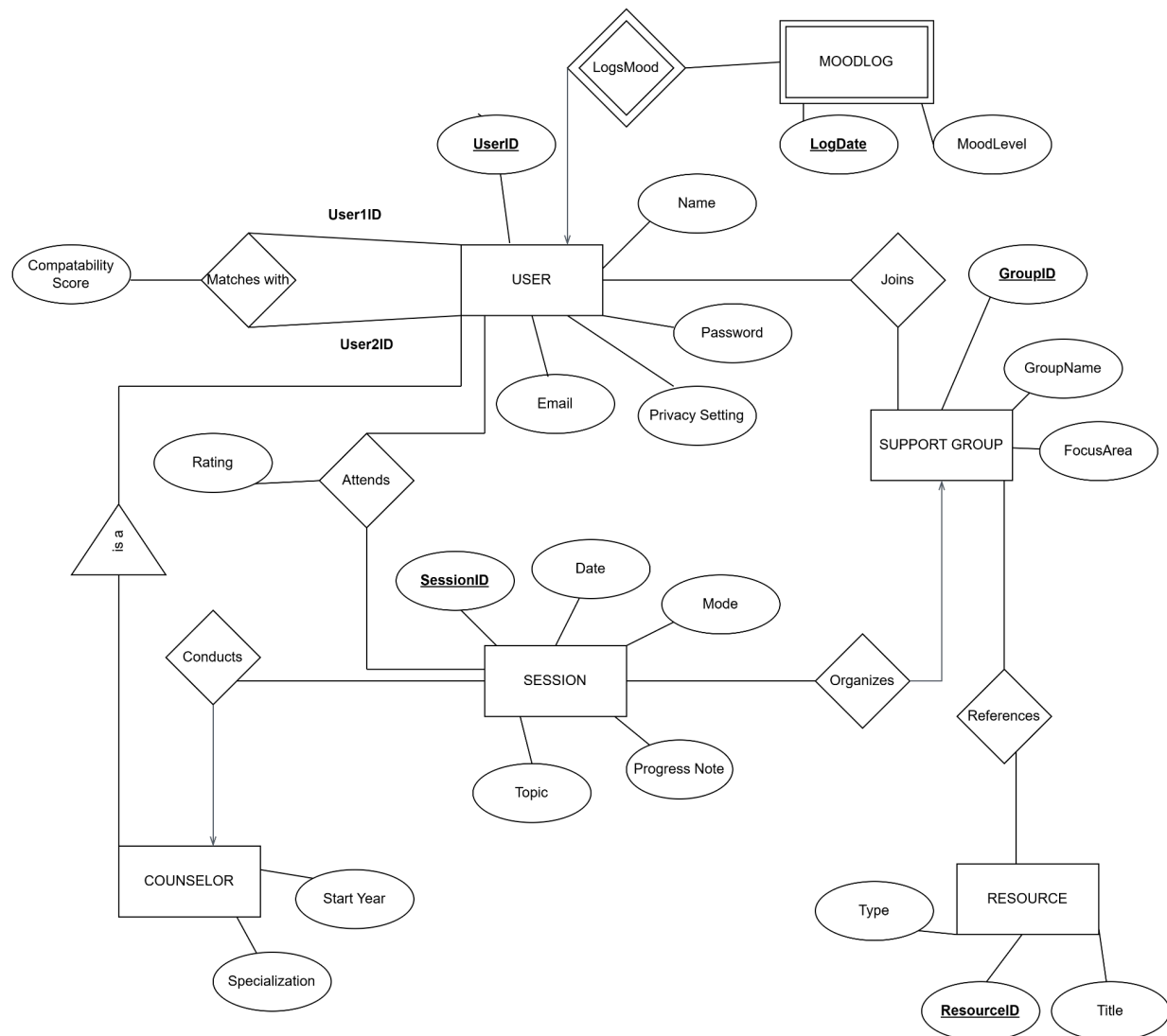


CSC-584 Group Project:

ER Model - MindConnect+ App.



