TN Marginal Workers Assessment

Team Member

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Register Number : **211521243019**

Applied Data Science Phase-3 document

Team Members :

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3. **DINESH S**
4. **LAKSHMI KANTH**
5. **HARIHARAN R**

Phase 3: Development Part 1

Problem Statement:

In this part you will begin building your project by loading and preprocessing the dataset.

Start the data analysis by loading and preprocessing the dataset

Load the dataset using Python and data manipulation libraries (e.g., pandas).

phase3-nm-1

October 17, 2023

[2]:
```
#Load the dataset

import pandas as pd
df=pd.read_csv('marginal_workers_tamil_nadu.csv.csv')
df
```

[2]:

	Table Code	State Code	District Code	Area Name	\
0	B0706	`33	`000	State - TAMIL NADU	
1	B0706	`33	`000	State - TAMIL NADU	
2	B0706	`33	`000	State - TAMIL NADU	
3	B0706	`33	`000	State - TAMIL NADU	
4	B0706	`33	`000	State - TAMIL NADU	
…	…	…	…	…	
1381	B0706	`33	`633	District - Tiruppur	
1382	B0706	`33	`633	District - Tiruppur	
1383	B0706	`33	`633	District - Tiruppur	
1384	B0706	`33	`633	District - Tiruppur	
1385	B0706	`33	`633	District - Tiruppur	

	Total/ Rural/ Urban	Age group	\
0	Total	Total	
1	Total	`5-9	
2	Total	`10-14	
3	Total	15-19	
4	Total	20-24	
…	…	…	
1381	Urban	50-59	
1382	Urban	60-69	
1383	Urban	70-79	
1384	Urban	80+	
1385	Urban	Age not stated	

	Worked for 3 months or more but less than 6 months - Persons	\
0	4218884	
1	48238	
2	76288	
3	257605	

```
4                                                 478082
…                                                    …
1381                                                4965
1382                                                2827
1383                                                 920
1384                                                 191
1385                                                  31

      Worked for 3 months or more but less than 6 months - Males  \
0                                                 2136881
1                                                   24511
2                                                   39191
3                                                  141262
4                                                  257149
…                                                    …
1381                                                2800
1382                                                1590
1383                                                 581
1384                                                 104
1385                                                  23

      Worked for 3 months or more but less than 6 months - Females  \
0                                                 2082003
1                                                   23727
2                                                   37097
3                                                  116343
4                                                  220933
…                                                    …
1381                                                2165
1382                                                1237
1383                                                 339
1384                                                  87
1385                                                   8

      Worked for less than 3 months - Persons  …  \
0                                      723891  …
1                                        2051  …
2                                        6993  …
3                                       41938  …
4                                       81036  …
…                                         …  …
1381                                      901  …
1382                                      578  …
1383                                      204  …
1384                                       47  …
1385                                        9  …
```

	Industrial Category - N to O - Females
0	14495
1	20
2	44
3	768
4	2267
…	…
1381	25
1382	7
1383	2
1384	0
1385	0

	Industrial Category - P to Q - Persons
0	58788
1	312
2	506
3	2114
4	11529
…	…
1381	111
1382	21
1383	6
1384	2
1385	0

	Industrial Category - P to Q - Males
0	19892
1	169
2	256
3	695
4	2861
…	…
1381	51
1382	6
1383	6
1384	0
1385	0

	Industrial Category - P to Q - Females
0	38896
1	143
2	250
3	1419
4	8668
…	…
1381	60

```
1382                                      15
1383                                       0
1384                                       2
1385                                       0

      Industrial Category - R to U - HHI - Persons  \
0                                          89703
1                                            842
2                                           1523
3                                           5349
4                                          10653
…                                          …
1381                                         119
1382                                          71
1383                                          22
1384                                          13
1385                                           3

      Industrial Category - R to U - HHI - Males  \
0                                          21366
1                                            386
2                                            576
3                                           2065
4                                           2478
…                                          …
1381                                          26
1382                                          24
1383                                           9
1384                                           3
1385                                           0

      Industrial Category - R to U - HHI - Females  \
0                                          68337
1                                            456
2                                            947
3                                           3284
4                                           8175
…                                          …
1381                                          93
1382                                          47
1383                                          13
1384                                          10
1385                                           3

      Industrial Category - R to U - Non HHI - Persons  \
0                                         625350
1                                          40358
```

```
2                                                 53900
3                                                 89780
4                                                109641
…                                                    …
1381                                                857
1382                                                668
1383                                                319
1384                                                 72
1385                                                 12

      Industrial Category - R to U - Non HHI - Males  \
0                                               274811
1                                                20664
2                                                27501
3                                                46737
4                                                54832
…                                                  …
1381                                               257
1382                                               274
1383                                               168
1384                                                30
1385                                                 9

      Industrial Category - R to U - Non HHI - Females
0                                                350539
1                                                 19694
2                                                 26399
3                                                 43043
4                                                 54809
…                                                   …
1381                                                600
1382                                                394
1383                                                151
1384                                                 42
1385                                                  3

[1386 rows x 69 columns]
```

[3]:
```
# Clean the dataset by removing '`' from the columns of Age group, state code␣
 ↪,Dsitrict Code
df['Age group'] = df['Age group'].str.replace('`', '')
df['State Code'] = df['State Code'].str.replace('`','')
df['District Code']= df['District Code'].str.replace('`','')
df
```

[3]:
```
     Table Code State Code District Code            Area Name  \
0         B0706         33           000   State - TAMIL NADU
```

```
1         B0706         33           000   State - TAMIL NADU
2         B0706         33           000   State - TAMIL NADU
3         B0706         33           000   State - TAMIL NADU
4         B0706         33           000   State - TAMIL NADU
…         …        …           …                 …
1381      B0706         33           633  District - Tiruppur
1382      B0706         33           633  District - Tiruppur
1383      B0706         33           633  District - Tiruppur
1384      B0706         33           633  District - Tiruppur
1385      B0706         33           633  District - Tiruppur

     Total/ Rural/ Urban       Age group  \
0                 Total           Total
1                 Total             5-9
2                 Total           10-14
3                 Total           15-19
4                 Total           20-24
…                 …              …
1381              Urban           50-59
1382              Urban           60-69
1383              Urban           70-79
1384              Urban             80+
1385              Urban  Age not stated

      Worked for 3 months or more but less than 6 months -  Persons  \
0                                                   4218884
1                                                     48238
2                                                     76288
3                                                    257605
4                                                    478082
…                                                     …
1381                                                   4965
1382                                                   2827
1383                                                    920
1384                                                    191
1385                                                     31

      Worked for 3 months or more but less than 6 months - Males  \
0                                                   2136881
1                                                     24511
2                                                     39191
3                                                    141262
4                                                    257149
…                                                     …
1381                                                   2800
1382                                                   1590
1383                                                    581
```

1384	104	
1385	23	

	Worked for 3 months or more but less than 6 months - Females	\
0	2082003	
1	23727	
2	37097	
3	116343	
4	220933	
…	…	
1381	2165	
1382	1237	
1383	339	
1384	87	
1385	8	

	Worked for less than 3 months - Persons	…	\
0	723891	…	
1	2051	…	
2	6993	…	
3	41938	…	
4	81036	…	
…	…	…	
1381	901	…	
1382	578	…	
1383	204	…	
1384	47	…	
1385	9	…	

	Industrial Category - N to O - Females	\
0	14495	
1	20	
2	44	
3	768	
4	2267	
…	…	
1381	25	
1382	7	
1383	2	
1384	0	
1385	0	

	Industrial Category - P to Q - Persons	\
0	58788	
1	312	
2	506	
3	2114	

```
4                                      11529
…                                      …
1381                                     111
1382                                      21
1383                                       6
1384                                       2
1385                                       0

      Industrial Category - P to Q - Males  \
0                                      19892
1                                        169
2                                        256
3                                        695
4                                       2861
…                                       …
1381                                       51
1382                                        6
1383                                        6
1384                                        0
1385                                        0

      Industrial Category - P to Q - Females  \
0                                        38896
1                                          143
2                                          250
3                                         1419
4                                         8668
…                                         …
1381                                        60
1382                                        15
1383                                         0
1384                                         2
1385                                         0

      Industrial Category - R to U - HHI - Persons  \
0                                            89703
1                                              842
2                                             1523
3                                             5349
4                                            10653
…                                            …
1381                                           119
1382                                            71
1383                                            22
1384                                            13
1385                                             3
```

```
      Industrial Category - R to U - HHI - Males  \
0                                           21366
1                                             386
2                                             576
3                                            2065
4                                            2478
…                                            …
1381                                           26
1382                                           24
1383                                            9
1384                                            3
1385                                            0

      Industrial Category - R to U - HHI - Females  \
0                                             68337
1                                               456
2                                               947
3                                              3284
4                                              8175
…                                              …
1381                                             93
1382                                             47
1383                                             13
1384                                             10
1385                                              3

      Industrial Category - R to U - Non HHI - Persons  \
0                                               625350
1                                                40358
2                                                53900
3                                                89780
4                                               109641
…                                                …
1381                                               857
1382                                               668
1383                                               319
1384                                                72
1385                                                12

      Industrial Category - R to U - Non HHI - Males  \
0                                             274811
1                                              20664
2                                              27501
3                                              46737
4                                              54832
…                                              …
1381                                             257
```

```
1382                                                274
1383                                                168
1384                                                 30
1385                                                  9

      Industrial Category - R to U - Non HHI - Females
0                                                350539
1                                                 19694
2                                                 26399
3                                                 43043
4                                                 54809
…                                                     …
1381                                                600
1382                                                394
1383                                                151
1384                                                 42
1385                                                  3

[1386 rows x 69 columns]
```

[ ]:
```
# first few rows
df.head()
```

[ ]:
```
  Table Code State Code District Code           Area Name Total/ Rural/ Urban  \
0      B0706         33           000  State - TAMIL NADU               Total
1      B0706         33           000  State - TAMIL NADU               Total
2      B0706         33           000  State - TAMIL NADU               Total
3      B0706         33           000  State - TAMIL NADU               Total
4      B0706         33           000  State - TAMIL NADU               Total

  Age group  Worked for 3 months or more but less than 6 months -  Persons  \
0     Total                                                4218884
1       5-9                                                  48238
2     10-14                                                  76288
3     15-19                                                 257605
4     20-24                                                 478082

   Worked for 3 months or more but less than 6 months - Males  \
0                                            2136881
1                                              24511
2                                              39191
3                                             141262
4                                             257149

   Worked for 3 months or more but less than 6 months - Females  \
0                                            2082003
1                                              23727
```

```
2                                                37097
3                                               116343
4                                               220933

   Worked for less than 3 months - Persons  …  \
0                                   723891  …
1                                     2051  …
2                                     6993  …
3                                    41938  …
4                                    81036  …

   Industrial Category - N to O - Females  \
0                                   14495
1                                      20
2                                      44
3                                     768
4                                    2267

   Industrial Category - P to Q - Persons  \
0                                   58788
1                                     312
2                                     506
3                                    2114
4                                   11529

   Industrial Category - P to Q - Males  \
0                                  19892
1                                    169
2                                    256
3                                    695
4                                   2861

   Industrial Category - P to Q - Females  \
0                                   38896
1                                     143
2                                     250
3                                    1419
4                                    8668

   Industrial Category - R to U - HHI - Persons  \
0                                         89703
1                                           842
2                                          1523
3                                          5349
4                                         10653

   Industrial Category - R to U - HHI - Males  \
```

```
0                                          21366
1                                            386
2                                            576
3                                           2065
4                                           2478

   Industrial Category - R to U - HHI - Females  \
0                                          68337
1                                            456
2                                            947
3                                           3284
4                                           8175

   Industrial Category - R to U - Non HHI - Persons  \
0                                             625350
1                                              40358
2                                              53900
3                                              89780
4                                             109641

   Industrial Category - R to U - Non HHI - Males  \
0                                            274811
1                                             20664
2                                             27501
3                                             46737
4                                             54832

   Industrial Category - R to U - Non HHI - Females
0                                             350539
1                                              19694
2                                              26399
3                                              43043
4                                              54809

[5 rows x 69 columns]
```

[ ]:
```
df.tail()
```

[ ]:
```
     Table Code State Code District Code            Area Name  \
1381      B0706         33           633  District - Tiruppur
1382      B0706         33           633  District - Tiruppur
1383      B0706         33           633  District - Tiruppur
1384      B0706         33           633  District - Tiruppur
1385      B0706         33           633  District - Tiruppur

     Total/ Rural/ Urban       Age group  \
1381               Urban           50-59
```

```
1382              Urban           60-69
1383              Urban           70-79
1384              Urban             80+
1385              Urban  Age not stated

      Worked for 3 months or more but less than 6 months -  Persons  \
1381                                                  4965
1382                                                  2827
1383                                                   920
1384                                                   191
1385                                                    31

      Worked for 3 months or more but less than 6 months - Males  \
1381                                                  2800
1382                                                  1590
1383                                                   581
1384                                                   104
1385                                                    23

      Worked for 3 months or more but less than 6 months - Females  \
1381                                                  2165
1382                                                  1237
1383                                                   339
1384                                                    87
1385                                                     8

      Worked for less than 3 months - Persons  …  \
1381                                      901  …
1382                                      578  …
1383                                      204  …
1384                                       47  …
1385                                        9  …

      Industrial Category - N to O - Females  \
1381                                      25
1382                                       7
1383                                       2
1384                                       0
1385                                       0

      Industrial Category - P to Q - Persons  \
1381                                     111
1382                                      21
1383                                       6
1384                                       2
1385                                       0
```

	Industrial Category - P to Q - Males	Industrial Category - P to Q - Females	Industrial Category - R to U - HHI - Persons	Industrial Category - R to U - HHI - Males	Industrial Category - R to U - HHI - Females	Industrial Category - R to U - Non HHI - Persons	Industrial Category - R to U - Non HHI - Males
1381	51	60	119	26	93	857	257
1382	6	15	71	24	47	668	274
1383	6	0	22	9	13	319	168
1384	0	2	13	3	10	72	30
1385	0	0	3	0	3	12	

```
1385                                                  9

      Industrial Category - R to U - Non HHI - Females
1381                                                600
1382                                                394
1383                                                151
1384                                                 42
1385                                                  3

[5 rows x 69 columns]
```

[ ]:
```
# List the column names
print(df.columns)
```

```
Index(['Table Code', 'State Code', 'District Code', 'Area Name',
       'Total/ Rural/ Urban', 'Age group',
       'Worked for 3 months or more but less than 6 months -  Persons',
       'Worked for 3 months or more but less than 6 months - Males',
       'Worked for 3 months or more but less than 6 months - Females',
       'Worked for less than 3 months - Persons',
       'Worked for less than 3 months - Males',
       'Worked for less than 3 months - Females',
       'Industrial Category - A - Cultivators - Persons',
       'Industrial Category - A - Cultivators - Males',
       'Industrial Category - A - Cultivators - Females',
       'Industrial Category - A - Agricultural labourers - Persons',
       'Industrial Category - A - Agricultural labourers - Males',
       'Industrial Category - A - Agricultural labourers - Females',
       'Industrial Category - A - Plantation, Livestock, Forestry, Fishing,
Hunting and allied activities - Persons',
       'Industrial Category - A - Plantation, Livestock, Forestry, Fishing,
Hunting and allied activities - Males',
       'Industrial Category - A - Plantation, Livestock, Forestry, Fishing,
Hunting and allied activities - Females',
       'Industrial Category - B - Persons', 'Industrial Category - B - Males',
       'Industrial Category - B - Females',
       'Industrial Category - C - HHI - Persons',
       'Industrial Category - C - HHI - Males',
       'Industrial Category - C - HHI - Females',
       'Industrial Category - C - Non HHI - Persons',
       'Industrial Category - C - Non HHI - Males',
       'Industrial Category - C - Non HHI - Females',
       'Industrial Category - D & E - Persons',
       'Industrial Category - D & E - Males',
       'Industrial Category - D & E - Females',
       'Industrial Category - F - Persons', 'Industrial Category - F - Males',
       'Industrial Category - F - Females',
```

```
       'Industrial Category - G - HHI - Persons',
       'Industrial Category - G - HHI - Males',
       'Industrial Category - G - HHI - Females',
       'Industrial Category - G - Non HHI - Persons',
       'Industrial Category - G - Non HHI - Males',
       'Industrial Category - G - Non HHI - Females',
       'Industrial Category - H - Persons', 'Industrial Category - H - Males',
       'Industrial Category - H - Females',
       'Industrial Category - I - Persons', 'Industrial Category - I - Males',
       'Industrial Category - I - Females',
       'Industrial Category - J - HHI - Persons',
       'Industrial Category - J - HHI - Males',
       'Industrial Category - J - HHI - Females',
       'Industrial Category - J - Non HHI - Persons',
       'Industrial Category - J - Non HHI - Males',
       'Industrial Category - J - Non HHI - Females',
       'Industrial Category - K to M - Persons',
       'Industrial Category - K to M - Males',
       'Industrial Category - K to M - Females',
       'Industrial Category - N to O - Persons',
       'Industrial Category - N to O - Males',
       'Industrial Category - N to O - Females',
       'Industrial Category - P to Q - Persons',
       'Industrial Category - P to Q - Males',
       'Industrial Category - P to Q - Females',
       'Industrial Category - R to U - HHI - Persons',
       'Industrial Category - R to U - HHI - Males',
       'Industrial Category - R to U - HHI - Females',
       'Industrial Category - R to U - Non HHI - Persons',
       'Industrial Category - R to U - Non HHI - Males',
       'Industrial Category - R to U - Non HHI - Females'],
      dtype='object')
```

[ ]:
```
#info
print(df.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1386 entries, 0 to 1385
Data columns (total 69 columns):
 #   Column
Non-Null Count  Dtype
---  ------
--------------  -----
 0   Table Code
1386 non-null   object
 1   State Code
1386 non-null   object
 2   District Code
```

```
1386 non-null   object
 3   Area Name
1386 non-null   object
 4   Total/ Rural/ Urban
1386 non-null   object
 5   Age group
1386 non-null   object
 6   Worked for 3 months or more but less than 6 months -  Persons
1386 non-null   int64
 7   Worked for 3 months or more but less than 6 months - Males
1386 non-null   int64
 8   Worked for 3 months or more but less than 6 months - Females
1386 non-null   int64
 9   Worked for less than 3 months - Persons
1386 non-null   int64
 10  Worked for less than 3 months - Males
1386 non-null   int64
 11  Worked for less than 3 months - Females
1386 non-null   int64
 12  Industrial Category - A - Cultivators - Persons
1386 non-null   int64
 13  Industrial Category - A - Cultivators - Males
1386 non-null   int64
 14  Industrial Category - A - Cultivators - Females
1386 non-null   int64
 15  Industrial Category - A - Agricultural labourers - Persons
1386 non-null   int64
 16  Industrial Category - A - Agricultural labourers - Males
1386 non-null   int64
 17  Industrial Category - A - Agricultural labourers - Females
1386 non-null   int64
 18  Industrial Category - A - Plantation, Livestock, Forestry, Fishing, Hunting
and allied activities - Persons  1386 non-null   int64
 19  Industrial Category - A - Plantation, Livestock, Forestry, Fishing, Hunting
and allied activities - Males    1386 non-null   int64
 20  Industrial Category - A - Plantation, Livestock, Forestry, Fishing, Hunting
and allied activities - Females  1386 non-null   int64
 21  Industrial Category - B - Persons
1386 non-null   int64
 22  Industrial Category - B - Males
1386 non-null   int64
 23  Industrial Category - B - Females
1386 non-null   int64
 24  Industrial Category - C - HHI - Persons
1386 non-null   int64
 25  Industrial Category - C - HHI - Males
1386 non-null   int64
 26  Industrial Category - C - HHI - Females
```

```
1386 non-null   int64
 27  Industrial Category - C - Non HHI - Persons
1386 non-null   int64
 28  Industrial Category - C - Non HHI - Males
1386 non-null   int64
 29  Industrial Category - C - Non HHI - Females
1386 non-null   int64
 30  Industrial Category - D & E - Persons
1386 non-null   int64
 31  Industrial Category - D & E - Males
1386 non-null   int64
 32  Industrial Category - D & E - Females
1386 non-null   int64
 33  Industrial Category - F - Persons
1386 non-null   int64
 34  Industrial Category - F - Males
1386 non-null   int64
 35  Industrial Category - F - Females
1386 non-null   int64
 36  Industrial Category - G - HHI - Persons
1386 non-null   int64
 37  Industrial Category - G - HHI - Males
1386 non-null   int64
 38  Industrial Category - G - HHI - Females
1386 non-null   int64
 39  Industrial Category - G - Non HHI - Persons
1386 non-null   int64
 40  Industrial Category - G - Non HHI - Males
1386 non-null   int64
 41  Industrial Category - G - Non HHI - Females
1386 non-null   int64
 42  Industrial Category - H - Persons
1386 non-null   int64
 43  Industrial Category - H - Males
1386 non-null   int64
 44  Industrial Category - H - Females
1386 non-null   int64
 45  Industrial Category - I - Persons
1386 non-null   int64
 46  Industrial Category - I - Males
1386 non-null   int64
 47  Industrial Category - I - Females
1386 non-null   int64
 48  Industrial Category - J - HHI - Persons
1386 non-null   int64
 49  Industrial Category - J - HHI - Males
1386 non-null   int64
 50  Industrial Category - J - HHI - Females
```

```
1386 non-null   int64
 51  Industrial Category - J - Non HHI - Persons
1386 non-null   int64
 52  Industrial Category - J - Non HHI - Males
1386 non-null   int64
 53  Industrial Category - J - Non HHI - Females
1386 non-null   int64
 54  Industrial Category - K to M - Persons
1386 non-null   int64
 55  Industrial Category - K to M - Males
1386 non-null   int64
 56  Industrial Category - K to M - Females
1386 non-null   int64
 57  Industrial Category - N to O - Persons
1386 non-null   int64
 58  Industrial Category - N to O - Males
1386 non-null   int64
 59  Industrial Category - N to O - Females
1386 non-null   int64
 60  Industrial Category - P to Q - Persons
1386 non-null   int64
 61  Industrial Category - P to Q - Males
1386 non-null   int64
 62  Industrial Category - P to Q - Females
1386 non-null   int64
 63  Industrial Category - R to U - HHI - Persons
1386 non-null   int64
 64  Industrial Category - R to U - HHI - Males
1386 non-null   int64
 65  Industrial Category - R to U - HHI - Females
1386 non-null   int64
 66  Industrial Category - R to U - Non HHI - Persons
1386 non-null   int64
 67  Industrial Category - R to U - Non HHI - Males
1386 non-null   int64
 68  Industrial Category - R to U - Non HHI - Females
1386 non-null   int64
dtypes: int64(63), object(6)
memory usage: 747.3+ KB
None
```

