

# Performing Table Joins

## QGIS Tutorials and Tips



Author

Ujaval Gandhi

<http://google.com/+UjavalGandhi>

Translations by

SongHyun Choi



000000 00 00 000000 **shapefile** 00 000000 000000 00000. 00 00000 0000 00 00000000  
 00 0000 0000 00 00 000000 0000 0000 00000. 0 0000 0000 00 `Table Join` 00 0000 00 0  
 000000 **QGIS** 00 0000 0000 0000 00000000.



US Census Bureau shapefile.



- CSVファイルは、テキスト形式で保存されたデータファイル。拡張子は **.csv** である。
- QGISは、CSVファイルを読み込んで、地図上で表示することができる。



US Census Bureau MAF/TIGER shapefile

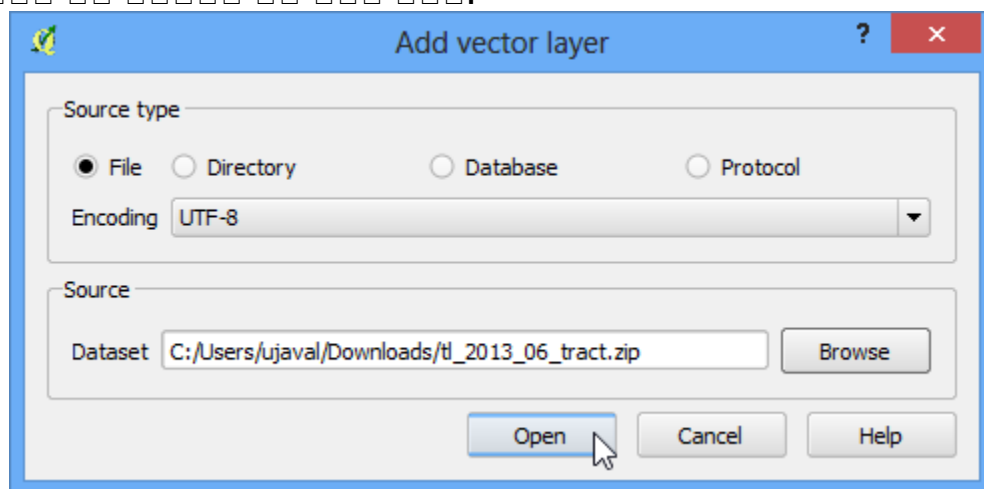
Americal FactFinder  
 <<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>>`\_□  
 □□□ □□ □□□ □□□□□. `Advanced Search` □ □□□ □ □□ □□□ CSV □ □□□ □□□□ □□  
 □□ `Topic - Total Population` □ `Geographies - All Census Tracts in California` □ □□□ □  
 □□□□. □ □□□□□ `Total Population 2010 Census Summary File 1` □ □□□□□.

□□□ □□ [TIGER] [USCENSUS]

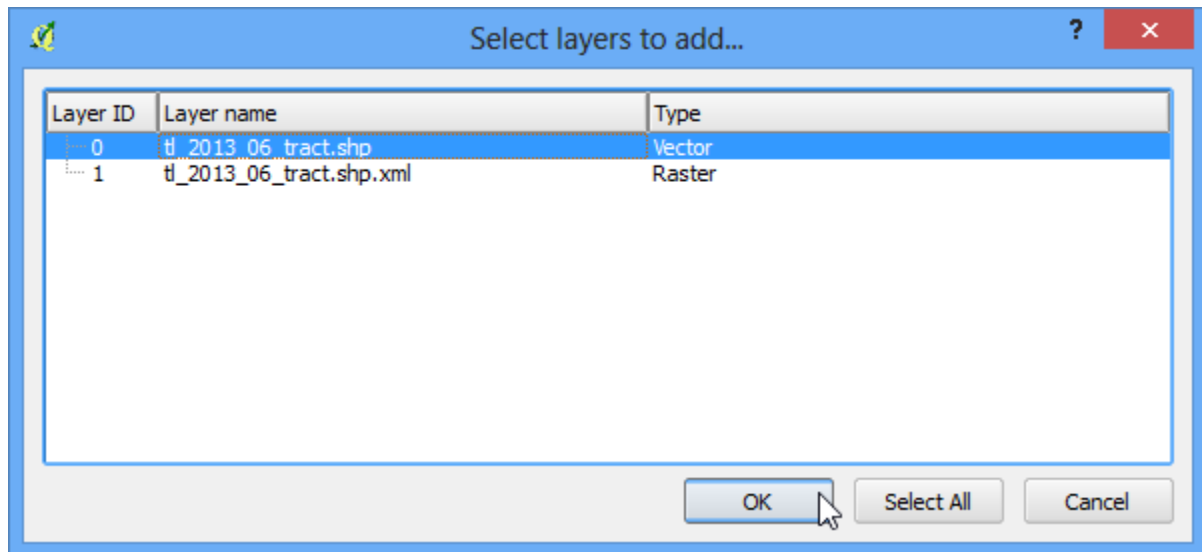
- ```
1. shapefile --> Add Vector Layer`
```