App Flow:

Sofia -> User register -> Mood Tracking -> Joining a Group -> Support Resources -> Peer-Matching -> Counseling session -> Rating -> Counselor Progress Note -> Everything Logs in the mood dashboard for the updated progress for the user.

Table	Type	Description
User	Entity	Main user table
Counselor	Entity (ISA)	Subclass of User
MoodLog	Weak Entity	Composite PK (userID + logDate)
SupportGroup	Entity	Support groups
Session	Entity	Sessions with FK to Counselor & Group
Resource	Entity	Resources
MatchesWith	Relationship	Many-to-many self-relationship
Joins	Relationship	User joins Group
Attends	Relationship	User attends Session (with rating)
References	Relationship	Group references Resource

Relationship	Cardinality
USER — Matches With — USER (multiple matches can exist between both users based on comp. score)	Many-to-many(self relationship)
USER — Joins — SUPPORT GROUP	Many-to-many
USER — Attends — SESSION gives rating	Many-to-many (relational attribute)
USER — LogsMood — MOODLOG	Weak entity (Many-to-one) (Exactly one)
COUNSELOR can Conduct many SESSION Each session is conducted by exactly one counselor	Many-to-one (Exactly one)
SUPPORT GROUP can Organize many SESSIONs Each session is organized by exactly one SG	Many-to-one (Exactly one)
SUPPORT GROUP — References — RESOURCE	Many-to-many
USER — ISA — COUNSELOR	Subclass (ISA)

Relational Model

AppUser(userID, userName, email, userPassword, privacySetting)

Counselor(userID, specialization, startYear)

FK: userID → AppUser

MoodLog(userID, logDate, moodLevel) 1:N

PK: (userID, logDate)

FK: userID → AppUser

SupportGroup(groupID, groupName, focusArea)

CounselingSession(sessionID, sessionDate, topic, sessionMode, progressNote,
counselorID, groupID) N:1

FK: counselorID → Counselor (NOT NULL)

FK: groupID → SupportGroup (NOT NULL)

LearningResource(resourceID, title, resourceType)

UserMatch(user1ID, user2ID, compatibilityScore) - ISA, M:N

PK: (user1ID, user2ID)

FK: user1ID → AppUser

FK: user2ID → AppUser

UserGroup(userID, groupID) M:N

PK: (userID, groupID)

FK: userID → AppUser

FK: groupID → SupportGroup

UserSession(userID, sessionID, rating) M:N

PK: (userID, sessionID)

FK: userID → AppUser

FK: sessionID → CounselingSession

GroupResource(groupID, resourceID) M:N

PK: (groupID, resourceID)

FK: groupID → SupportGroup

FK: resourceID → LearningResource

Legend

- **FK** = Foreign Key
- **PK** = Primary Key
- **M:N** = Many-to-Many
- **1:N** = One-to-Many
- **N:1** = Many-to-One
- **ISA** = Subclass Relationship

