Deliverable 1

Group 15:
Langqing Zou: 300035036
Kangwei Liao: 8568800
James Chu: 300052548

Declare the grain

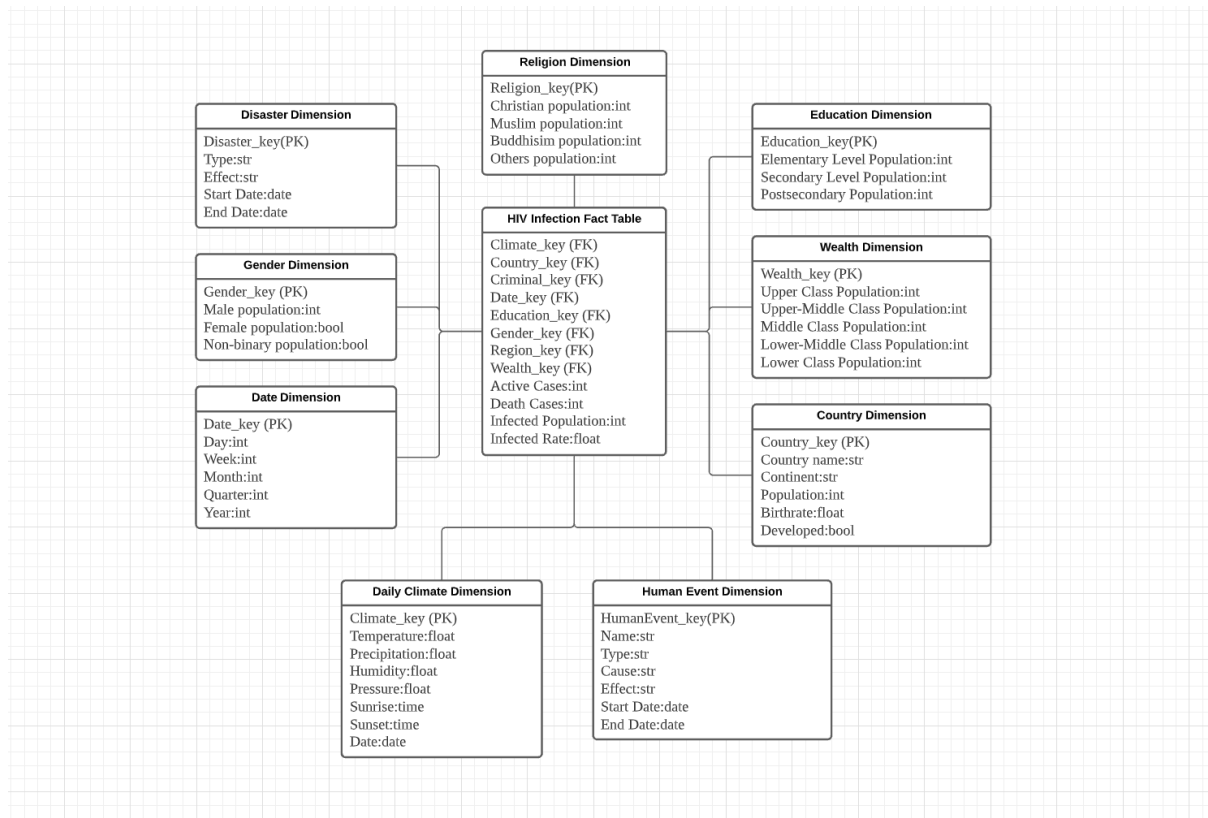- The HIV-infected information of a country.