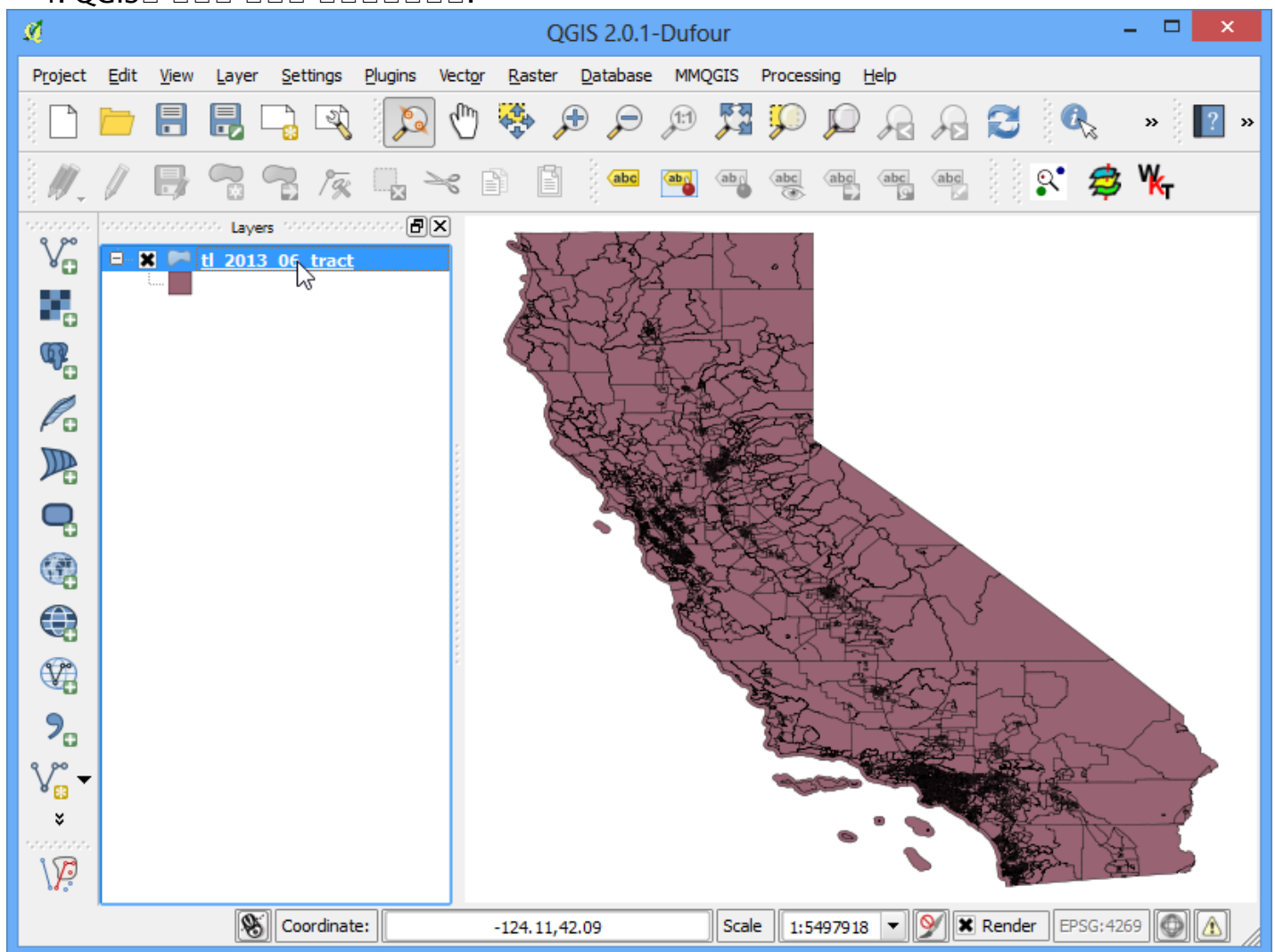
2. 파일을 불러와서 `tl\_2013\_06\_tract.zip`을 불러옵니다. QGIS에 불러와서 불러오기 버튼을 클릭합니다. 불러오기 버튼을 클릭하면 다음과 같은 창이 나타납니다.