SQL Code

```
-- =====
-- MindConnect+ Database Schema
-- =====

-- Drop tables in reverse order (to handle foreign key dependencies)
DROP TABLE GroupResource CASCADE CONSTRAINTS;
DROP TABLE UserSession CASCADE CONSTRAINTS;
DROP TABLE UserGroup CASCADE CONSTRAINTS;
DROP TABLE UserMatch CASCADE CONSTRAINTS;
DROP TABLE MoodLog CASCADE CONSTRAINTS;
DROP TABLE Counselor CASCADE CONSTRAINTS;
DROP TABLE CounselingSession CASCADE CONSTRAINTS;
DROP TABLE LearningResource CASCADE CONSTRAINTS;
DROP TABLE SupportGroup CASCADE CONSTRAINTS;
DROP TABLE AppUser CASCADE CONSTRAINTS;
```

```
-- =====
-- ENTITY TABLES
-- =====

-- USER Entity (renamed to AppUser since USER is Oracle reserved word)
CREATE TABLE AppUser (
    userID NUMBER(10) PRIMARY KEY,
    userName VARCHAR2(50),
    email VARCHAR2(100) UNIQUE,
    userPassword VARCHAR2(100),
    privacySetting VARCHAR2(20)
);

-- COUNSELOR Entity (Subclass of AppUser via ISA)
-- Note: Counselor inherits userName from AppUser table through userID
CREATE TABLE Counselor (
    userID NUMBER(10) PRIMARY KEY,
    specialization VARCHAR2(50),
    startYear NUMBER(4),
    CONSTRAINT fk_counselor_user FOREIGN KEY (userID)
        REFERENCES AppUser(userID) ON DELETE CASCADE
);
```

```

-- MOODLOG Entity (Weak Entity - depends on AppUser)
CREATE TABLE MoodLog (
    userID NUMBER(10),
    logDate DATE,
    moodLevel VARCHAR2(20),
    CONSTRAINT pk_moodlog PRIMARY KEY (userID, logDate),
    CONSTRAINT fk_moodlog_user FOREIGN KEY (userID)
        REFERENCES AppUser(userID) ON DELETE CASCADE
);

-- SUPPORT GROUP Entity
CREATE TABLE SupportGroup (
    groupID NUMBER(10) PRIMARY KEY,
    groupName VARCHAR2(50),
    focusArea VARCHAR2(50)
);

-- SESSION Entity
CREATE TABLE CounselingSession (
    sessionID NUMBER(10) PRIMARY KEY,
    sessionDate DATE,
    topic VARCHAR2(100),
    sessionMode VARCHAR2(20),
    progressNote VARCHAR2(500),
    counselorID NUMBER(10) NOT NULL,
    groupID NUMBER(10) NOT NULL,
    CONSTRAINT fk_session_counselor FOREIGN KEY (counselorID)
        REFERENCES Counselor(userID) ON DELETE CASCADE,
    CONSTRAINT fk_session_group FOREIGN KEY (groupID)
        REFERENCES SupportGroup(groupID) ON DELETE CASCADE
);

-- RESOURCE Entity
CREATE TABLE LearningResource (
    resourceID NUMBER(10) PRIMARY KEY,
    title VARCHAR2(100),
    resourceType VARCHAR2(30)
);

```

```

-- =====
-- RELATIONSHIP TABLES
-- =====

-- AppUser Matches With AppUser (Many-to-Many Self-Relationship)
CREATE TABLE UserMatch (
    user1ID NUMBER(10),
    user2ID NUMBER(10),
    compatibilityScore NUMBER(5,2),
    CONSTRAINT pk_usermatch PRIMARY KEY (user1ID, user2ID),
    CONSTRAINT fk_match_user1 FOREIGN KEY (user1ID)
        REFERENCES AppUser(userID) ON DELETE CASCADE,
    CONSTRAINT fk_match_user2 FOREIGN KEY (user2ID)
        REFERENCES AppUser(userID) ON DELETE CASCADE
);

-- AppUser Joins SUPPORT GROUP (Many-to-Many)
CREATE TABLE UserGroup (
    userID NUMBER(10),
    groupID NUMBER(10),
    CONSTRAINT pk_usergroup PRIMARY KEY (userID, groupID),
    CONSTRAINT fk_usergroup_user FOREIGN KEY (userID)
        REFERENCES AppUser(userID) ON DELETE CASCADE,
    CONSTRAINT fk_usergroup_group FOREIGN KEY (groupID)
        REFERENCES SupportGroup(groupID) ON DELETE CASCADE
);

-- AppUser Attends SESSION (Many-to-Many with Rating attribute)
CREATE TABLE UserSession (
    userID NUMBER(10),
    sessionID NUMBER(10),
    rating NUMBER(1),
    CONSTRAINT pk_usersession PRIMARY KEY (userID, sessionID),
    CONSTRAINT fk_usersession_user FOREIGN KEY (userID)
        REFERENCES AppUser(userID) ON DELETE CASCADE,
    CONSTRAINT fk_usersession_session FOREIGN KEY (sessionID)
        REFERENCES CounselingSession(sessionID) ON DELETE CASCADE
);

-- SUPPORT GROUP References RESOURCE (Many-to-Many)
CREATE TABLE GroupResource (
    groupID NUMBER(10),
    resourceID NUMBER(10),

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```

CONSTRAINT pk_groupresource PRIMARY KEY (groupID, resourceID),
CONSTRAINT fk_groupres_group FOREIGN KEY (groupID)
    REFERENCES SupportGroup(groupID) ON DELETE CASCADE,
CONSTRAINT fk_groupres_resource FOREIGN KEY (resourceID)
    REFERENCES LearningResource(resourceID) ON DELETE CASCADE
);

