```
import pandas as pd
import numpy as np
from pandas import DataFrame, Series
from matplotlib import pyplot as plt
```

```
train = pd.read_csv('기술통계19_1.csv')
```

```
train=train.dropna(how='all',axis=1)
```

```
n=[]
for col in train.columns:
    n.append(col)

n
```

```
['global_id',
 'A1S1',
 'A1S2',
 'A1N1',
 'A1N2',
 'A2S1',
 'A2S2',
 'A4S1',
 'A4S2',
 'A4S3',
 'C1S0',
 'C1S1',
 'C1S2',
 'C1S3',
 'C1S4',
 'C1S5',
 'C1S6',
 'C1S7',
 'C1S8',
 'C1S9',
 'C1S10',
 'C1S11',
 'C1S12',
 'A3S1',
 'A3Q1',
 'A3S2',
 'A3Q2',
 'A3S3',
 'A3Q3',
 'A3S4',
 'A3Q4',
 'A3S4N',
 'A3Q4N',
 'A3S5',
 'A3Q5',
```

```
  'A3S6',
  'A6Q6',
  'A3P1',
  'A3P2',
  'A3P3',
  'A3P4',
  'A3P5',
  'A3P6',
  'A3P7',
  'CN1',
  'CN2',
  'CN3',
  'C2S1',
  'C2S2',
  'PEOAM',
  'PEOAF',
  'PEOAT',
  'PEOBM',
  'PEOBF',
  'PEOBT',
  'PEOCM',
  'PEOCF',
  'PEOCT',
  'PEOTM',
  'PEOTF',
  'PEOTOT',
  'B2S1M',
  'B2S1F',
  'B2S1T',
  'B2S2M',
  'B2S2F',
  'B2S2T',
  'B2S3M',
  'B2S3F',
  'B2S3',
  'B3S1M',
  'B3S1F',
  'B3S1',
  'B3S2M',
  'B3S2F',
  'B3S2',
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  'B3S4M',
  'B3S4F',
  'B3S4',
  'B3S5M',
  'B3S5F',
  'B3S5',
  'B3S6M',
  'B3S6F',
  'B3S6',
  'B4N1M',
  'B4N1F',
  'B4N1',
  'B4N2M',
  'B4N2F',
```

```
 'B4N2',
 'B4N3M',
 'B4N3F',
 'B4N3',
 'B4N4M',
 'B4N4F',
 'B4N4',
 'B4N5M',
 'B4N5F',
 'B4N5',
 'B4N6M',
 'B4N6F',
 'B4N6',
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 'B4S81F',
 'B4S81T',
 'B4S83M',
 'B4S83F',
 'B4S83T',
 'B4S85M',
 'B4S85F',
 'B4S85T',
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 'B4S87F',
 'B4S87T',
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 'B4S89F',
 'B4S89',
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 'B5N3',
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 'B5N5',
 'B5N6',
 'B4S82',
 'B4S84',
 'B4S86',
 'B4S88A',
 'B4S88B',
 'B4S9O',
 'B6N1',
 'B6N2',
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 'B6N4',
 'B6N5',
 'B6N6',
 'B1',
 'B5',
 'B9N1',
 'B9N2',
 'B9N3',
 'B9N4',
 'B9N5',
 'B9N6']
```

```
train['A1S1'].value_counts()
```

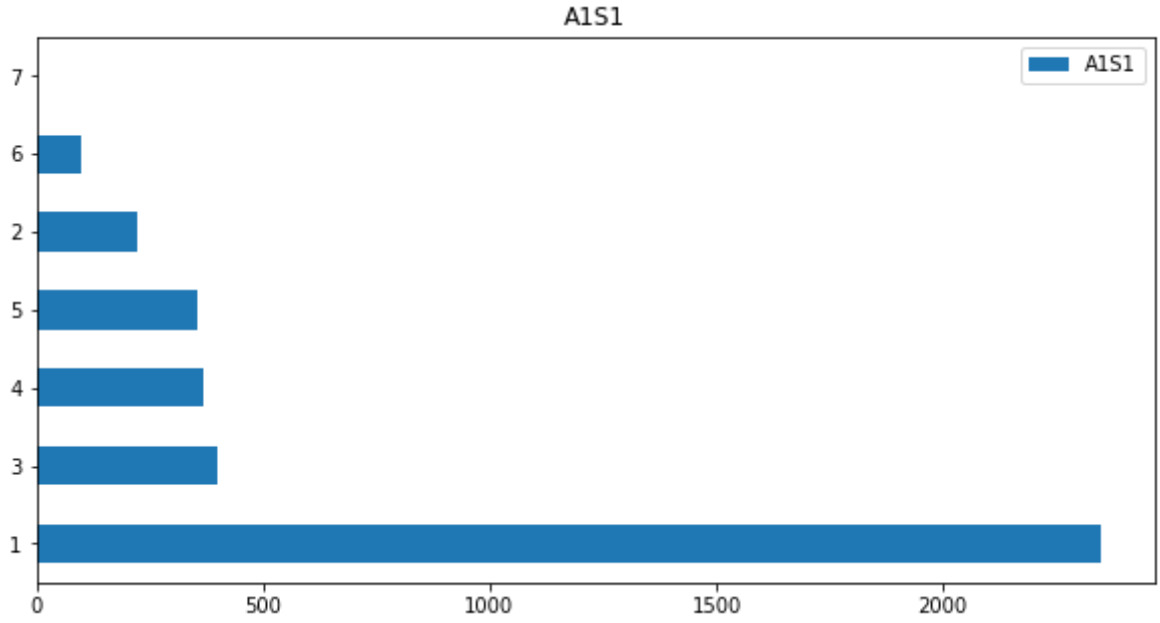
```
1    2348
3     398
4     370
5     356
2     224
6     100
7       4
Name: A1S1, dtype: int64
```

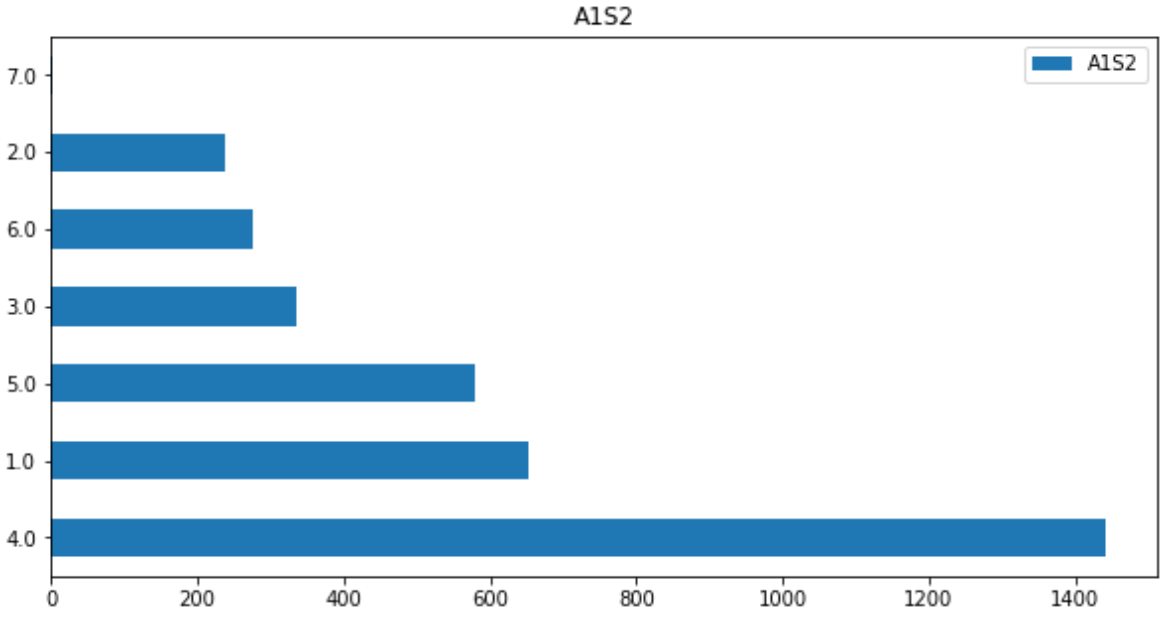
```
def bar_chart(feature):
    df_1 = train[feature].value_counts()
    df = pd.DataFrame(df_1)
    df.plot(kind='barh', stacked=True, figsize=(10,5), title = feature)
```

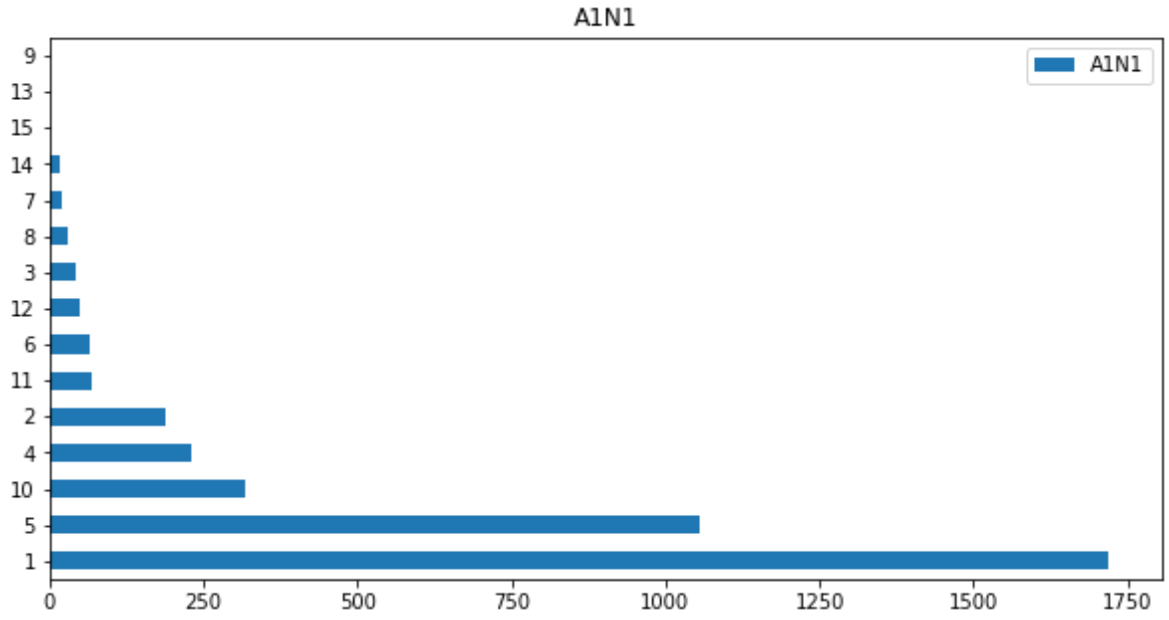
```
# 기술개발 활동 및 투자현황
list = [ 'A1S1',
 'A1S2',
 'A1N1',
 'A1N2',
 'A2S1',
 'A2S2',
 'A4S1',
 'A4S2',
 'A4S3',
 'A3S1',
 'A3Q1',
 'A3S2',
 'A3Q2',
 'A3S3',
 'A3Q3',
 'A3S4',
 'A3Q4',
 'A3S4N',
 'A3Q4N',
 'A3S5',
 'A3Q5',
 'A3S6',
 'A6Q6',
 'A3P1',
 'A3P2',
 'A3P3',
 'A3P4',
 'A3P5',
 'A3P6',
 'A3P7',
 'CN1',
 'C2S1',
 'C2S2',
 'B1',
```