[ ]:
```
# Check for missing values
df.isnull()
```

[ ]:
```
      Table Code  State Code  District Code  Area Name  Total/ Rural/ Urban  \
0          False       False          False      False                False
1          False       False          False      False                False
```

```
2          False       False          False      False                False
3          False       False          False      False                False
4          False       False          False      False                False
…          …         …              …          …                    …
1381       False       False          False      False                False
1382       False       False          False      False                False
1383       False       False          False      False                False
1384       False       False          False      False                False
1385       False       False          False      False                False

      Age group  \
0         False
1         False
2         False
3         False
4         False
…         …
1381      False
1382      False
1383      False
1384      False
1385      False

      Worked for 3 months or more but less than 6 months -  Persons  \
0                                                          False
1                                                          False
2                                                          False
3                                                          False
4                                                          False
…                                                          …
1381                                                       False
1382                                                       False
1383                                                       False
1384                                                       False
1385                                                       False

      Worked for 3 months or more but less than 6 months - Males  \
0                                                          False
1                                                          False
2                                                          False
3                                                          False
4                                                          False
…                                                          …
1381                                                       False
1382                                                       False
1383                                                       False
1384                                                       False
```

```
1385                                                  False

      Worked for 3 months or more but less than 6 months - Females  \
0                                                     False
1                                                     False
2                                                     False
3                                                     False
4                                                     False
…                                                     …
1381                                                  False
1382                                                  False
1383                                                  False
1384                                                  False
1385                                                  False

      Worked for less than 3 months - Persons  …  \
0                                        False  …
1                                        False  …
2                                        False  …
3                                        False  …
4                                        False  …
…                                        …  …
1381                                     False  …
1382                                     False  …
1383                                     False  …
1384                                     False  …
1385                                     False  …

      Industrial Category - N to O - Females  \
0                                       False
1                                       False
2                                       False
3                                       False
4                                       False
…                                       …
1381                                    False
1382                                    False
1383                                    False
1384                                    False
1385                                    False

      Industrial Category - P to Q - Persons  \
0                                       False
1                                       False
2                                       False
3                                       False
4                                       False
```

```
…                                    …
1381                                 False
1382                                 False
1383                                 False
1384                                 False
1385                                 False

      Industrial Category - P to Q - Males  \
0                                    False
1                                    False
2                                    False
3                                    False
4                                    False
…                                    …
1381                                 False
1382                                 False
1383                                 False
1384                                 False
1385                                 False

      Industrial Category - P to Q - Females  \
0                                      False
1                                      False
2                                      False
3                                      False
4                                      False
…                                      …
1381                                   False
1382                                   False
1383                                   False
1384                                   False
1385                                   False

      Industrial Category - R to U - HHI - Persons  \
0                                           False
1                                           False
2                                           False
3                                           False
4                                           False
…                                           …
1381                                        False
1382                                        False
1383                                        False
1384                                        False
1385                                        False

      Industrial Category - R to U - HHI - Males  \
```

```
0                                          False
1                                          False
2                                          False
3                                          False
4                                          False
…                                          …
1381                                       False
1382                                       False
1383                                       False
1384                                       False
1385                                       False

      Industrial Category - R to U - HHI - Females  \
0                                           False
1                                           False
2                                           False
3                                           False
4                                           False
…                                           …
1381                                        False
1382                                        False
1383                                        False
1384                                        False
1385                                        False

      Industrial Category - R to U - Non HHI - Persons  \
0                                              False
1                                              False
2                                              False
3                                              False
4                                              False
…                                              …
1381                                           False
1382                                           False
1383                                           False
1384                                           False
1385                                           False

      Industrial Category - R to U - Non HHI - Males  \
0                                            False
1                                            False
2                                            False
3                                            False
4                                            False
…                                            …
1381                                         False
1382                                         False
```

```
1383                                                False
1384                                                False
1385                                                False

      Industrial Category - R to U - Non HHI - Females
0                                                   False
1                                                   False
2                                                   False
3                                                   False
4                                                   False
…                                                     …
1381                                                False
1382                                                False
1383                                                False
1384                                                False
1385                                                False

[1386 rows x 69 columns]
```

[ ]:
```
# Sum of missing values
print(df.isnull().sum())
```

```
Table Code                                          0
State Code                                          0
District Code                                       0
Area Name                                           0
Total/ Rural/ Urban                                 0
                                                   ..
Industrial Category - R to U - HHI - Males          0
Industrial Category - R to U - HHI - Females        0
Industrial Category - R to U - Non HHI - Persons    0
Industrial Category - R to U - Non HHI - Males      0
Industrial Category - R to U - Non HHI - Females    0
Length: 69, dtype: int64
```

[ ]:
```
# Data types of columns
print(df.dtypes)
```

```
Table Code                                          object
State Code                                          object
District Code                                       object
Area Name                                           object
Total/ Rural/ Urban                                 object
                                                     …
Industrial Category - R to U - HHI - Males           int64
Industrial Category - R to U - HHI - Females         int64
Industrial Category - R to U - Non HHI - Persons     int64
Industrial Category - R to U - Non HHI - Males       int64
```

```
Industrial Category - R to U - Non HHI - Females     int64
Length: 69, dtype: object
```

[ ]:
```
# Convert columns to numeric, handling errors as NaN
numeric_columns = ['Industrial Category - A - Cultivators - Persons',␣
 ↪'Industrial Category - A - Cultivators - Males',
    'Industrial Category - A - Cultivators - Females', 'Industrial Category - B␣
 ↪- Persons',
    'Industrial Category - B - Males', 'Industrial Category - B - Females',
    'Industrial Category - C - HHI - Males',
    'Industrial Category - C - HHI - Females',
    'Industrial Category - D & E - Males',
    'Industrial Category - D & E - Females',
    'Industrial Category - F - Persons',
    'Industrial Category - F - Males',
    'Industrial Category - F - Females',
    'Industrial Category - G - HHI - Persons',
    'Industrial Category - G - HHI - Males',
    'Industrial Category - G - HHI - Females',
    'Industrial Category - G - Non HHI - Persons',
    'Industrial Category - G - Non HHI - Males',
    'Industrial Category - G - Non HHI - Females',
    'Industrial Category - H - Persons',
    'Industrial Category - H - Males',
    'Industrial Category - H - Females',
    'Industrial Category - I - Persons',
    'Industrial Category - I - Males',
    'Industrial Category - I - Females',
    'Industrial Category - J - HHI - Persons',
    'Industrial Category - J - HHI - Males',
    'Industrial Category - J - HHI - Females',
    'Industrial Category - J - Non HHI - Persons',
    'Industrial Category - J - Non HHI - Males',
    'Industrial Category - J - Non HHI - Females',
    'Industrial Category - K to M - Persons',
    'Industrial Category - K to M - Males',
    'Industrial Category - K to M - Females',
    'Industrial Category - N to O - Persons',
    'Industrial Category - N to O - Males',
    'Industrial Category - N to O - Females',
    'Industrial Category - P to Q - Persons',
    'Industrial Category - P to Q - Males',
    'Industrial Category - P to Q - Females',
    'Industrial Category - R to U - HHI - Persons',
    'Industrial Category - R to U - HHI - Males',
    'Industrial Category - R to U - HHI - Females',
    'Industrial Category - R to U - Non HHI - Persons',
```

```
    'Industrial Category - R to U - Non HHI - Males',
    'Industrial Category - R to U - Non HHI - Females']
# Convert columns to numeric, handling errors as NaN
df[numeric_columns] = df[numeric_columns].apply(pd.to_numeric, errors='coerce')

# Drop rows with NaN values in numeric columns
df.dropna(subset=numeric_columns, inplace=True)
```

[ ]:
```
# Exclude rows where 'Age group' is "Total"
df = df[df['Age group'] != 'Total']
df
```

[ ]:
```
     Table Code State Code District Code            Area Name  \
1         B0706         33           000   State - TAMIL NADU
2         B0706         33           000   State - TAMIL NADU
3         B0706         33           000   State - TAMIL NADU
4         B0706         33           000   State - TAMIL NADU
5         B0706         33           000   State - TAMIL NADU
…         …        …           …                  …
1381      B0706         33           633  District - Tiruppur
1382      B0706         33           633  District - Tiruppur
1383      B0706         33           633  District - Tiruppur
1384      B0706         33           633  District - Tiruppur
1385      B0706         33           633  District - Tiruppur

     Total/ Rural/ Urban       Age group  \
1                  Total             5-9
2                  Total           10-14
3                  Total           15-19
4                  Total           20-24
5                  Total           25-29
…                  …             …
1381               Urban           50-59
1382               Urban           60-69
1383               Urban           70-79
1384               Urban             80+
1385               Urban  Age not stated

      Worked for 3 months or more but less than 6 months -  Persons  \
1                                                    48238
2                                                    76288
3                                                   257605
4                                                   478082
5                                                   554851
…                                                      …
1381                                                  4965
1382                                                  2827
```

```
1383                                                 920
1384                                                 191
1385                                                  31

      Worked for 3 months or more but less than 6 months - Males  \
1                                                  24511
2                                                  39191
3                                                 141262
4                                                 257149
5                                                 283442
…                                                  …
1381                                                2800
1382                                                1590
1383                                                 581
1384                                                 104
1385                                                  23

      Worked for 3 months or more but less than 6 months - Females  \
1                                                  23727
2                                                  37097
3                                                 116343
4                                                 220933
5                                                 271409
…                                                  …
1381                                                2165
1382                                                1237
1383                                                 339
1384                                                  87
1385                                                   8

      Worked for less than 3 months - Persons  …  \
1                                        2051  …
2                                        6993  …
3                                       41938  …
4                                       81036  …
5                                       91694  …
…                                       …  …
1381                                      901  …
1382                                      578  …
1383                                      204  …
1384                                       47  …
1385                                        9  …

      Industrial Category - N to O - Females  \
1                                        20
2                                        44
3                                       768
```

```
4                                        2267
5                                        2285
…                                        …
1381                                       25
1382                                        7
1383                                        2
1384                                        0
1385                                        0

      Industrial Category - P to Q - Persons  \
1                                         312
2                                         506
3                                        2114
4                                       11529
5                                       12528
…                                       …
1381                                      111
1382                                       21
1383                                        6
1384                                        2
1385                                        0

      Industrial Category - P to Q - Males  \
1                                       169
2                                       256
3                                       695
4                                      2861
5                                      4506
…                                      …
1381                                     51
1382                                      6
1383                                      6
1384                                      0
1385                                      0

      Industrial Category - P to Q - Females  \
1                                         143
2                                         250
3                                        1419
4                                        8668
5                                        8022
…                                        …
1381                                       60
1382                                       15
1383                                        0
1384                                        2
1385                                        0
```

```
      Industrial Category - R to U - HHI - Persons  \
1                                                842
2                                               1523
3                                               5349
4                                              10653
5                                              12713
…                                                  …
1381                                             119
1382                                              71
1383                                              22
1384                                              13
1385                                               3

      Industrial Category - R to U - HHI - Males  \
1                                               386
2                                               576
3                                              2065
4                                              2478
5                                              2745
…                                                 …
1381                                             26
1382                                             24
1383                                              9
1384                                              3
1385                                              0

      Industrial Category - R to U - HHI - Females  \
1                                                456
2                                                947
3                                               3284
4                                               8175
5                                               9968
…                                                  …
1381                                              93
1382                                              47
1383                                              13
1384                                              10
1385                                               3

      Industrial Category - R to U - Non HHI - Persons  \
1                                                 40358
2                                                 53900
3                                                 89780
4                                                109641
5                                                 80299
…                                                     …
```

```
1381                                                857
1382                                                668
1383                                                319
1384                                                 72
1385                                                 12

      Industrial Category - R to U - Non HHI - Males  \
1                                                20664
2                                                27501
3                                                46737
4                                                54832
5                                                34058
…                                                …
1381                                               257
1382                                               274
1383                                               168
1384                                                30
1385                                                 9

      Industrial Category - R to U - Non HHI - Females
1                                                19694
2                                                26399
3                                                43043
4                                                54809
5                                                46241
…                                                …
1381                                               600
1382                                               394
1383                                               151
1384                                                42
1385                                                 3

[1287 rows x 69 columns]
```

[ ]:
```
# Standardizing Data
from sklearn.preprocessing import StandardScaler
scaler = StandardScaler()
numeric_columns = ['Industrial Category - A - Cultivators - Persons',␣
 ↪'Industrial Category - A - Cultivators - Males',
    'Industrial Category - A - Cultivators - Females', 'Industrial Category - B␣
 ↪- Persons',
    'Industrial Category - B - Males', 'Industrial Category - B - Females',
    'Industrial Category - C - HHI - Males',
    'Industrial Category - C - HHI - Females',
    'Industrial Category - D & E - Males',
    'Industrial Category - D & E - Females',
    'Industrial Category - F - Persons',
```

```
    'Industrial Category - F - Males',
    'Industrial Category - F - Females',
    'Industrial Category - G - HHI - Persons',
    'Industrial Category - G - HHI - Males',
    'Industrial Category - G - HHI - Females',
    'Industrial Category - G - Non HHI - Persons',
    'Industrial Category - G - Non HHI - Males',
    'Industrial Category - G - Non HHI - Females',
    'Industrial Category - H - Persons',
    'Industrial Category - H - Males',
    'Industrial Category - H - Females',
    'Industrial Category - I - Persons',
    'Industrial Category - I - Males',
    'Industrial Category - I - Females',
    'Industrial Category - J - HHI - Persons',
    'Industrial Category - J - HHI - Males',
    'Industrial Category - J - HHI - Females',
    'Industrial Category - J - Non HHI - Persons',
    'Industrial Category - J - Non HHI - Males',
    'Industrial Category - J - Non HHI - Females',
    'Industrial Category - K to M - Persons',
    'Industrial Category - K to M - Males',
    'Industrial Category - K to M - Females',
    'Industrial Category - N to O - Persons',
    'Industrial Category - N to O - Males',
    'Industrial Category - N to O - Females',
    'Industrial Category - P to Q - Persons',
    'Industrial Category - P to Q - Males',
    'Industrial Category - P to Q - Females',
    'Industrial Category - R to U - HHI - Persons',
    'Industrial Category - R to U - HHI - Males',
    'Industrial Category - R to U - HHI - Females',
    'Industrial Category - R to U - Non HHI - Persons',
    'Industrial Category - R to U - Non HHI - Males',
    'Industrial Category - R to U - Non HHI - Females']

features = numeric_columns[:]  # Use all the industrial categories (starting␣
 ↪from the 2nd column)

df[features] = scaler.fit_transform(df[features])
print(df[features])
```

```
      Industrial Category - A - Cultivators - Persons  \
1                                            0.405030
2                                            0.728290
3                                            3.147914
4                                            6.133290
```

```
5                                          8.044287
…                                             …
1381                                      -0.195147
1382                                      -0.207821
1383                                      -0.219170
1384                                      -0.229006
1385                                      -0.230897

      Industrial Category - A - Cultivators - Males  \
1                                          0.307553
2                                          0.610609
3                                          2.932686
4                                          5.506971
5                                          7.323614
…                                             …
1381                                      -0.193474
1382                                      -0.208389
1383                                      -0.217203
1384                                      -0.229406
1385                                      -0.231779

      Industrial Category - A - Cultivators - Females  \
1                                           0.523249
2                                           0.868821
3                                           3.388315
4                                           6.860569
5                                           8.872094
…                                              …
1381                                       -0.195455
1382                                       -0.205208
1383                                       -0.219624
1384                                       -0.226408
1385                                       -0.227680

      Industrial Category - B - Persons  Industrial Category - B - Males  \
1                             -0.203482                         -0.237190
2                              0.117635                          0.052054
3                              3.223442                          3.797399
4                              7.242425                          7.861654
5                             10.052201                         10.108861
…                                 …                                 …
1381                          -0.188430                         -0.170442
1382                          -0.218534                         -0.214941
1383                          -0.233587                         -0.237190
1384                          -0.233587                         -0.237190
1385                          -0.233587                         -0.237190

      Industrial Category - B - Females  \
```

```
1                              -0.130993
2                               0.250980
3                               1.992775
4                               5.858338
5                               9.785017
…                                    …
1381                           -0.222666
1382                           -0.222666
1383                           -0.222666
1384                           -0.222666
1385                           -0.222666

      Industrial Category - C - HHI - Males  \
1                                 -0.080377
2                                  0.345587
3                                  2.821027
4                                  6.378810
5                                  9.330239
…                                       …
1381                              -0.090988
1382                              -0.118274
1383                              -0.195585
1384                              -0.238029
1385                              -0.247125

      Industrial Category - C - HHI - Females  \
1                                   -0.153221
2                                    0.223598
3                                    3.328684
4                                    7.489173
5                                   10.578784
…                                       …
1381                                -0.099832
1382                                -0.158638
1383                                -0.214348
1384                                -0.231371
1385                                -0.242203

      Industrial Category - D & E - Males  \
1                                -0.186511
2                                -0.059264
3                                 3.389144
4                                11.609332
5                                11.672956
…                                    …
1381                             -0.161062
1382                             -0.084713
1383                             -0.211961
```

```
1384                            -0.237410
1385                            -0.237410

      Industrial Category - D & E - Females  …  \
1                                -0.098491  …
2                                 0.418363  …
3                                 1.968925  …
4                                 6.297577  …
5                                 8.494206  …
…                                    …  …
1381                              0.030722  …
1382                             -0.098491  …
1383                             -0.227705  …
1384                             -0.227705  …
1385                             -0.227705  …

      Industrial Category - N to O - Females  \
1                                 -0.128224
2                                 -0.005377
3                                  3.700506
4                                 11.373321
5                                 11.465456
…                                     …
1381                             -0.102631
1382                             -0.194766
1383                             -0.220359
1384                             -0.230597
1385                             -0.230597

      Industrial Category - P to Q - Persons  \
1                                  0.163706
2                                  0.409353
3                                  2.445439
4                                 14.366926
5                                 15.631883
…                                     …
1381                             -0.090805
1382                             -0.204765
1383                             -0.223758
1384                             -0.228823
1385                             -0.231356

      Industrial Category - P to Q - Males  \
1                                 0.413473
2                                 0.749111
3                                 2.442731
4                                10.798952
5                                17.145205
```

```
…                                    …
1381                              -0.041759
1382                              -0.215365
1383                              -0.215365
1384                              -0.238513
1385                              -0.238513

      Industrial Category - P to Q - Females  \
1                                    0.041268
2                                    0.240973
3                                    2.422791
4                                   15.952306
5                                   14.746613
…                                       …
1381                                -0.113643
1382                                -0.197631
1383                                -0.225627
1384                                -0.221894
1385                                -0.225627

      Industrial Category - R to U - HHI - Persons  \
1                                         0.529568
2                                         1.169897
3                                         4.767403
4                                         9.754640
5                                        11.691614
…                                            …
1381                                     -0.150254
1382                                     -0.195387
1383                                     -0.241461
1384                                     -0.249923
1385                                     -0.259326

      Industrial Category - R to U - HHI - Males  \
1                                       1.331669
2                                       2.123351
3                                       8.327638
4                                      10.048505
5                                      11.161026
…                                          …
1381                                   -0.168360
1382                                   -0.176693
1383                                   -0.239195
1384                                   -0.264195
1385                                   -0.276695

      Industrial Category - R to U - HHI - Females  \
1                                         0.293391
```

```
2                                          0.884728
3                                          3.699301
4                                          9.589792
5                                         11.749198
…                                               …
1381                                      -0.143790
1382                                      -0.199190
1383                                      -0.240138
1384                                      -0.243751
1385                                      -0.252181

      Industrial Category - R to U - Non HHI - Persons  \
1                                           5.417652
2                                           7.327504
3                                          12.387723
4                                          15.188754
5                                          11.050601
…                                              …
1381                                       -0.153244
1382                                       -0.179899
1383                                       -0.229119
1384                                       -0.263954
1385                                       -0.272415

      Industrial Category - R to U - Non HHI - Males  \
1                                          6.125273
2                                          8.239293
3                                         14.187119
4                                         16.690116
5                                         10.266736
…                                             …
1381                                      -0.184629
1382                                      -0.179373
1383                                      -0.212148
1384                                      -0.254818
1385                                      -0.261311

      Industrial Category - R to U - Non HHI - Females
1                                           4.696718
2                                           6.389397
3                                          10.591180
4                                          13.561511
5                                          11.398516
…                                              …
1381                                       -0.123568
1382                                       -0.175573
1383                                       -0.236919
1384                                       -0.264436
```

```
1385                                                -0.274281

[1287 rows x 46 columns]
```

[ ]:
```python
# Unique Values in Categorical Columns
for column in df.select_dtypes(include=['object']):
    print(f"Unique values in {column}: {df[column].nunique()}")
```

```
Unique values in Table Code: 1
Unique values in State Code: 1
Unique values in District Code: 33
Unique values in Area Name: 33
Unique values in Total/ Rural/ Urban: 3
Unique values in Age group: 14
```

