Startup Ecosystem Platform

Description:
A database system for startups, investors, and accelerators to connect, share resources, and track progress.

Entities and Relationships:

- **Entities:** Startups, Investors, Accelerators, Funding Rounds, Mentors, Resources, Events.
- **Relationships:**
    - Startups apply to Accelerators.
    - Investors fund Startups through Funding Rounds.
    - Mentors are linked to Startups.
    - Startups attend Events and access Resources.

Features:

- Profiles for startups showcasing their pitch decks, funding stages, and milestones.
- Investor dashboards to track funded startups and ROI.
- Resource library for startups, including templates, tools, and guides.
- Event management for pitch days and networking sessions.

Why it works:

- Broad user base of startups, investors, and ecosystem enablers.
- Complex relationships like multiple investors funding the same startup.
- Realistic application with opportunities for unique features like milestone tracking.

Pokémon Trainer and Battle Management System

Description:
System manages Pokémon trainers, their Pokémon, battles, gyms, and items. Trainers own Pokémon, which belong to species with specific attributes and evolve over time. Database tracks battles, gym challenges, badges, and move effectiveness.

Entities and Relationships:
- **Entities:**
    1. Trainer
        - Attributes: Trainer ID, name, age, region
        - Relationships: owns Pokémon, battles other trainers, collects gym badges
    2. Pokémon
        - Attributes: Pokémon ID, nickname, level, experience points, species
        - Relationships: belongs to trainer, uses moves in battles, evolves into other Pokémon
    3. Species
        - Attributes: species name, type(s), base stats, evolution reqs
        - Relationships: characteristics of Pokémon defined by species
    4. Move
        - Attributes: Move name, type, power, accuracy
        - Relationships: Pokémon uses moves in battles, effectiveness depends on type
    5. Battle
        - Attributes: Battle ID, location, date.
        - Relationships: Involves two Trainers and their Pokémon, results in a winner and a loser
    6. Gym
        - Attributes: Gym ID, name, location, type specialization
        - Relationships: Trainers challenge Gyms, Gym Leaders assign Bym Badges
    7. Item
        - Attributes: Item name, type, effect (e.g., restores HP, boosts stats)
        - Relationships: Trainers use Items on their Pokémon

Satisfies Following ER Diagram Requirements:
1. ISA Relationship
    - Pokémon could be Legendary, Shiny, etc… (meaningful ISA hierarchy)
2. Weak Entity:
    - Gym badge could be modeled as a weak entity dependent on both Trainer and Gym

3. Cardinality & Participation Constraints:
    - Trainer - Owns - Pokémon: One to Many
    - Pokémon - Belongs to - Trainer: Total participations (Every Pokémon belongs to a Trainer)
    - Battle - Involves - Trainer: Many to Many
    - Gym - Awards - Badge: One to Many

CPSC 304 Project Cover Page

Milestone #: ___1____

Date: _____

Group Number: ____77_____

Name	Student Number	CS Alias (Userid)	Preferred E-mail Address

By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

a. **What is the domain of the application?**
   Describe it. The domain of an application refers to the area of knowledge your application resides in. For example, if I am making an application for a hospital, the domain would be something like healthcare/patient management/logistics (it would depend on what the application is trying to do).

   The domain of our application falls under the startup or entrepreneurial ecosystem, focusing on facilitating connections between startups, investors, accelerators, and mentors. It serves as a central hub where startups can showcase their business ideas, seek funding, receive mentorship, and access valuable resources to support their growth. The platform provides a structured way for investors and accelerators to track progress, manage funding rounds, and identify promising startups. Additionally, the application supports and encourages networking by establishing event participation and accelerator applications to ensure that startups have the opportunity to grow. By connecting all these components with each other in the startup ecosystem, this application streamlines the process of startup growth and encourages these companies to thrive.

b. **What aspects of the domain are modeled by the database? In answering this question, you will want to talk about what your project is trying to address and how it fits within the domain. It is likely that in the process of answering these questions you will bring up examples of a real-life situation that the application could be applied to.**

   The database models several key components of the startup ecosystem, such as startups, mentors, and funding opportunities. In the way these entities are managed in the database, it acts like a resource library for startups and allows for easy access. There are many interactions and processes that take place between startups, investors, accelerators, and events, and our database addresses common real-world challenges that arise during this process in the following ways:

   1. Startup Funding
      ○ In real-world, startups often struggle to be sufficiently funded by investors
      ○ Multiple investors can simultaneously fund a startup, and we need a system to help manage the process efficiently.
      ○ The database models funding rounds to allow multiple potential investors to contribute to specific rounds of funding.

2. Mentorship
    ○ Startups often struggle to find and access industry experienced mentors who can provide guidance.
    ○ The database models a many-to-many relationship with mentors and startups, allowing startups to easily access multiple mentors and vice versa.
3. Accelerator Programs
    ○ Startups apply to many accelerator programs and organizations, and some receive thousands of applications per cycle.
    ○ A system is needed to track application-specific attributes and status for all applications.
    ○ The database establishes the relationship applications between startups and accelerator programs, storing relevant details (ex: application status, date, etc.)
4. Networking
    ○ Networking is a key step in growing a startup, and attending events often reveal valuable funding and mentorship opportunities.
    ○ The database captures event participation, keeping record of which startups have attended specific events (pitch days, conferences, workshops, etc.)
5. Sharing resources
    ○ Startups, in their early stages, would benefit greatly from resources such as educational materials, templates, and guides.
    ○ The database models resources that are accessible to startups, and maintains which startups are accessing which resources.