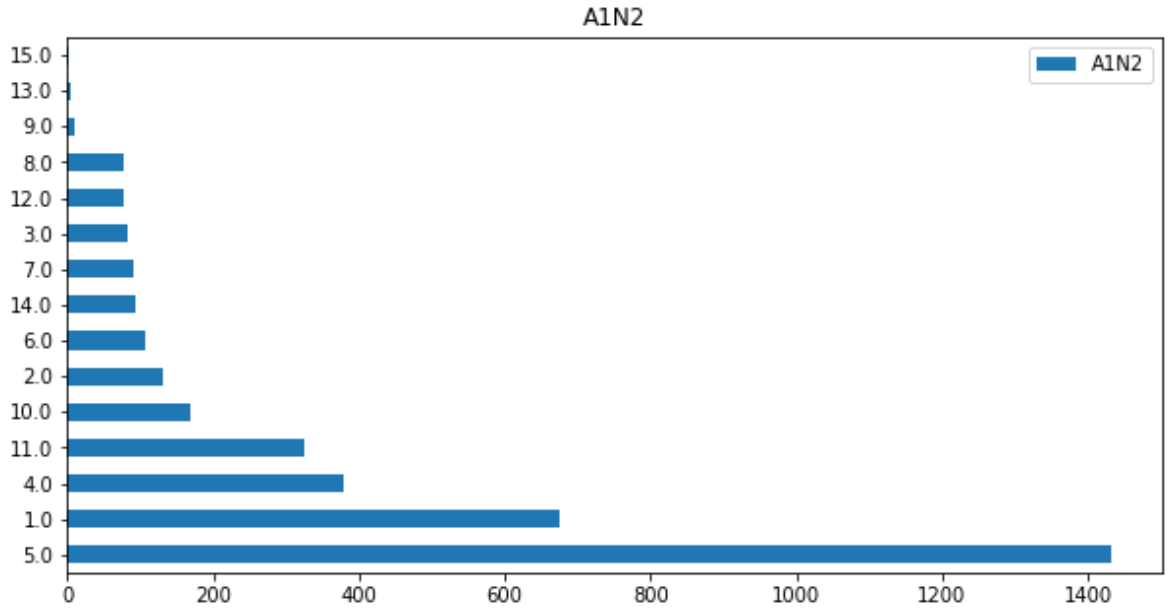
```
 'B5',
 'B9N1',
 'B9N2',
 'B9N3',
 'B9N4',
 'B9N5',
 'B9N6'
]
```

