1. Database Schema Overview:

The schema defines the following key tables:

- **Users Table**:
  - **Primary Key**: `id`
  - **Other Columns**: `username`, `email`, `password`, `role` (with constraints such as unique for `username` and `email`).
- **Faculty Table**:
  - **Primary Key**: `id`
  - **Other Columns**: `name`, `email`, `position`.
- **News Table**:
  - **Primary Key**: `id`
  - **Other Columns**: `title`, `content`, `category`.
- **Events Table**:
  - **Primary Key**: `id`
  - **Other Columns**: `title`, `date`, `location`.
- **Notes Table**:
  - **Primary Key**: `id`
  - **Other Columns**: `title`, `subject`, `semester`, `file`.
- **Media Table**:
  - **Primary Key**: `id`
  - **Other Columns**: `title`, `mediaUrl`, `category`.
- **Contacts Table**:
  - **Primary Key**: `id`
  - **Other Columns**: `name`, `email`, `message`.

2. ER Diagram:

In a **proper ER diagram**, we would also represent the **relationships** between the entities (tables). Based on your schema, here's the accurate breakdown:

- **Users Table**:
  - `id` is the **Primary Key** (PK).
  - Attributes like `username`, `email`, and `role` are dependent on the `id`.
- **Faculty Table**:
  - `id` is the **Primary Key** (PK).
  - Each faculty member has a `name`, `email`, and `position`.
- **News Table**:
  - `id` is the **Primary Key** (PK).
  - The `title`, `content`, and `category` are attributes describing a piece of news.
- **Events Table**:
  - `id` is the **Primary Key** (PK).
  - This contains `title`, `date`, and `location`.
- **Notes Table**:
  - `id` is the **Primary Key** (PK).
  - The `title`, `subject`, `semester`, and `file` are attributes for each note.
- **Media Table**:
  - `id` is the **Primary Key** (PK).

    - `title`, `mediaUrl`, and `category` describe each media item.
- **Contacts Table**:
    - `id` is the **Primary Key** (PK).
    - `name`, `email`, and `message` describe contact form submissions.

3. Data Normalization:

First Normal Form (1NF):

- **1NF** requires that all columns contain atomic (indivisible) values, meaning there should be no repeating groups or arrays within a column.
    - All tables in your schema are in **1NF**, as each column stores a single value and does not contain multiple values in a single field.

Second Normal Form (2NF):

- **2NF** requires that:
    1. The database must be in **1NF**.
    2. All non-key attributes must be **fully dependent** on the primary key.
- **2NF Analysis**:
    - In your schema, **all non-key attributes** depend entirely on the **primary key** (`id`) for each table.
    - For example:
        - In the **Users** table, `username`, `email`, `password`, and `role` depend entirely on `id`.
        - In the **Faculty** table, `name`, `email`, and `position` depend entirely on `id`.

  Thus, all tables in your schema are in **2NF**.

Third Normal Form (3NF) (for completeness):

- **3NF** requires that:
    1. The database must be in **2NF**.
    2. There should be no transitive dependencies (non-key attributes should not depend on other non-key attributes).

  Based on the schema, it appears there are no transitive dependencies (e.g., no attribute depends on another non-key attribute). Therefore, it seems the schema is also in **3NF**.

4. Primary Keys and Super Keys:

Primary Keys (PK):

- The **primary key** is a unique identifier for each record in the table. It ensures that each record is distinct and can be accessed easily.
    - For example, in the **Users** table, the `id` column is the **primary key** and uniquely identifies each user.

Super Keys:

- A **super key** is a set of one or more attributes that can uniquely identify a record in a table. A super key can be any combination of attributes, including the primary key.
    - For example:
        - In the **Users** table, both `id` and `email` could form a super key, as they together uniquely identify a user (even though `id` alone is sufficient as the primary key).
        - In the **News** table, the combination of `id` and `title` could also be a super key.

Summary of Database and Keys:

- The database is **PostgreSQL** and is normalized to **2NF** (likely 3NF as well).
- **Primary keys** are defined for each table using the `id` column.
- **Super keys** are any combination of attributes that uniquely identify a record, with primary keys being a subset of super keys.

```
ALTER TABLE news
ALTER COLUMN published SET DEFAULT false;
ALTER TABLE notes
ALTER COLUMN published SET DEFAULT false;
ALTER TABLE media
ALTER COLUMN published SET DEFAULT false;
```