

```
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', 'third_dose_cumulative']]
```

```
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_age.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]: ▶ 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
```