Detail all the dimensions and dimensional attributes

- Date Dimension
  - Date_key
  - Year: Int, min=1960, max=9999, sample=2022
  - Quarter: Int, min=1, max=4, sample=2
  - Month: Int, min=1, max=12, sample=2
  - Day: Int, min=1, max=31, sample=20
- Country Dimension
  - Country_key: Integer, minimum=0 and maximum=250, sample value=35
  - Country_name: String, sample value="Canada"
  - Continent: String, sample value="North America"
  - Population: Integer, minimum=1, sample value=1000000000
  - Birthrate:Float, minimum=0, maximum=1, sampe value=0.36
  - Developed: Boolean, sample value=true
- Disaster Dimension
  - Disaster_key: Integer, minimum=0 and maximum=250, sample value=35
  - Type: String, sample value="Tsunami"
  - Effect: String, sample value="582 loss, …"
  - Start Date: date, sample=2008-2-28
  - End Date: date, sample=2008-2-28
- Wealth Dimension
  - Wealth_key
  - Upper-Class Population: Int, min=1, sample=10000
  - Upper-Middle Class Population: Int, min=1, sample=10000
  - Middle-Class Population: Int, min=1, sample=10000
  - Lower-Middle Class Population: Int, min=1, sample=10000
  - Lower Class Population: Int, min=1, sample=10000
- Daily Climate Dimension
  - Climate_key

- - Temperature: float, min=-130.0, max=60.0, sample=26
  - Precipitation_inch: float, min=0, max=80.0, example=35
  - Humidity: float, min=0, max=1.0, example=0.56
  - Pressure_kpa: float, min=85.0, max=110.0, sample=101.32
  - Sunrise: time, min=00:00, max=23:59, sample=07:11
  - Sunset: time, min=00:00, max=23:59, sample=17:11
  - Date: date, sample=2022-2-28
- Gender Dimension
  - Gender_key
  - Male population: Int, min=1, sample=10000
  - Female population: Int, min=1, sample=10000
  - Non-binary population: Int, min=1, sample=10000
- Religion Dimension
  - Religion_key
  - Christian population: Int, min=0, sample=10000
  - Muslim population: Int, min=0, sample=10000
  - Buddhism population: Int, min=0, sample=10000
  - Other population: Int, min=0, sample=10000
- Human event Dimension
  - HumanEvent_key
  - Name: str, sample="Financial crisis of 2008"
  - Type: str, sample="Financial"
  - Cause: str, sample="High default rate and resulting foreclosures of mortgage loans"
  - Effect: str, sample="Global GDP falls,..."
  - Start Date: date, sample=2008-2-28
  - End Date: date, sample=2009-1-20
- Education Dimension
  - Education_key
  - Elementary Level Population: Int, min=0, sample=10000
  - Secondary Level Population: Int, min=0, sample=10000
  - Postsecondary Population: Int, min=0, sample=10000

Detail all the measures/facts (list the domains and sample values)

- Active Cases: Int, minimum=0, sample=500
- Death Cases: Int, minimum=0, sample=500
- Infected Population: Int, minimum=0, sample=500
- Infected Rate: float, minimum=0, maximum=1, sampel value=0.78

Disaster Dimension
Disaster_key(PK)
Type:str
Effect:str
Start Date:date
End Date:date

Religion Dimension
Religion_key(PK)
Christian population:int
Muslim population:int
Buddhisim population:int
Others population:int

Education Dimension
Education_key(PK)
Elementary Level Population:int
Secondary Level Population:int
Postsecondary Population:int

HIV Infection Fact Table
Climate_key (FK)
Country_key (FK)
Criminal_key (FK)
Date_key (FK)
Education_key (FK)
Gender_key (FK)
Region_key (FK)
Wealth_key (FK)
Active Cases:int
Death Cases:int
Infected Population:int
Infected Rate:float

Wealth Dimension
Wealth_key (PK)
Upper Class Population:int
Upper-Middle Class Population:int
Middle Class Population:int
Lower-Middle Class Population:int
Lower Class Population:int

Gender Dimension
Gender_key (PK)
Male population:int
Female population:bool
Non-binary population:bool

Date Dimension
Date_key (PK)
Day:int
Week:int
Month:int
Quarter:int
Year:int

Country Dimension
Country_key (PK)
Country name:str
Continent:str
Population:int
Birthrate:float
Developed:bool

Daily Climate Dimension
Climate_key (PK)
Temperature:float
Precipitation:float
Humidity:float
Pressure:float
Sunrise:time
Sunset:time
Date:date

Human Event Dimension
HumanEvent_key(PK)
Name:str
Type:str
Cause:str
Effect:str
Start Date:date
End Date:date

