**README – ENEM/SiSU Higher Education Database**

**Project Purpose**

This database models, tracks, and analyzes higher education seat offerings in Brazil—focusing on the national entrance system (ENEM/SiSU), quotas, cutoffs, seat allocation, and institutional metadata. It enables reporting, analytics, and longitudinal studies on seat availability, quota policy, and university programs.

**Main Schema: app**

**Key Entities and Relationships**

* **Dimension Tables:** Universities, campuses, states, cities, regions, degree types, academic organizations, degree levels, quotas, and years.
* **Fact Table:** seats – captures granular details about each seat offering, quotas, cutoffs, and scoring criteria.
* **Account Tables:** For managing system user logins, addresses, and auditing.
* **Logging:** error\_log for system and ETL errors.

**Data Dictionary**

Below is a summary of each table and all its fields, including data types, constraints, and a brief description.

**1. app.academic\_organization**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| academic\_organization\_id | SERIAL | PK | Unique identifier |
| academic\_organization\_name | TEXT | Unique, NotNull | Name (official) |
| academic\_organization\_name\_friendly | TEXT | Unique, NotNull | Name (friendly for UI) |
| created\_by | TEXT | NotNull | Creator |
| created\_on | TIMESTAMPTZ | NotNull | Creation timestamp |
| modified\_by | TEXT |  | Last modifier |
| modified\_on | TIMESTAMPTZ |  | Last modified timestamp |

**2. app.account**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| user\_id | SERIAL | PK | User account ID |
| user\_unique\_id | UUID | Unique | UUID for integration |
| username | VARCHAR(100) | Unique, NotNull | User login name |
| email | VARCHAR(100) | NotNull | User email |
| password\_hash | VARCHAR(100) | NotNull | Hashed password |
| password\_salt | VARCHAR(100) | NotNull | Password salt |
| is\_verified | BOOLEAN | Default: false | Email verified? |
| is\_active | BOOLEAN | Default: true | Active account |
| is\_locked | BOOLEAN | Default: false | Locked after failed attempts |
| password\_attempts | SMALLINT | Default: 0 | Consecutive failed attempts |
| changed\_initial\_password | BOOLEAN | Default: true | Changed first password? |
| locked\_time | TIMESTAMP WITH TZ |  | Time locked |
| created\_by | INTEGER | FK (self) | Who created |
| created\_on | TIMESTAMP WITH TZ | Default: now | Creation timestamp |
| modified\_by | INTEGER | FK (self) | Last modifier |
| modified\_on | TIMESTAMP WITH TZ | Default: now | Last modified |

**3. app.address**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| address\_id | SERIAL | PK | Address ID |
| city | VARCHAR(100) | NotNull | City name |
| state | VARCHAR(100) | NotNull | State name |
| street | VARCHAR(100) | NotNull | Street |
| number | VARCHAR(100) | NotNull | Number |
| complement | VARCHAR(100) | NotNull | Complement |
| neighborhood | VARCHAR(100) | NotNull | Neighborhood |
| zipcode | VARCHAR(100) | NotNull | Postal code |
| created\_on | TIMESTAMP WITH TZ | Default: now | Creation timestamp |
| modified\_on | TIMESTAMP WITH TZ | Default: now | Last modified |
| created\_by | INTEGER |  | Who created |
| modified\_by | INTEGER |  | Who modified |

**4. app.city**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| city\_id | SERIAL | PK | City ID |
| state\_id | INT | FK -> app.state | State reference |
| city\_name | TEXT | Unique (state), NotNull | Official name |
| city\_name\_friendly | TEXT | Unique (state), NotNull | Friendly name |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**5. app.degree\_level**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| degree\_level\_id | SERIAL | PK | Degree level ID |
| degree\_level\_name | TEXT | Unique, NotNull | Official degree level name |
| degree\_level\_name\_friendly | TEXT | Unique, NotNull | Friendly name for UI |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**6. app.degree**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| degree\_id | SERIAL | PK | Degree ID |
| degree\_name | TEXT | Unique, NotNull | Degree/course name |
| degree\_name\_friendly | TEXT | Unique, NotNull | Friendly name for UI |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**7. app.error\_log**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| error\_log\_id | SERIAL | PK | Log entry ID |
| table\_name | TEXT | NotNull | Table where error occurred |
| process | TEXT | NotNull | Procedure or function name |
| operation | TEXT | NotNull | INSERT, UPDATE, DELETE, etc. |
| command | TEXT |  | SQL or command attempted |
| error\_message | TEXT | NotNull | Error message |
| error\_code | TEXT |  | Error code |
| context\_info | TEXT |  | Extra info/context (JSON or text) |
| user\_name | TEXT |  | Who ran it |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Timestamp of error |

