CS4.301 Data and Applications Project Phase 1

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Introduction to the Mini-World

The mini world considered in this project is about the fictional secret society called Illuminati. Note that this has no connection with the Bavarian Illuminati, or any such organisation that identifies itself with the Illuminati, but is purely a fictional construct for the purposes of this database, taking only ideas and pop-culture references from the real world.

The illuminati is the most exclusive secret society on the planet, with predefined roles for its 12 members, all of whom are Machiavellian manipulators of the highest regard, and who control every important event that take place in the world. This society has been active for the last 500 years, exerting the highest influence, with access to technology that is at least 50 years ahead of modern technological advancements. These people are not just some of the smartest in the world, but are also extremely influential, even if not in the public eye. The only purpose of the illuminati is to control the chaos in the world by their form of order, the one where they are the ones in control. They also have surveillance and knowledge of every organisation, person, and entity in the world, to the extent that its head and database maintainer, the *Éminence Grise*, is considered to be the closest a human has come to the ensemble of collective human knowledge.

Purpose of the Database

This database is one whose complete and true control lies only with the *Éminence Grise* or the Grey Éminence, as some (with poor French) members of the Illuminati call him. Most sections, however, are accessible to all the 12 members, who use it for devising and executing their plans. The sheer comprehensiveness of the database makes it possible for the members to manipulate essentially anyone or any entity into doing what they want to. This database, in essence, is confidential to the extent that entire civilisations would collapse if it were to come to light.

Users of the Database

The thirteen members of the Illuminati, namely :

1. La Éminence grise/The Gray Eminence : FishFish Saraswat

2. Artemis/The Arrow : Meryl Streep

3. Nekhbet/The Vulture : Dame Judy Trench

4. Pythia/The Oracle : Oprah

5. Lucifer/The Devil : Bhimapuram (Bajjis)

6. Ashwathama/The Deathless : Faltu Singh

7. Váli/The Revenge : Faizal Khan

8. Nuwa/The Mother : Beyoncé

9. Jove/The Tempest : Dan Reynolds(Imagine Dragons)

10. Kubera/The Vault : Dogé Musk

11. Hanan/The Light : Farshit Lalwani

12. Corleone/Big Boss : PK

1. Database Requirements

1.1 Entities and Attributes

1. **Sacred Timeline Events**

   - **Attributes**:
     - EventID (Primary Key): Integer

- – Date: Date
- – Time: Time
- – Description: Text
- – Status (Executed, In Progress, or Planned): Enum {Executed, In Progress, Planned}
- **Description**: Tracks global events influenced by the Illuminati.

2. **Sanctum Sanctorum (Location for Rituals)**

   - **Attributes**:
     - – Mantra (Primary Key): String (unique code required to get access)
     - – Location (Candidate Key): Composite: (Street, City, Country)
     - – History: Text
     - – Number of People Residing (Derived Attribute): Integer
   - **Description**: A hidden location where members perform rituals and store artifacts.

3. **Key Illuminati Members**

   - **Attributes**:
     - – Title (Primary Key): String (Unique title per member)
     - – Name: Text
     - – Date of Joining (Date of Selling Soul): Date
     - – Description of Past: Text
   - **Description**: The 12 core members with assigned roles who are aware of the society's full influence and control.

4. **Artifacts and Treasures**

   - **Attributes**:
     - – ArtifactID (Primary Key): Integer
     - – Date of Procurement: Date
     - – Powers (Multi-Value): Text (list of special powers)
     - – Origin: Text (historical source or origin)
   - **Description**: Significant objects guarded by the Illuminati for their mystical and strategic importance.

5. **Factions**

   - **Attributes**:
     - – FactionID (Primary Key): Integer
     - – Aim: Text
     - – Number of Members (Derived Attribute): Integer
     - – Symbol: Text (icon or emblem associated with the faction)
   - **Description**: Networks of influential individuals and organizations unknowingly under the Illuminati's sway.

6. **Faction Members (Weak Entity)**

   - **Attributes**:
     - – Name: Text
     - – Date of Birth: Date
     - – MemberID (Partial Key, unique within Faction): Integer
   - **Description**: Individuals within factions, organized in a hierarchy but unaware of the Illuminati's control.

7. **Faction Meetings (Weak Entity)**

   - **Attributes**:
     - – Agenda: Text
     - – Date: Date
     - – Time: Time

– Location: Text

Date and Time together form the Partial Key.

- **Description**: Meetings held with faction members on a specific agenda, directly or indirectly influenced by Illuminati Members.

8. **Surveillance (Subclassed Entity)**

- **Attributes**:
  – Date of Start of Survey: Date
- **Subclasses**:
  – **Individual**:
    * Name (Composite: First Name, Middle Name, Last Name): Text
    * Current Location: Text
    * Interests: Text (list of interests or activities)
    * Past: Text (past affiliations or history)
    * Country: Text (name of country)
    * Citizenship Identifier (e.g., Social Security, Aadhar): String (country-specific identifier format)
  – **Organization**:
    * Name: Text
    * President: Text
    * Type (Corporate, Government, Terrorist): Enum {Corporate, Government, Terrorist}
- **Description**: Tracked surveillance targets, focusing on both individuals and organizations of interest.