Detail all assumptions

- According to the *The Synergistic Relationship Between Climate Change and the HIV/AIDS Epidemic*, we assume that food insecurity, prevalence of other infectious diseases, human migration, and erosion of public health infrastructure will be affected by climate. At the same time, these four aspects will affect the HIV infected population.
- We assume that some human events will be related to HIV infection. For example, a strike may influence the economy and the society, which may lead to economic recession. If a society is in the period of economic recession, medical support for HIV may be in shortage.
- We assume that wealth level will be related to the HIV infection population. A Wealthy group of people might have more chances and much earlier to know how to prevent HIV.
- We assume that religion type will be related to the HIV infection population. HIV can be transmitted sexually, so Christians and Catholics may have less chance to be infected since they are not allowed to have premarital sex.
- We assume that genders will be related to HIV infection population since gender inequality and discrimination against women may have influences on HIV infection.

- We assume that the education level will be related to the HIV infection population. We assume that the well-educated people know the the harm of HIV and also the ways of preventing it.

Add a list of additional references

- The Synergistic Relationship Between Climate Change and the HIV/AIDS Epidemic: A Conceptual Framework
  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7810285/
- A Timeline of HIV and AIDS
  https://www.hiv.gov/hiv-basics/overview/history/hiv-and-aids-timeline
- World Health Organization
  https://www.who.int/news-room/fact-sheets/detail/hiv-aids
- Gender and HIV/AIDS
- https://pubmed.ncbi.nlm.nih.gov/14499987/

Teamwork plan

Our work plan is to meet during 7pm-9pm every Thursday to figure out questions for the project. We use google docs to record the brainstorm, then we go through each of them and decide which ones will remain together. Here are the details of the teamwork plan. **Also, the excel file is submitted in the zip.**

	Task	Team lead name	Other members involved	Duration	Date
1	**Task**	**Team lead name**	**Other members involved**	**Duration**	**Date**
2	**Declare the grain**	Kangwei Liao	Langqing Zou	30 mins	Feb 2
3	**Identify facts/measures**	Kangwei Liao	Langqing Zou	1 hour	Feb 2
4	**Identify dimensions from WHO data**				
5	Country	Kangwei Liao	Langqing Zou	30 mins	Feb 2
6	Gender	Kangwei Liao	James Chu	30 mins	Feb 2
7	Education	Langqing Zou	James Chu	30 mins	Feb 2
8	Date	Kangwei Liao	Langqing Zou, James Chu	30 mins	Feb 2
9	**Identify dimensions from external sources**				
10	Daily Climate	Langqing Zou	Kangwei Liao, James Chu	30 mins	Feb 3
11	Human Event	Kangwei Liao	Langqing Zou	30 mins	Feb 3
12	Religion	Langqing Zou	James Chu	30 mins	Feb 3
13	Wealth	Kangwei Liao	James Chu	30 mins	Feb 3
14	Disaster	Langqing Zou	Kangwei Liao	30 mins	Feb 3
15	**Identify dimensional attributes**				
16	Country	Kangwei Liao	Langqing Zou, James Chu	1 hour	Feb 4
17	Gender	Kangwei Liao	James Chu	1 hour	Feb 4
18	Education	Langqing Zou	Kangwei Liao, James Chu	1 hour	Feb 4
19	Date	Kangwei Liao	Langqing Zou, James Chu	1 hour	Feb 6
20	Daily Climate	Langqing Zou	Kangwei Liao, James Chu	1 hour	Feb 6
21	Human Event	Kangwei Liao	Langqing Zou	1 hour	Feb 6
22	Religion	Langqing Zou	James Chu	1 hour	Feb 6
23	Wealth	Kangwei Liao	James Chu	1 hour	Feb 6
24	Disaster	Langqing Zou	Kangwei Liao	1 hour	Feb 6
25	**Documentation**				
26	<declaring grain>	Kangwei Liao	Langqing Zou	15 mins	Feb 4
27	<assumptions>	Liangqing Zou	Kangwei Liao, James Chu	30 mins	Feb 4
28	<creating star schema>	Liangqing Zou	Kangwei Liao, James Chu	1 hour	Feb 4
29	<creating dimensional tables>	Kangwei Liao	Langqing Zou, James Chu	1 hour	Feb 8
30	<add a list of additional references>	Liangqing Zou		15 mins	Feb 9
31	<submission on BrightSpace>	Liangqing Zou		5 mins	Feb 9