In [1]:
```
import pandas as pd
```

In [9]:
```
data=pd.read_csv(r"C:\Users\amolb\.ipynb_checkpoints\testfile.csv")
```

In [10]:
```
data
```

Out[10]:

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	I
0	2018	Level 1	99999	All industries	D (mil
1	2018	Level 1	99999	All industries	D (mil
2	2018	Level 1	99999	All industries	D (mil
3	2018	Level 1	99999	All industries	D (mil
4	2018	Level 1	99999	All industries	D (mil
...	...	...	...	...	
27805	2013	Level 3	ZZ11	Food product manufacturing	Percer
27806	2013	Level 3	ZZ11	Food product manufacturing	Percer
27807	2013	Level 3	ZZ11	Food product manufacturing	Percer

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	
27808	2013	Level 3	ZZ11	Food product manufacturing	Percer
27809	2013	Level 3	ZZ11	Food product manufacturing	Percer

27810 rows × 10 columns

In [12]:
```
data.head()
```

Out[12]:

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units
0	2018	Level 1	99999	All industries	Dollars (millions)
1	2018	Level 1	99999	All industries	Dollars (millions)
2	2018	Level 1	99999	All industries	Dollars (millions)
3	2018	Level 1	99999	All industries	Dollars (millions)
4	2018	Level 1	99999	All industries	Dollars (millions)

In [14]:
```
data.tail()
```

Out[14]:

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	
27805	2013	Level 3	ZZ11	Food product manufacturing	Percer

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	
27806	2013	Level 3	ZZ11	Food product manufacturing	Percer
27807	2013	Level 3	ZZ11	Food product manufacturing	Percer
27808	2013	Level 3	ZZ11	Food product manufacturing	Percer
27809	2013	Level 3	ZZ11	Food product manufacturing	Percer

In [17]:
```
data.shape
```

Out[17]: (27810, 10)

In [21]:
```
data.describe()
```

Out[21]:

	Year
count	27810.000000
mean	2015.500000
std	1.707856
min	2013.000000
25%	2014.000000
50%	2015.500000
75%	2017.000000
max	2018.000000

In [25]:
```
data.head()
```

Out[25]:

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units
0	2018	Level 1	99999	All industries	Dollars (millions)
1	2018	Level 1	99999	All industries	Dollars (millions)
2	2018	Level 1	99999	All industries	Dollars (millions)
3	2018	Level 1	99999	All industries	Dollars (millions)
4	2018	Level 1	99999	All industries	Dollars (millions)

In [27]:
```
data.iloc[1:4,0:5]
```

Out[27]:

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units
1	2018	Level 1	99999	All industries	Dollars (millions)
2	2018	Level 1	99999	All industries	Dollars (millions)
3	2018	Level 1	99999	All industries	Dollars (millions)

In [31]:
```
data.loc[1:10,("Year","Units")]
```

Out[31]:

	Year	Units
1	2018	Dollars (millions)
2	2018	Dollars (millions)

	Year	Units
3	2018	Dollars (millions)
4	2018	Dollars (millions)
5	2018	Dollars (millions)
6	2018	Dollars (millions)
7	2018	Dollars (millions)
8	2018	Dollars (millions)
9	2018	Dollars (millions)
10	2018	Dollars (millions)

In [33]:
```
data.drop("Year",axis=1)
```

Out[33]:

	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units
0	Level 1	99999	All industries	Dollars (millions)
1	Level 1	99999	All industries	Dollars (millions)
2	Level 1	99999	All industries	Dollars (millions)
3	Level 1	99999	All industries	Dollars (millions)
4	Level 1	99999	All industries	Dollars (millions)
...	...	...	...	...
27805	Level 3	ZZ11	Food product manufacturing	Percentage

	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units
27806	Level 3	ZZ11	Food product manufacturing	Percentage
27807	Level 3	ZZ11	Food product manufacturing	Percentage
27808	Level 3	ZZ11	Food product manufacturing	Percentage
27809	Level 3	ZZ11	Food product manufacturing	Percentage

27810 rows × 9 columns

In [38]:
```
l1=data.drop([1,2,3],axis=0)
l1
```

Out[38]:

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	U
0	2018	Level 1	99999	All industries	D (mil
4	2018	Level 1	99999	All industries	D (mil
5	2018	Level 1	99999	All industries	D (mil
6	2018	Level 1	99999	All industries	D (mil
7	2018	Level 1	99999	All industries	D (mil
...	...	...	...	...	

