

Project Track 1 - Stage 2

Entities:

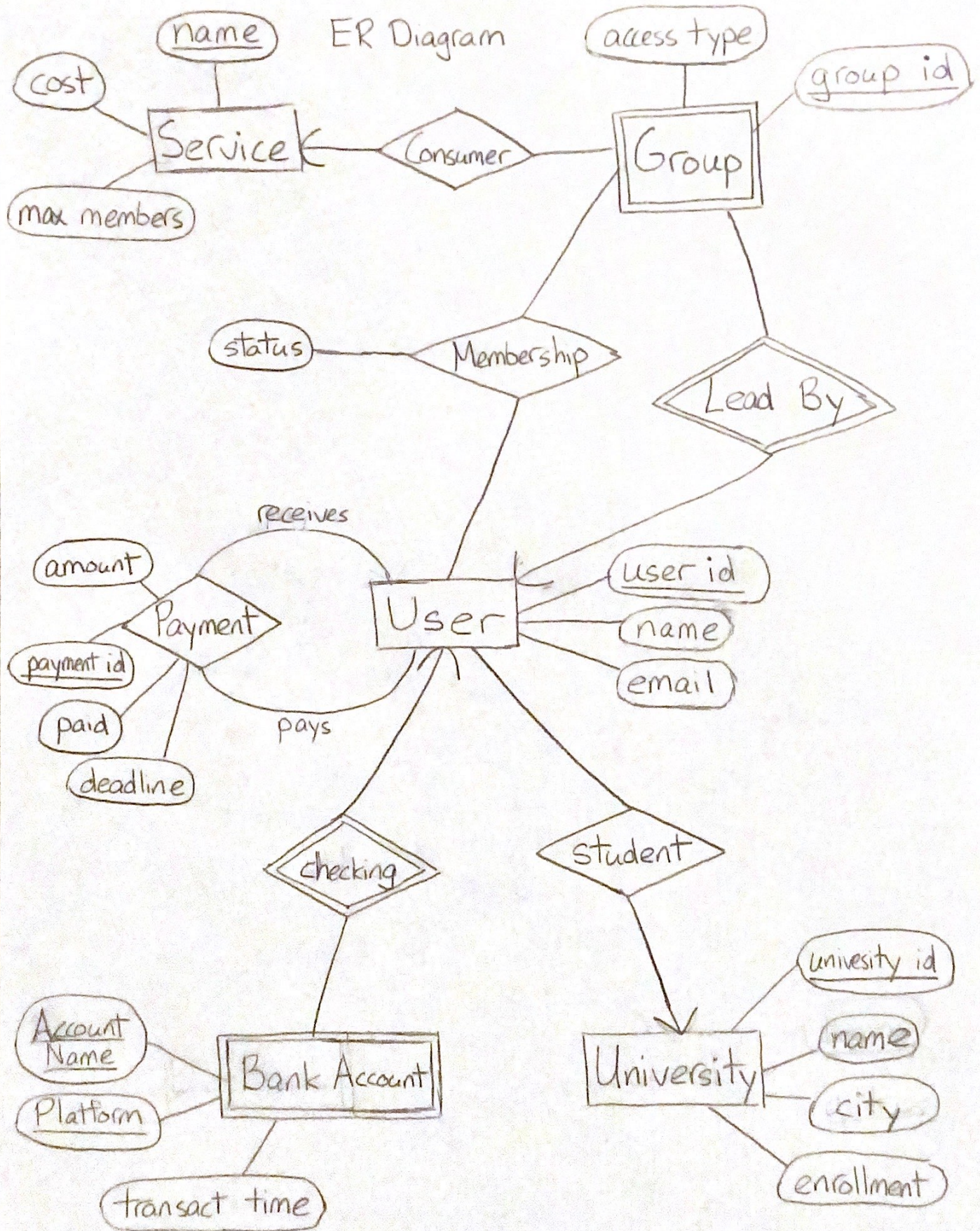
- User
 - Represents each user who enrolls onto the FamilyHub platform
 - Users are uniquely identified by their User ID. Other attributes include their name and email
- Group
 - Represents a group of users who aim to start a family plan together
 - Groups are uniquely identified by their Group ID and the User ID of their group leader (the user who first started the group). Another attribute is the group's access type (open/closed), which determines if new user's are immediately accepted into the group or require approval from the group leader.
- Service
 - Represents each streaming service that a group aim to start a family plan for
 - Services are uniquely identified by their name (ex: Spotify, Netflix, etc.). Other attributes include the service cost and the maximum number of members for that service's family plan.
- University
 - Represents a university that students attend
 - Each university is uniquely identified by its University ID. Other attributes include the university's name, city, and enrollment.
- Bank Account
 - Represents the various banking/checking accounts that a user might pay with
 - Bank accounts are uniquely identified by their account name (ex: @ayanmallik), platform (ex: Venmo, Zelle, etc.), and User ID. Another attribute is the bank's transact time, which is the maximum number of days it takes for a transaction to go through.

Relationships:

- A User may check with multiple Bank Accounts, and a Bank Account must be owned by exactly one User (one-many).
- A Student can attend up to 1 University, and a University can be attended by many students (many-one).
- A User can be a member of multiple Groups, and a Group can have multiple Users (many-many).

- Membership contains an extra attribute called status that represents whether or not the User has officially joined that Group. The status can either be pending, accepted, or denied.
- A User can lead multiple Groups, and a Group must be led by exactly one User (many-one).
- A User can pay multiple Users, and a User can also be paid by multiple Users.
 - Each Payment can be uniquely identified by its Payment ID (important for determining uniqueness since there can be multiple sets of payments between the same pair of users). Other attributes include the amount, deadline, and whether or not it has been paid (0 or 1).
- A Group must consume exactly one Service, and a Service can be purchased by many Groups (many-one).

ER Diagram



Relational Schema:

User(UserID:INT [PK], Name:VARCHAR(255),
Email:VARCHAR(255), UniversityID [FK to University.UniversityID])

Group(GroupID:INT [PK], LeaderID:INT [PK] [FK to User.UserID],
AccessType:VARCHAR(100), Service:VARCHAR(100) [FK to
Service.Name])

Service(Name:VARCHAR(100) [PK], Cost:Decimal,
MaxMembers:INT)

University(UniversityID:INT [PK], Name:VARCHAR(255),
City:VARCHAR(255), Enrollment:INT)

BankAccount(AccountName:VARCHAR(255) [PK],
Platform:VARCHAR(100) [PK], UserID:INT [PK] [FK to User.UserID],
TransactTime:Decimal)

Payment(PayerID:INT [PK] [FK to User.UserID], RecipientID [PK] [FK
to User.UserID], PaymentID:INT [PK], Amount:Decimal, Paid:BIT,
Deadline:DATE)

Membership(MemberID:INT [PK] [FK to User.UserID], GroupID:INT
[PK] [FK to Group.GroupID], Status:VARCHAR(100))