```

```

-- =====
-- MindConnect+ Sample Data
-- =====

-- =====
-- APPUSER DATA
-- =====

INSERT INTO AppUser VALUES (1, 'Alice Johnson', 'alice@email.com',
'hash123', 'public');
INSERT INTO AppUser VALUES (2, 'Bob Smith', 'bob@email.com', 'hash456',
'private');
INSERT INTO AppUser VALUES (3, 'Carol Davis', 'carol@email.com', 'hash789',
'public');
INSERT INTO AppUser VALUES (4, 'Dave Wilson', 'dave@email.com', 'hash012',
'friends');
INSERT INTO AppUser VALUES (5, 'Eve Martinez', 'eve@email.com', 'hash345',
'public');
INSERT INTO AppUser VALUES (10, 'Dr. Sarah Chen', 'sarah@email.com',
'hash678', 'public');
INSERT INTO AppUser VALUES (11, 'Dr. Michael Brown', 'michael@email.com',
'hash901', 'public');
INSERT INTO AppUser VALUES (12, 'Dr. Emily Taylor', 'emily@email.com',
'hash234', 'public');

-- =====
-- COUNSELOR DATA (Subclass of AppUser)
-- =====

INSERT INTO Counselor VALUES (10, 'Anxiety and Stress', 2018);
INSERT INTO Counselor VALUES (11, 'Depression', 2015);
INSERT INTO Counselor VALUES (12, 'Trauma and PTSD', 2020);