[ ]:
```python
correlation_matrix = df.corr()
print(correlation_matrix)
```

```
                                                    Worked for 3 months or more
but less than 6 months -  Persons  \
Worked for 3 months or more but less than 6 mon…
1.000000
Worked for 3 months or more but less than 6 mon…
0.998829
Worked for 3 months or more but less than 6 mon…
0.998825
Worked for less than 3 months - Persons
0.999108
Worked for less than 3 months - Males
0.994988
…
…
Industrial Category - R to U - HHI - Males
0.990432
Industrial Category - R to U - HHI - Females
0.980585
Industrial Category - R to U - Non HHI - Persons
0.894684
Industrial Category - R to U - Non HHI - Males
0.902864
Industrial Category - R to U - Non HHI - Females
0.884780

                                                    Worked for 3 months or more
but less than 6 months - Males  \
Worked for 3 months or more but less than 6 mon…
0.998829
Worked for 3 months or more but less than 6 mon…
```

```
1.000000
Worked for 3 months or more but less than 6 mon…
0.995311
Worked for less than 3 months - Persons
0.998599
Worked for less than 3 months - Males
0.998280
…
…
Industrial Category - R to U - HHI - Males
0.995125
Industrial Category - R to U - HHI - Females
0.987377
Industrial Category - R to U - Non HHI - Persons
0.913023
Industrial Category - R to U - Non HHI - Males
0.919946
Industrial Category - R to U - Non HHI - Females
0.904020

                                                    Worked for 3 months or more
but less than 6 months - Females  \
Worked for 3 months or more but less than 6 mon…
0.998825
Worked for 3 months or more but less than 6 mon…
0.995311
Worked for 3 months or more but less than 6 mon…
1.000000
Worked for less than 3 months - Persons
0.997273
Worked for less than 3 months - Males
0.989355
…
…
Industrial Category - R to U - HHI - Males
0.983406
Industrial Category - R to U - HHI - Females
0.971479
Industrial Category - R to U - Non HHI - Persons
0.874213
Industrial Category - R to U - Non HHI - Males
0.883634
Industrial Category - R to U - Non HHI - Females
0.863430

                                                    Worked for less than 3
months - Persons  \
Worked for 3 months or more but less than 6 mon…
```

```
0.999108
Worked for 3 months or more but less than 6 mon…
0.998599
Worked for 3 months or more but less than 6 mon…
0.997273
Worked for less than 3 months - Persons
1.000000
Worked for less than 3 months - Males
0.996781
…
…
Industrial Category - R to U - HHI - Males
0.991516
Industrial Category - R to U - HHI - Females
0.982091
Industrial Category - R to U - Non HHI - Persons
0.894641
Industrial Category - R to U - Non HHI - Males
0.902575
Industrial Category - R to U - Non HHI - Females
0.884929

                                                    Worked for less than 3
months - Males  \
Worked for 3 months or more but less than 6 mon…
0.994988
Worked for 3 months or more but less than 6 mon…
0.998280
Worked for 3 months or more but less than 6 mon…
0.989355
Worked for less than 3 months - Persons
0.996781
Worked for less than 3 months - Males
1.000000
…
…
Industrial Category - R to U - HHI - Males
0.997250
Industrial Category - R to U - HHI - Females
0.991624
Industrial Category - R to U - Non HHI - Persons
0.924417
Industrial Category - R to U - Non HHI - Males
0.930383
Industrial Category - R to U - Non HHI - Females
0.916108

                                                    Worked for less than 3
```

```
months - Females  \
Worked for 3 months or more but less than 6 mon…
0.997591
Worked for 3 months or more but less than 6 mon…
0.993884
Worked for 3 months or more but less than 6 mon…
0.998962
Worked for less than 3 months - Persons
0.997719
Worked for less than 3 months - Males
0.989097
…
…
Industrial Category - R to U - HHI - Males
0.981738
Industrial Category - R to U - HHI - Females
0.969162
Industrial Category - R to U - Non HHI - Persons
0.865105
Industrial Category - R to U - Non HHI - Males
0.874656
Industrial Category - R to U - Non HHI - Females
0.854260

                                                    Industrial Category - A -
Cultivators - Persons  \
Worked for 3 months or more but less than 6 mon…
0.974229
Worked for 3 months or more but less than 6 mon…
0.963718
Worked for 3 months or more but less than 6 mon…
0.982470
Worked for less than 3 months - Persons
0.972156
Worked for less than 3 months - Males
0.952209
…
…
Industrial Category - R to U - HHI - Males
0.942469
Industrial Category - R to U - HHI - Females
0.916917
Industrial Category - R to U - Non HHI - Persons
0.781018
Industrial Category - R to U - Non HHI - Males
0.797561
Industrial Category - R to U - Non HHI - Females
0.765093
```

```
                                                        Industrial Category - A -
Cultivators - Males  \
Worked for 3 months or more but less than 6 mon…
0.974465
Worked for 3 months or more but less than 6 mon…
0.964569
Worked for 3 months or more but less than 6 mon…
0.982091
Worked for less than 3 months - Persons
0.973186
Worked for less than 3 months - Males
0.953968
…
…
Industrial Category - R to U - HHI - Males
0.944032
Industrial Category - R to U - HHI - Females
0.918081
Industrial Category - R to U - Non HHI - Persons
0.783215
Industrial Category - R to U - Non HHI - Males
0.799391
Industrial Category - R to U - Non HHI - Females
0.767566
```

```
                                                        Industrial Category - A -
Cultivators - Females  \
Worked for 3 months or more but less than 6 mon…
0.972546
Worked for 3 months or more but less than 6 mon…
0.961274
Worked for 3 months or more but less than 6 mon…
0.981553
Worked for less than 3 months - Persons
0.969472
Worked for less than 3 months - Males
0.948633
…
…
Industrial Category - R to U - HHI - Males
0.939155
Industrial Category - R to U - HHI - Females
0.914142
Industrial Category - R to U - Non HHI - Persons
0.777132
Industrial Category - R to U - Non HHI - Males
0.794115
```

```
Industrial Category - R to U - Non HHI - Females
0.760882

                                                    Industrial Category - A -
Agricultural labourers - Persons  \
Worked for 3 months or more but less than 6 mon…
0.976938
Worked for 3 months or more but less than 6 mon…
0.966549
Worked for 3 months or more but less than 6 mon…
0.985051
Worked for less than 3 months - Persons
0.975133
Worked for less than 3 months - Males
0.955123
…
…
Industrial Category - R to U - HHI - Males
0.944333
Industrial Category - R to U - HHI - Females
0.920040
Industrial Category - R to U - Non HHI - Persons
0.782905
Industrial Category - R to U - Non HHI - Males
0.798867
Industrial Category - R to U - Non HHI - Females
0.767424

                                                      …  \
Worked for 3 months or more but less than 6 mon…  …
Worked for 3 months or more but less than 6 mon…  …
Worked for 3 months or more but less than 6 mon…  …
Worked for less than 3 months - Persons             …
Worked for less than 3 months - Males               …
…                                                 …
Industrial Category - R to U - HHI - Males          …
Industrial Category - R to U - HHI - Females        …
Industrial Category - R to U - Non HHI - Persons    …
Industrial Category - R to U - Non HHI - Males      …
Industrial Category - R to U - Non HHI - Females    …

                                                    Industrial Category - N to O
- Females  \
Worked for 3 months or more but less than 6 mon…
0.872107
Worked for 3 months or more but less than 6 mon…
0.890596
Worked for 3 months or more but less than 6 mon…
```

```
0.851539
Worked for less than 3 months - Persons
0.872193
Worked for less than 3 months - Males
0.901865
…
…
Industrial Category - R to U - HHI - Males
0.908918
Industrial Category - R to U - HHI - Females
0.937359
Industrial Category - R to U - Non HHI - Persons
0.974178
Industrial Category - R to U - Non HHI - Males
0.957497
Industrial Category - R to U - Non HHI - Females
0.983205

                                                    Industrial Category - P to Q
- Persons  \
Worked for 3 months or more but less than 6 mon…
0.921899
Worked for 3 months or more but less than 6 mon…
0.937061
Worked for 3 months or more but less than 6 mon…
0.904547
Worked for less than 3 months - Persons
0.922799
Worked for less than 3 months - Males
0.946852
…
…
Industrial Category - R to U - HHI - Males
0.950798
Industrial Category - R to U - HHI - Females
0.972449
Industrial Category - R to U - Non HHI - Persons
0.977079
Industrial Category - R to U - Non HHI - Males
0.969548
Industrial Category - R to U - Non HHI - Females
0.979011

                                                    Industrial Category - P to Q
- Males  \
Worked for 3 months or more but less than 6 mon…
0.934037
Worked for 3 months or more but less than 6 mon…
```

```
0.947751
Worked for 3 months or more but less than 6 mon…
0.918106
Worked for less than 3 months - Persons
0.934927
Worked for less than 3 months - Males
0.956228
…
…
Industrial Category - R to U - HHI - Males
0.960045
Industrial Category - R to U - HHI - Females
0.978942
Industrial Category - R to U - Non HHI - Persons
0.973794
Industrial Category - R to U - Non HHI - Males
0.966616
Industrial Category - R to U - Non HHI - Females
0.975466

                                                    Industrial Category - P to Q
- Females  \
Worked for 3 months or more but less than 6 mon…
0.914128
Worked for 3 months or more but less than 6 mon…
0.929994
Worked for 3 months or more but less than 6 mon…
0.896089
Worked for less than 3 months - Persons
0.915031
Worked for less than 3 months - Males
0.940432
…
…
Industrial Category - R to U - HHI - Males
0.944437
Industrial Category - R to U - HHI - Females
0.967442
Industrial Category - R to U - Non HHI - Persons
0.977007
Industrial Category - R to U - Non HHI - Males
0.969311
Industrial Category - R to U - Non HHI - Females
0.979068

                                                    Industrial Category - R to U
- HHI - Persons  \
Worked for 3 months or more but less than 6 mon…
```

```
0.984285
Worked for 3 months or more but less than 6 mon…
0.990587
Worked for 3 months or more but less than 6 mon…
0.975662
Worked for less than 3 months - Persons
0.985693
Worked for less than 3 months - Males
0.994335
…
…
Industrial Category - R to U - HHI - Males
0.995568
Industrial Category - R to U - HHI - Females
0.999570
Industrial Category - R to U - Non HHI - Persons
0.947750
Industrial Category - R to U - Non HHI - Males
0.948669
Industrial Category - R to U - Non HHI - Females
0.943257

                                                    Industrial Category - R to U
- HHI - Males  \
Worked for 3 months or more but less than 6 mon…
0.990432
Worked for 3 months or more but less than 6 mon…
0.995125
Worked for 3 months or more but less than 6 mon…
0.983406
Worked for less than 3 months - Persons
0.991516
Worked for less than 3 months - Males
0.997250
…
…
Industrial Category - R to U - HHI - Males
1.000000
Industrial Category - R to U - HHI - Females
0.992382
Industrial Category - R to U - Non HHI - Persons
0.937578
Industrial Category - R to U - Non HHI - Males
0.943996
Industrial Category - R to U - Non HHI - Females
0.928868

                                                    Industrial Category - R to U
```

```
- HHI - Females  \
Worked for 3 months or more but less than 6 mon…
0.980585
Worked for 3 months or more but less than 6 mon…
0.987377
Worked for 3 months or more but less than 6 mon…
0.971479
Worked for less than 3 months - Persons
0.982091
Worked for less than 3 months - Males
0.991624
…
…
Industrial Category - R to U - HHI - Males
0.992382
Industrial Category - R to U - HHI - Females
1.000000
Industrial Category - R to U - Non HHI - Persons
0.949204
Industrial Category - R to U - Non HHI - Males
0.948407
Industrial Category - R to U - Non HHI - Females
0.946034
```

```
                                                    Industrial Category - R to U
- Non HHI - Persons  \
Worked for 3 months or more but less than 6 mon…
0.894684
Worked for 3 months or more but less than 6 mon…
0.913023
Worked for 3 months or more but less than 6 mon…
0.874213
Worked for less than 3 months - Persons
0.894641
Worked for less than 3 months - Males
0.924417
…
…
Industrial Category - R to U - HHI - Males
0.937578
Industrial Category - R to U - HHI - Females
0.949204
Industrial Category - R to U - Non HHI - Persons
1.000000
Industrial Category - R to U - Non HHI - Males
0.997095
Industrial Category - R to U - Non HHI - Females
0.998259
```

```
                                                                Industrial Category - R to U
- Non HHI - Males  \
Worked for 3 months or more but less than 6 mon…
0.902864
Worked for 3 months or more but less than 6 mon…
0.919946
Worked for 3 months or more but less than 6 mon…
0.883634
Worked for less than 3 months - Persons
0.902575
Worked for less than 3 months - Males
0.930383
…
…
Industrial Category - R to U - HHI - Males
0.943996
Industrial Category - R to U - HHI - Females
0.948407
Industrial Category - R to U - Non HHI - Persons
0.997095
Industrial Category - R to U - Non HHI - Males
1.000000
Industrial Category - R to U - Non HHI - Females
0.990867
```

```
                                                                Industrial Category - R to U
- Non HHI - Females
Worked for 3 months or more but less than 6 mon…
0.884780
Worked for 3 months or more but less than 6 mon…
0.904020
Worked for 3 months or more but less than 6 mon…
0.863430
Worked for less than 3 months - Persons
0.884929
Worked for less than 3 months - Males
0.916108
…
…
Industrial Category - R to U - HHI - Males
0.928868
Industrial Category - R to U - HHI - Females
0.946034
Industrial Category - R to U - Non HHI - Persons
0.998259
Industrial Category - R to U - Non HHI - Males
0.990867
```

```
Industrial Category - R to U - Non HHI - Females
1.000000

[63 rows x 63 columns]
```

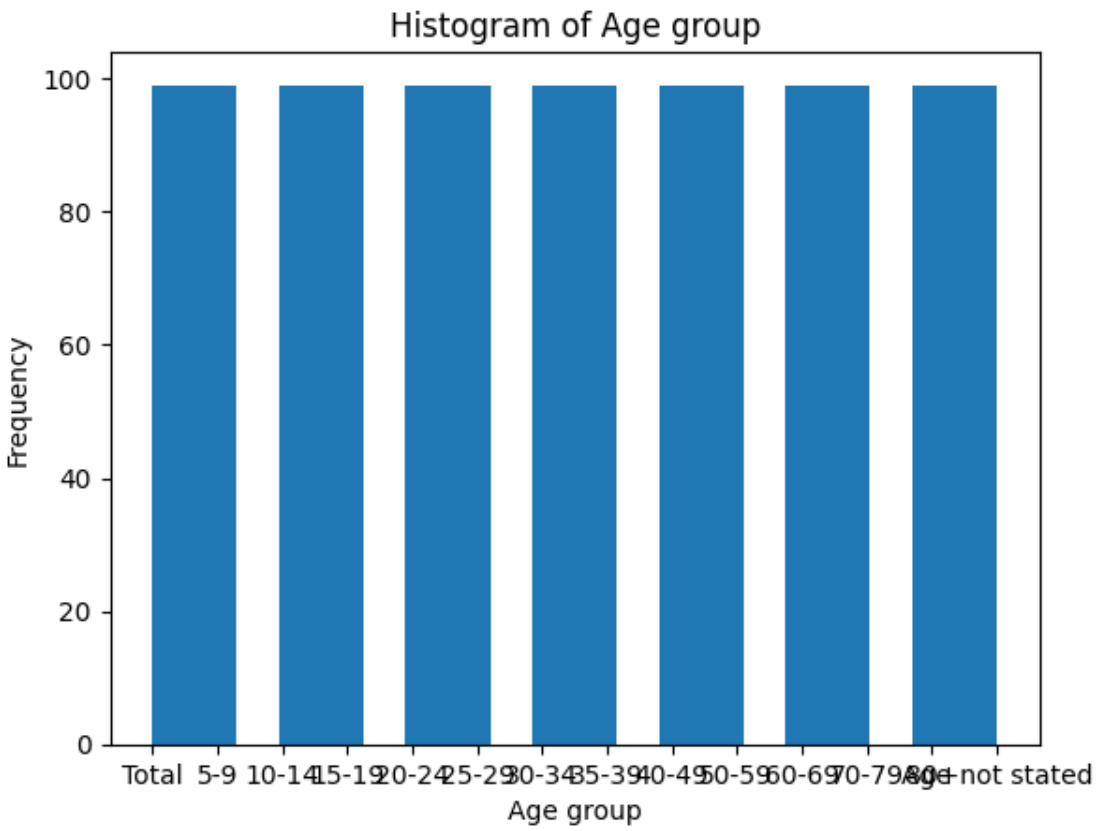
```
<ipython-input-22-becb50483c66>:1: FutureWarning: The default value of
numeric_only in DataFrame.corr is deprecated. In a future version, it will
default to False. Select only valid columns or specify the value of numeric_only
to silence this warning.
  correlation_matrix = df.corr()
```

[ ]:
```python
#One-Hot Encoding (for nominal variables) sample :
from sklearn.preprocessing import MinMaxScaler

columns_to_normalize = ['Worked for less than 3 months - Persons',
                        'Worked for less than 3 months - Males',
                        'Worked for less than 3 months - Females',

                       ]

scaler = MinMaxScaler()
df[columns_to_normalize] = scaler.fit_transform(df[columns_to_normalize])
```

[ ]:
```python
# Before dropping rows
print(f"Number of rows before dropping: {df.shape[0]}")

# Drop rows with missing values
df.dropna(inplace=True)

# After dropping rows
print(f"Number of rows after dropping: {df.shape[0]}")
```

```
Number of rows before dropping: 1287
Number of rows after dropping: 1287
```

[8]:
```python
# Example: Creating a histogram for a column 'Age group'
import matplotlib.pyplot as plt
plt.hist(df['Age group'], bins=20)
plt.xlabel('Age group')
plt.ylabel('Frequency')
plt.title('Histogram of Age group')
plt.show()
```

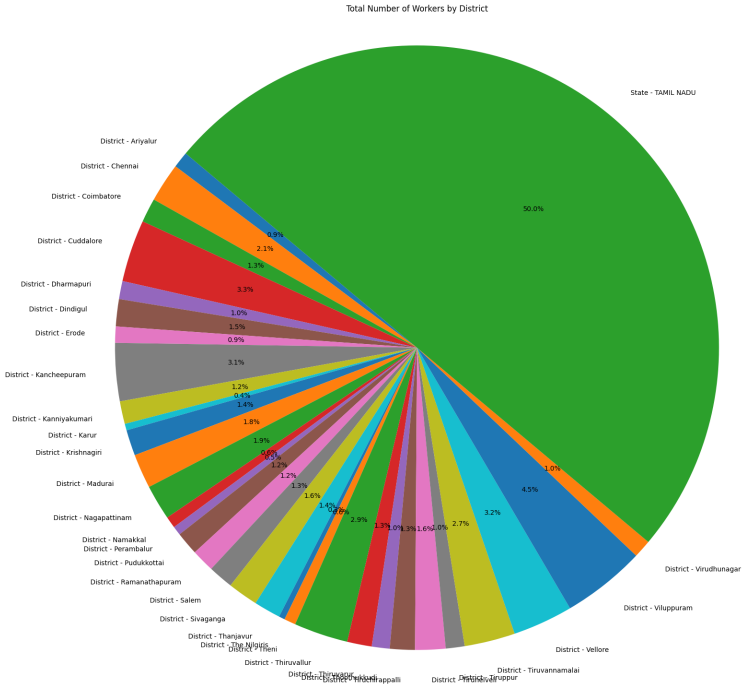


[ ]:
```
districts = df['Area Name'].unique()
print(districts)
```

```
['State - TAMIL NADU' 'District - Thiruvallur' 'District - Chennai'
 'District - Kancheepuram' 'District - Vellore'
 'District - Tiruvannamalai' 'District - Viluppuram' 'District - Salem'
 'District - Namakkal' 'District - Erode' 'District - The Nilgiris'
 'District - Dindigul' 'District - Karur' 'District - Tiruchirappalli'
 'District - Perambalur' 'District - Ariyalur' 'District - Cuddalore'
 'District - Nagapattinam' 'District - Thiruvarur' 'District - Thanjavur'
 'District - Pudukkottai' 'District - Sivaganga' 'District - Madurai'
 'District - Theni' 'District - Virudhunagar' 'District - Ramanathapuram'
 'District - Thoothukkudi' 'District - Tirunelveli'
 'District - Kanniyakumari' 'District - Dharmapuri'
 'District - Krishnagiri' 'District - Coimbatore' 'District - Tiruppur']
```

[ ]:
```
import matplotlib.pyplot as plt

# Assuming 'Area Name' contains district names and 'Total Workers' contains the␣
 ↪total number of workers
```

```
district_workers = df.groupby('Area Name')['Worked for 3 months or more but less than 6 months -  Persons'].sum()

# Create a pie chart
plt.figure(figsize=(30, 18))
plt.pie(district_workers, labels=district_workers.index, autopct='%1.1f%%', startangle=140)
plt.title('Total Number of Workers by District')
plt.axis('equal')  # Equal aspect ratio ensures the pie chart is circular.

# Show the plot
plt.show()
```



[ ]:
```
district_workers = df['Worked for 3 months or more but less than 6 months - Persons'].sum()
district_workers
```

[ ]: 33751072

[ ]:
```
df.head()
```

[ ]:

	Table Code	State Code	District Code	Area Name	Total/ Rural/ Urban
0	B0706	33	000	State - TAMIL NADU	Total
1	B0706	33	000	State - TAMIL NADU	Total
2	B0706	33	000	State - TAMIL NADU	Total

```
3      B0706         33           000  State - TAMIL NADU                Total
4      B0706         33           000  State - TAMIL NADU                Total

  Age group  Worked for 3 months or more but less than 6 months -  Persons  \
0     Total                                                      4218884
1       5-9                                                        48238
2     10-14                                                        76288
3     15-19                                                       257605
4     20-24                                                       478082

   Worked for 3 months or more but less than 6 months - Males  \
0                                                    2136881
1                                                      24511
2                                                      39191
3                                                     141262
4                                                     257149

   Worked for 3 months or more but less than 6 months - Females  \
0                                                    2082003
1                                                      23727
2                                                      37097
3                                                     116343
4                                                     220933

   Worked for less than 3 months - Persons  …  \
0                                   723891  …
1                                     2051  …
2                                     6993  …
3                                    41938  …
4                                    81036  …

   Industrial Category - N to O - Females  \
0                                   14495
1                                      20
2                                      44
3                                     768
4                                    2267

   Industrial Category - P to Q - Persons  \
0                                   58788
1                                     312
2                                     506
3                                    2114
4                                   11529

   Industrial Category - P to Q - Males  \
0                                  19892
```

```
1                                    169
2                                    256
3                                    695
4                                   2861

   Industrial Category - P to Q - Females  \
0                                   38896
1                                     143
2                                     250
3                                    1419
4                                    8668

   Industrial Category - R to U - HHI - Persons  \
0                                        89703
1                                          842
2                                         1523
3                                         5349
4                                        10653

   Industrial Category - R to U - HHI - Males  \
0                                       21366
1                                         386
2                                         576
3                                        2065
4                                        2478

   Industrial Category - R to U - HHI - Females  \
0                                        68337
1                                          456
2                                          947
3                                         3284
4                                         8175

   Industrial Category - R to U - Non HHI - Persons  \
0                                          625350
1                                           40358
2                                           53900
3                                           89780
4                                          109641

   Industrial Category - R to U - Non HHI - Males  \
0                                         274811
1                                          20664
2                                          27501
3                                          46737
4                                          54832
```

```
   Industrial Category - R to U - Non HHI - Females
0                                            350539
1                                             19694
2                                             26399
3                                             43043
4                                             54809

[5 rows x 69 columns]
```

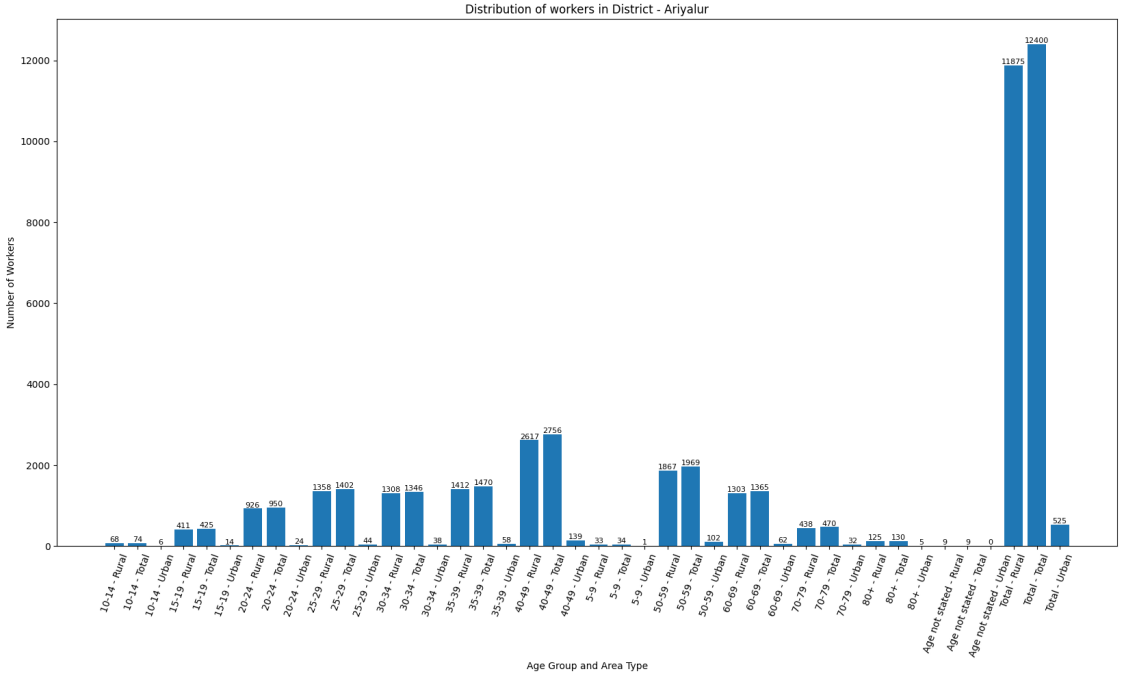
```
[ ]: grouped_data = df.groupby(['Area Name', 'Age group', 'Total/ Rural/␣
      ↪Urban'])['Industrial Category - A - Cultivators - Persons'].sum().
      ↪reset_index()

     # Create a separate plot for each district
     districts = grouped_data['Area Name'].unique()
     grouped_data.head(30)
```

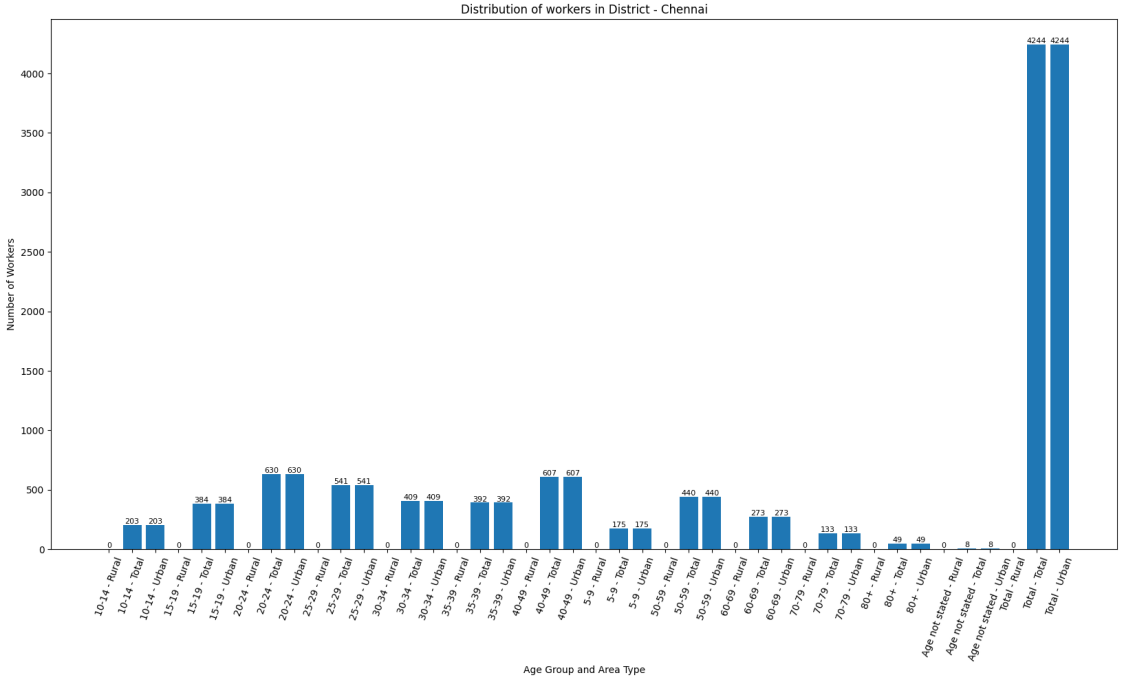
```
[ ]:              Area Name Age group Total/ Rural/ Urban  \
     0   District - Ariyalur     10-14               Rural
     1   District - Ariyalur     10-14               Total
     2   District - Ariyalur     10-14               Urban
     3   District - Ariyalur     15-19               Rural
     4   District - Ariyalur     15-19               Total
     5   District - Ariyalur     15-19               Urban
     6   District - Ariyalur     20-24               Rural
     7   District - Ariyalur     20-24               Total
     8   District - Ariyalur     20-24               Urban
     9   District - Ariyalur     25-29               Rural
     10  District - Ariyalur     25-29               Total
     11  District - Ariyalur     25-29               Urban
     12  District - Ariyalur     30-34               Rural
     13  District - Ariyalur     30-34               Total
     14  District - Ariyalur     30-34               Urban
     15  District - Ariyalur     35-39               Rural
     16  District - Ariyalur     35-39               Total
     17  District - Ariyalur     35-39               Urban
     18  District - Ariyalur     40-49               Rural
     19  District - Ariyalur     40-49               Total
     20  District - Ariyalur     40-49               Urban
     21  District - Ariyalur       5-9               Rural
     22  District - Ariyalur       5-9               Total
     23  District - Ariyalur       5-9               Urban
     24  District - Ariyalur     50-59               Rural
     25  District - Ariyalur     50-59               Total
     26  District - Ariyalur     50-59               Urban
     27  District - Ariyalur     60-69               Rural
     28  District - Ariyalur     60-69               Total
```

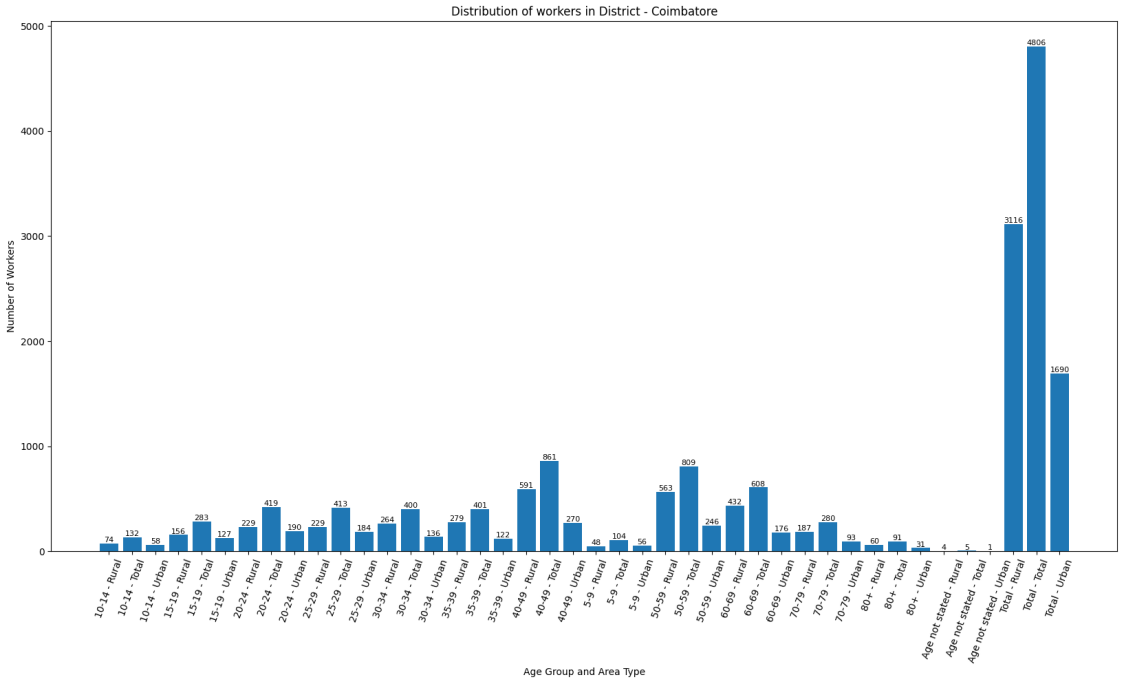
```
29  District - Ariyalur     60-69                Urban

    Industrial Category - A - Cultivators - Persons
0                                                  68
1                                                  74
2                                                   6
3                                                 411
4                                                 425
5                                                  14
6                                                 926
7                                                 950
8                                                  24
9                                                1358
10                                               1402
11                                                 44
12                                               1308
13                                               1346
14                                                 38
15                                               1412
16                                               1470
17                                                 58
18                                               2617
19                                               2756
20                                                139
21                                                 33
22                                                 34
23                                                  1
24                                               1867
25                                               1969
26                                                102
27                                               1303
28                                               1365
29                                                 62
```

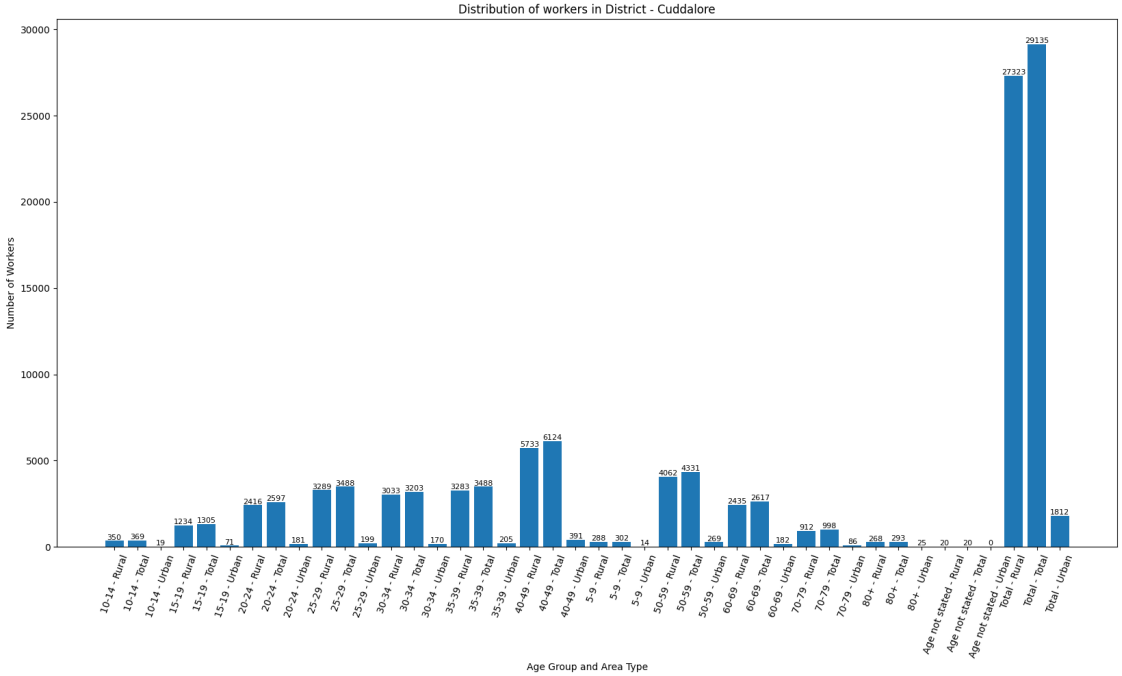
[ ]:
```python
import matplotlib.pyplot as plt


# 'Area Name' represents the districts, 'Age group' represents the age groups,␣
 ↪'Total/ Rural/ Urban' represents rural or urban
# 'Industrial Category - A - Cultivators - Persons' represents the number of␣
 ↪workers taken as sample'

# Grouping by 'Area Name', 'Age group', 'Total/ Rural/ Urban' and summing up␣
 ↪the number of workers
grouped_data = df.groupby(['Area Name', 'Age group', 'Total/ Rural/␣
 ↪Urban'])['Industrial Category - A - Cultivators - Persons'].sum().
 ↪reset_index()
```

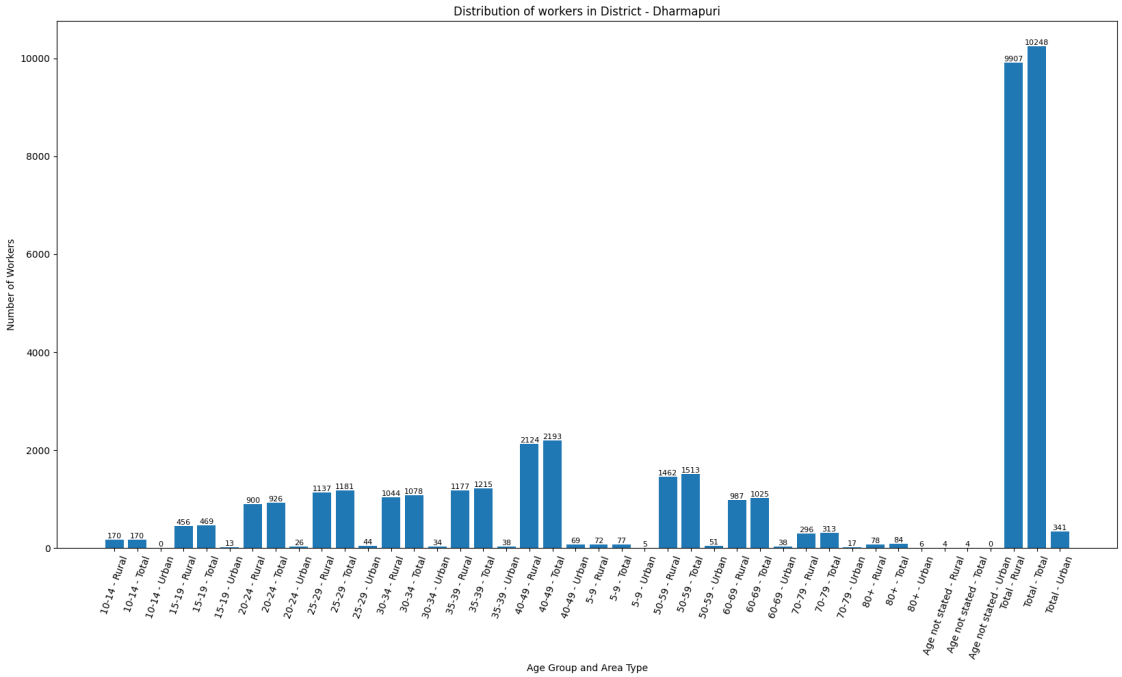
```
# Create a separate plot for each district
districts = grouped_data['Area Name'].unique()

for district in districts:
    district_data = grouped_data[grouped_data['Area Name'] == district]
    plt.figure(figsize=(20, 10))
    bars = plt.bar(district_data['Age group'] + ' - ' + district_data['Total/␣
 ↪Rural/ Urban'], district_data['Industrial Category - A - Cultivators -␣
 ↪Persons'])

    # Adding numbers on top of the bars
    for bar in bars:
        yval = bar.get_height()
        plt.text(bar.get_x() + bar.get_width()/2, yval, round(yval),␣
 ↪va='bottom', ha='center', fontsize=8, color='black')

    plt.title(f'Distribution of workers in {district}')
    plt.xlabel('Age Group and Area Type')
    plt.ylabel('Number of Workers')
    plt.xticks(rotation=70)
    plt.show()
```

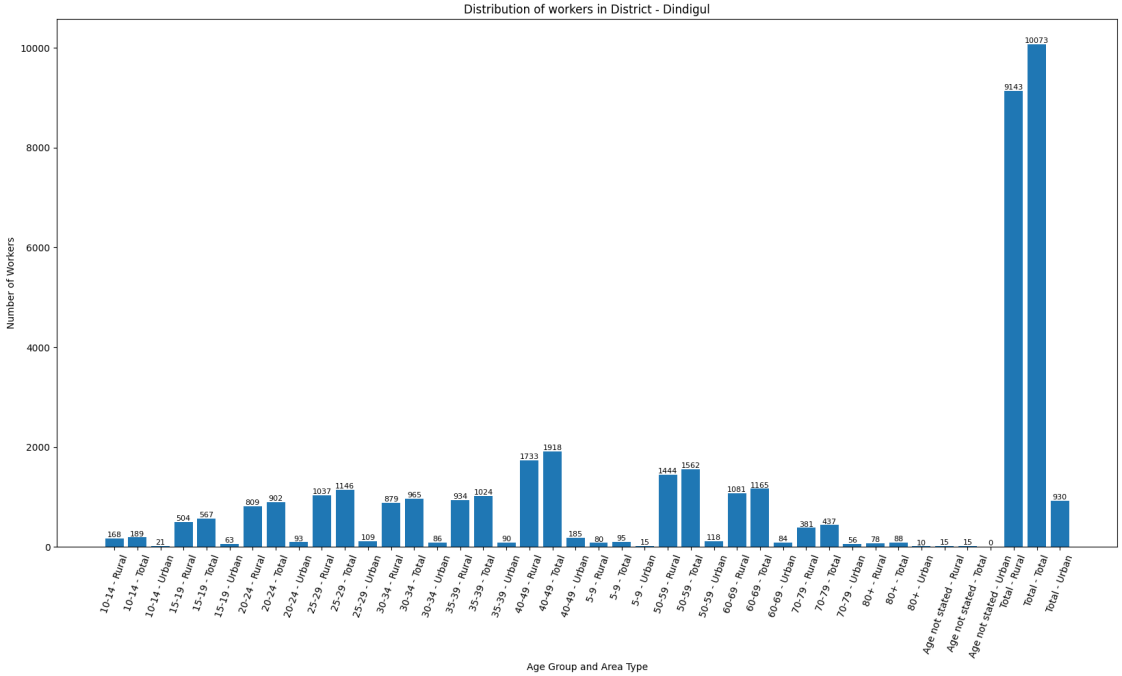


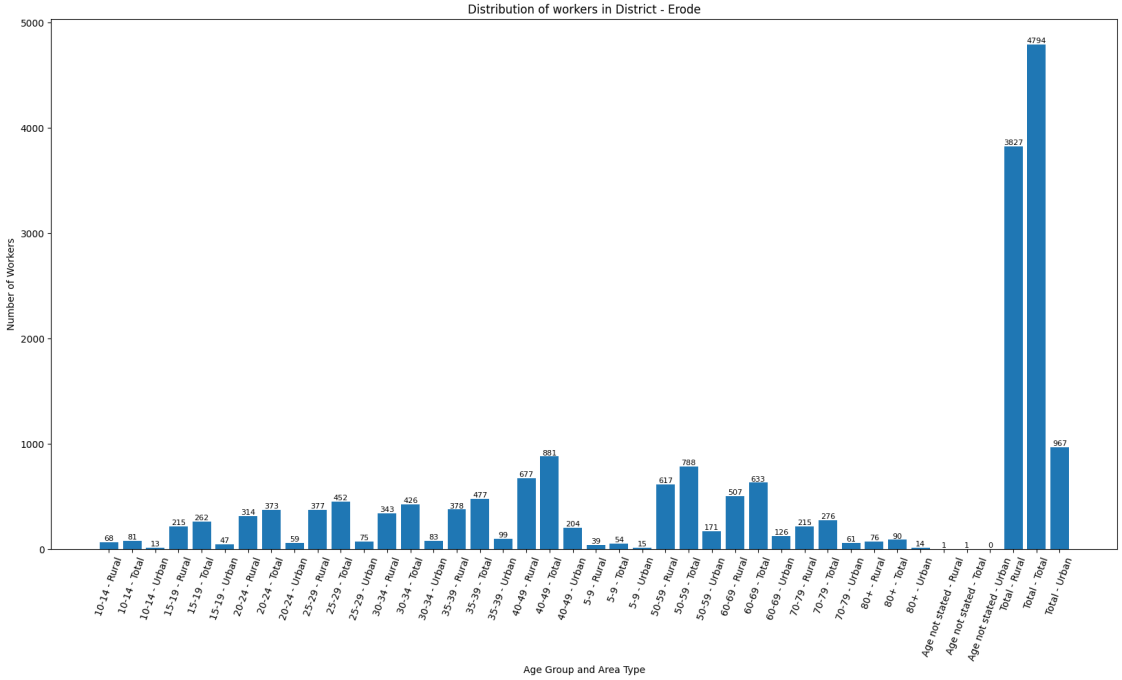

Distribution of workers in District - Chennai
Number of Workers
Age Group and Area Type
0
203
203
0
384
384
0
630
630
0
541
541
0
409
409
0
392
392
0
607
607
0
175
175
0
440
440
0
273
273
0
133
133
0
49
49
0
8
8
0
4244
4244
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

