In [28]:

```
import os
import pandas as pd
from math import sin, cos, sqrt, atan2, radians
```

In [29]:

```
parking = pd.read_csv(os.getcwd()+'\\data\\busan_parking_lonlat.csv',sep=',',encoding='utf-8')
```

In [30]:

```
df = pd.read_csv(os.getcwd()+'\\data\\2_df_cctv_prior_utf8.csv',sep=',',encoding='utf-8')
```

In [31]:

```
parking.head()
```

Out[31]:

	dicted_addr	dicted_name	dicted_posession	longitude	latitude
0	부산광역시 해운대구 구남로18번길 7 지번	동백 민영 주차장	private	129.159466	35.161991
1	부산광역시 서구 보수대로 228 지번	동산주차장	private	129.018966	35.115037
2	부산광역시 기장군 장안읍 길천리 255-8	기장군공영주차장	public	129.285883	35.328674
3	부산광역시 연제구 거제1동 89-78	덕수 민영 주차장	private	129.078422	35.196268
4	부산광역시 연제구 거제천로258번길 47 지번	삼보 민영 주차장	private	129.085681	35.189783

In [32]:

```
# latitude, longitude
```

In [33]:

```
parking_gubun = list(parking['dicted_posession'])
private_parking_1 = list(df['building_18'])
private_parking_2 = list(df['building_18'])
public_parking_1 = list(df['building_18'])
public_parking_2 = list(df['building_18'])
```

In [34]:

```
p_lat = list(parking['latitude'])
p_lon = list(parking['longitude'])
df_lat = list(df['latitude'])
df_lon = list(df['longitude'])
```

In [35]:

```
def distance(lat1, lon1, lat2, lon2):
    R = 6371
    x = (lon2 - lon1) * cos( 0.5*(lat2+lat1) )
    y = lat2 - lat1
    d = R * sqrt( x*x + y*y )
    return(d)
```

In [ ]:

```
for i in range(len(df_lat)):
    #print(i)
    for j in range(len(p_lat)):
        temp = distance(df_lat[i], df_lon[i], p_lat[j], p_lon[j])
```

```
        if temp <= 2.0  and parking_gubun[j]=='public':
            #print(df_lat[i], df_lon[i], p_lat[j], p_lon[j])
            public_parking_1[i] = public_parking_1[i] +1
        elif temp <= 5.0 and parking_gubun[j]=='public':
            #print(df_lat[i], df_lon[i], p_lat[j], p_lon[j])
            public_parking_2[i] = public_parking_2[i] +1

        elif temp <= 2.0  and parking_gubun[j]=='private':
            #print(df_lat[i], df_lon[i], p_lat[j], p_lon[j])
            private_parking_1[i] = private_parking_1[i] +1
        elif temp <= 5.0 and parking_gubun[j]=='private':
            #print(df_lat[i], df_lon[i], p_lat[j], p_lon[j])
            private_parking_2[i] = private_parking_2[i] +1

        else:
            pass
```

In [39]:

```
df['private_parking_1'] =private_parking_1
df['private_parking_2'] =private_parking_2
df['public_parking_1']=public_parking_1
df['public_parking_2']=public_parking_2
```

In [40]:

```
pd.DataFrame.to_csv(df,os.getcwd()+'\\data\\df_cctv_prior_parking_utf8.csv',sep=',',encoding='utf-8')
```