9. **Organizations under Control**

- **Attributes**:
  – Name (Primary Key): String
  – Type (Corporate, Government, Terrorist, Intergovernmental): Enum {Corporate, Government, Terrorist, Intergovernmental}
  – Kind of Control (Financial, Political, Informational): Enum {Financial, Political, Informational}
- **Description**: Organizations unknowingly controlled by the Illuminati, contributing to the aims of their assigned faction.

10. **Secret Knowledge Archives**

- **Attributes**:
  – ArchiveID (Primary Key): Integer
  – Category (Ancient Scripts, Modern Conspiracies, Forbidden Sciences): Enum {Ancient Scripts, Modern Conspiracies, Forbidden Sciences}
  – Date of Last Update: Date
  – Curator: Reference to Key Illuminati Member
- **Description**: A collection of secret knowledge containing insights into historical events, forbidden sciences, and conspiracies.

1.2 Relationships with Constraints

1. **Head Of**

- **Entities**: Faction, Key Illuminati Member
- **Description**: Each faction is controlled by a Key Illuminati Member.
- **Cardinality and Participation Constraints**:
  – Participation Constraints: (1, 1) for Factions, (0, N) for Members
  – Cardinality Ratio: 1:N

2. **Orchestrates**

- **Entities**: Sacred Timeline Event, Faction, Organization, Key Illuminati Member
- **Description**: Illuminati members use factions and organizations to carry out events on the Sacred Timeline.
- **Degree**: Four entities (n greater than 3)
- **Cardinality and Participation Constraints**:
  - Participation Constraints: (1, 1) for Sacred Timeline Event, (0, N) for Factions, (0, N) for Organizations, (0, N) for Members
  - Cardinality Ratio: 1:L:M:N

3. **Part Of**

- **Entities**: Faction Member, Faction
- **Description**: Each faction member is part of a faction and operates under its influence.
- **Cardinality and Participation Constraints**:
  - Participation Constraints: (1, 1) for Faction Members, (1, N) for Factions
  - Cardinality Ratio: 1:N

4. **Meeting Held**

- **Entities**: Faction Meetings, Faction
- **Description**: Faction meetings are conducted for different agendas, influenced by the Illuminati.
- **Cardinality and Participation Constraints**:
  - Participation Constraints: (1, 1) for Faction Meetings, (0, N) for Factions
  - Cardinality Ratio: 1:N

5. **Guards**

- **Entities**: Faction, Artifact
- **Description**: Factions guard artifacts, believing them valuable but unaware of their true purpose.
- **Cardinality and Participation Constraints**:
  - Participation Constraints: (0, N) for Factions, (1, 1) for Artifacts
  - Cardinality Ratio: 1:N

6. **Resides In**

- **Entities**: Member, Sanctum Sanctorum
- **Description**: Illuminati Members reside in Sanctum Sanctorums, each of them must have at least one member residing.
- **Cardinality and Participation Constraints**:
  - Participation Constraints: (1, N) for Sanctum Sanctorums, (1, 1) for Members
  - Cardinality Ratio: 1:N

7. **Perform Ritual**

- **Entities**: Key Illuminati Member, Sanctum Sanctorum, Artifact
- **Description**: Core members conduct rituals using artifacts in the Sanctum Sanctorum.
- **Cardinality and Participation Constraints**:
  - Participation Constraints: (0, N) for Sanctum Sanctorum, (0, N) for Artifacts, (0, N) for Members
  - Cardinality Ratio: L:M:N

8. **Leads**

- **Entities**: Faction Member (in roles: Leader and Subordinate)
- **Description**: Higher-ranking faction members lead subordinates within their faction hierarchy.
- **Cardinality and Participation Constraints**:
  - Participation Constraints: (0, N) for Leaders, (0, 1) for Subordinates
  - Cardinality Ratio: 1:N

2. Functional Requirements

2.1 Retrieval Operations

- Selection Query: Retrieve details of all Sacred Timeline events associated with a specific Illuminati Member.

- Projection Query: Retrieve names of factions with more than a specified number of members.

- Aggregate Function: Calculate the total number of members across all factions.

- Search Function: Search for artifacts by specific powers (partial text match).

- Analysis Reports:

    - Monthly report on faction meetings and member hierarchy.
    - Analysis of surveillance targets by type (Individual vs. Organization).

2.2 Modification Operations

- Insertion: Add new faction members, enforcing unique MemberID within the faction.

- Update: Modify the location details of a Sanctum Sanctorum.

- Deletion: Remove artifact records once destroyed.

3. Constraints and Assumptions

We assume that all attributes used as keys will have unique and not null values. All relationships follow the constraints we have specified.

Conclusion

This requirements document defines the purpose, usage, and functional structure of the Illuminati database, allowing core members to manage events, factions, artifacts, and rituals with unprecedented control and confidentiality.