3. `tl\_2013\_06\_tract.shp` 파일을 불러옵니다. :guilabel: `OK` 버튼을 클릭합니다.



4. QGIS □ □ □ □ □ □ □ □ □ □.



5. □ □ □ □ □ □ □ □ □ □ □ □ □ □ :guilabel: `Open Attribute Table` □ □ □ □ □.



6. □□ shapefile□ □□□ □□□□□□. □ shapefile□ □□□□ □□□□ □□□□ □ □□□ □□□□ □□□□ □□□□□□. □ □□□□ **\*\*GEOID\*\***□□□□ □ □□□□ □□□□□□ □□ ID□ □□□□ □□ □□ □□□□ □ shapefile□ '□□' □ □ □□□□.

Attribute table - tl\_2013\_06\_tract :: Features total: 8057, filtered: 8057, selected: 0

|    | STATEFP | COUNTYFP | TRACTCE | GEOID       | NAME    | NAMELSAD           | MTFCC |
|----|---------|----------|---------|-------------|---------|--------------------|-------|
| 0  | 06      | 001      | 442700  | 06001442700 | 4427    | Census Tract 44... | G5020 |
| 1  | 06      | 001      | 442800  | 06001442800 | 4428    | Census Tract 44... | G5020 |
| 2  | 06      | 037      | 204920  | 06037204920 | 2049.20 | Census Tract 20... | G5020 |
| 3  | 06      | 037      | 205110  | 06037205110 | 2051.10 | Census Tract 20... | G5020 |
| 4  | 06      | 037      | 205120  | 06037205120 | 2051.20 | Census Tract 20... | G5020 |
| 5  | 06      | 037      | 206010  | 06037206010 | 2060.10 | Census Tract 20... | G5020 |
| 6  | 06      | 037      | 206020  | 06037206020 | 2060.20 | Census Tract 20... | G5020 |
| 7  | 06      | 037      | 206050  | 06037206050 | 2060.50 | Census Tract 20... | G5020 |
| 8  | 06      | 037      | 207400  | 06037207400 | 2074    | Census Tract 20... | G5020 |
| 9  | 06      | 001      | 442900  | 06001442900 | 4429    | Census Tract 44... | G5020 |
| 10 | 06      | 037      | 192410  | 06037192410 | 1924.10 | Census Tract 19... | G5020 |
| 11 | 06      | 037      | 192510  | 06037192510 | 1925.10 | Census Tract 19... | G5020 |
| 12 | 06      | 037      | 192520  | 06037192520 | 1925.20 | Census Tract 19... | G5020 |
| 13 | 06      | 037      | 192610  | 06037192610 | 1926.10 | Census Tract 19... | G5020 |
| 14 | 06      | 037      | 192700  | 06037192700 | 1927    | Census Tract 19... | G5020 |
| 15 | 06      | 037      | 194500  | 06037194500 | 1945    | Census Tract 19... | G5020 |
| 16 | 06      | 037      | 195100  | 06037195100 | 1951    | Census Tract 19... | G5020 |
| 17 | 06      | 037      | 195300  | 06037195300 | 1953    | Census Tract 19... | G5020 |
| 18 | 06      | 001      | 443001  | 06001443001 | 4430.01 | Census Tract 44... | G5020 |
| 19 | 06      | 001      | 443002  | 06001443002 | 4430.02 | Census Tract 44... | G5020 |
| 20 | 06      | 001      | 443102  | 06001443102 | 4431.02 | Census Tract 44... | G5020 |
| 21 | 06      | 001      | 443301  | 06001443301 | 4433.01 | Census Tract 44... | G5020 |

