US_state_vaccination

date {PK}
State {PK}
total_distributed
people_vaccinated
people_fully_vaccinated_per_hundred
total_vaccinations_per_hundred
people_fully_vaccinated
people_vaccinated_per_hundred
distributed_per_hundred
daily_vaccinations_raw
daily_vaccinations
daily_vaccinations_per_million
share_doses_used
total_boosters
total_boosters_per_hundred

Locations

CountryName {PK}
iso_Code
source_url

Vaccination_by_age_group

date {PK}
age_group {PK}
people_vaccinated_per_hundred
people_fully_vaccinated_per_hundred
people_with_booster_per_hundred

has   PK 1..1   1..1   records   1..N
0..N   1..1   PK

contains   consist

gets

vaccination

date {PK}
people_vaccinated
people_fully_vaccinated
total_boosters
daily_vaccinations_raw
daily_vaccinations
total_vaccination_per_hundred
people_vaccinated_per_hundred
people_fully_vaccinated_per_hundred
total_boosters_per_hundred
daily_vaccinations_per_million
daily_people_vaccinated
daily_people_vaccinated_per_hundred

PK 0..N

vaccination_by_manufacturer

date {PK}
total_vaccinations

PK 0..N

Vaccine_details

Name {Pk}

Vaccination_country_data

date {PK}
vaccine type
total_vaccinations
people_vaccinated
people_fully_vaccinated
total_boosters

PK 0..N

manufactured by   1..N   1..1   available in   0..N   1..1   PK

Mapping ER Diagram

Step1: Strong Entity

- Location (CountryName, Iso_Code)
- Vaccine_details (Name)

Step 2: Weak Entity

- US_State_vaccination (CountryName*, State, Date, Total_Distributed , People _Vaccinated, People Fully_Vaccinated_per_hundred, People Fully Vaccinated, People_Vaccinated_per_hundred, Distributed_per_hundred, Daily_Vaccinations_Raw, Daily_Vaccinations, Daily_Vaccination_per_million, Shared_Doses_Used, Total _Boosters, Total_Boostersper_Per_hundred)
- Vaccination_Available_per_country (CountryName*, VaccineName*)
- Vaccinations_By_Manufacturer (CountryName*, VaccineName*, Date, Total_Vaccinations)
- Vaccination_By_Age_Group (CountryName*, Date, Age_Group, people_Vaccinated_per_hundred, people_fully_Fully_Vaccinated_per_hundred, people_with_Booster_per_hundred)
- Vaccination_Country_Data(CountryName*, date, VaccineType, Total_Vaccinations, people_vaccinated, people_fully_vaccinated, total_boosters)
- Vaccinations (CountryName*, date, people_fully_vaccinated, total_boosters, Daily_Vaccinations_Raw, People_Vaccinated_per_hundred, People_Full_Vaccinated_per_hundred, Total_Boosters_per_hundred,

Daily_Vaccinations_per_million, Daily_People_Vaccinated, Daily_People_Vaccinated_
per_hundred)

Step 3: 1:1 Relationship

Not Applicable

Step 4: 1: N Relationship

- US_State_vaccination (CountryName*, State, Date, Total_Distributed , People _Vaccinated, People Fully_Vaccinated_per_hundred, People Fully Vaccinated, People_Vaccinated_per_hundred, Distributed_per_hundred, Daily_Vaccinations_Raw, Daily_Vaccinations, Daily_Vaccination_per_million, Shared_Doses_Used, Total _Boosters, Total_Boostersper_Per_hundred)
- Vaccinations_By_Manufacturer (CountryName*, VaccineName*, Date, Total_Vaccinations)
- Vaccination_By_Age_Group (CountryName*, Date, Age_Group, people_Vaccinated_per_hundred, people_fully_Fully_Vaccinated_per_hundred, people_with_Booster_per_hundred)
- Vaccination_available_per_country (CountryName*, VaccineName*)
- Vaccination_Country_Data(CountryName*, date, VaccineType, Total_Vaccinations, people_vaccinated, people_fully_vaccinated, total_boosters)
- Vaccinations (CountryName*, date, people_fully_vaccinated, total_boosters, Daily_Vaccinations_Raw, People_Vaccinated_per_hundred, People_Full_Vaccinated_per_hundred, Total_Boosters_per_hundred, Daily_Vaccinations_per_million, Daily_People_Vaccinated, Daily_People_Vaccinated_ per_hundred)