```

```
-- =====
-- MOODLOG DATA (Weak Entity)
-- =====

-- Alice's mood logs
INSERT INTO MoodLog VALUES (1, TO_DATE('2024-01-15', 'YYYY-MM-DD'),
'Happy');
INSERT INTO MoodLog VALUES (1, TO_DATE('2024-01-16', 'YYYY-MM-DD'),
'Anxious');
INSERT INTO MoodLog VALUES (1, TO_DATE('2024-01-17', 'YYYY-MM-DD'),
'Calm');
INSERT INTO MoodLog VALUES (1, TO_DATE('2024-01-18', 'YYYY-MM-DD'),
'Stressed');

-- Bob's mood logs
INSERT INTO MoodLog VALUES (2, TO_DATE('2024-01-15', 'YYYY-MM-DD'), 'Sad');
INSERT INTO MoodLog VALUES (2, TO_DATE('2024-01-16', 'YYYY-MM-DD'),
'Neutral');
INSERT INTO MoodLog VALUES (2, TO_DATE('2024-01-17', 'YYYY-MM-DD'),
'Happy');

-- Carol's mood logs
INSERT INTO MoodLog VALUES (3, TO_DATE('2024-01-15', 'YYYY-MM-DD'),
'Anxious');
INSERT INTO MoodLog VALUES (3, TO_DATE('2024-01-16', 'YYYY-MM-DD'),
'Stressed');
INSERT INTO MoodLog VALUES (3, TO_DATE('2024-01-17', 'YYYY-MM-DD'),
'Calm');

-- Dave's mood logs
INSERT INTO MoodLog VALUES (4, TO_DATE('2024-01-15', 'YYYY-MM-DD'),
'Happy');
INSERT INTO MoodLog VALUES (4, TO_DATE('2024-01-16', 'YYYY-MM-DD'),
'Calm');

-- Eve's mood logs
INSERT INTO MoodLog VALUES (5, TO_DATE('2024-01-15', 'YYYY-MM-DD'),
'Neutral');
INSERT INTO MoodLog VALUES (5, TO_DATE('2024-01-16', 'YYYY-MM-DD'),
'Happy');
INSERT INTO MoodLog VALUES (5, TO_DATE('2024-01-17', 'YYYY-MM-DD'),
'Anxious');
```



```

-- =====
-- SUPPORT GROUP DATA
-- =====

INSERT INTO SupportGroup VALUES (101, 'Anxiety Support Circle', 'Anxiety');
INSERT INTO SupportGroup VALUES (102, 'Depression Recovery', 'Depression');
INSERT INTO SupportGroup VALUES (103, 'Stress Management', 'Stress');
INSERT INTO SupportGroup VALUES (104, 'Young Adults Mental Health',
'General');
INSERT INTO SupportGroup VALUES (105, 'PTSD Survivors', 'Trauma');

-- =====
-- COUNSELING SESSION DATA
-- =====

INSERT INTO CounselingSession VALUES (201, TO_DATE('2024-02-01',
'YYYY-MM-DD'), 'Managing Anxiety', 'Online', 'Great progress shown', 10,
101);
INSERT INTO CounselingSession VALUES (202, TO_DATE('2024-02-03',
'YYYY-MM-DD'), 'Coping with Depression', 'In-Person', 'Needs more support',
11, 102);
INSERT INTO CounselingSession VALUES (203, TO_DATE('2024-02-05',
'YYYY-MM-DD'), 'Stress Relief Techniques', 'Online', 'Excellent
participation', 10, 103);
INSERT INTO CounselingSession VALUES (204, TO_DATE('2024-02-07',
'YYYY-MM-DD'), 'Building Resilience', 'Online', 'Making steady progress',
12, 104);
INSERT INTO CounselingSession VALUES (205, TO_DATE('2024-02-10',
'YYYY-MM-DD'), 'Trauma Processing', 'In-Person', 'Showing improvement', 12,
105);
INSERT INTO CounselingSession VALUES (206, TO_DATE('2024-02-12',
'YYYY-MM-DD'), 'Mindfulness Practice', 'Online', 'Very engaged', 10, 101);

-- =====
-- LEARNING RESOURCE DATA
-- =====

INSERT INTO LearningResource VALUES (301, 'Breathing Exercises Guide',
'Article');
INSERT INTO LearningResource VALUES (302, 'Meditation for Beginners',
'Video');
INSERT INTO LearningResource VALUES (303, 'Understanding Depression',

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```

'PDF');
INSERT INTO LearningResource VALUES (304, 'Anxiety Management Workbook',
'PDF');
INSERT INTO LearningResource VALUES (305, 'Sleep Hygiene Tips', 'Article');
INSERT INTO LearningResource VALUES (306, 'Cognitive Behavioral Therapy
Basics', 'Video');
INSERT INTO LearningResource VALUES (307, 'Crisis Helpline Numbers',
'Article');
INSERT INTO LearningResource VALUES (308, 'Journaling for Mental Health',
'PDF');

-- =====
-- RELATIONSHIP DATA
-- =====

-- APPUSER MATCHES WITH APPUSER (Compatibility Matching)
-- Storing only one direction (user1ID < user2ID)
INSERT INTO UserMatch VALUES (1, 2, 85.5); -- Alice matches Bob
INSERT INTO UserMatch VALUES (1, 3, 72.0); -- Alice matches Carol
INSERT INTO UserMatch VALUES (1, 4, 90.0); -- Alice matches Dave (best
match)
INSERT INTO UserMatch VALUES (2, 3, 65.0); -- Bob matches Carol
INSERT INTO UserMatch VALUES (2, 5, 88.0); -- Bob matches Eve
INSERT INTO UserMatch VALUES (3, 4, 78.5); -- Carol matches Dave
INSERT INTO UserMatch VALUES (4, 5, 82.0); -- Dave matches Eve

-- APPUSER JOINS SUPPORT GROUP
INSERT INTO UserGroup VALUES (1, 101); -- Alice joins Anxiety Support
INSERT INTO UserGroup VALUES (1, 103); -- Alice joins Stress Management
INSERT INTO UserGroup VALUES (2, 102); -- Bob joins Depression Recovery
INSERT INTO UserGroup VALUES (2, 104); -- Bob joins Young Adults
INSERT INTO UserGroup VALUES (3, 101); -- Carol joins Anxiety Support
INSERT INTO UserGroup VALUES (3, 103); -- Carol joins Stress Management
INSERT INTO UserGroup VALUES (4, 104); -- Dave joins Young Adults
INSERT INTO UserGroup VALUES (5, 101); -- Eve joins Anxiety Support
INSERT INTO UserGroup VALUES (5, 104); -- Eve joins Young Adults

-- APPUSER ATTENDS SESSION (with Rating)
INSERT INTO UserSession VALUES (1, 201, 5); -- Alice attended session 201,
rated 5/5
INSERT INTO UserSession VALUES (1, 203, 4); -- Alice attended session 203,
rated 4/5
INSERT INTO UserSession VALUES (1, 206, 5); -- Alice attended session 206,