Show All Features

7. Load the **ca\_tracts\_pop.csv** CSV file. The file contains population data for each census tract in California. The file has a header row with the following columns: **GEO.id2**, **POP00**, **POP00\_000**, **POP00\_000\_000**, **POP00\_000\_000\_000**. The first row of data is: **\*\*D001** 000 000 000 000 000 000.



The screenshot shows a Notepad window with the file 'ca\_tracts\_pop.csv' open. The text is a CSV file containing census tract data for Alameda County, California. The first row is the header, and the subsequent rows list individual census tracts from 4001 to 4031. The 'GEO.id' and 'GEO.id2' columns are circled in red.

| POPGROUP.id | POPGROUP.display-label | GEO.id               | GEO.id2     | GEO.display-label                               | D001 |
|-------------|------------------------|----------------------|-------------|-------------------------------------------------|------|
| 001         | Total population       | 1400000US06001400100 | 06001400100 | "Census Tract 4001, Alameda County, California" | 2937 |
| 001         | Total population       | 1400000US06001400200 | 06001400200 | "Census Tract 4002, Alameda County, California" | 1974 |
| 001         | Total population       | 1400000US06001400300 | 06001400300 | "Census Tract 4003, Alameda County, California" | 4865 |
| 001         | Total population       | 1400000US06001400400 | 06001400400 | "Census Tract 4004, Alameda County, California" | 3703 |
| 001         | Total population       | 1400000US06001400500 | 06001400500 | "Census Tract 4005, Alameda County, California" | 3517 |
| 001         | Total population       | 1400000US06001400600 | 06001400600 | "Census Tract 4006, Alameda County, California" | 1571 |
| 001         | Total population       | 1400000US06001400700 | 06001400700 | "Census Tract 4007, Alameda County, California" | 4206 |
| 001         | Total population       | 1400000US06001400800 | 06001400800 | "Census Tract 4008, Alameda County, California" | 3594 |
| 001         | Total population       | 1400000US06001400900 | 06001400900 | "Census Tract 4009, Alameda County, California" | 2302 |
| 001         | Total population       | 1400000US06001401000 | 06001401000 | "Census Tract 4010, Alameda County, California" | 5678 |
| 001         | Total population       | 1400000US06001401100 | 06001401100 | "Census Tract 4011, Alameda County, California" | 4156 |
| 001         | Total population       | 1400000US06001401200 | 06001401200 | "Census Tract 4012, Alameda County, California" | 2416 |
| 001         | Total population       | 1400000US06001401300 | 06001401300 | "Census Tract 4013, Alameda County, California" | 3528 |
| 001         | Total population       | 1400000US06001401400 | 06001401400 | "Census Tract 4014, Alameda County, California" | 4314 |
| 001         | Total population       | 1400000US06001401500 | 06001401500 | "Census Tract 4015, Alameda County, California" | 2630 |
| 001         | Total population       | 1400000US06001401600 | 06001401600 | "Census Tract 4016, Alameda County, California" | 2163 |
| 001         | Total population       | 1400000US06001401700 | 06001401700 | "Census Tract 4017, Alameda County, California" | 2667 |
| 001         | Total population       | 1400000US06001401800 | 06001401800 | "Census Tract 4018, Alameda County, California" | 1703 |
| 001         | Total population       | 1400000US06001402200 | 06001402200 | "Census Tract 4022, Alameda County, California" | 2385 |
| 001         | Total population       | 1400000US06001402400 | 06001402400 | "Census Tract 4024, Alameda County, California" | 2351 |
| 001         | Total population       | 1400000US06001402500 | 06001402500 | "Census Tract 4025, Alameda County, California" | 1784 |
| 001         | Total population       | 1400000US06001402600 | 06001402600 | "Census Tract 4026, Alameda County, California" | 1151 |
| 001         | Total population       | 1400000US06001402700 | 06001402700 | "Census Tract 4027, Alameda County, California" | 1569 |
| 001         | Total population       | 1400000US06001402800 | 06001402800 | "Census Tract 4028, Alameda County, California" | 3345 |
| 001         | Total population       | 1400000US06001402900 | 06001402900 | "Census Tract 4029, Alameda County, California" | 1434 |
| 001         | Total population       | 1400000US06001403000 | 06001403000 | "Census Tract 4030, Alameda County, California" | 2788 |
| 001         | Total population       | 1400000US06001403100 | 06001403100 | "Census Tract 4031, Alameda County, California" | 2238 |