Step 5: M:N Relationship

Not Applicable

Step 6: Multi-valued Attribute

Not applicable

Step 7: Higher Degree Relationships

Not applicable

Final Schema

- Location (IsoCode, <u>CountryName</u>)
- Vaccine_details (<u>Name</u>)
- US_State_vaccination (<u>CountryName</u>*, <u>State</u>, <u>Date</u>, Total_Distributed , People _Vaccinated, People Fully_Vaccinated_per_hundred, People Fully Vaccinated, People_Vaccinated_per_hundred, Distributed_per_hundred, Daily_Vaccinations_Raw, Daily_Vaccinations, Daily_Vaccination_per_million, Shared_Doses_Used, Total _Boosters, Total_Boostersper_Per_hundred)
- Vaccination_Available_per_country (<u>CountryName</u>*, <u>VaccineName</u>*)
- Vaccinations_By_Manufacturer (<u>CountryName</u>*, <u>VaccineName</u>*, <u>Date</u>, Total_Vaccinations)
- Vaccination_By_Age_Group (<u>CountryName</u>*, <u>Date</u>, <u>Age_Group</u>, people_Vaccinated_per_hundred, people_fully_Fully_Vaccinated_per_hundred, people_with_Booster_per_hundred)
- Vaccination_Country_Data(<u>CountryName</u>*, <u>date</u>, VaccineType, Total_Vaccinations, people_vaccinated, people_fully_vaccinated, total_boosters)
- Vaccinations (<u>CountryName</u>*, <u>date</u>, people_fully_vaccinated, total_boosters, Daily_Vaccinations_Raw, People_Vaccinated_per_hundred, People_Full_Vaccinated_per_hundred, Total_Boosters_per_hundred, Daily_Vaccinations_per_million, Daily_People_Vaccinated, Daily_People_Vaccinated_per_hundred)

Normalization

- Location(ISO code, <u>CountryName</u>) 3NF
- Vaccine (<u>VaccineName</u>) 3NF
- Vaccination_available_per_country (<u>CountryName</u>*, <u>VaccineName</u>*) 3NF
- Vaccination_by_manufacturer (<u>CountryName</u>*, <u>VaccineName</u>*, <u>date</u>, total vaccinations) 3NF
- US States (<u>CountryName</u>*, <u>date</u>, <u>state</u>, total_distributed, people_vaccinated, people_fully_vaccinated_per_hundred, people_fully_vaccinated, people_vaccinated_per_hundred, distributed_per_hundred, daily_vaccinations_raw, daily_vaccinations, daily_vaccinations_per_million, share_doses_used, total_boosters, total_boosters_per_hundred) 3NF
- Vaccination (<u>CountryName</u>*, <u>date</u>, people_vaccinated, people_fully_vaccinated, total_boosters, daily_vaccinations_raw, daily_vaccinations, people_vaccinated_per_hundred, people_fully_vaccinated_per_hundred, total_boosters_per_hundred, daily_vaccinations_per_million, daily_people_vaccinated, daily_people_vaccinated_per_hundred) 3NF
- Vaccinations_by_age_group (<u>CountryName</u>*, <u>date</u>, <u>age_group</u>, people_vaccinated_per_hundred, people_fully_vaccinated_per_hundred, people_with_booster_per_hundred) 3NF
- Vaccination_country_Data (<u>CountryName</u>*, <u>date</u>, VaccineType, Total_Vaccinations, people_vaccinated, people_fully_vaccinated, total_boosters) 3NF

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