1. The grain of the model is a positive case tracked by date and area.
2. The SQL file detailed the domains of all the dimensions and dimensional attributes, as well as the measures. In our diagram, we have:

1) ***Positive Case*** dimension, which has the following attributes: case number, age, gender, source of infection, test date and area number

2) ***City Daily Test Info*** dimension, which has the following attributes: area number, type of testing facilities, availability of testing facilities, total cases, weather, mobility info, gathering area type and average stay duration.

Here is a list of examples:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Type | Range /(Min, Max) | Sample Value | Used in |
| case\_number | int | [1, ∞) | 795765 | Fact Table Facts (& Dimensional Attributes) |
| area\_number | int | [100,999] | 613 |
| date\_confirmed | date | [2020.1.1, today] | 20201011 |
| age | int | (0,130) | 35 | Dimensional Attributes |
| gender | varchar(1) | N/A | “M” / “W” |
| source\_of\_infection | varchar(20) | N/A | “Close Contact” |
| test\_date | date | [2020.1.1, today] | 20201009 |
| updated\_date | date | [2020.1.1, today] | 20201010 |
| testing\_facilities\_type | varchar(20) | N/A | “Laboratory” |
| availability\_of\_facilities | int | [0, 100] | 25 |
| total\_cases | int | [0, ∞) | 113 |
| weather | varchar(20) | N/A | “Sunny” |
| gathering\_area\_type | varchar(20) | N/A | “entertainment” |
| mobility\_info | varchar(20) | N/A | “walking” |
| average\_stay\_duration\* | int | (0,∞) | 30 |

\*average stay duration is measured in minutes

1. Our assumptions (expect trends):
2. The overall trends should be increasing at first, then be decreasing as lock down measures take place
3. There will be an interplay between special evens and the number of positive cases: An increasing number of positive cases could be detected around 14 days after holidays (e.g., Thanksgiving or Canada Day), due to the abnormal social needs, such as family celebration.
4. Specific government measures, such as lockdown measures, will lead to downward trends in the new cases, however there can be 2 weeks delay of the significant statistic change.
5. People’s behaviours will change:
6. People visited less and stay shorter time outside
7. People changed lifestyle, for example, people started bicycling, walking, or visiting parks during the summer.
8. We regularly meet 1pm-5pm every Wednesday and 1pm -3pm every Saturday to discuss the assignments and to work together to figure out solutions. In this deliverable, Heng created SQL schema. Xinyu and Heng drafted conceptual design. Cynthia wrote the document and created the digital diagram of the design.