8. `00 0000 0000 csv000 00000 00 00000 0000. 000 0 00 00 000 String`  
`(text)000 000. 0000 0000 00 D001'0000 0000 000000. 0000 00000 0000 0`  
`0000 0000 0000 0000 0000 0000. QG/S000 0000 0000 000000'.csvt'00 0000 00`  
`'00'0000 0000 0000. 0 0000 0 0000 0000 0000 0000 0000 0 00 0000. 0000 '.csv`  
`0000 00 00 00000 '\ca_tracts_pop.csvt'\0 000000. 00 :download:'download the`  
`csvt file from here. <../static/performing_table_joins/data/ca_tracts_pop.csvt>'00`  
`00000 0 0 00000.`



9. In QGIS, open the CSV file and load it into the project. Then, go to Layer --> Add Delimited Text Layer and click OK.





10. CSV file format. File format: CSV (comma separated values). No geometry (attribute only table). OK.

**Create a Layer from a Delimited Text File**

File Name:

Layer name:  Encoding:

File format: ☒ CSV (comma separated values) ☐ Custom delimiters ☐ Regular expression delimiter

Record options: Number of header lines to discard:  ☒ First record has field names

Field options: ☐ Trim fields ☐ Discard empty fields ☐ Decimal separator is comma

Geometry definition: ☐ Point coordinates ☐ Well known text (WKT) ☒ No geometry (attribute only table)

Layer settings: ☐ Use spatial index ☐ Use subset index ☐ Watch file

|   | POPGROUP.id | POPGROUP.display-label | GEO.id               | GEO.id2     | GEO.display-label                 |
|---|-------------|------------------------|----------------------|-------------|-----------------------------------|
| 1 | 001         | Total population       | 1400000US06001400100 | 06001400100 | Census Tract 4001, Alameda County |
| 2 | 001         | Total population       | 1400000US06001400200 | 06001400200 | Census Tract 4002, Alameda County |
| 3 | 001         | Total population       | 1400000US06001400300 | 06001400300 | Census Tract 4003, Alameda County |
| 4 | 001         | Total population       | 1400000US06001400400 | 06001400400 | Census Tract 4004, Alameda County |
| 5 | 001         | Total population       | 1400000US06001400500 | 06001400500 | Census Tract 4005, Alameda County |

11. CSV is QGIS's preferred format.



12. Select the ***tl\_2013\_06\_tract*** layer. Right-click on it and select Properties.



13. Click on Layer Properties and Joins. Click on the Join icon in the Layer Properties dialog. Click on the Join icon in the Layer Properties dialog.



14. Click the green plus icon in the Joins tab of the Layer Properties dialog. In the 'Add vector join' dialog, set 'Join layer' to 'ca\_tracts\_pop', 'Join field' to 'GEO.id2', and 'Target field' to 'GEOID'. Check 'Cache join layer in virtual memory' and click 'OK'.



15. Click the 'Open Attribute Table' button in the QGIS interface. In the 'Open Attribute Table' dialog, set 'Layer' to 'tl\_2013\_06\_tract' and click 'Open'.