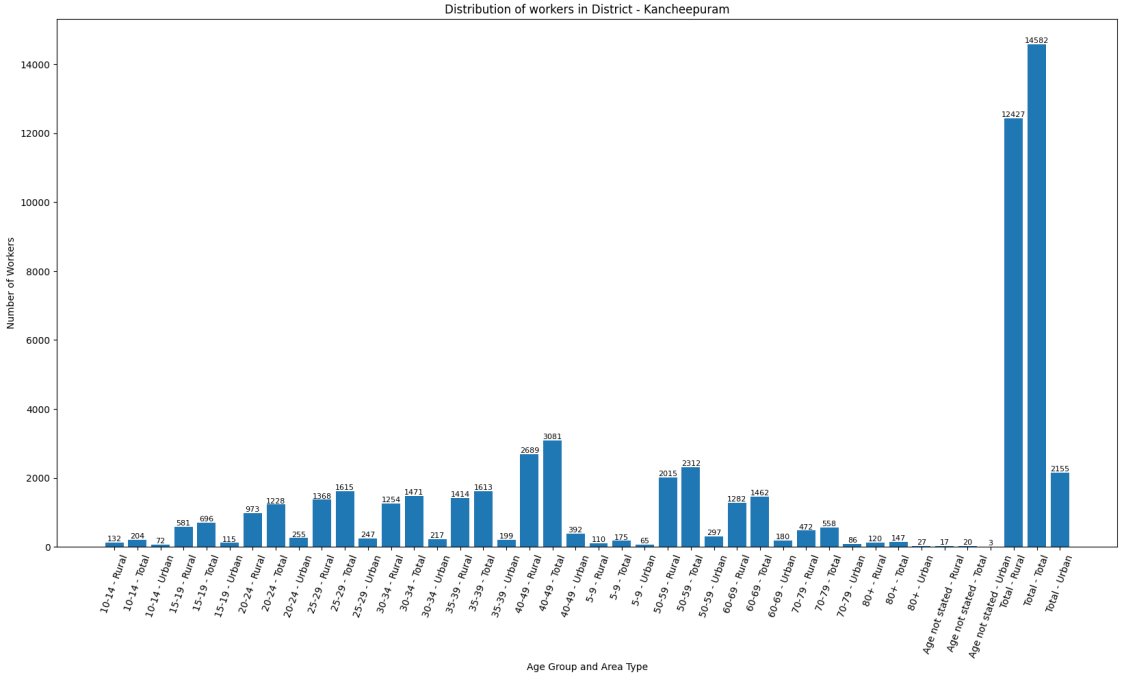

Distribution of workers in District - Coimbatore
Number of Workers
Age Group and Area Type
74
132
58
156
283
127
229
419
190
229
413
184
264
400
136
279
401
122
591
861
270
48
104
56
563
809
246
432
608
176
187
280
93
60
91
31
4
5
1
3116
4806
1690
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

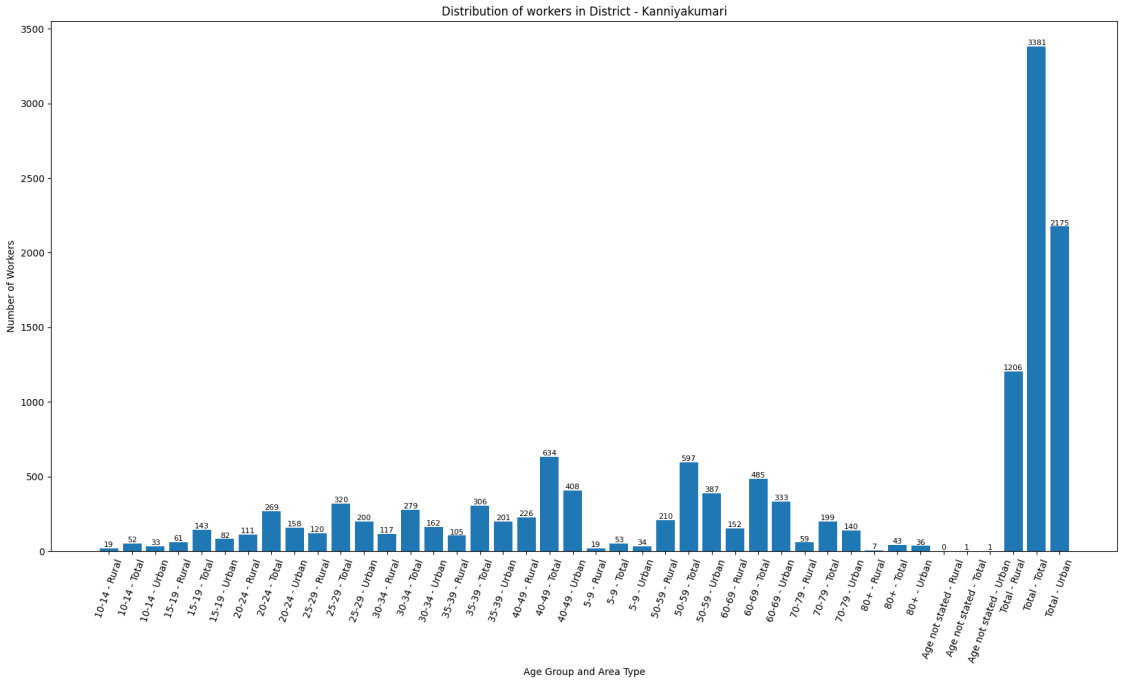

Distribution of workers in District - Cuddalore
Number of Workers
Age Group and Area Type
0
5000
10000
15000
20000
25000
30000
350
369
19
1234
1305
71
2416
2597
181
3289
3488
199
3033
3203
170
3283
3488
205
5733
6124
391
288
302
14
4062
4331
269
2435
2617
182
912
998
86
268
293
25
20
20
0
27323
29135
1812
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

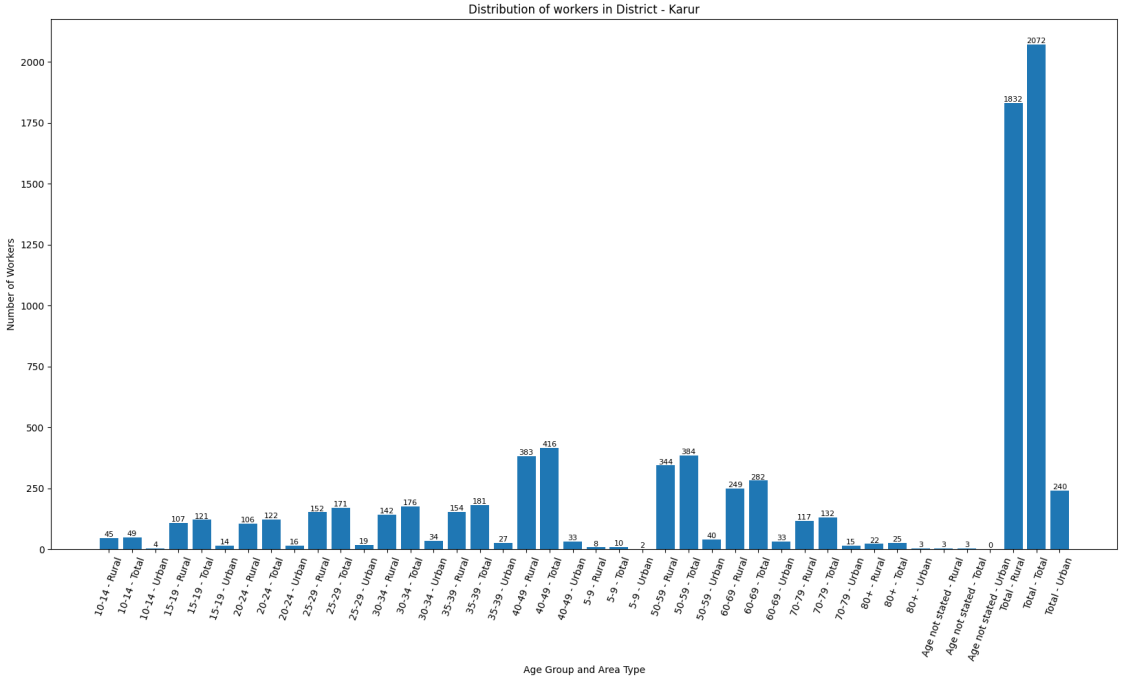

Distribution of workers in District - Dharmapuri
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
10000
170
170
0
456
469
13
900
926
26
1137
1181
44
1044
1078
34
1177
1215
38
2124
2193
69
72
77
5
1462
1513
51
987
1025
38
296
313
17
78
84
6
4
4
0
9907
10248
341
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

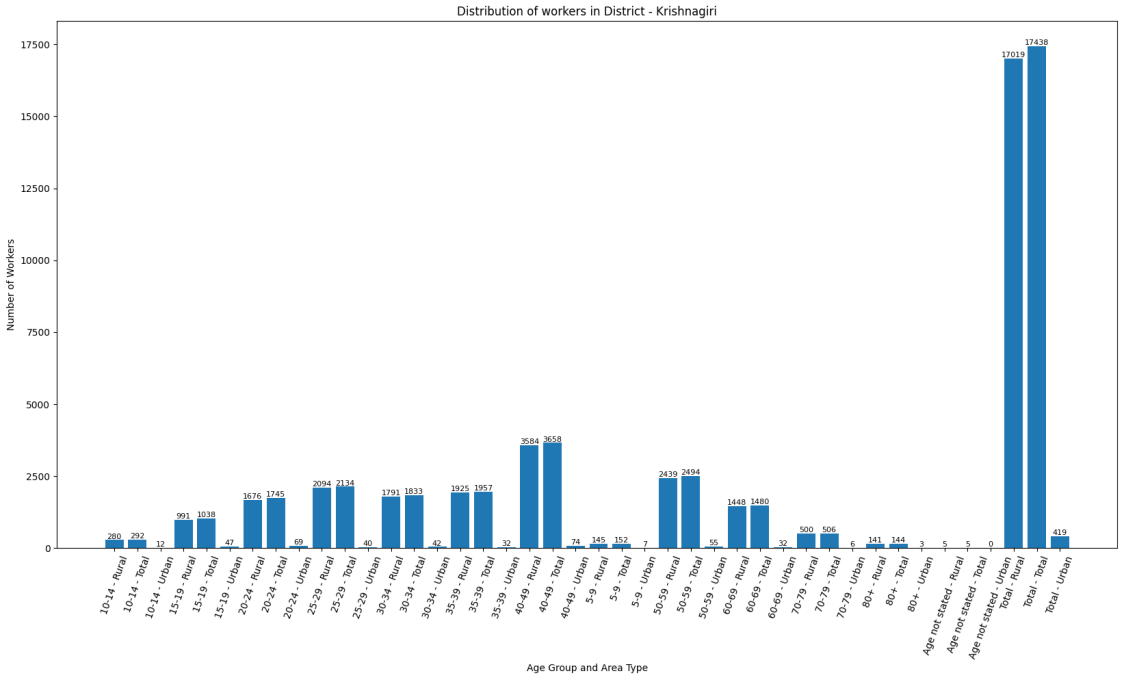

Distribution of workers in District - Dindigul
Number of Workers
Age Group and Area Type
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

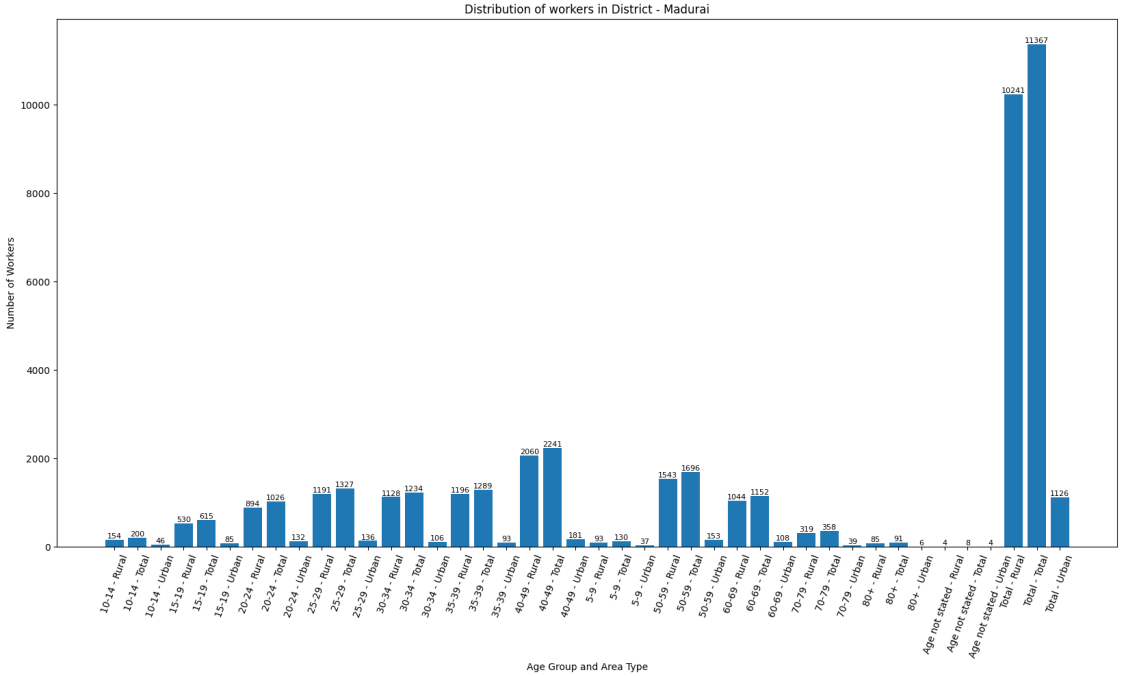

Distribution of workers in District - Erode
Number of Workers
Age Group and Area Type
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

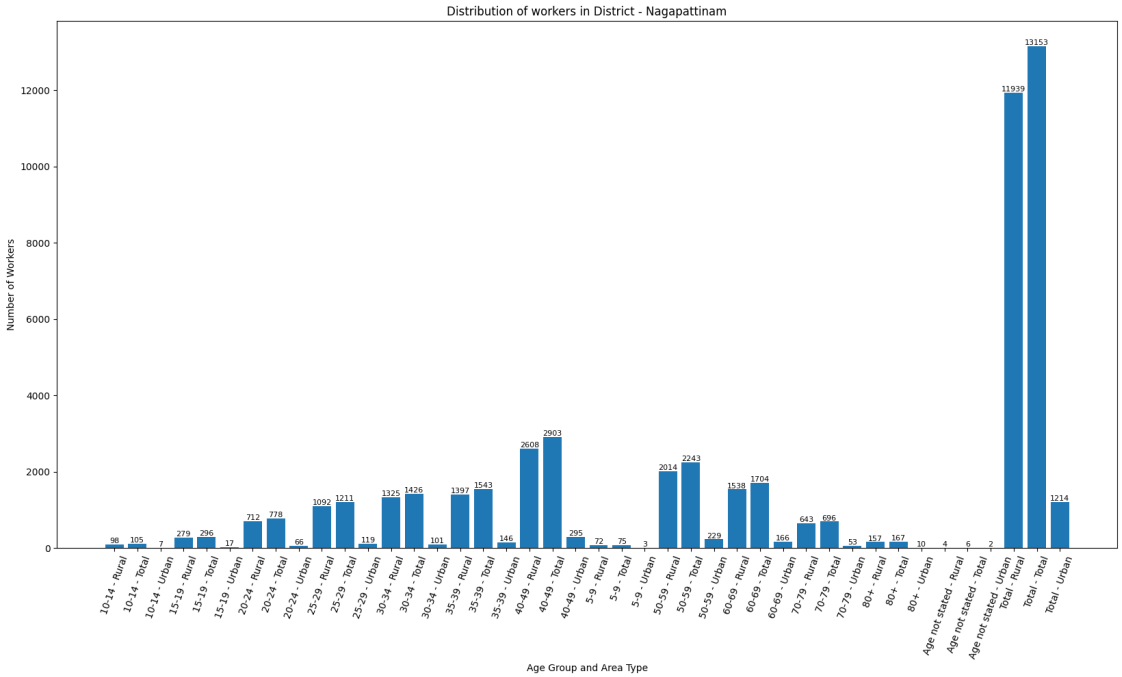

Distribution of workers in District - Kancheepuram
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
10000
12000
14000
132
204
72
581
696
115
973
1228
255
1368
1615
247
1254
1471
217
1414
1613
199
2689
3081
392
110
175
65
2015
2312
297
1282
1462
180
472
558
86
120
147
27
17
20
3
12427
14582
2155
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