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	
27805	2013	Level 3	ZZ11	Food product manufacturing	Percer
27806	2013	Level 3	ZZ11	Food product manufacturing	Percer
27807	2013	Level 3	ZZ11	Food product manufacturing	Percer
27808	2013	Level 3	ZZ11	Food product manufacturing	Percer
27809	2013	Level 3	ZZ11	Food product manufacturing	Percer

27807 rows × 10 columns

In [40]:
```
data.min()
```

Out[40]:
```
Year                                2013
Industry_aggregation_NZSIOC      Level 1
Industry_code_NZSIOC               99999
Industry_name_NZSIOC       Accommodation
Units                            Dollars
Variable_code                        H01
Variable_name      Additions to fixed assets
Variable_category      Financial performance
Value                                 -1
Industry_code_ANZSIC06    ANZSIC06 Group F380
dtype: object
```

In [42]:
```
data.max()
```

Out[42]:
```
Year                                2018
Industry_aggregation_NZSIOC      Level 4
```

```
Industry_code_NZSIOC                                    ZZ11
Industry_name_NZSIOC                    Wood Product Manufacturing
Units                                                 Percentage
Variable_code                                                H41
Variable_name                  Total income per employee count
Variable_category                                Financial ratios
Value                                                          S
Industry_code_ANZSIC06        ANZSIC06 groups S951, S952, and S953
dtype: object
```

In [44]:
```
data.median()
```

Out[44]:
```
Year    2015.5
dtype: float64
```

In [49]:
```
data.mean()
```

Out[49]:
```
Year    2015.5
dtype: float64
```

In [ ]:
```

```

In [50]:
```
data.mean()
```

Out[50]:
```
Year    2015.5
dtype: float64
```

In [52]:
```
data.head()
```

Out[52]:

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units
0	2018	Level 1	99999	All industries	Dollars (millions)
1	2018	Level 1	99999	All industries	Dollars (millions)

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units
2	2018	Level 1	99999	All industries	Dollars (millions)
3	2018	Level 1	99999	All industries	Dollars (millions)
4	2018	Level 1	99999	All industries	Dollars (millions)

In [59]:
```
def make_double(s):
    return s/2
```

In [62]:
```
data[['Value']].apply(make_double)
```

Out[62]:

	Value
0	691859691859
1	605766605766
2	6350963509
3	2258322583
4	597623597623
...	...
27805	5252
27806	4040
27807	1212
27808	55
27809	4646

27810 rows × 1 columns

In [63]:
```
data['Years'].value_counts()
```

```
---------------------------------------------------------------------
---
KeyError                                  Traceback (most recent call l
ast)
~\anaconda3\lib\site-packages\pandas\core\indexes\base.py in get_loc(se
lf, key, method, tolerance)
   2645             try:
-> 2646                 return self._engine.get_loc(key)
   2647             except KeyError:

pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()

pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()

pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.PyObj
ectHashTable.get_item()

pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.PyObj
ectHashTable.get_item()

KeyError: 'Years'

During handling of the above exception, another exception occurred:

KeyError                                  Traceback (most recent call l
ast)
<ipython-input-63-87e43ba8da20> in <module>
----> 1 data['Years'].value_counts()

~\anaconda3\lib\site-packages\pandas\core\frame.py in __getitem__(self,
 key)
   2798             if self.columns.nlevels > 1:
   2799                 return self._getitem_multilevel(key)
-> 2800             indexer = self.columns.get_loc(key)
   2801             if is_integer(indexer):
   2802                 indexer = [indexer]

~\anaconda3\lib\site-packages\pandas\core\indexes\base.py in get_loc(se
```

```
lf, key, method, tolerance)
   2646                 return self._engine.get_loc(key)
   2647             except KeyError:
-> 2648                 return self._engine.get_loc(self._maybe_cast_in
dexer(key))
   2649         indexer = self.get_indexer([key], method=method, tolera
nce=tolerance)
   2650         if indexer.ndim > 1 or indexer.size > 1:

pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()

pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()

pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.PyObj
ectHashTable.get_item()

pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.PyObj
ectHashTable.get_item()

KeyError: 'Years'
```

In [65]:
```
data.head()
```

Out[65]:

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units
0	2018	Level 1	99999	All industries	Dollars (millions)
1	2018	Level 1	99999	All industries	Dollars (millions)
2	2018	Level 1	99999	All industries	Dollars (millions)
3	2018	Level 1	99999	All industries	Dollars (millions)

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	Units
4	2018	Level 1	99999	All industries	Dollars (millions)

In [68]:
```
data['Year'].value_counts()
```

Out[68]:
```
2015    4635
2014    4635
2013    4635
2018    4635
2017    4635
2016    4635
Name: Year, dtype: int64
```

In [69]:
```
data.sort_values(by='Year')
```

Out[69]:

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	
27809	2013	Level 3	ZZ11	Food product manufacturing	Percer
24714	2013	Level 4	CC822	Machinery Manufacturing	D (mil
24715	2013	Level 4	CC822	Machinery Manufacturing	D (mil
24716	2013	Level 4	CC822	Machinery Manufacturing	D (mil
24717	2013	Level 4	CC822	Machinery Manufacturing	D (mil
...	...	...	...	...	
3092	2018	Level 1	KK	Financial and Insurance Services	D (mil
3093	2018	Level 1	KK	Financial and Insurance Services	D (mil

	Year	Industry_aggregation_NZSIOC	Industry_code_NZSIOC	Industry_name_NZSIOC	U
3094	2018	Level 1	KK	Financial and Insurance Services	D (mil
3042	2018	Level 3	JJ11	Information Media Services	D (mil
0	2018	Level 1	99999	All industries	D (mil

27810 rows × 10 columns