16. □□ ca\_tracts\_pop\_D001 □□□ □ □□□ □□□ □□□ □ □ □□□□. □□ CSV□□□□□ □ □□□ □□□□ □□□□□. □□ □□□□ □□ QGIS□ □□□□□.

Attribute table - tl\_2013\_06\_tract :: Features total: 8057, filtered: 8057, selected: 0

|    | INTPTLAT    | INTPTLON     | tracts_pop_POPGRC | op_POPGROURdi    | tracts_pop_GEC | pop_GEQdis    | ca_tracts_pop_D001 |
|----|-------------|--------------|-------------------|------------------|----------------|---------------|--------------------|
| 0  | +37.5371514 | -122.0081094 | 001               | Total population | 1400000US06... | Census Tra... | 2873               |
| 1  | +37.5293619 | -121.9931002 | 001               | Total population | 1400000US06... | Census Tra... | 2816               |
| 2  | +34.0175004 | -118.1974975 | 001               | Total population | 1400000US06... | Census Tra... | 2598               |
| 3  | +34.0245059 | -118.2142985 | 001               | Total population | 1400000US06... | Census Tra... | 3766               |
| 4  | +34.0187546 | -118.2117956 | 001               | Total population | 1400000US06... | Census Tra... | 3618               |
| 5  | +34.0682177 | -118.2320356 | 001               | Total population | 1400000US06... | Census Tra... | 3127               |
| 6  | +34.0571230 | -118.2311021 | 001               | Total population | 1400000US06... | Census Tra... | 7883               |
| 7  | +34.0299036 | -118.2244531 | 001               | Total population | 1400000US06... | Census Tra... | 2146               |
| 8  | +34.0561941 | -118.2466502 | 001               | Total population | 1400000US06... | Census Tra... | 1363               |
| 9  | +37.5184093 | -121.9748369 | 001               | Total population | 1400000US06... | Census Tra... | 7194               |
| 10 | +34.0798577 | -118.3181008 | 001               | Total population | 1400000US06... | Census Tra... | 3628               |
| 11 | +34.0798690 | -118.3068568 | 001               | Total population | 1400000US06... | Census Tra... | 3670               |
| 12 | +34.0799255 | -118.3024972 | 001               | Total population | 1400000US06... | Census Tra... | 5067               |
| 13 | +34.0813650 | -118.2961539 | 001               | Total population | 1400000US06... | Census Tra... | 4389               |
| 14 | +34.0800134 | -118.2881064 | 001               | Total population | 1400000US06... | Census Tra... | 3513               |
| 15 | +34.0781753 | -118.3695958 | 001               | Total population | 1400000US06... | Census Tra... | 2037               |
| 16 | +34.1022274 | -118.2669741 | 001               | Total population | 1400000US06... | Census Tra... | 4717               |
| 17 | +34.0992506 | -118.2836893 | 001               | Total population | 1400000US06... | Census Tra... | 3203               |
| 18 | +37.5184218 | -121.9515237 | 001               | Total population | 1400000US06... | Census Tra... | 2917               |
| 19 | +37.5168344 | -121.9605916 | 001               | Total population | 1400000US06... | Census Tra... | 5918               |
| 20 | +37.5071943 | -121.9271475 | 001               | Total population | 1400000US06... | Census Tra... | 4611               |
| 21 | +37.4707325 | -121.9129556 | 001               | Total population | 1400000US06... | Census Tra... | 4074               |

Show All Features

17. `tl_2013_06_tract` :guilabel: `Properties` .



18. Click Style in the Layer Properties dialog. The Style dialog box appears. :guilabel: `Graduated` is selected. :guilabel: `Column` is set to :guilabel: `ca\_tracts\_pop\_D001`. :guilabel: `Color ramp` is set to :guilabel: `Mode` and :guilabel: `Quantile (Equal Count)`. :guilabel: `Classify` is checked. :guilabel: `OK` is clicked.





19. `guiLabel: 'Zoom in'`



20. □□□□□□ □□□□ □□□ □□□□□ □□□ □□□□. □□□ □□□ □□□□ □□□ □□□ □□□ □□□ □□□ □□□ □□□□.