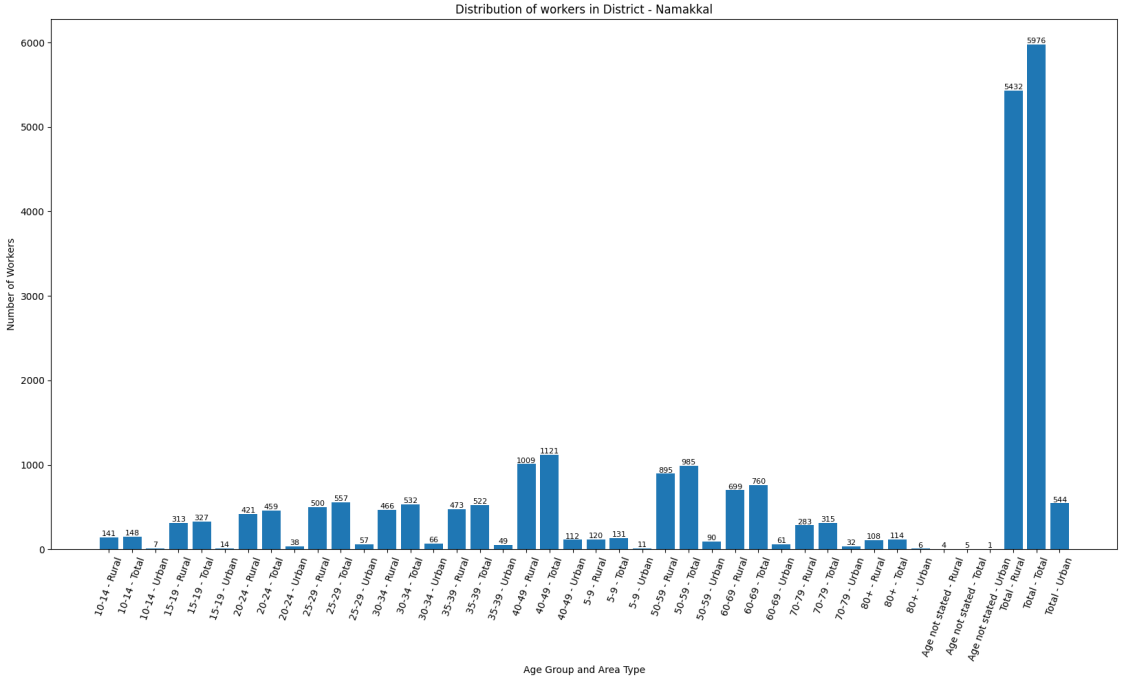

Distribution of workers in District - Kanniyakumari
Number of Workers
Age Group and Area Type
0
500
1000
1500
2000
2500
3000
3500
19
52
33
61
143
82
111
269
158
120
320
200
117
279
162
105
306
201
226
634
408
19
53
34
210
597
387
152
485
333
59
199
140
7
43
36
0
1
1
1206
3381
2175
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Karur
Number of Workers
Age Group and Area Type
0
250
500
750
1000
1250
1500
1750
2000
45
49
4
107
121
14
106
122
16
152
171
19
142
176
34
154
181
27
383
416
33
8
10
2
344
384
40
249
282
33
117
132
15
22
25
3
3
3
0
1832
2072
240
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Krishnagiri
Number of Workers
Age Group and Area Type
0
2500
5000
7500
10000
12500
15000
17500
280
292
12
991
1038
47
1676
1745
69
2094
2134
40
1791
1833
42
1925
1957
32
3584
3658
74
145
152
7
2439
2494
55
1448
1480
32
500
506
6
141
144
3
5
5
0
17019
17438
419
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Madurai
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
10000
154
200
46
530
615
85
894
1026
132
1191
1327
136
1128
1234
106
1196
1289
93
2060
2241
181
93
130
37
1543
1696
153
1044
1152
108
319
358
39
85
91
6
4
8
4
10241
11367
1126
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Nagapattinam
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
10000
12000
98
105
7
279
296
17
712
778
66
1092
1211
119
1325
1426
101
1397
1543
146
2608
2903
295
72
75
3
2014
2243
229
1538
1704
166
643
696
53
157
167
10
4
6
2
11939
13153
1214
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Namakkal
Number of Workers
Age Group and Area Type
0
1000
2000
3000
4000
5000
6000
141
148
7
313
327
14
421
459
38
500
557
57
466
532
66
473
522
49
1009
1121
112
120
131
11
895
985
90
699
760
61
283
315
32
108
114
6
4
5
1
5432
5976
544
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10-14 - Urban
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15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
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30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
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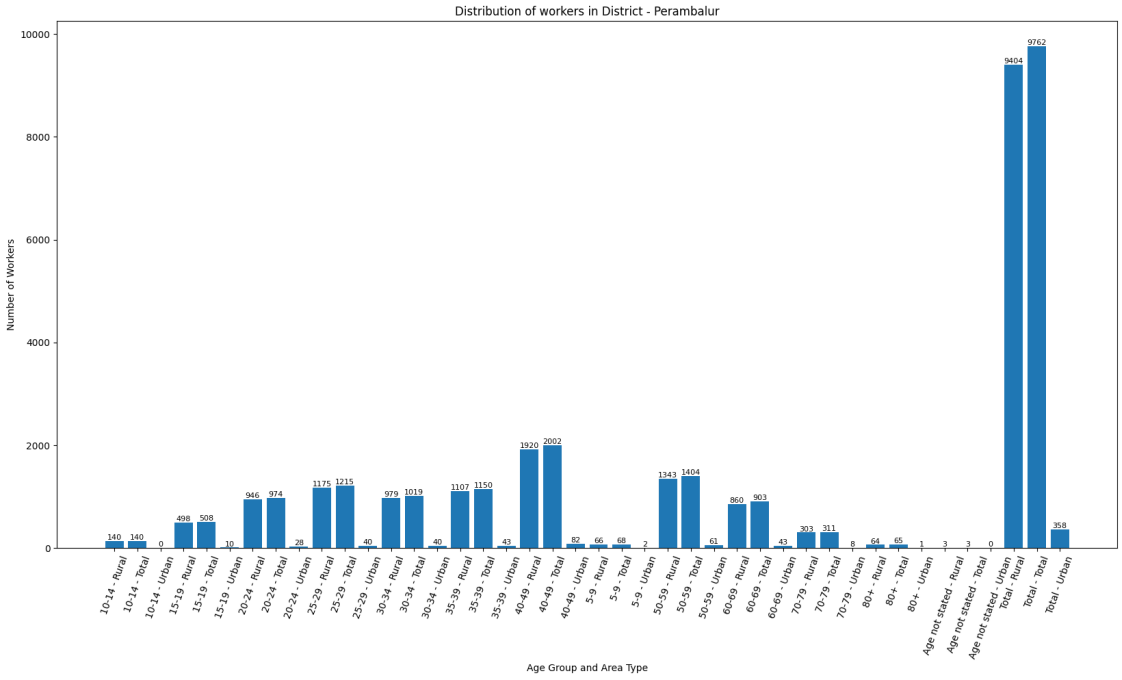
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Perambalur
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
10000
140
140
0
498
508
10
946
974
28
1175
1215
40
979
1019
40
1107
1150
43
1920
2002
82
66
68
2
1343
1404
61
860
903
43
303
311
8
64
65
1
3
3
0
9404
9762
358
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
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30-34 - Urban
35-39 - Rural
35-39 - Total
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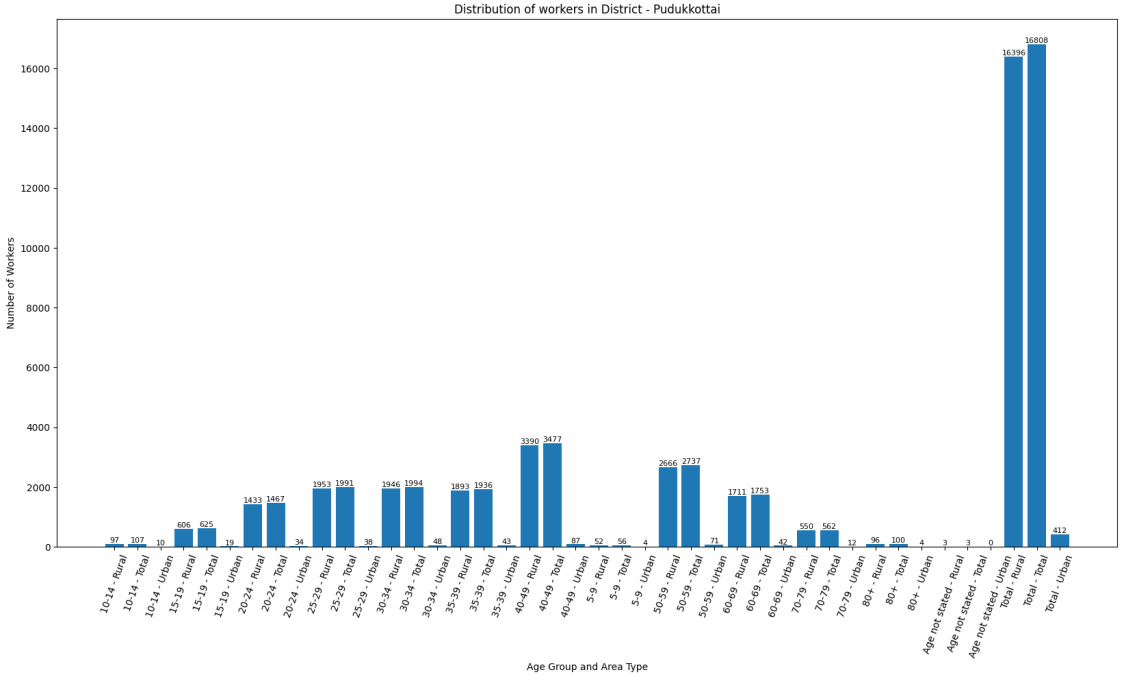
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Pudukkottai
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
10000
12000
14000
16000
97
107
10
606
625
19
1433
1467
34
1953
1991
38
1946
1994
48
1893
1936
43
3390
3477
87
52
56
4
2666
2737
71
1711
1753
42
550
562
12
96
100
4
3
3
0
16396
16808
412
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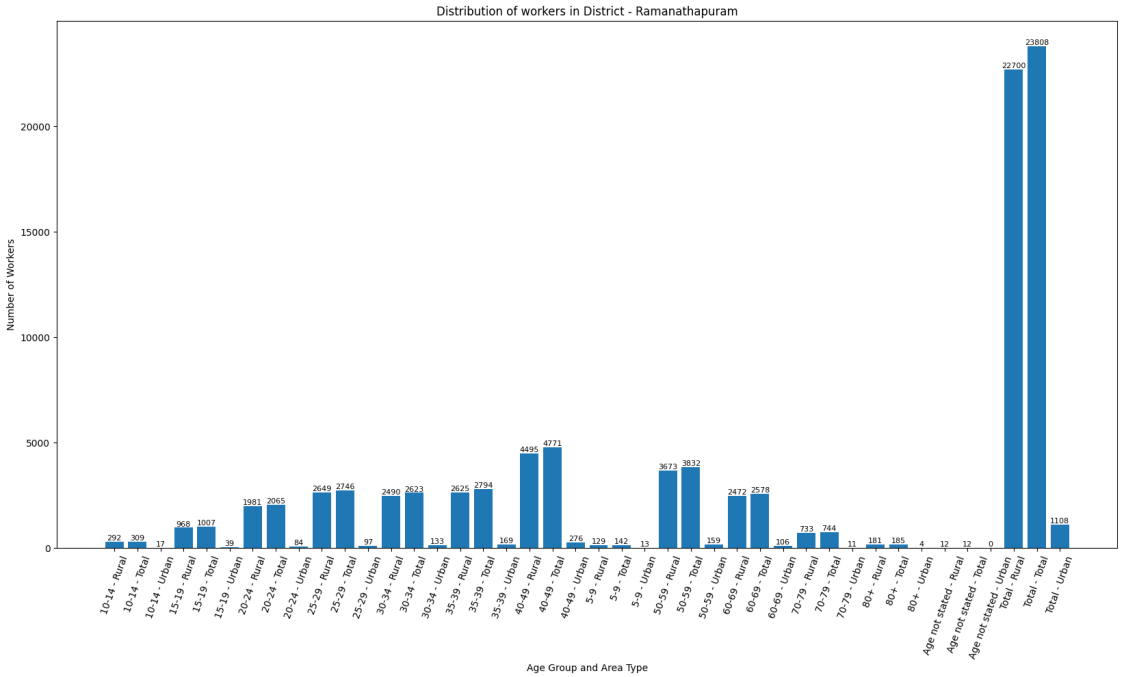
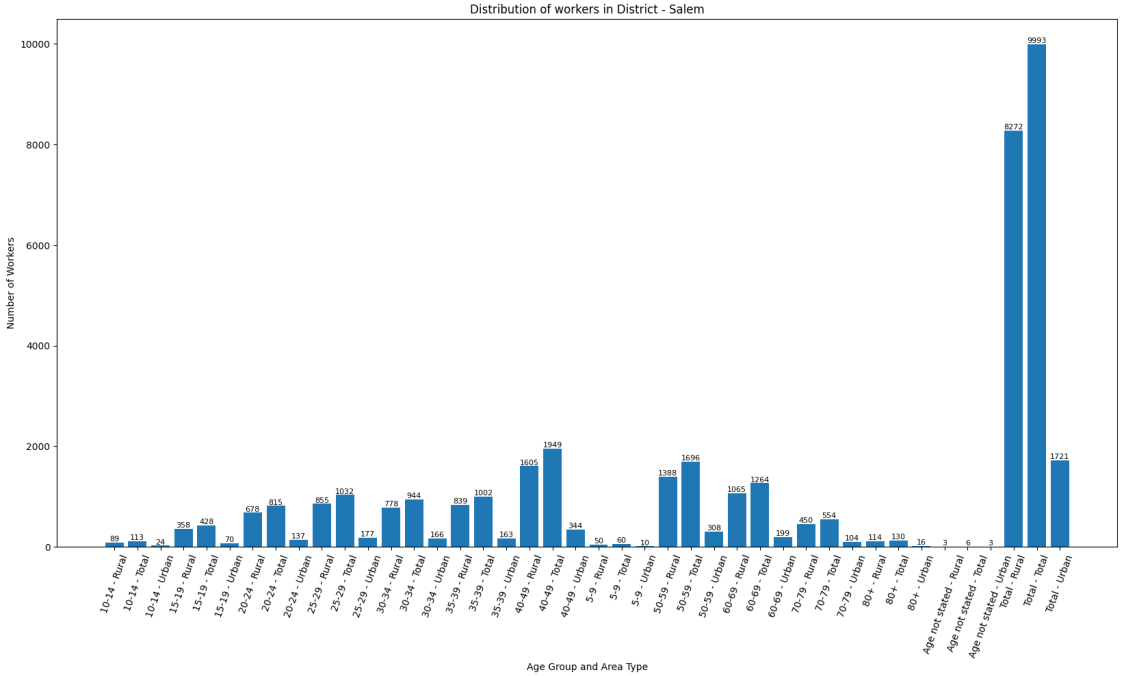
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Ramanathapuram
Number of Workers
Age Group and Area Type
0
5000
10000
15000
20000
292
309
17
968
1007
39
1981
2065
84
2649
2746
97
2490
2623
133
2625
2794
169
4495
4771
276
129
142
13
3673
3832
159
2472
2578
106
733
744
11
181
185
4
12
12
0
22700
23808
1108
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Salem
Number of Workers
Age Group and Area Type
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
