Project Part I

Group 5, The Angry Birds

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Project Title:

- Untapped Database Management

Item 1 Extended: Write of what your business problem is and what you wish to solve

- Untapped Learning is an educational program that works with students from 6th to 12th grade to develop their executive functioning skills. Untapped Learning is currently missing clean and easily accessible data for review by senior management and have listed that some of the issues they encounter due to this are inability to accurately pinpoint possible tutor/mentor substitutes and dirty data leading issues tracking students progress. Our goal is to provide a database that allows Untapped to efficiently track students' progress through their weekly surveys, schedule tutors/replacements, and allow Untapped to generate meaningful insights from their data. We will achieve this by designing an ERD (Entity-Relationship Diagram) that prioritizes efficient tracking of students, programs, results, scheduling, and adaptability to evolving data needs.
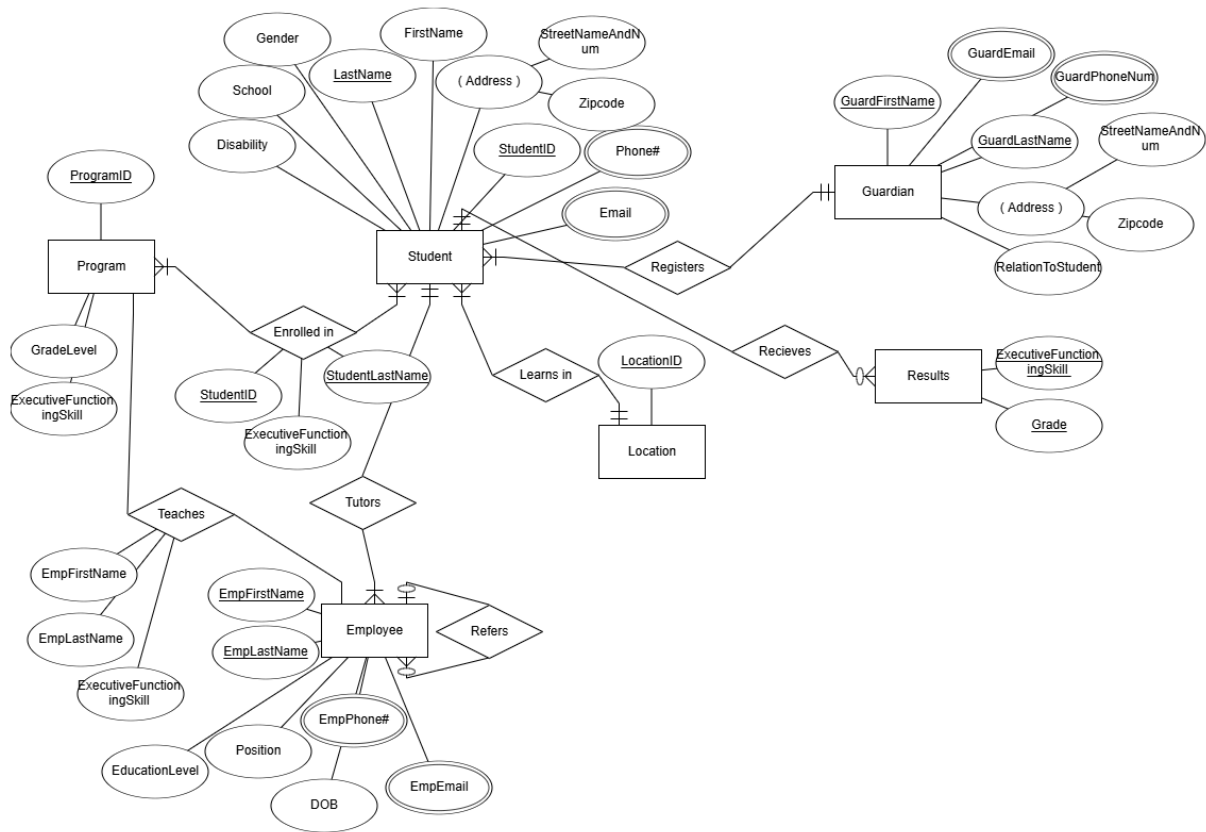
Item 2: Requirements

- Each student is registered by 1 primary guardian (1:M) and each parent has 1 to many students (1:M) - mandatory (both)
- Each student is tutored by 1 and (only 1) employee (1:1) - mandatory and each employee teaches zero to many students (1:M) - optional
- Each employee teaches one to many programs and each program is taught by one to many employees (M:N) - mandatory (bridge table)
- Each student is enrolled in one to many program and each program is taken by many students (M:N) - mandatory (bridge table)
- Each student learns in one location (only one) and each location has one to many students (1:M)
- Each student receives zero to many results (mandatory) and each result has one and only one student (1:M) - optional
- Each employee refers one to many employees and each employee is referred by one employee (1:M) (unary relationship)

Relationships: Refers (employee - employee), tutors (employee- student), registers (Parent - student), <u>enrolled in (student - program),</u> receives (student-results), learns in (student-location), <u>teaches (employee-program)</u>

*(bridge tables are underlined)

Item 3: ER Diagram
Entities: Student, Employee, Guardian, Program(skills), Location, Results

Item 4: Mapped Relational Schema

Results
ExecutiveFunctioningSkill
Grade (U)
StudentID (FK)

Student
StudentID
FirstName
LastName (U)
School
Disability
StreetNameAndNum
Zipcode
Gender
GuardFirstName (FK)
LocationID (FK)

Student_Email
Email
StudentID (FK)

Student_Phone#
Phone#
StudentID (FK)

Location
LocationID

Enrolled in
StudentLastName
StudentID
ExecutiveFunctioningSkill
StudentID (FK)(Ugroup1)
ProgramID (FK)(Ugroup1)

Guardian
GuardFirstName
GuardLastName (U)
StreetNameAndNum
Zipcode
RelationToStudent

Guardian_GuardPhoneNum
GuardPhoneNum
GuardFirstName (FK)

Program
ProgramID
ExecutiveFunctioningSkill
GradeLevel

Guardian_GuardEmail
GuardEmail
GuardFirstName (FK)

Employee_EmpEmail
EmpEmail
EmpFirstName (FK)

Employee
EmpFirstName
EmpLastName (U)
Position
DOB
EducationLevel
StudentID (FK)
Refers_EmpFirstName (O)(FK)

Employee_EmpPhone#
EmpPhone#
EmpFirstName (FK)

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