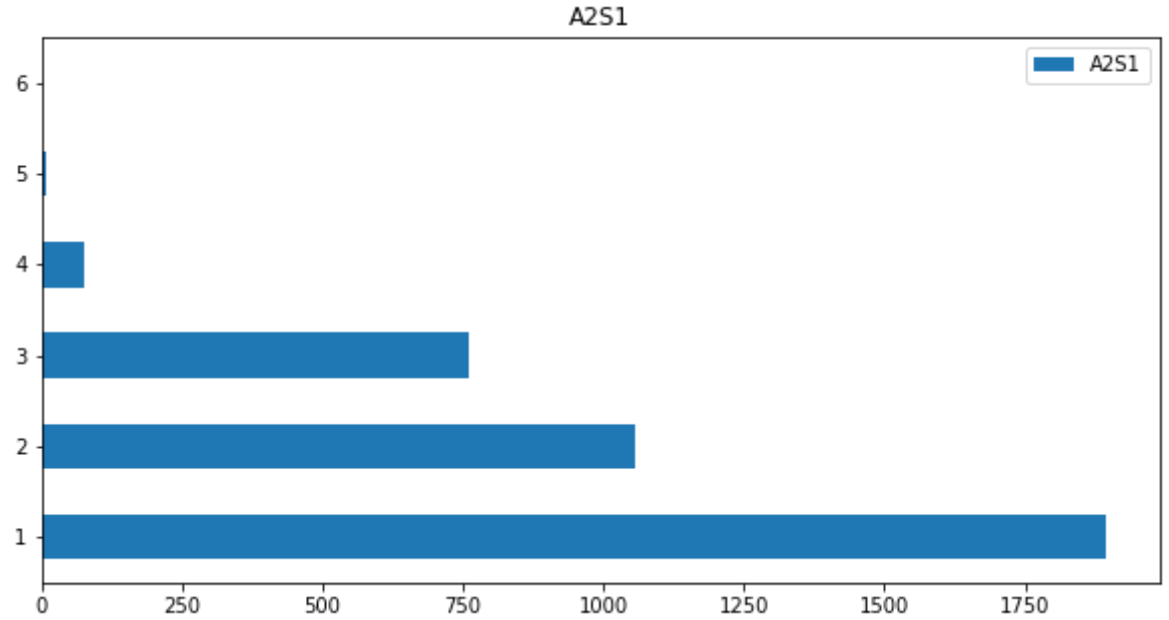
```
for i in list:
    bar_chart(i)
```

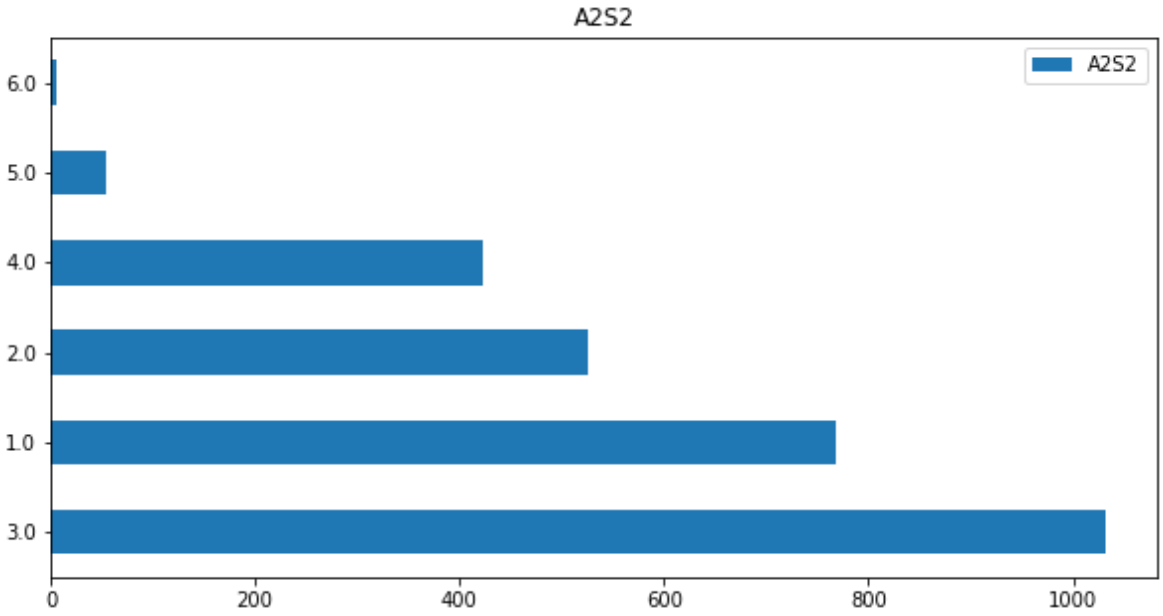


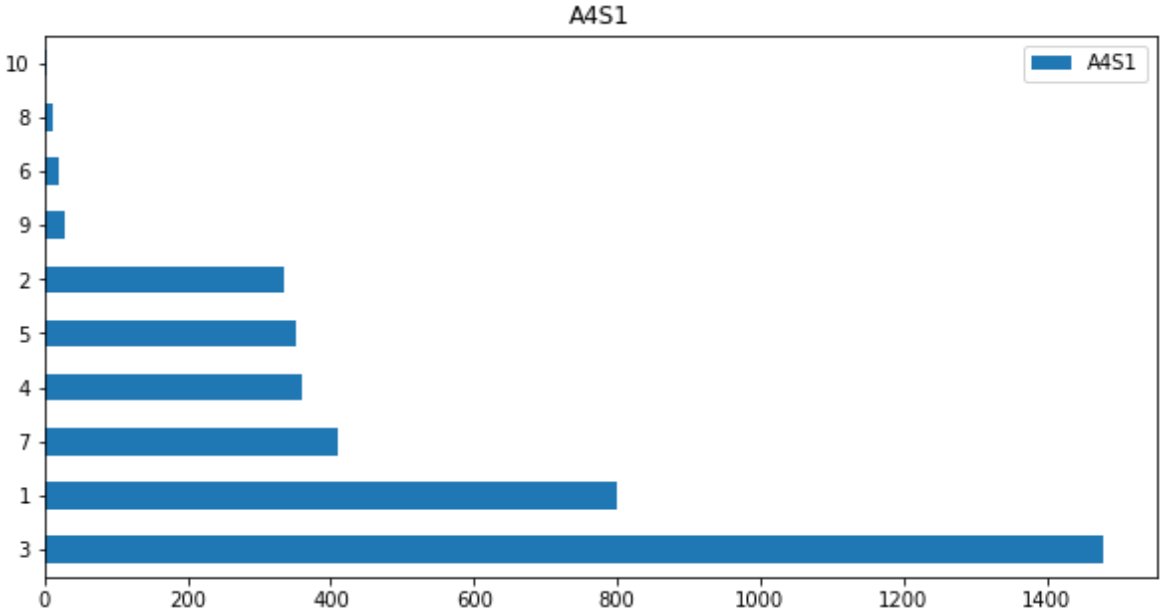


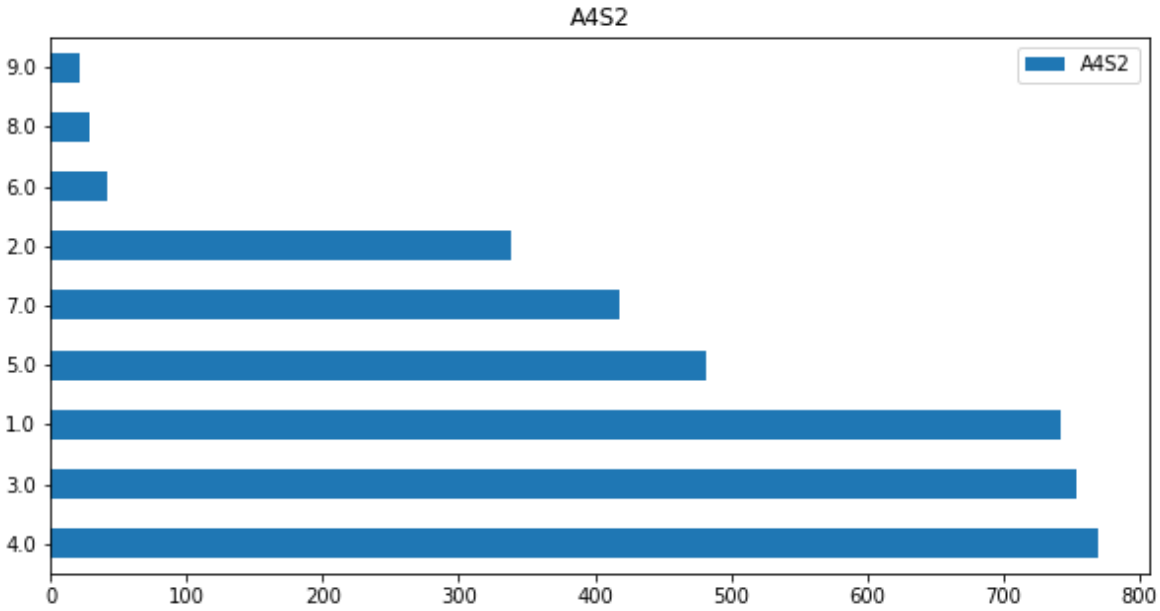

A1N1
A1N1
9
13
15
14
7
8
3
12
6
11
2
4
10
5
1
0
250
500
750
1000
1250
1500
1750

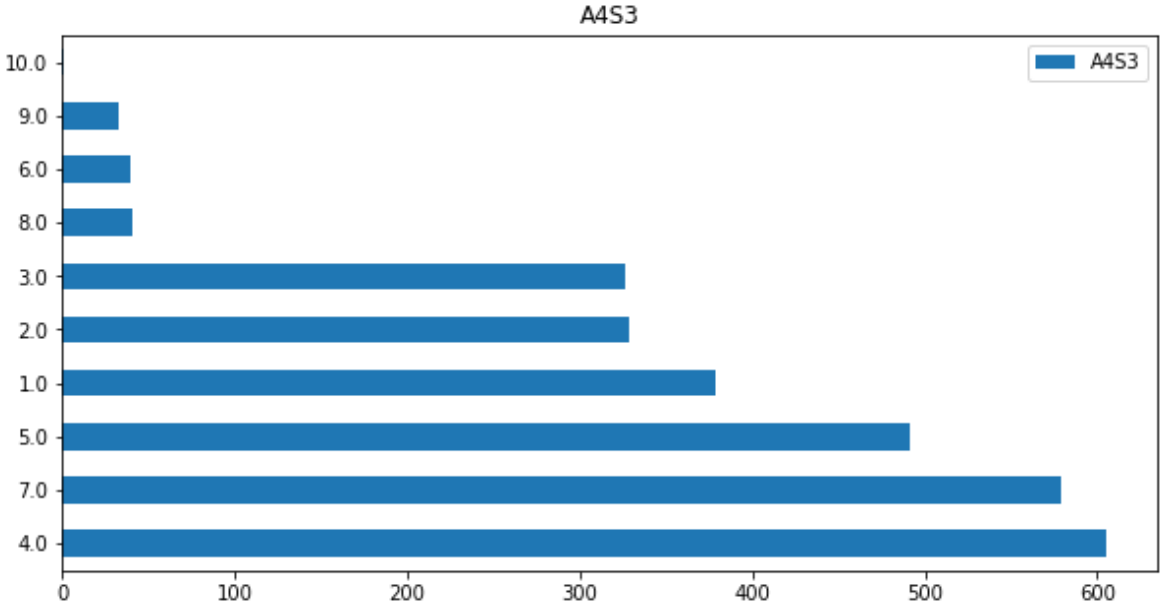

A1N2
A1N2
15.0
13.0
9.0
8.0
12.0
3.0
7.0
14.0
6.0
2.0
10.0
11.0
4.0
1.0
5.0
0
200
400
600
800
1000
1200
1400

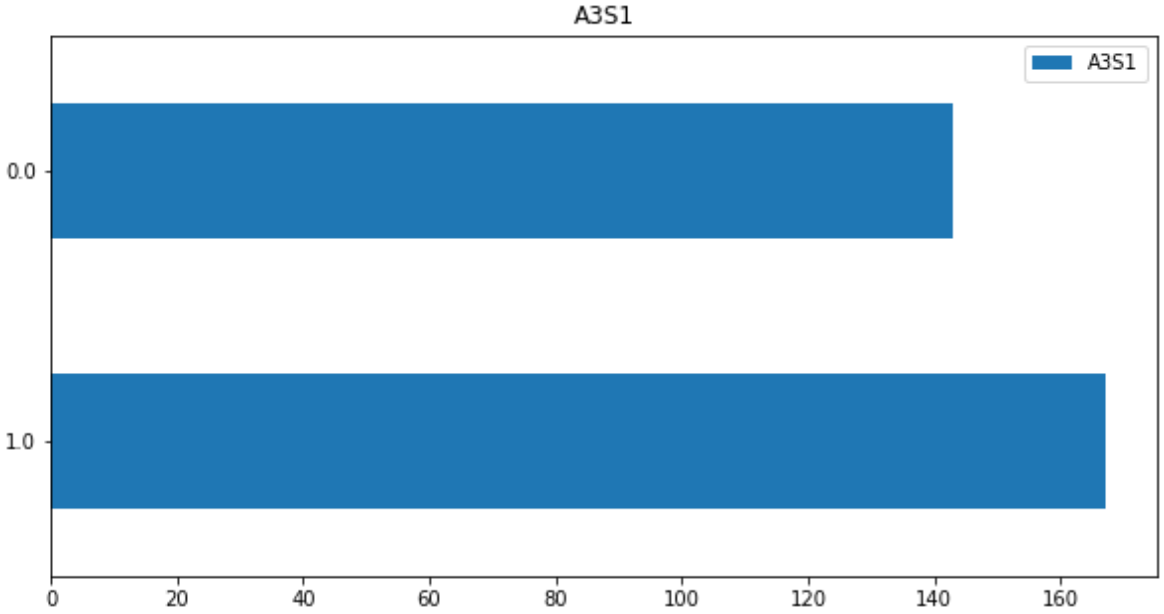

A2S1
A2S1
6
5
4
3
2
1
0
250
500
750
1000
1250
