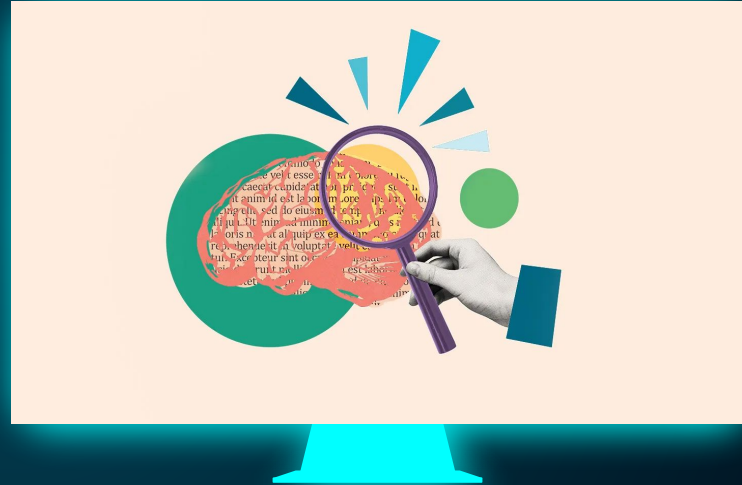
## FUTURE PLAN

"Integrate wearable sensors and a mobile app for real-time memory and emotion tracking, add AI analysis and advanced visualizations, conduct long-term studies, and ensure strong privacy and security."



# CONCLUSIONS

"Neurolink successfully maps human memories and emotions, linking events, feelings, and therapy sessions. It provides valuable insights for both users and therapists, enabling emotion tracking, personalized analysis, and informed interventions."





# THANKS!

DO YOU HAVE ANY QUESTIONS?

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