```

```

rated 5/5
INSERT INTO UserSession VALUES (2, 202, 4); -- Bob attended session 202,
rated 4/5
INSERT INTO UserSession VALUES (2, 204, 3); -- Bob attended session 204,
rated 3/5
INSERT INTO UserSession VALUES (3, 201, 5); -- Carol attended session 201,
rated 5/5
INSERT INTO UserSession VALUES (3, 203, 4); -- Carol attended session 203,
rated 4/5
INSERT INTO UserSession VALUES (4, 204, 5); -- Dave attended session 204,
rated 5/5
INSERT INTO UserSession VALUES (5, 201, 4); -- Eve attended session 201,
rated 4/5
INSERT INTO UserSession VALUES (5, 204, 5); -- Eve attended session 204,
rated 5/5
INSERT INTO UserSession VALUES (5, 206, 5); -- Eve attended session 206,
rated 5/5

-- SUPPORT GROUP REFERENCES RESOURCE
INSERT INTO GroupResource VALUES (101, 301); -- Anxiety group uses
Breathing Exercises
INSERT INTO GroupResource VALUES (101, 302); -- Anxiety group uses
Meditation video
INSERT INTO GroupResource VALUES (101, 304); -- Anxiety group uses Anxiety
Workbook
INSERT INTO GroupResource VALUES (102, 303); -- Depression group uses
Understanding Depression
INSERT INTO GroupResource VALUES (102, 306); -- Depression group uses CBT
Basics
INSERT INTO GroupResource VALUES (102, 308); -- Depression group uses
Journaling PDF
INSERT INTO GroupResource VALUES (103, 301); -- Stress group uses
Breathing Exercises
INSERT INTO GroupResource VALUES (103, 305); -- Stress group uses Sleep
Hygiene
INSERT INTO GroupResource VALUES (104, 302); -- Young Adults group uses
Meditation
INSERT INTO GroupResource VALUES (104, 307); -- Young Adults group uses
Crisis Helpline
INSERT INTO GroupResource VALUES (105, 306); -- PTSD group uses CBT Basics
INSERT INTO GroupResource VALUES (105, 308); -- PTSD group uses Journaling
COMMIT;

```

```
-- =====  
-- VERIFICATION QUERIES  
-- =====
```

```
-- Uncomment to verify data insertion:
```

```
SELECT * FROM AppUser;  
SELECT * FROM Counselor;  
SELECT * FROM MoodLog;  
SELECT * FROM SupportGroup;  
SELECT * FROM CounselingSession;  
SELECT * FROM LearningResource;  
SELECT * FROM UserMatch;  
SELECT * FROM UserGroup;  
SELECT * FROM UserSession;  
SELECT * FROM GroupResource;
```