1500
1750

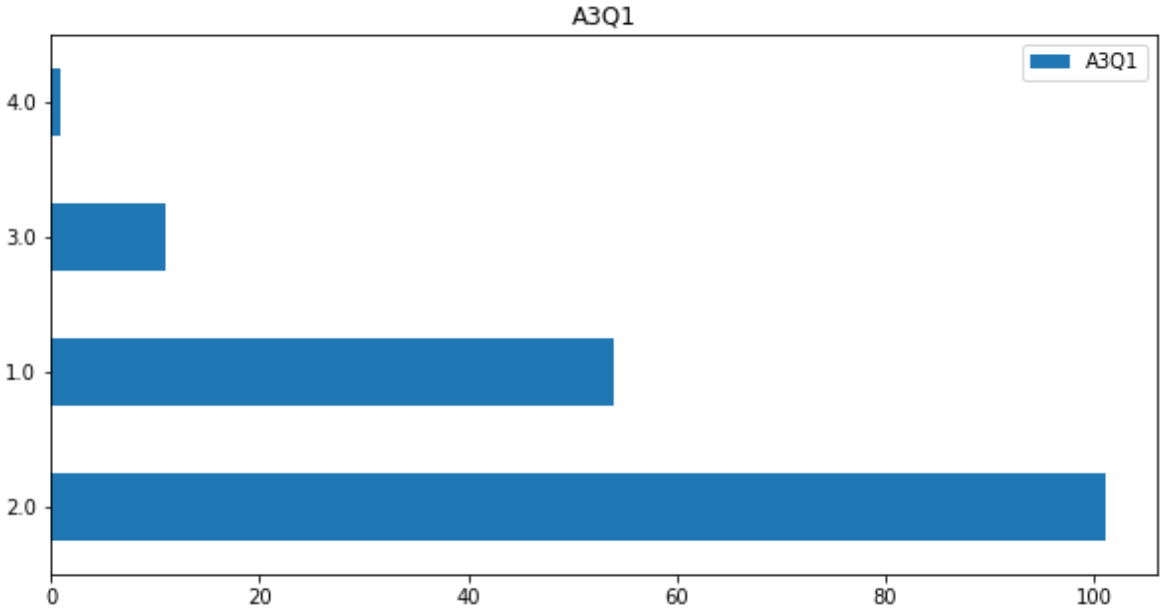

A2S2
A2S2
6.0
5.0
4.0
2.0
1.0
3.0
0
200
400
600
800
1000

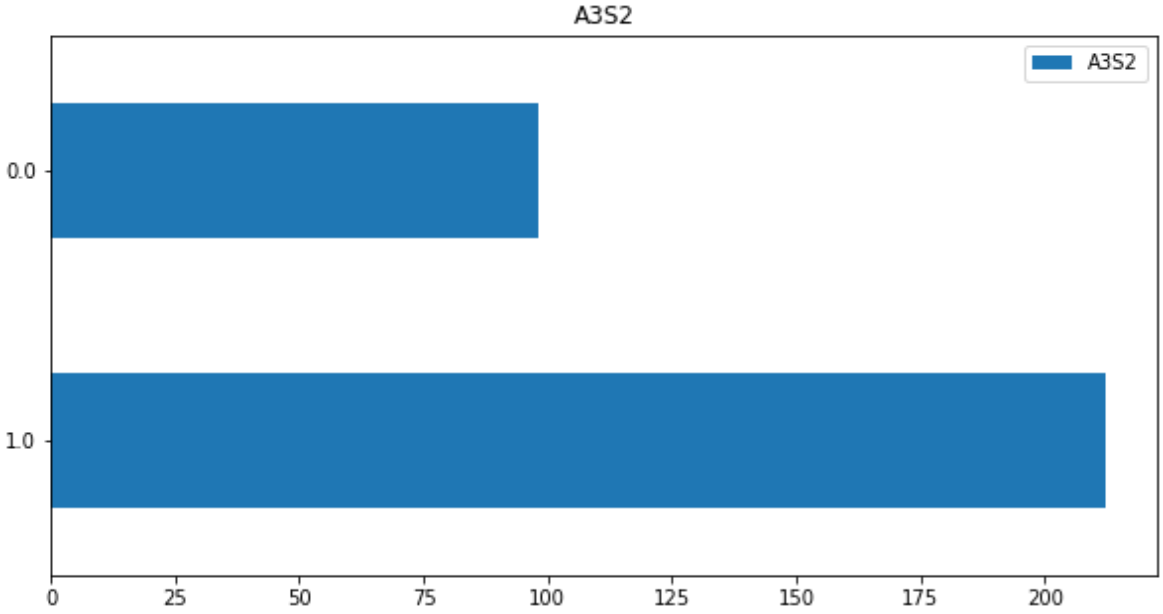

A4S1
A4S1
10
8
6
9
2
5
4
7
1
3
0
200
400
600
800
1000
1200
1400

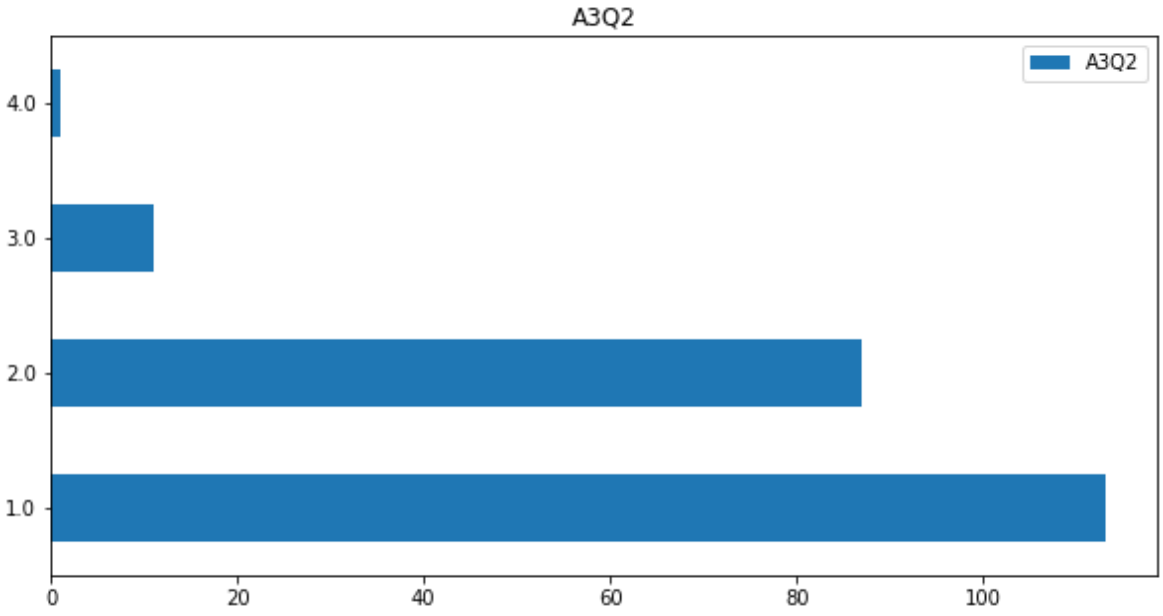

A4S2
A4S2
9.0
8.0
6.0
2.0
7.0
5.0
1.0
3.0
4.0
0
100
200
300
400
500
600
700
800

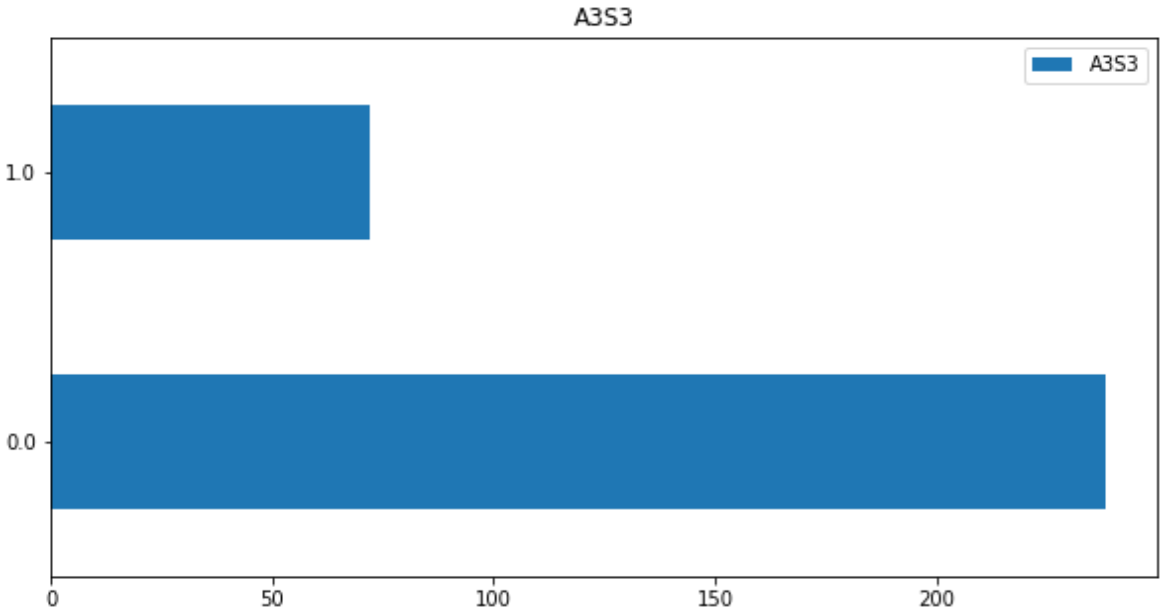

A4S3
A4S3
10.0
9.0
6.0
8.0
3.0
2.0
1.0
5.0
7.0
4.0
0
100
200
300
400
500
600

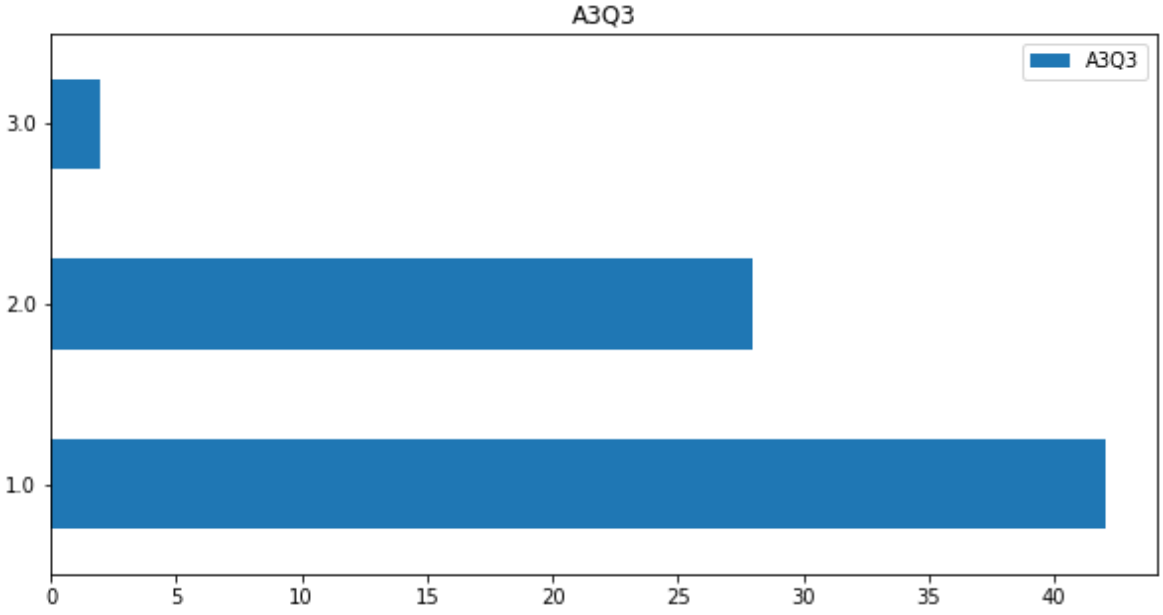

A3S1
A3S1
0.0
1.0
0
20
40
60