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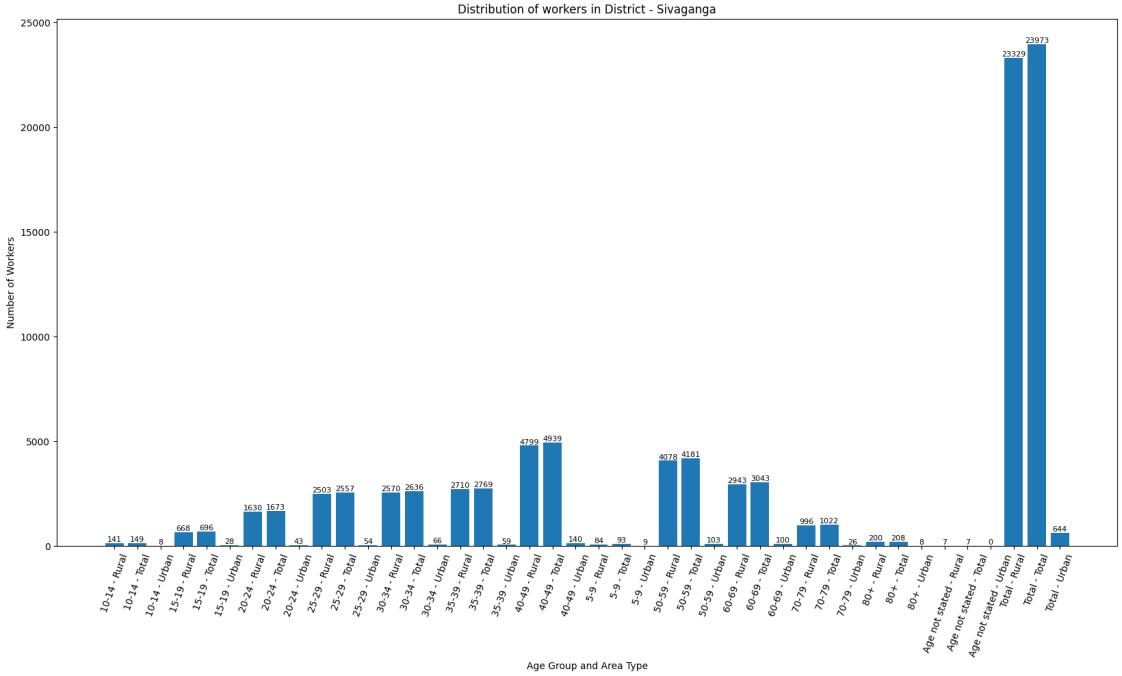
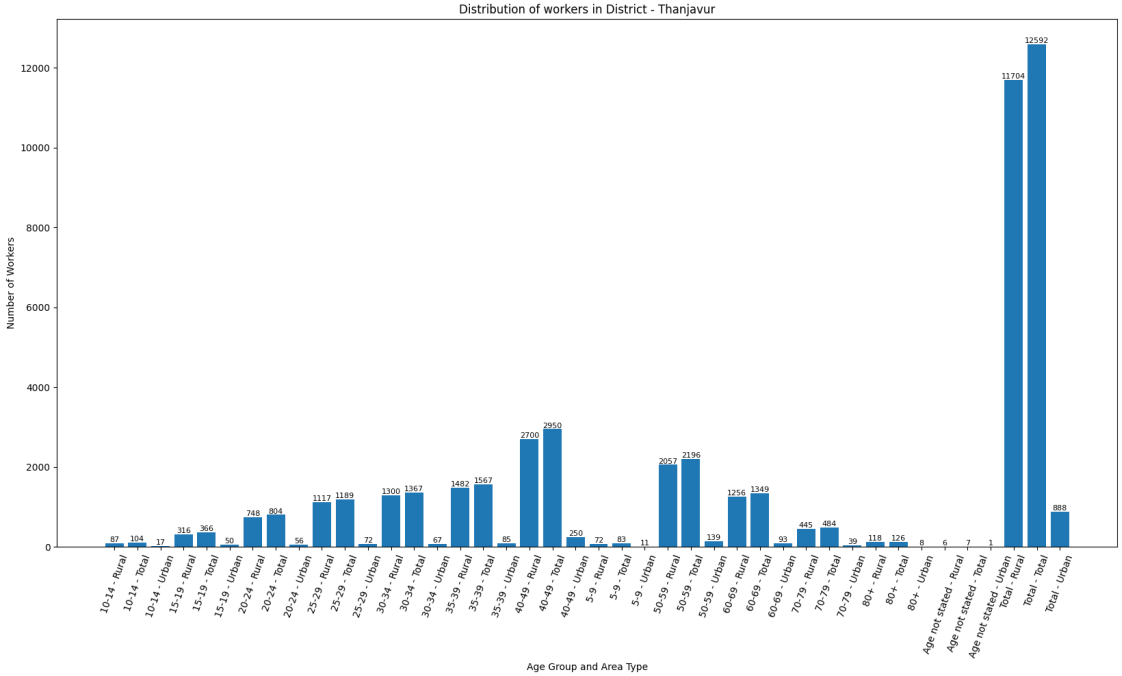
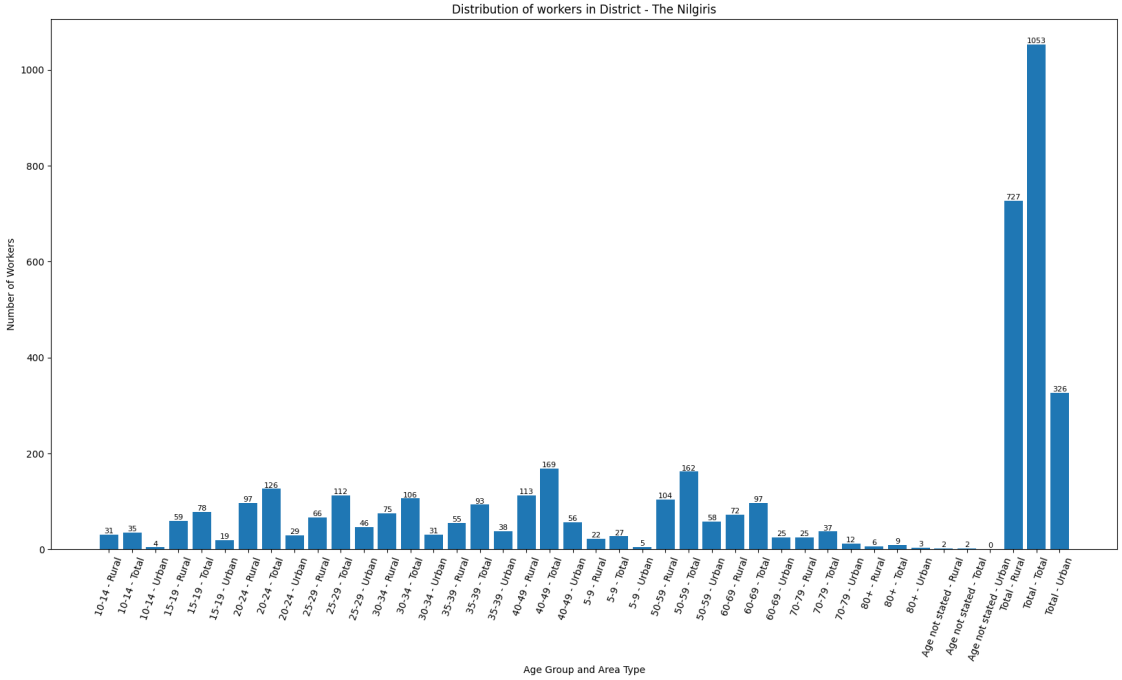
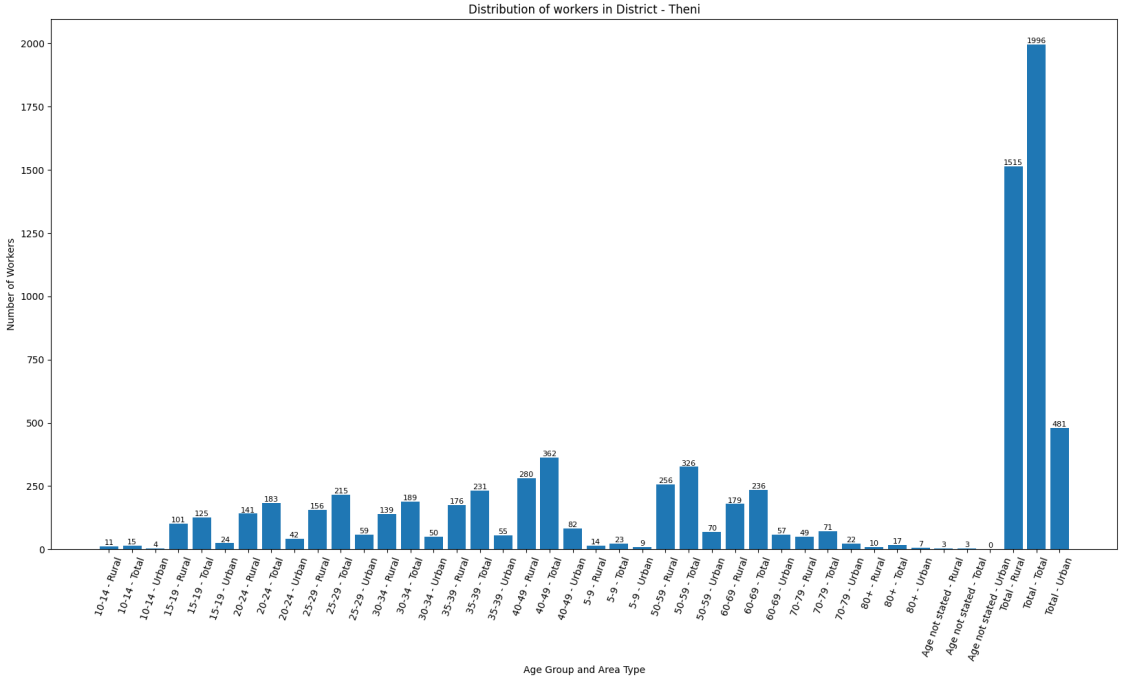
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Sivaganga
Number of Workers
Age Group and Area Type
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Thanjavur
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
10000
12000
87
104
17
316
366
50
748
804
56
1117
1189
72
1300
1367
67
1482
1567
85
2700
2950
250
72
83
11
2057
2196
139
1256
1349
93
445
484
39
118
126
8
6
7
1
11704
12592
888
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - The Nilgiris
Number of Workers
Age Group and Area Type
0
200
400
600
800
1000
31
35
4
59
78
19
97
126
29
66
112
46
75
106
31
55
93
38
113
169
56
22
27
5
104
162
58
72
97
25
25
37
12
6
9
3
2
2
0
727
1053
326
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Theni
Number of Workers
Age Group and Area Type
0
250
500
750
1000
1250
1500
1750
2000
11
15
4
101
125
24
141
183
42
156
215
59
139
189
50
176
231
55
280
362
82
14
23
9
256
326
70
179
236
57
49
71
22
10
17
7
3
3
0
1515
1996
481
10-14 - Rural
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15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
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35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
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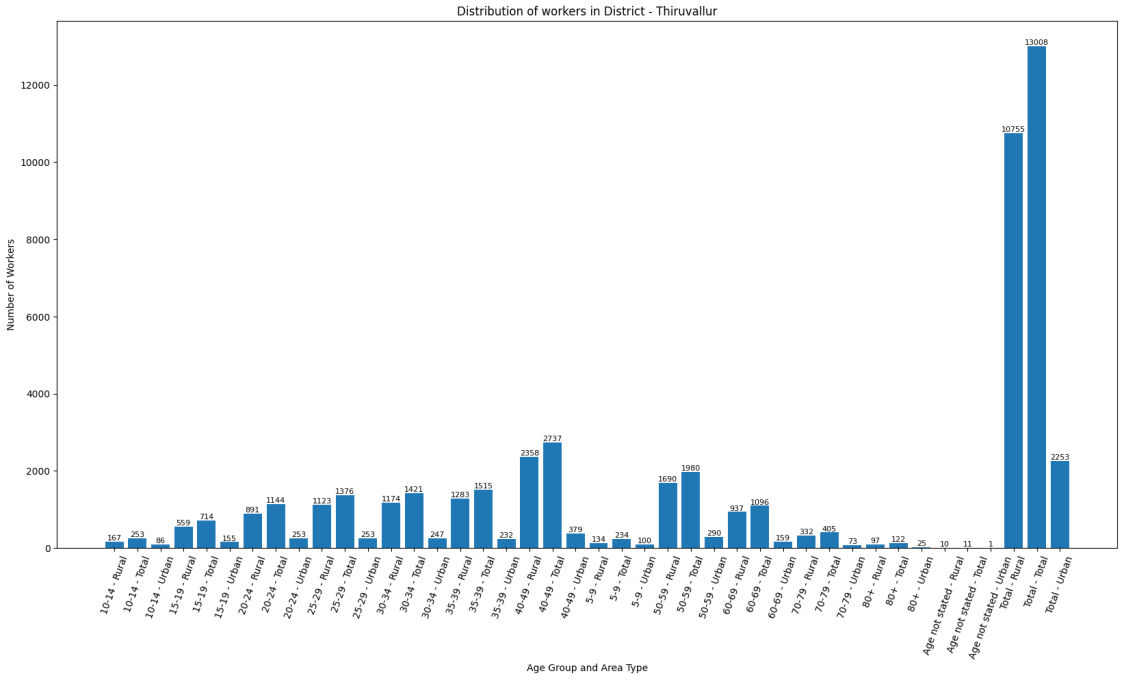
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Thiruvallur
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
10000
12000
167
253
86
559
714
155
891
1144
253
1123
1376
253
1174
1421
247
1283
1515
232
2358
2737
379
134
234
100
1690
1980
290
937
1096
159
332
405
73
97
122
25
10
11
1
10755
13008
2253
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10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
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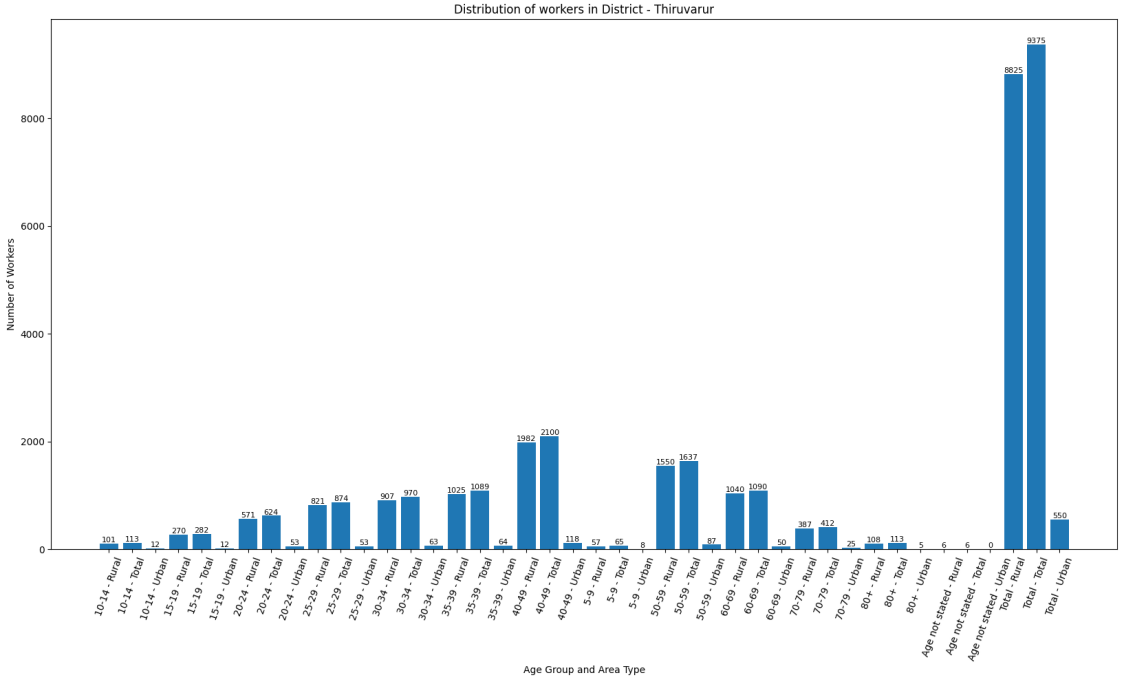
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Thiruvarur
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
101
113
12
270
282
12
571
624
53
821
874
53
907
970
63
1025
1089
64
1982
2100
118
57
65
8
1550
1637
87
1040
1090
50
387
412
25
108
113
5
6
6
0
8825
9375
550
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10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
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30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
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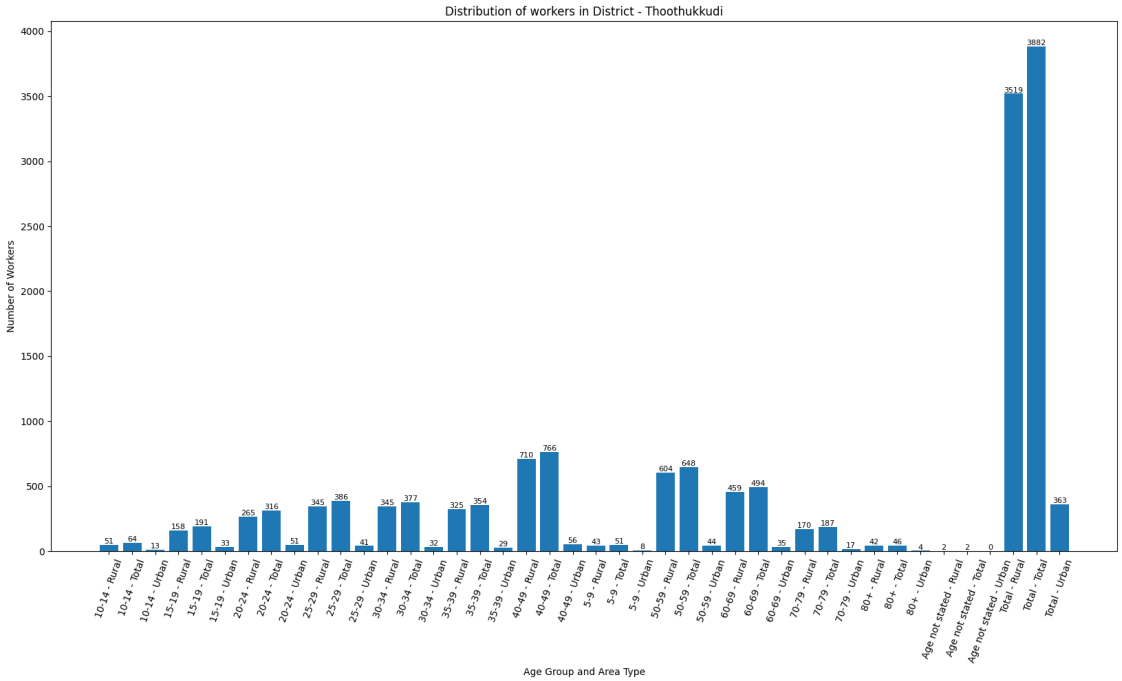
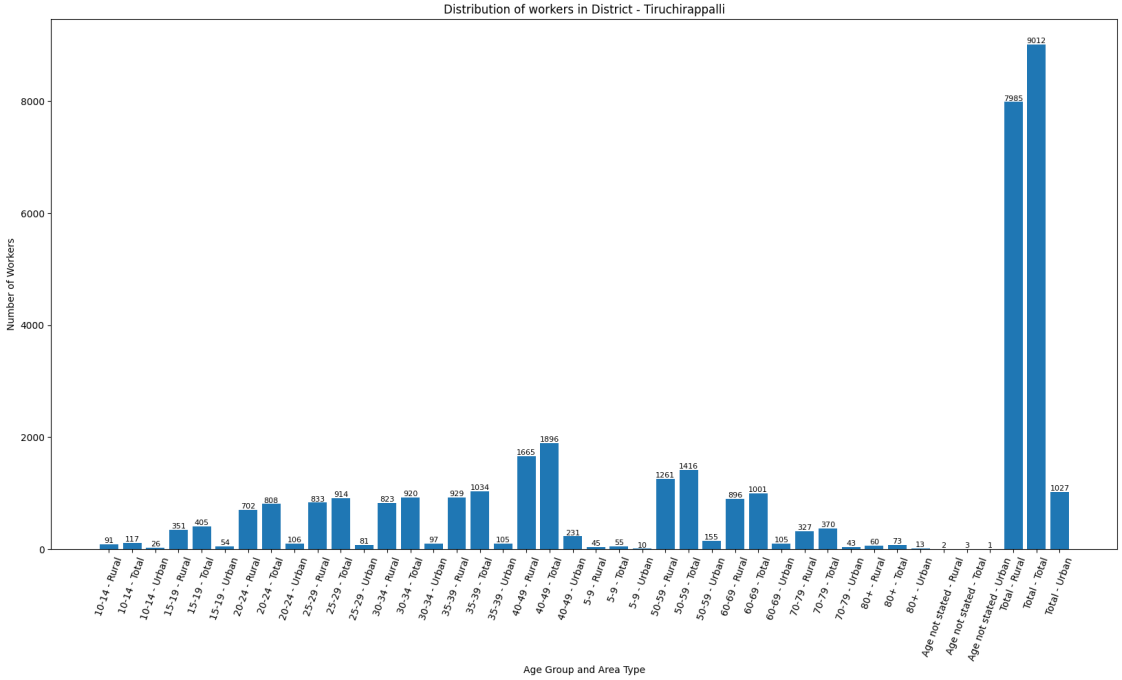
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Thoothukkudi
Number of Workers
Age Group and Area Type
0
500
1000
1500
2000
2500
3000
3500
4000
51
64
13
158
191
33
265
316
51
345
386
41
345
377
32
325
354
29
710
766
56
43
51
8
604
648
44
459
494
35
170
187
17
42
46
4
2
2
0
3519
3882
363
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Tiruchirappalli
Number of Workers
Age Group and Area Type
0
2000
4000
6000
8000
91
117
26
351
405
54
702
808
106
833
914
81
823
920
97
929
1034
105
1665
1896
231
45
55
10
1261
1416
155
896
1001
105
327
370
43
60
73
13
2
3
1
7985
9012
1027
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
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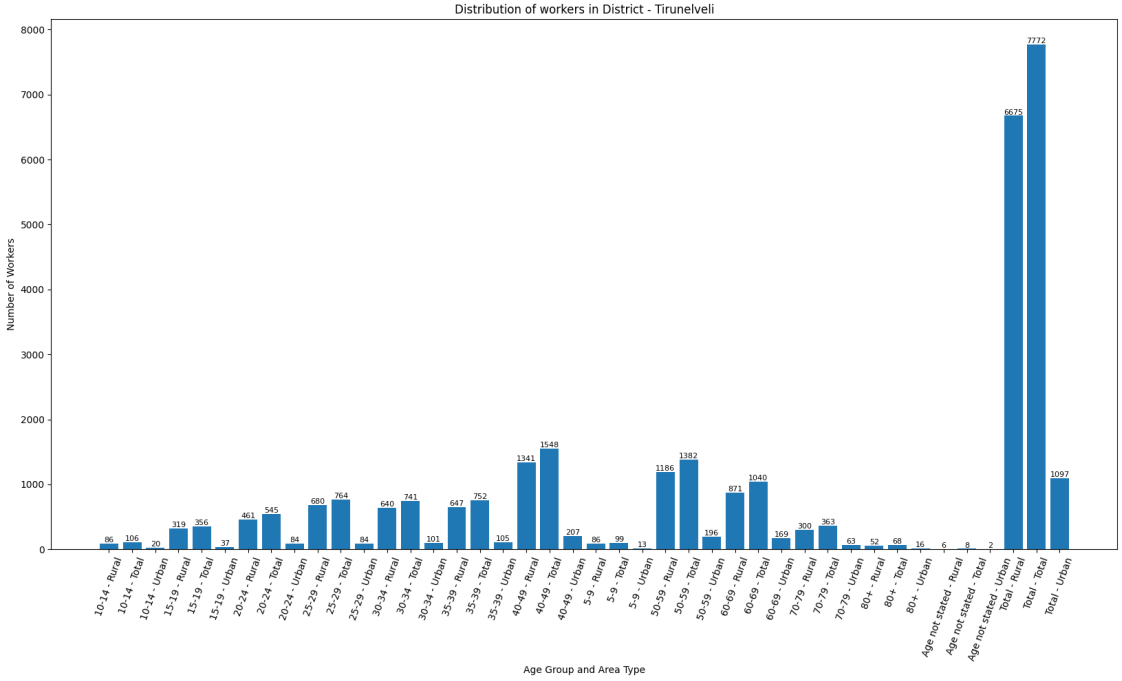
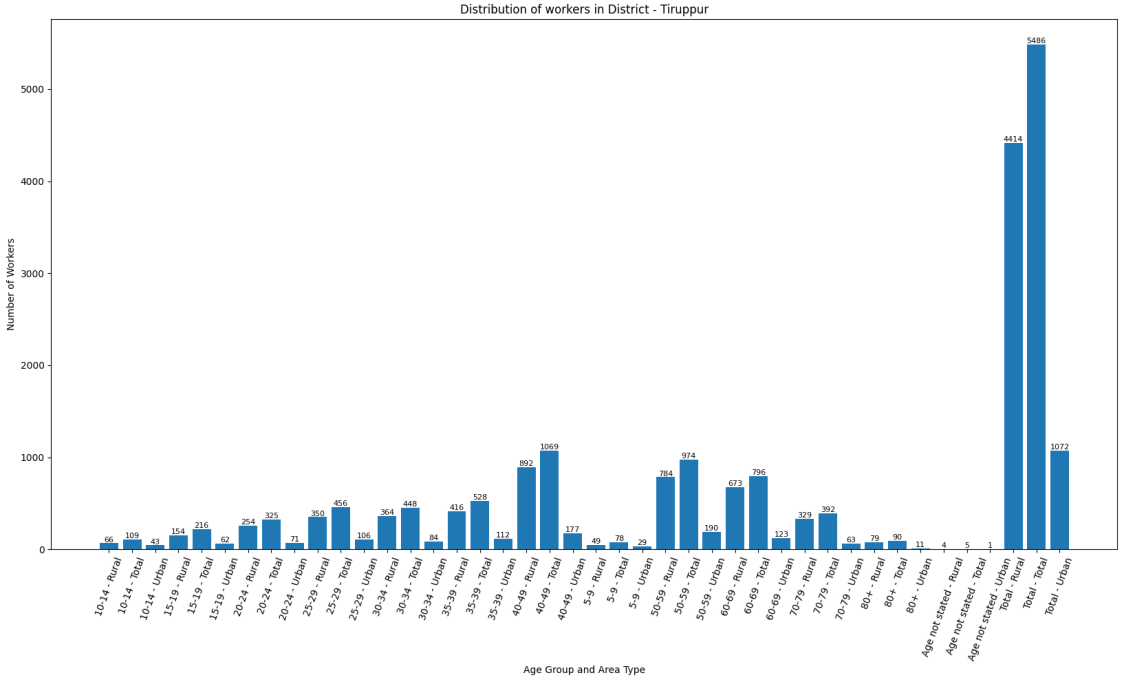
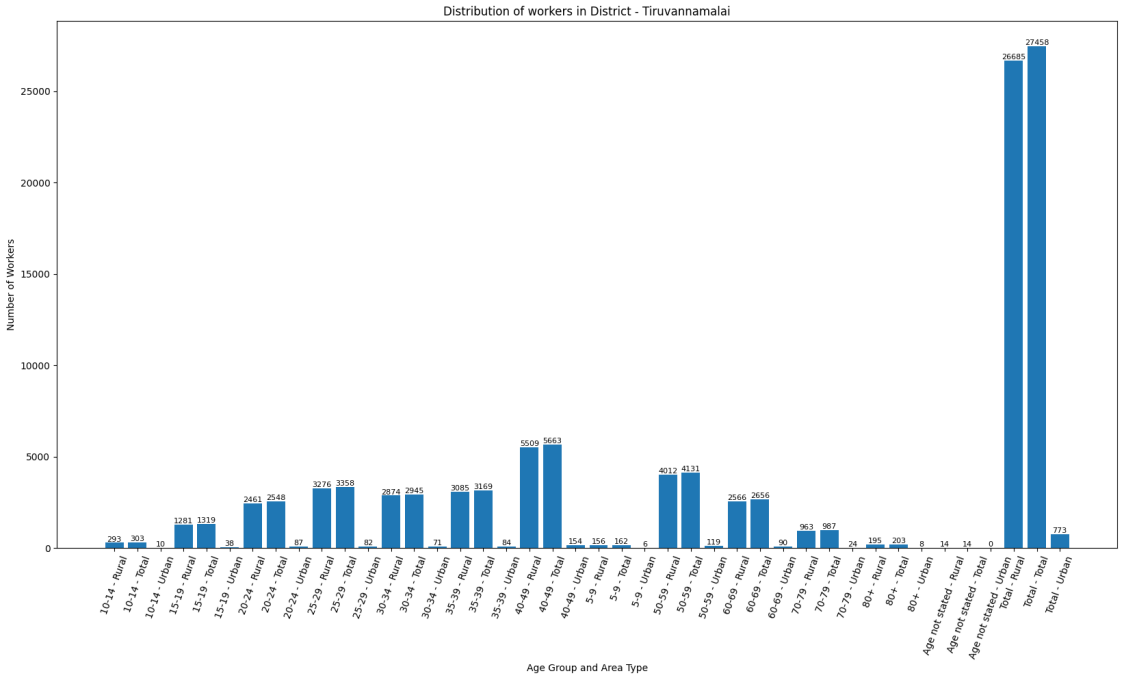
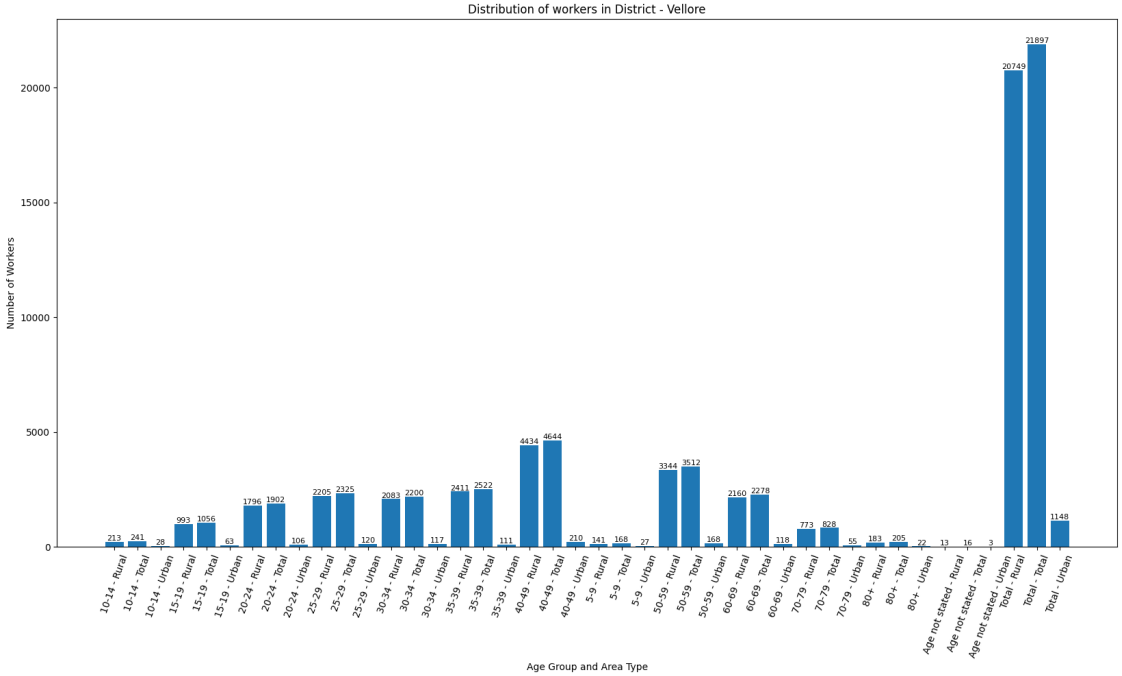
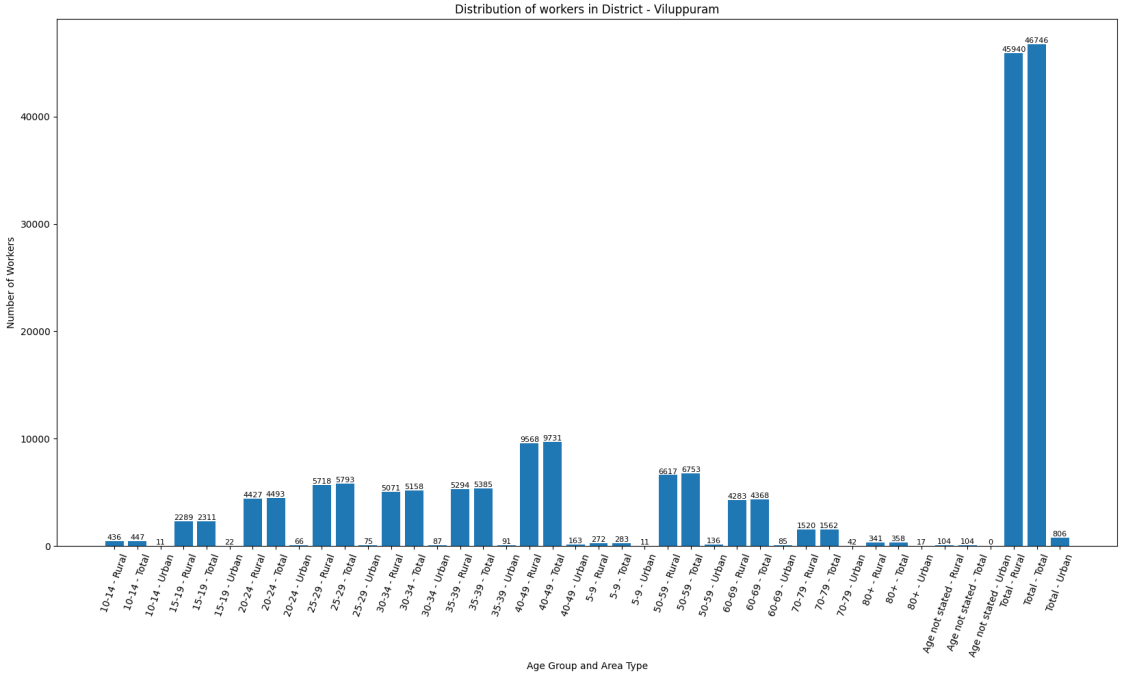
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