**8. app.frequency**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| frequency\_id | SERIAL | PK | Frequency ID |
| frequency\_name | TEXT | Unique, NotNull | Frequency name (official) |
| frequency\_name\_friendly | TEXT | Unique, NotNull | Friendly name for UI |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**9. app.quota\_type**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| quota\_type\_id | SERIAL | PK | Quota type ID |
| quota\_type\_code | TEXT | Unique, NotNull | Code for quota |
| quota\_type\_desc\_pt | TEXT | NotNull | Description (Portuguese) |
| quota\_type\_desc\_short\_pt | TEXT | Unique, NotNull | Short description |
| quota\_explain | TEXT | NotNull | Detailed explanation |
| created\_by | TEXT | Default: 'system' | Who created |
| created\_on | TIMESTAMPTZ | Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**10. app.region**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| region\_id | SERIAL | PK | Region ID |
| region\_name | TEXT | Unique, NotNull | Region name (official) |
| region\_name\_friendly | TEXT | Unique, NotNull | Friendly name for UI |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**11. app.seats**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| seats\_id | SERIAL | PK | Unique identifier for seat offering |
| year\_id | INTEGER | FK | Academic year (FK: app.year) |
| university\_id | INTEGER | FK | University (FK: app.university) |
| academic\_organization\_id | INTEGER | FK | Academic org (FK: app.academic\_organization) |
| university\_category\_id | INTEGER | FK | University category (FK: app.university\_category) |
| university\_campus\_id | INTEGER | FK | Campus (FK: app.university\_campus) |
| state\_id | INTEGER | FK | State (FK: app.state) |
| city\_id | INTEGER | FK | City (FK: app.city) |
| region\_id | INTEGER | FK | Region (FK: app.region) |
| degree\_id | INTEGER | FK | Degree/course (FK: app.degree) |
| degree\_level\_id | INTEGER | FK | Degree level (FK: app.degree\_level) |
| shift\_id | INTEGER | FK | Shift (FK: app.shift) |
| frequency\_id | INTEGER | FK | Frequency (FK: app.frequency) |
| quota\_type\_id | INTEGER | FK | Quota type (FK: app.quota\_type) |
| special\_quota\_id | INTEGER | FK | Special quota (FK: app.special\_quota) |
| edition | TEXT |  | Edition/year string (e.g., 2025) |
| score\_bonus\_percent | NUMERIC(5,2) | NULLABLE | Bonus score percent (for eligible candidates) |
| seats\_offered | INTEGER | NULLABLE | Number of seats actually offered |
| cutoff\_score | NUMERIC(6,2) | NULLABLE | Cutoff score for that seat/quota |
| num\_applicants | INTEGER | NULLABLE | Number of applicants for the seat/quota |
| seats\_authorized | INTEGER |  | Number of seats legally authorized |
| weight\_essay | NUMERIC(5,2) |  | ENEM essay weight |
| min\_score\_essay | NUMERIC(5,2) |  | Minimum essay score required |
| weight\_language | NUMERIC(5,2) |  | ENEM language weight |
| min\_score\_language | NUMERIC(5,2) |  | Minimum language score required |
| weight\_math | NUMERIC(5,2) |  | ENEM math weight |
| min\_score\_math | NUMERIC(5,2) |  | Minimum math score required |
| weight\_humanities | NUMERIC(5,2) |  | ENEM humanities weight |
| min\_score\_humanities | NUMERIC(5,2) |  | Minimum humanities score required |
| weight\_sciences | NUMERIC(5,2) |  | ENEM sciences weight |
| min\_score\_sciences | NUMERIC(5,2) |  | Minimum sciences score required |
| min\_avg\_score\_enem | NUMERIC(5,2) |  | Minimum ENEM average required |
| pct\_state\_ppi\_ibge | NUMERIC(5,2) |  | % PPI (black, brown, indigenous) in state (IBGE) |
| pct\_state\_pp\_ibge | NUMERIC(5,2) |  | % PP (black, brown) in state (IBGE) |
| pct\_state\_indigenous\_ibge | NUMERIC(5,2) |  | % indigenous in state (IBGE) |
| pct\_state\_quilombola\_ibge | NUMERIC(5,2) |  | % quilombola in state (IBGE) |
| pct\_state\_pcd\_ibge | NUMERIC(5,2) |  | % PCD (disabilities) in state (IBGE) |
| pct\_quota\_law | NUMERIC(5,2) |  | % seats reserved by law |
| pct\_quota\_ppi | NUMERIC(5,2) |  | % PPI quota reserved |
| pct\_quota\_pp | NUMERIC(5,2) |  | % PP quota reserved |
| pct\_quota\_indigenous | NUMERIC(5,2) |  | % indigenous quota reserved |
| pct\_quota\_quilombola | NUMERIC(5,2) |  | % quilombola quota reserved |
| pct\_quota\_pcd | NUMERIC(5,2) |  | % PCD quota reserved |
| created\_by | TEXT |  | Who created |
| created\_on | TIMESTAMP | Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMP |  | Last modified |