80
100
120
140
160

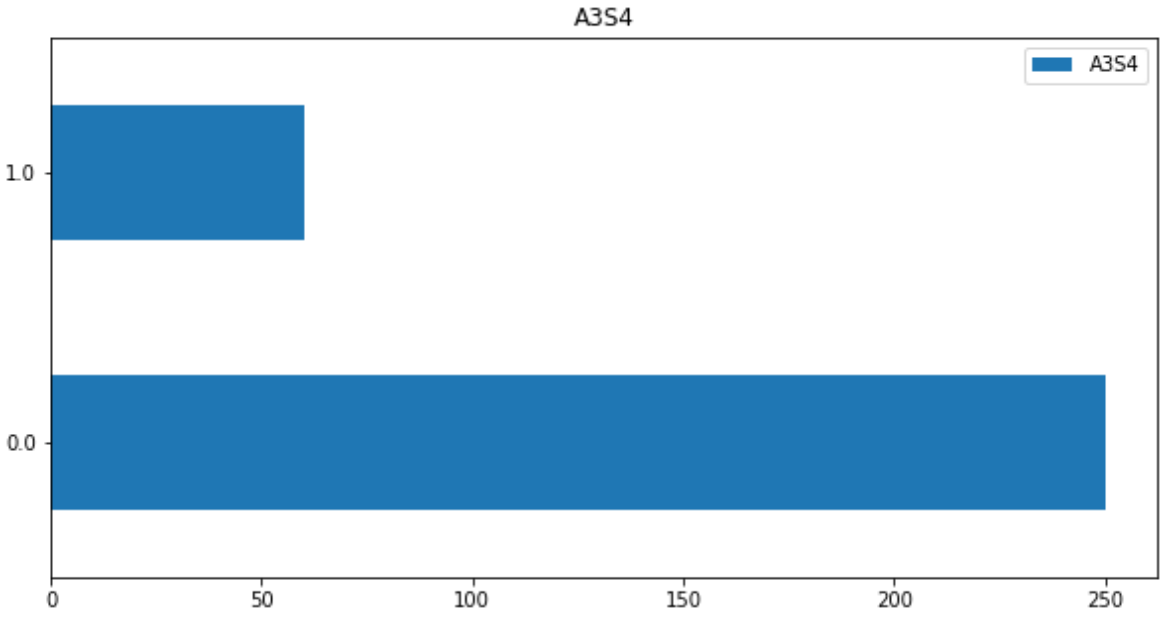

A3Q1
A3Q1
4.0
3.0
1.0
2.0
0
20
40
60
80
100

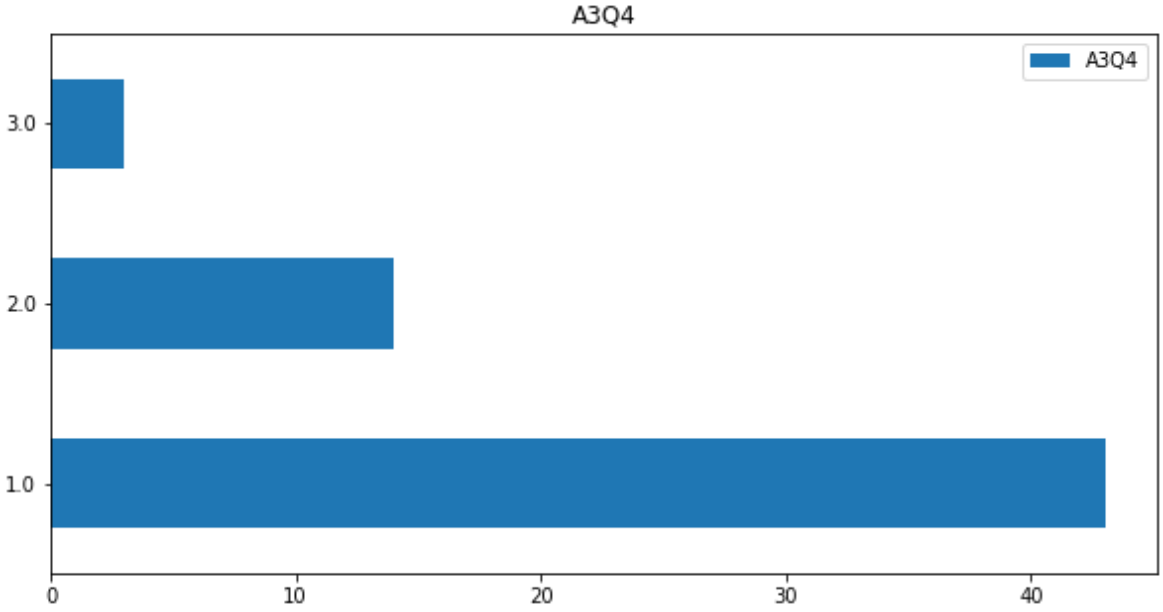

A3S2
A3S2
0.0
1.0
0
25
50
75
100
125
150
175
200

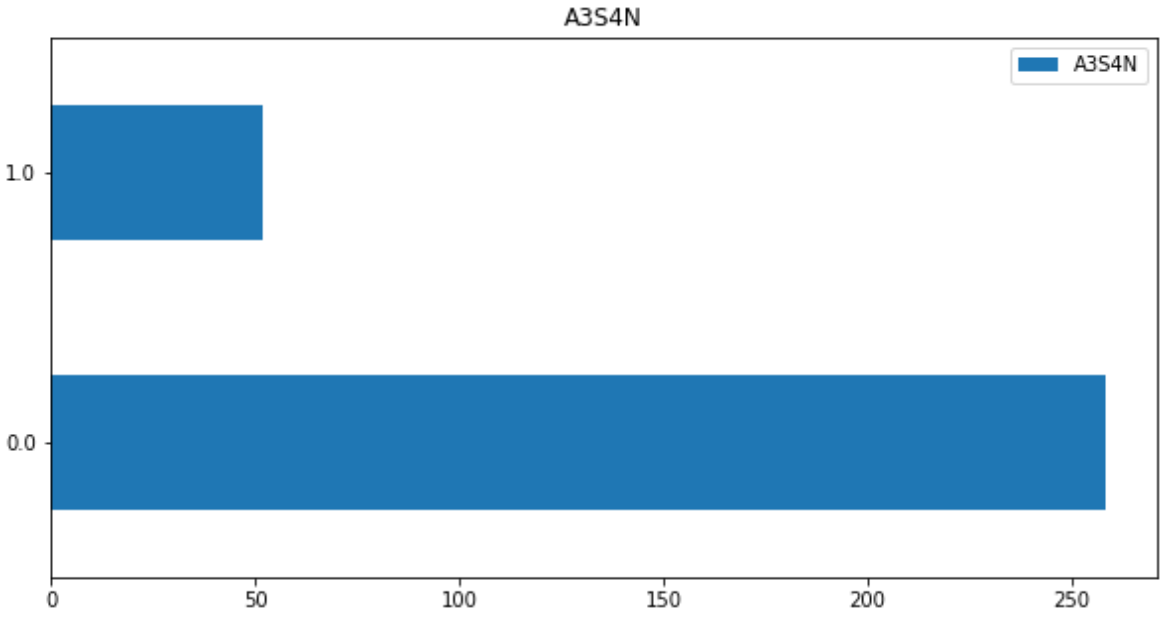

A3Q2
A3Q2
4.0
3.0
2.0
1.0
0
20
40
60
80
100

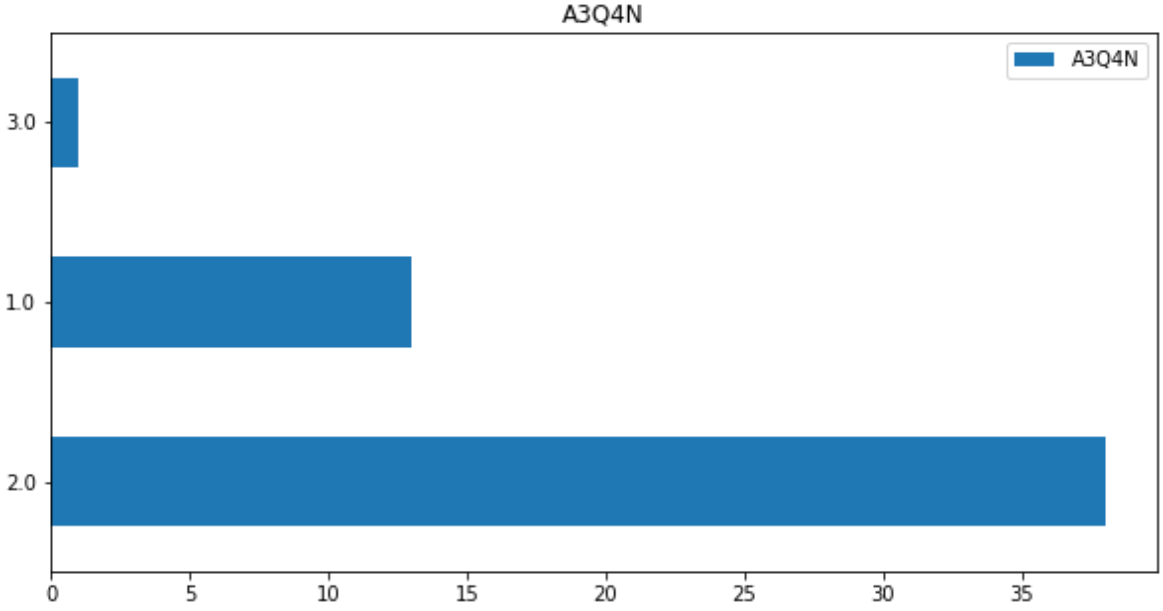

A3S3
A3S3
1.0
0.0
0
50
100
150
200


A3Q3
A3Q3
3.0
2.0
1.0
0
5
10
15
20
25
30
35
40


A3S4
A3S4
1.0
0.0
0
50
100
150
200
250


A3Q4
A3Q4
3.0
2.0
1.0
0
10
20
30
40


A3S4N
A3S4N
1.0
0.0
0
50
100
150
200
