```
In [36]:    import pandas as pd
            import numpy as np
```

```
In [3]:     df=pd.read_excel('C:\\Users\\eric.park\\Downloads\\vaccine_doses.xlsx')
```

```
In [5]:     dft=df[['report_date','previous_day_at_least_one','previous_day_fully_vaccina
```

```
In [6]:     import statistics
            from statistics import mean
```

```
In [15]:    dft.isna().sum()
```

```
Out[15]:    report_date                      0
            previous_day_at_least_one        9
            previous_day_fully_vaccinated    9
            previous_day_3doses            372
            dtype: int64
```

```
In [35]:    dft.dtypes
```

```
Out[35]:    report_date                    datetime64[ns]
            previous_day_at_least_one             float64
            previous_day_fully_vaccinated         float64
            previous_day_3doses                   float64
            dtype: object
```

```
In [19]:    first_dose=dft['previous_day_at_least_one']
```

```
In [26]:    first_dose=dft['previous_day_at_least_one'].dropna()
```

```
In [27]:    round(mean(first_dose),2)
```

```
Out[27]:    29988.06
```

```
In [28]:    statistics.median(first_dose)
```

```
Out[28]:    13171.0
```

```
In [29]:    statistics.mode(first_dose)
```

```
Out[29]:    12593.0
```

```
In [30]:    min(first_dose)
```

```
Out[30]:    204.0
```

```
In [31]:    max(first_dose)
```

```
Out[31]:    165905.0
```

In [33]: ▶| `round(statistics.stdev(first_dose),2)`

Out[33]: 37344.18

In [13]: ▶| `second_dose=dft['previous_day_fully_vaccinated'].dropna()`

In [31]: ▶| `round(mean(second_dose),2)`

Out[31]: 28789.57

In [32]: ▶| `statistics.mode(second_dose)`

Out[32]: 1635

In [33]: ▶| `statistics.median(second_dose)`

Out[33]: 9226

In [34]: ▶| `min(second_dose)`

Out[34]: 0

In [35]: ▶| `max(second_dose)`

Out[35]: 244701

In [36]: ▶| `round(statistics.stdev(second_dose),2)`

Out[36]: 49956.21

In [37]: ▶| `third_dose=dft['previous_day_3doses'].dropna()`

In [39]: ▶| `round(mean(third_dose),2)`

Out[39]: 57052.72

In [40]: ▶| `statistics.median(third_dose)`

Out[40]: 36666.0

In [41]: ▶| `statistics.mode(third_dose)`

Out[41]: 161487

In [42]: ▶| `min(third_dose)`

Out[42]: 7021

In [43]: ▶| `max(third_dose)`

Out[43]: 176118

In [44]: ▶| `round(statistics.stdev(third_dose),2)`

Out[44]: 48873.07

In [ ]: ▶| `#2nd Dataset`

In [37]: ▶| `df1=pd.read_excel('C:\\Users\\eric.park\\Downloads\\vaccines_by_age.xlsx')`

In [39]: ▶| `df1=df1[['Date','At least one dose_cumulative','Second_dose_cumulative','thir`

In [40]: ▶| `df1.isna().sum()`

Out[40]:
```
Date                               0
At least one dose_cumulative       0
Second_dose_cumulative           897
third_dose_cumulative           4305
dtype: int64
```

In [55]: ▶| `df1.dtypes`

Out[55]:
```
Date                         datetime64[ns]
At least one dose_cumulative          int64
Second_dose_cumulative              float64
third_dose_cumulative               float64
dtype: object
```

In [59]: ▶|
```
first_dose_age=df1['At least one dose_cumulative']
first_dose.describe().round(2)
```

Out[59]:
```
count       417.00
mean      29988.06
std       37344.18
min         204.00
25%        6635.00
50%       13171.00
75%       31530.00
max      165905.00
Name: previous_day_at_least_one, dtype: float64
```

In [62]: ▶|
```
sec_dose_age=df1['Second_dose_cumulative'].dropna()
sec_dose_age.describe().round(2)
```

Out[62]:
```
count       3850.00
mean     1231565.42
std      2550252.97
min            0.00
25%        13507.50
50%       193616.50
75%      1343163.75
max     11257423.00
Name: Second_dose_cumulative, dtype: float64
```

In [64]: ▶
```python
third_dose_age=df1['third_dose_cumulative'].dropna()
third_dose_age.describe().round(2)
```

Out[64]:
```
count         442.00
mean      1755697.18
std       2225109.43
min             0.00
25%        468789.75
50%        816695.50
75%       1254583.75
max       6604028.00
Name: third_dose_cumulative, dtype: float64
```