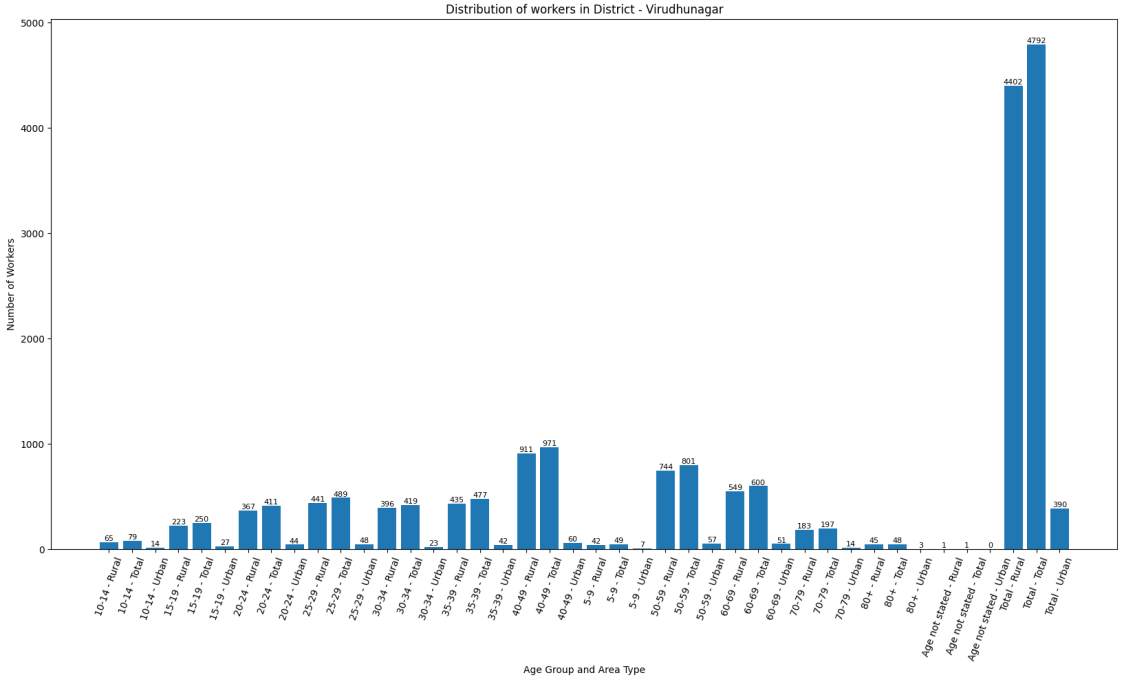

Distribution of workers in District - Tirunelveli
Number of Workers
Age Group and Area Type
0
1000
2000
3000
4000
5000
6000
7000
8000
86
106
20
319
356
37
461
545
84
680
764
84
640
741
101
647
752
105
1341
1548
207
86
99
13
1186
1382
196
871
1040
169
300
363
63
52
68
16
6
8
2
6675
7772
1097
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

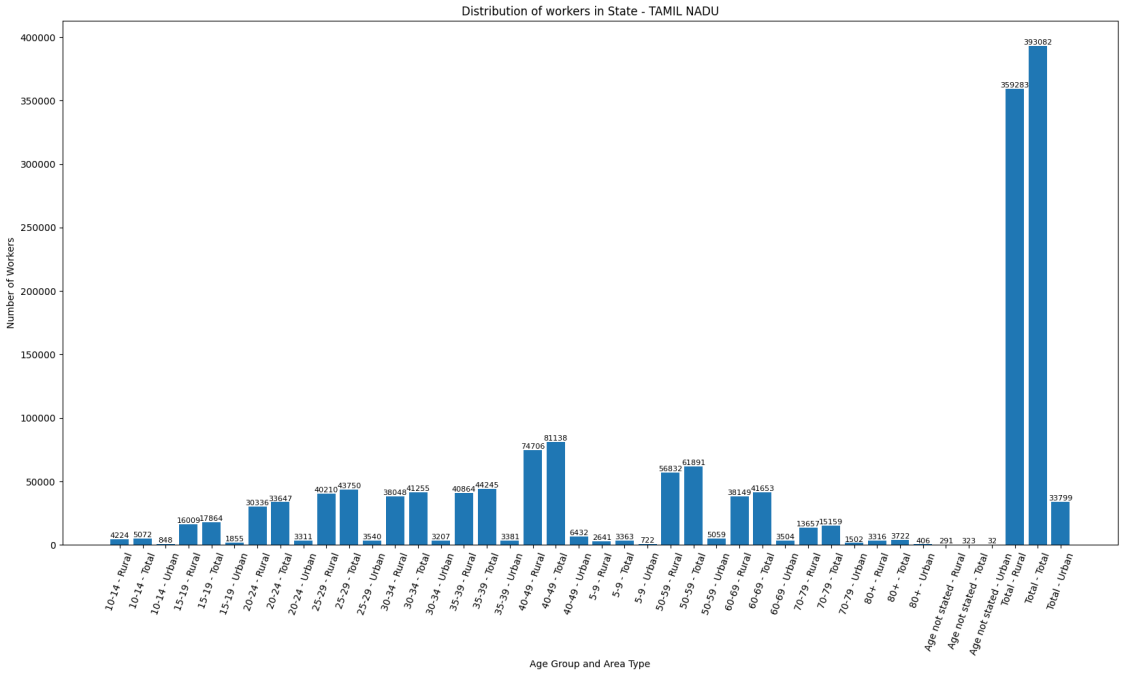

Distribution of workers in District - Tiruppur
Number of Workers
Age Group and Area Type
0
1000
2000
3000
4000
5000
66
109
43
154
216
62
254
325
71
350
456
106
364
448
84
416
528
112
892
1069
177
49
78
29
784
974
190
673
796
123
329
392
63
79
90
11
4
5
1
4414
5486
1072
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Tiruvannamalai
Number of Workers
Age Group and Area Type
0
5000
10000
15000
20000
25000
293
303
10
1281
1319
38
2461
2548
87
3276
3358
82
2874
2945
71
3085
3169
84
5509
5663
154
156
162
6
4012
4131
119
2566
2656
90
963
987
24
195
203
8
14
14
0
26685
27458
773
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban


Distribution of workers in District - Vellore
Number of Workers
Age Group and Area Type
0
5000
10000
15000
20000
213
241
28
993
1056
63
1796
1902
106
2205
2325
120
2083
2200
117
2411
2522
111
4434
4644
210
141
168
27
3344
3512
168
2160
2278
118
773
828
55
183
205
22
13
16
3
20749
21897
1148
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban

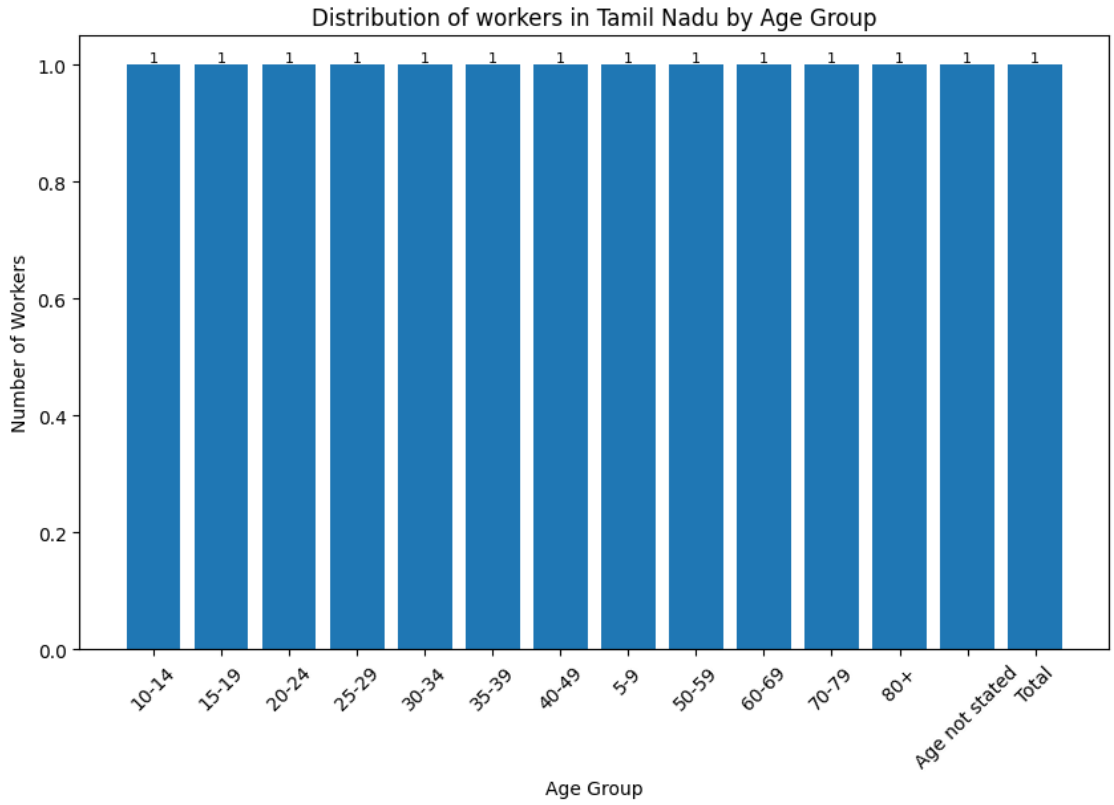

Distribution of workers in District - Viluppuram
Number of Workers
Age Group and Area Type
0
10000
20000
30000
40000
436
447
11
2289
2311
22
4427
4493
66
5718
5793
75
5071
5158
87
5294
5385
91
9568
9731
163
272
283
11
6617
6753
136
4283
4368
85
1520
1562
42
341
358
17
104
104
0
45940
46746
806
10-14 - Rural
10-14 - Total
10-14 - Urban
15-19 - Rural
15-19 - Total
15-19 - Urban
20-24 - Rural
20-24 - Total
20-24 - Urban
25-29 - Rural
25-29 - Total
25-29 - Urban
30-34 - Rural
30-34 - Total
30-34 - Urban
35-39 - Rural
35-39 - Total
35-39 - Urban
40-49 - Rural
40-49 - Total
40-49 - Urban
5-9 - Rural
5-9 - Total
5-9 - Urban
50-59 - Rural
50-59 - Total
50-59 - Urban
60-69 - Rural
60-69 - Total
60-69 - Urban
70-79 - Rural
70-79 - Total
70-79 - Urban
80+ - Rural
80+ - Total
80+ - Urban
Age not stated - Rural
Age not stated - Total
Age not stated - Urban
Total - Rural
Total - Total
Total - Urban





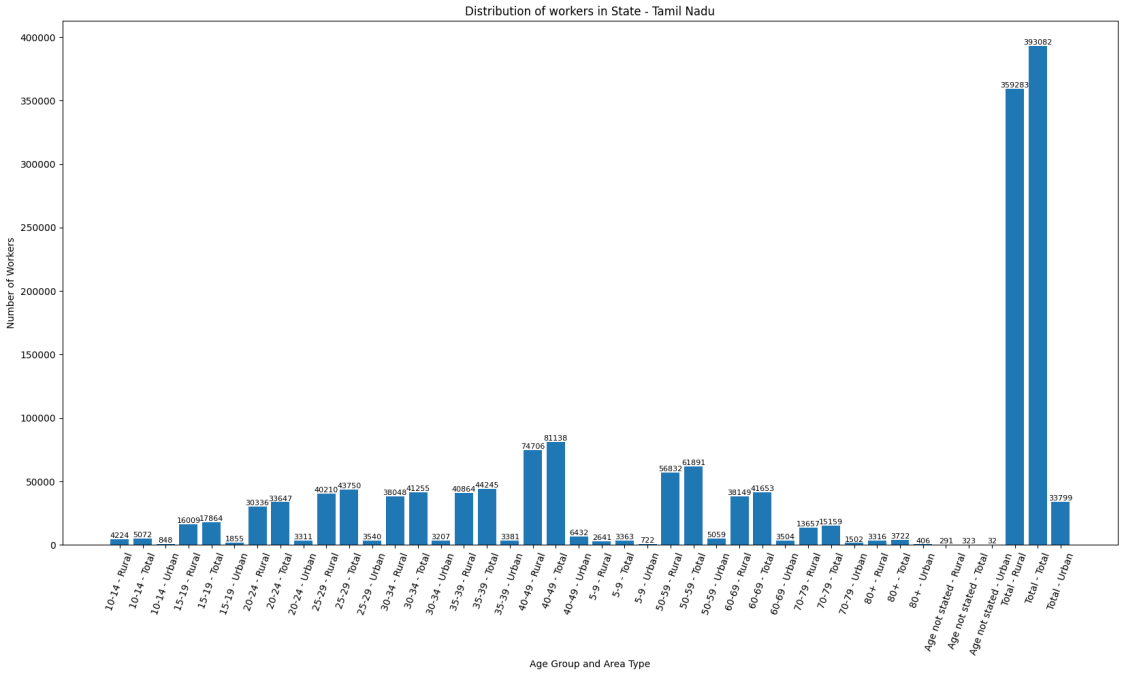
[ ]:
```
import matplotlib.pyplot as plt
import pandas as pd
```

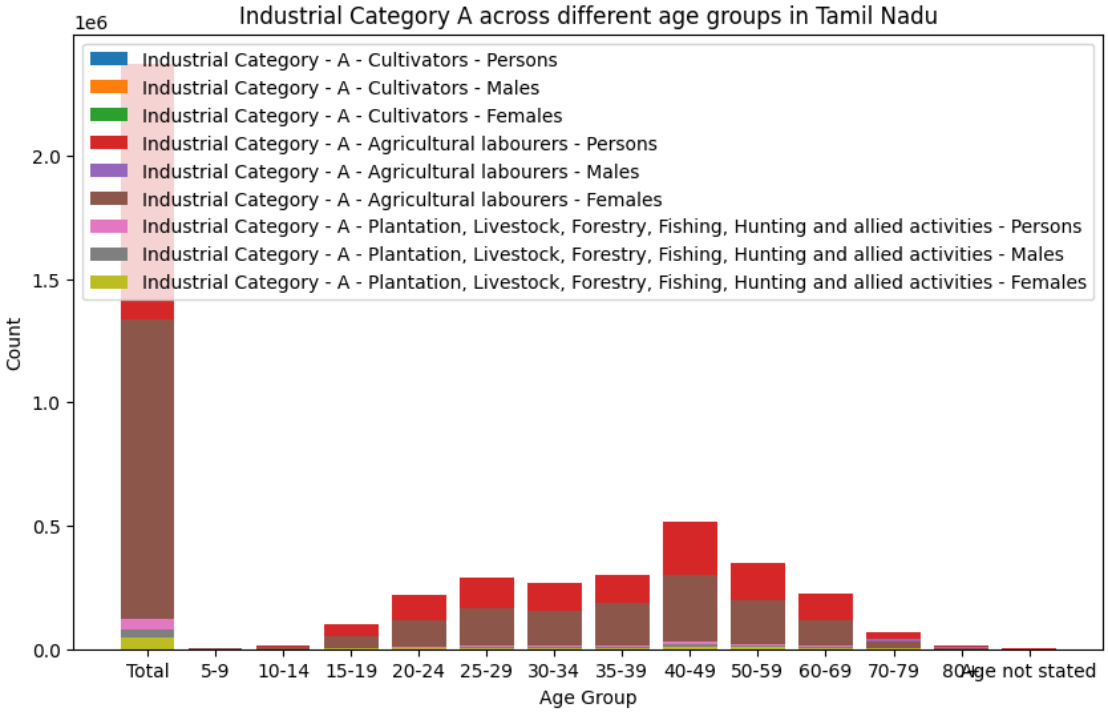
```
# Assuming 'df' is your DataFrame

# Filter data for Tamil Nadu, Total Persons
tn_data = df[(df['Area Name'] == 'State - TAMIL NADU') & (df['Total/ Rural/␣
 ↪Urban'] == 'Total')]

# Grouping by 'Age group' and summing up the number of workers
grouped_data = tn_data.groupby(['Age group'])['Total/ Rural/ Urban'].count().
 ↪reset_index()

# Create a bar chart
plt.figure(figsize=(10, 6))
bars = plt.bar(grouped_data['Age group'], grouped_data['Total/ Rural/ Urban'])

# Adding numbers on top of the bars
for bar in bars:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width()/2, yval, round(yval), va='bottom',␣
 ↪ha='center', fontsize=8, color='black')

plt.title(f'Distribution of workers in Tamil Nadu by Age Group')
plt.xlabel('Age Group')
plt.ylabel('Number of Workers')
plt.xticks(rotation=45)
plt.show()
```



[15]:
```
# Entire State

import matplotlib.pyplot as plt

# Assuming 'df' is your DataFrame
# 'Area Name' represents the districts, 'Age group' represents the age groups,␣
 ↪'Total/ Rural/ Urban' represents rural or urban
# 'Industrial Category - A - Cultivators - Persons' represents the number of␣
 ↪workers

# Filter data for State - Tamil Nadu
state_data = df[df['Area Name'] == 'State - TAMIL NADU']

# Grouping by 'Age group', 'Total/ Rural/ Urban' and summing up the number of␣
 ↪workers
grouped_data = state_data.groupby(['Age group', 'Total/ Rural/␣
 ↪Urban'])['Industrial Category - A - Cultivators - Persons'].sum().
 ↪reset_index()

# Create the bar chart
plt.figure(figsize=(20, 10))
```

```
bars = plt.bar(grouped_data['Age group'] + ' - ' + grouped_data['Total/ Rural/␣
 ↪Urban'], grouped_data['Industrial Category - A - Cultivators - Persons'])

# Adding numbers on top of the bars
for bar in bars:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width()/2, yval, round(yval), va='bottom',␣
 ↪ha='center', fontsize=8, color='black')

plt.title('Distribution of workers in State - Tamil Nadu')
plt.xlabel('Age Group and Area Type')
plt.ylabel('Number of Workers')
plt.xticks(rotation=70)
plt.show()
```



[10]:
```
import pandas as pd
import matplotlib.pyplot as plt



# Filter for Tamil Nadu state
df = df[df['Area Name'] == 'State - TAMIL NADU']

# Select columns related to Industrial Category A
cols = [col for col in df.columns if 'Industrial Category - A' in col]
```

```
df = df[['Area Name', 'Age group', 'Total/ Rural/ Urban'] + cols]

# Melt the dataframe to bring it in a tidy format
df_melted = df.melt(id_vars=['Area Name', 'Age group', 'Total/ Rural/ Urban'],␣
 ↪var_name='Category', value_name='Count')

# Plot
plt.figure(figsize=(10,6))
for category in df_melted['Category'].unique():
    data = df_melted[df_melted['Category'] == category]
    plt.bar(data['Age group'], data['Count'], label=category)

plt.xlabel('Age Group')
plt.ylabel('Count')
plt.title('Industrial Category A across different age groups in Tamil Nadu')
plt.legend()
plt.show()
```