250


A3Q4N
A3Q4N
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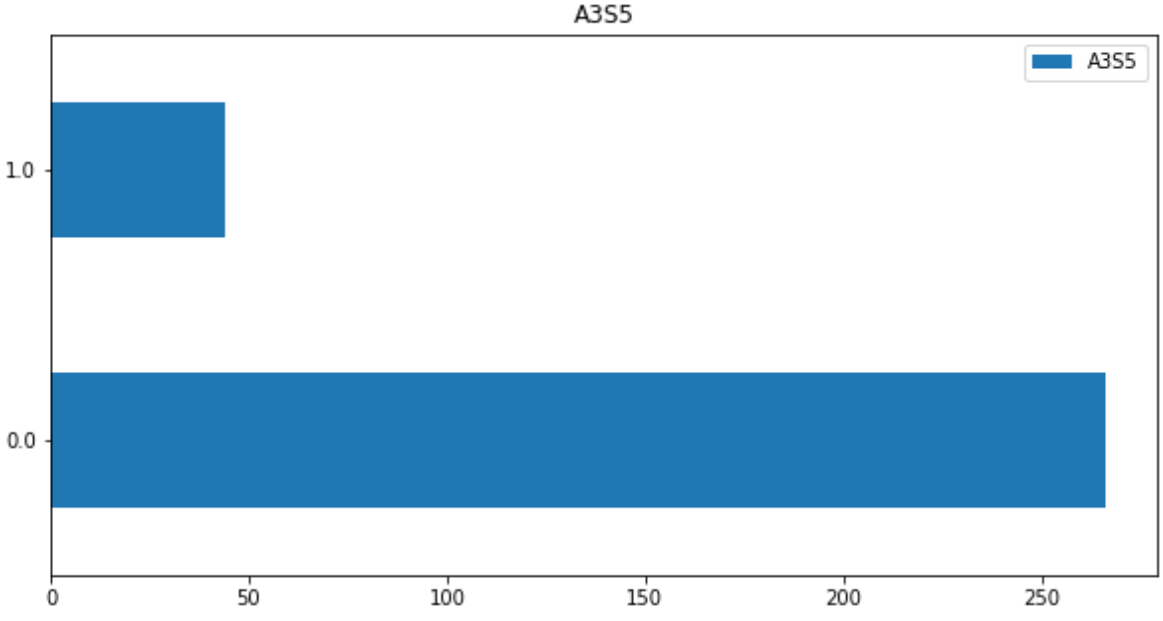
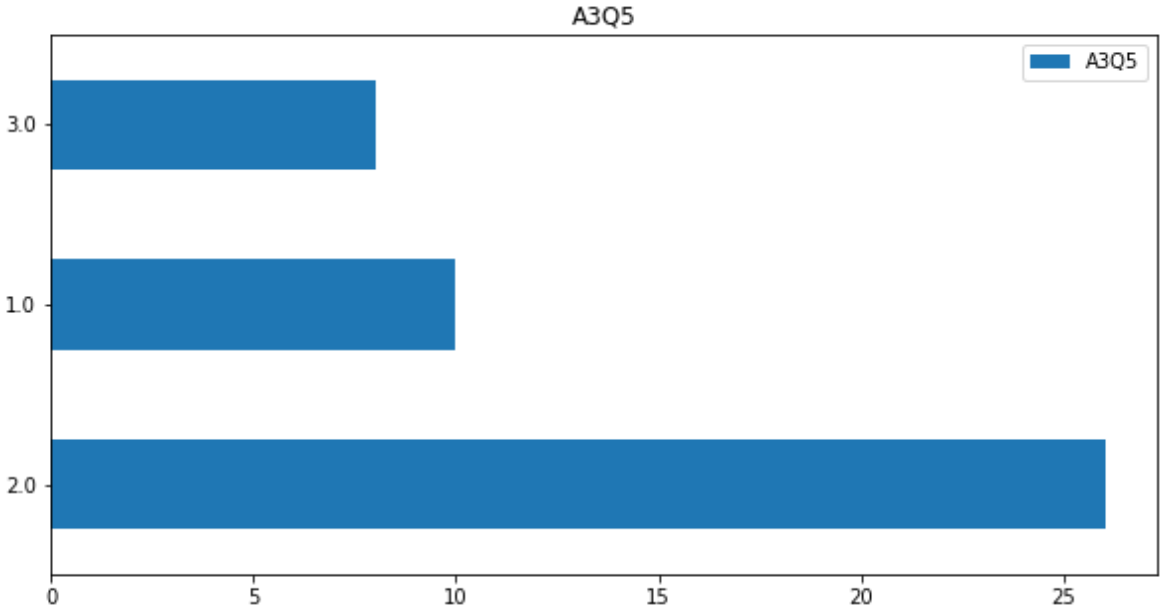
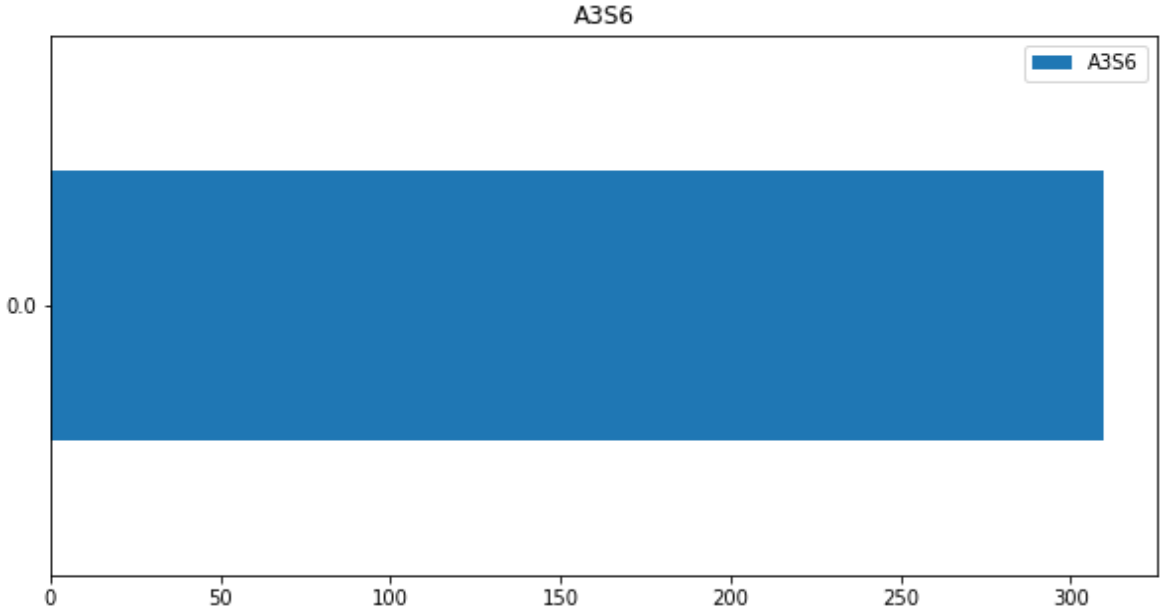
1.0
2.0
0
5
10
15
20
25
30
35


A3S5
A3S5
1.0
0.0
0
50
100
150
200
250


A3Q5
A3Q5
3.0
1.0
2.0
0
5
10
15
20
25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A3S6
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0
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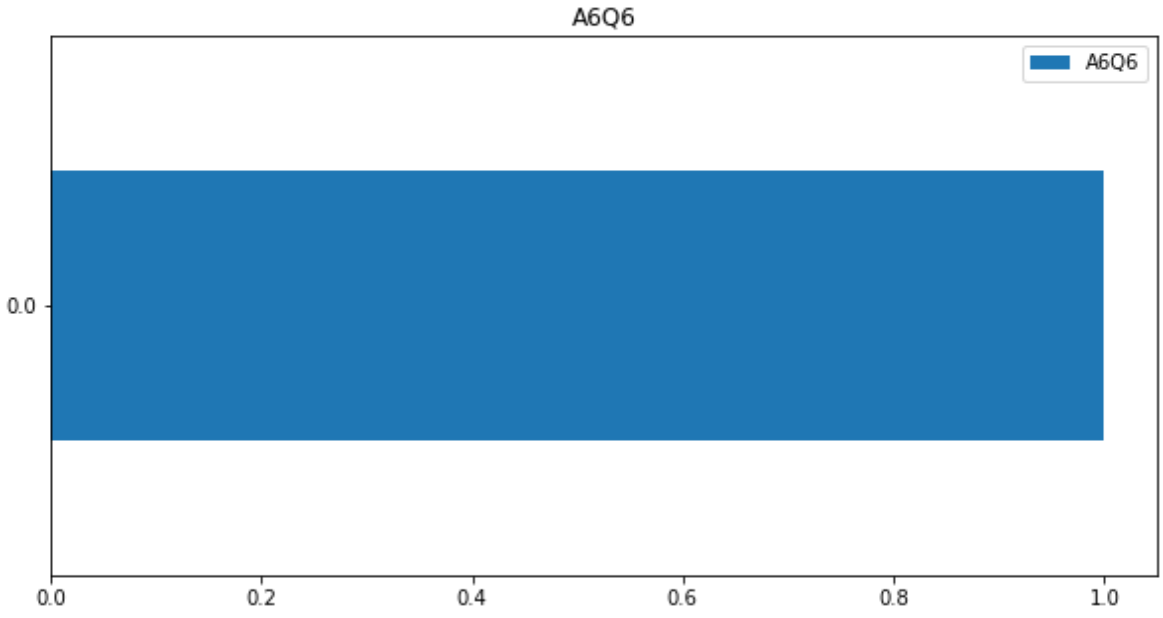
100
150
200
250
300