Database specifications: (3-5 sentences)
a. What functionality will the database provide? I.e., what kinds of things will
people using the database are able to do it.

The primary functionality of the database is to provide a systematic and efficient way to manage the many interactions that connect startups, investors, mentors, accelerators, and events. Startup companies are able to create and manage startup profiles; from there they will be able to apply for funding, connect with experienced mentors for guidance, and track investment rounds. Users can create and manage profiles, and the investors and mentors that fall under this general category each have specialized attributes. To ensure startups have the necessary support, tools, and connections to grow, the database facilitates accelerator applications, event

participation, and access to a library of resources with materials such as downloadable templates, guides, and industry insights.

Explanation of Entities

1. **User**
   - This is a **generic (supertype) entity** that holds attributes common to all users on the platform (e.g., UserID, name, email, etc.).
   - We use an **ISA** hierarchy to specialize users into **Investors** and **Mentors**.
2. **Investor** (ISA User)
   - A **subtype** of **User** that adds investor-specific attributes (e.g., investment focus, total capital, etc.).
   - In an ISA relationship, Investor inherits the primary key UserID from User.
3. **Mentor** (ISA User)
   - Another **subtype** of **User** that adds mentor-specific attributes (e.g., areas of expertise, years of experience, etc.).
   - Also inherits the primary key UserID from User.
4. **Startup**
   - Represents a startup on the platform. Key attributes could include StartupID, name, pitchDeckLink, and stage (e.g., seed, Series A).
   - A **startup is distinct** from a single user; you can store additional details like founding date, location, or a short description.
5. **Accelerator**
   - Represents an accelerator program or organization.
   - Key attributes: AccelID, name, location, and possibly programFocus.
6. **FundingRound** (Weak Entity)
   - Models a specific round of funding for a startup (e.g., Seed, Series A, etc.).
   - **Weak Entity**: A funding round **does not exist without** the associated startup.
   - Has a **partial key** (e.g., roundNo) that only uniquely identifies the round **relative to a given startup**.
   - The **identifying relationship** is "Has_Round" from Startup to FundingRound. The **full primary key** of FundingRound is (StartupID, roundNo).
7. **Event**
   - Represents networking sessions, pitch days, conferences, or workshops.

- ○ Key attributes: EventID, name, date, location, and possibly eventType.
8. **Resource**
   - ○ Represents shared documents, guides, templates, or other materials accessible to startups.
   - ○ Key attributes: ResourceID, name, type, link.

Explanation of Relationships

1. **ISA: User → Investor, Mentor**
   - ○ A **generalization/specialization** hierarchy.
   - ○ **User** is the **supertype**, with common attributes (like UserID, name, email).
   - ○ **Investor** and **Mentor** inherit all attributes from **User**, but also have additional subtype-specific attributes (e.g., investment preferences for Investor, expertise areas for Mentor).
2. **Applies (M:N): Startup - Accelerator**
   - ○ A **many-to-many** relationship where each Startup can apply to **multiple** Accelerators, and each Accelerator can receive **multiple** applications from different startups.
   - ○ You can store application-specific attributes (e.g., applicationDate, status) in this relationship.
3. **Has_Round (1:N, Identifying): Startup - FundingRound**
   - ○ A **one-to-many** relationship from Startup to FundingRound.
   - ○ This is an **identifying relationship** because FundingRound is a weak entity whose primary key depends on Startup.
   - ○ One Startup can have **many** funding rounds. Each FundingRound belongs to exactly **one** Startup.
4. **Funds (M:N): Investor - FundingRound**
   - ○ A **many-to-many** relationship where an Investor can fund multiple rounds, and a given FundingRound can have multiple investors participating.
   - ○ You could also store attributes like amountContributed or investmentDate in this relationship.
5. **Mentors (1:1): Mentor - Startup**
   - ○ A **one-to-one** relationship where a single Mentor can only mentor to a single startup.
   - ○ Potential attributes (e.g., startDate, mentorRole) could also be stored in the relationship if relevant.
6. **Attends (M:N): Startup - Event**
   - ○ A **many-to-many** relationship where a Startup may attend multiple events, and an Event can be attended by multiple startups.
   - ○ Attributes like registrationDate or feedback can also be stored in an associative entity/table.
7. **Accesses (M:N): Startup - Resource**

- ○ A **many-to-many** relationship where a Startup can use multiple resources, and a Resource can be accessed by multiple startups.
- ○ You could track accessDate, downloadCount, or other usage metrics in the relationship.

Diagram Link:

https://drive.google.com/file/d/1RYBiP68R7qbkaApFihocfj84YzaeAD9u/view?usp=sharing