**12. app.shift**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| shift\_id | SERIAL | PK | Shift ID |
| shift\_name | TEXT | Unique, NotNull | Shift name (e.g., "Noturno") |
| shift\_name\_friendly | TEXT | Unique, NotNull | Friendly name |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**13. app.special\_quota**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| special\_quota\_id | SERIAL | PK | Special quota ID |
| quota\_type\_id | INTEGER | FK | Quota type reference |
| special\_quota\_desc\_pt | TEXT | NotNull | Description (Portuguese) |
| special\_quota\_desc\_short | TEXT | Unique, NotNull | Short description |
| quota\_explain | TEXT | NotNull | Explanation |
| created\_by | TEXT | Default: 'system' | Who created |
| created\_on | TIMESTAMPTZ | Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**14. app.state**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| state\_id | SERIAL | PK | State ID |
| region\_id | INT | FK | Region reference |
| state\_abbr | TEXT | Unique, NotNull | State abbreviation |
| state\_name | TEXT | Unique, NotNull | State name (official) |
| state\_name\_friendly | TEXT | Unique, NotNull | Friendly name |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**15. app.university\_campus**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| university\_campus\_id | SERIAL | PK | Campus ID |
| university\_campus\_name | TEXT | Unique, NotNull | Campus name (official) |
| university\_campus\_name\_friendly | TEXT | Unique, NotNull | Friendly campus name |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**16. app.university\_category**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| university\_category\_id | SERIAL | PK | University category ID |
| university\_category\_name | TEXT | Unique, NotNull | Category name (official) |
| university\_category\_name\_friendly | TEXT | Unique, NotNull | Friendly category name |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**17. app.university**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| university\_id | SERIAL | PK | University ID |
| university\_code | INT | Unique, NotNull | External code (e.g., MEC code) |
| university\_name | TEXT | Unique, NotNull | Name of the university |
| university\_abbr | TEXT | NotNull | University abbreviation |
| university\_name\_friendly | TEXT | Unique, NotNull | Friendly name for UI |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**18. app.year**

| **Column** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| year\_id | SERIAL | PK | Academic year ID |
| year | SMALLINT | Unique, NotNull | Year (e.g., 2024) |
| year\_name | TEXT | Unique, NotNull | Year name string (e.g., "2024/1") |
| year\_name\_friendly | TEXT | Unique, NotNull | Friendly name |
| created\_by | TEXT | NotNull | Who created |
| created\_on | TIMESTAMPTZ | NotNull, Default: now | Creation timestamp |
| modified\_by | TEXT |  | Who modified |
| modified\_on | TIMESTAMPTZ |  | Last modified |

**How to Use This README**

* **Upload this README before a session** so the assistant understands the data warehouse context, tables, naming, and goals.
* **Update as schema changes**—add or alter table/column summaries as needed.