A6Q6
A6Q6
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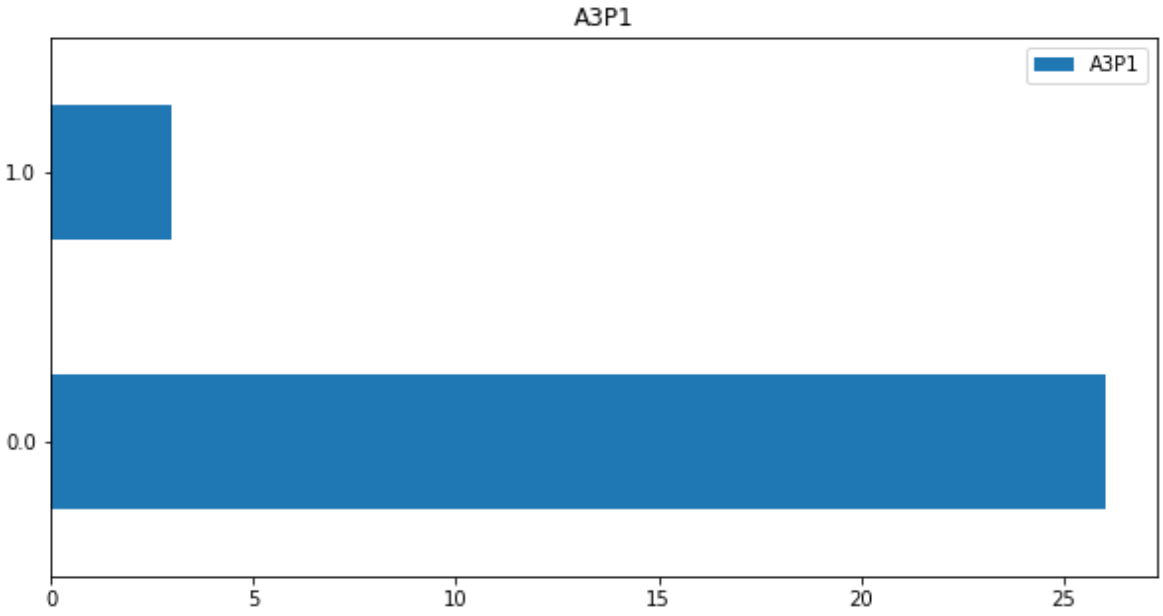
0.0
0.2
0.4
0.6
0.8
1.0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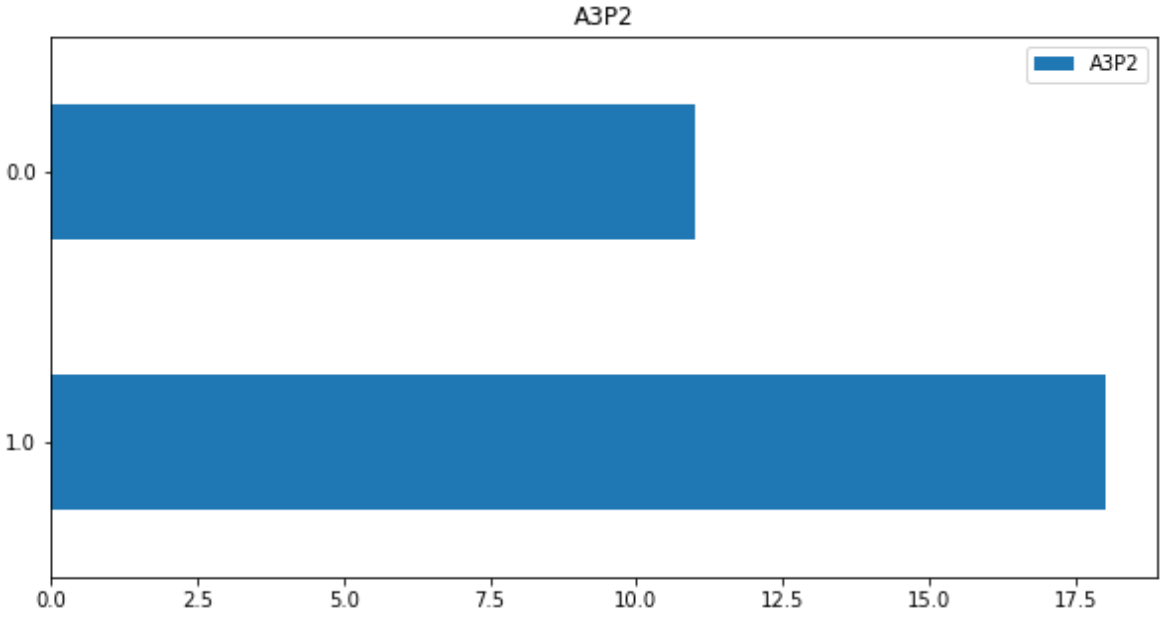
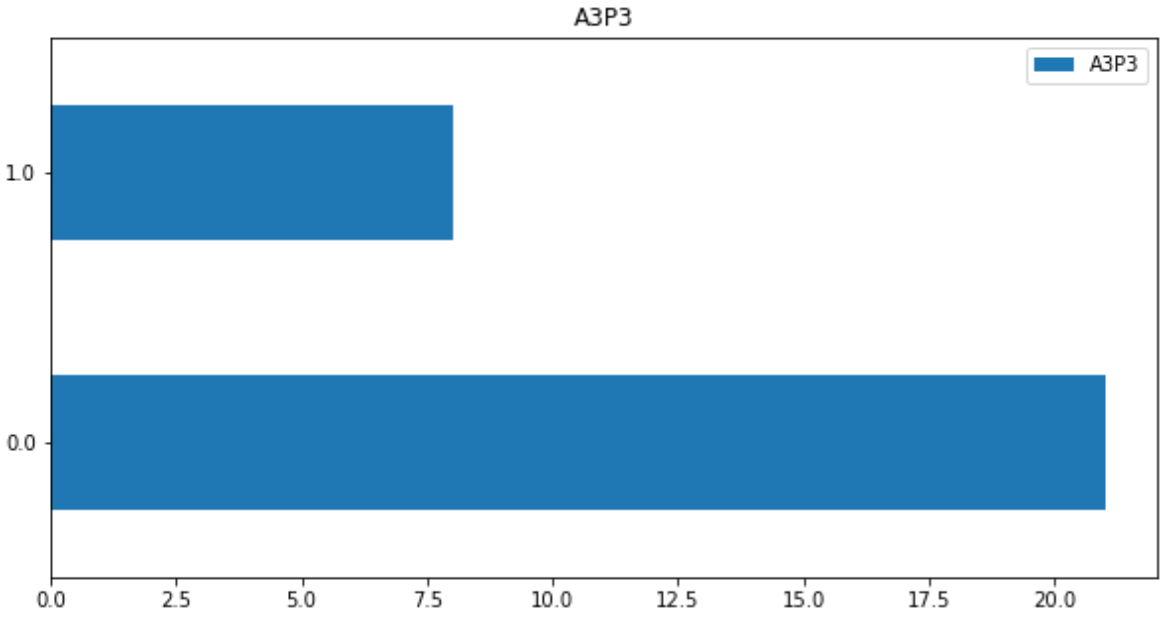
A3P1
1.0
0.0
0
5
10
15
20
25


A3P2
A3P2
0.0
1.0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5


A3P3
A3P3
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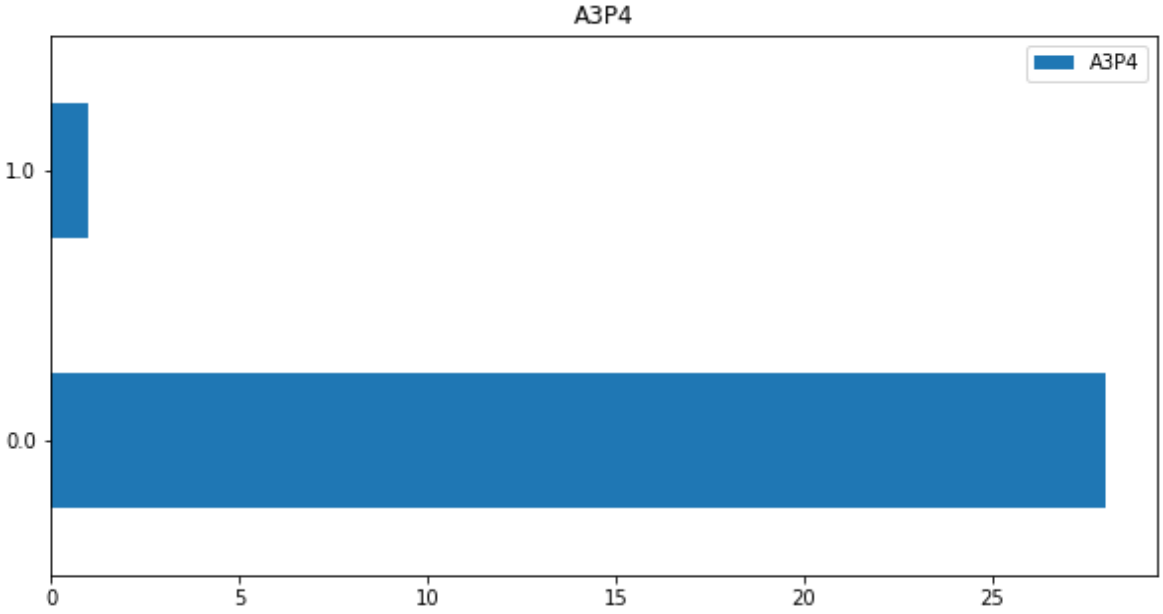
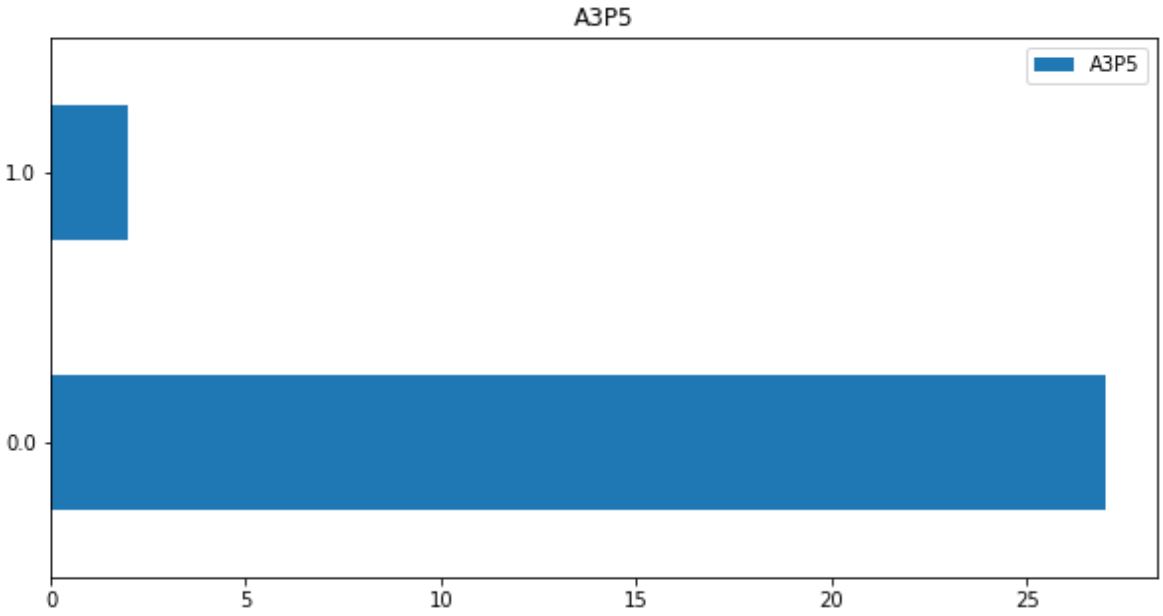
0.0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


A3P4
A3P4
1.0
0.0
0
5
10
15
20
25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A3P5
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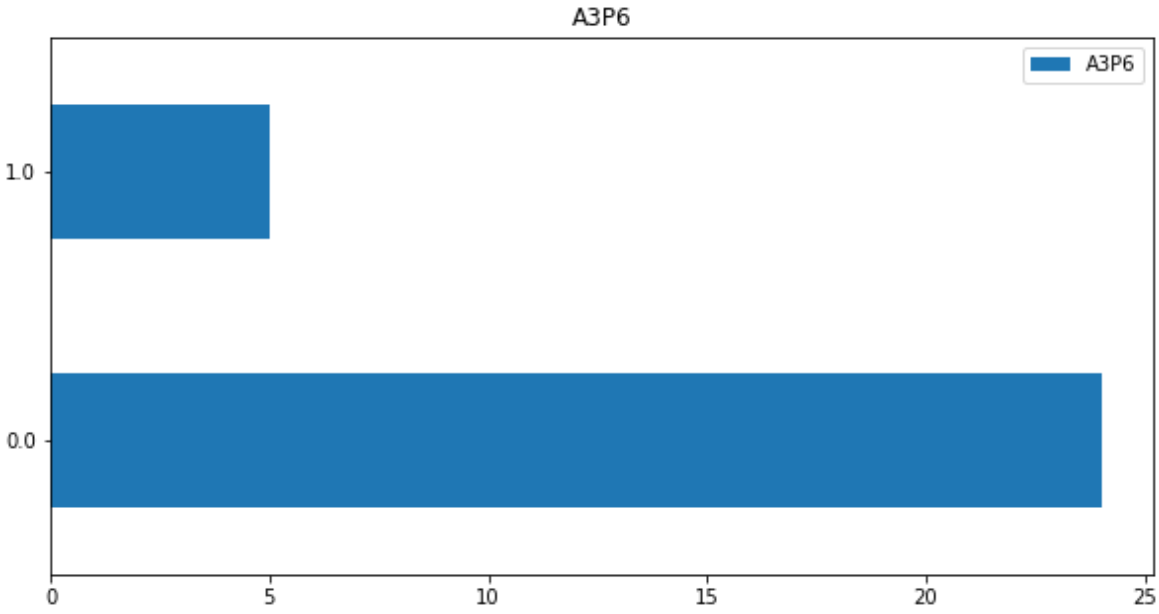
10
15
20
25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A3P6
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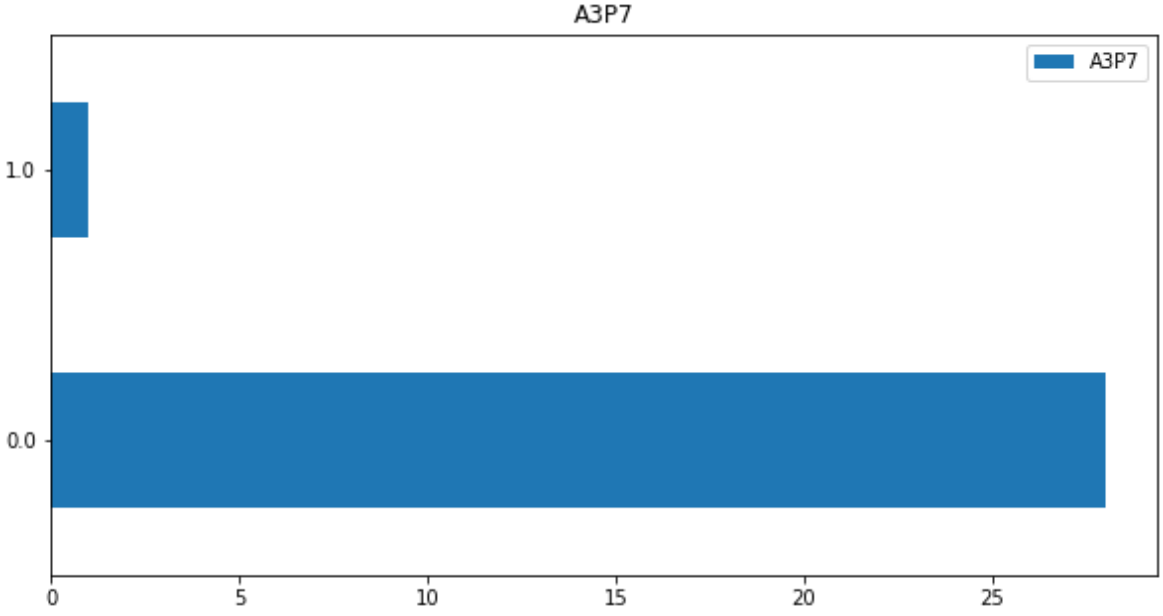
0.0
0
5
10
15
20
25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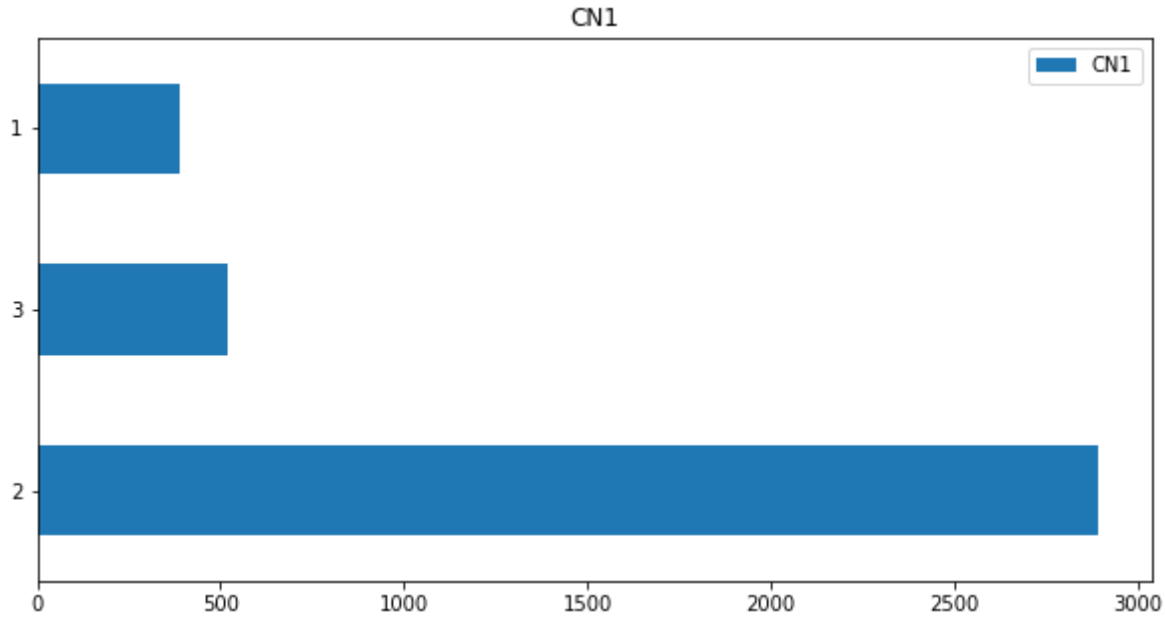
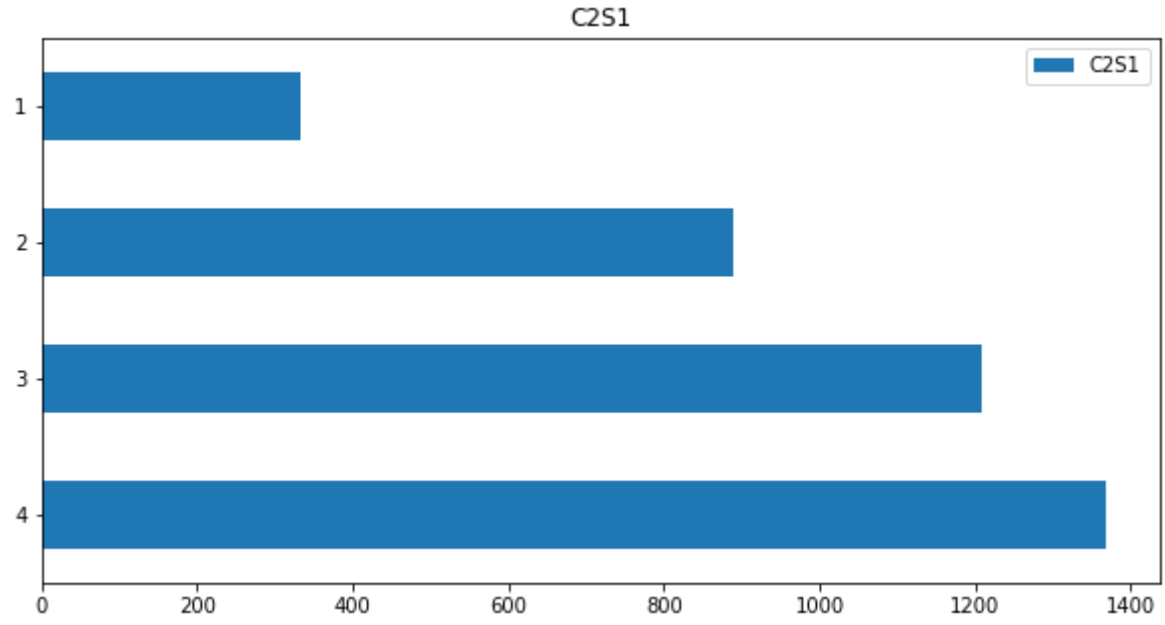
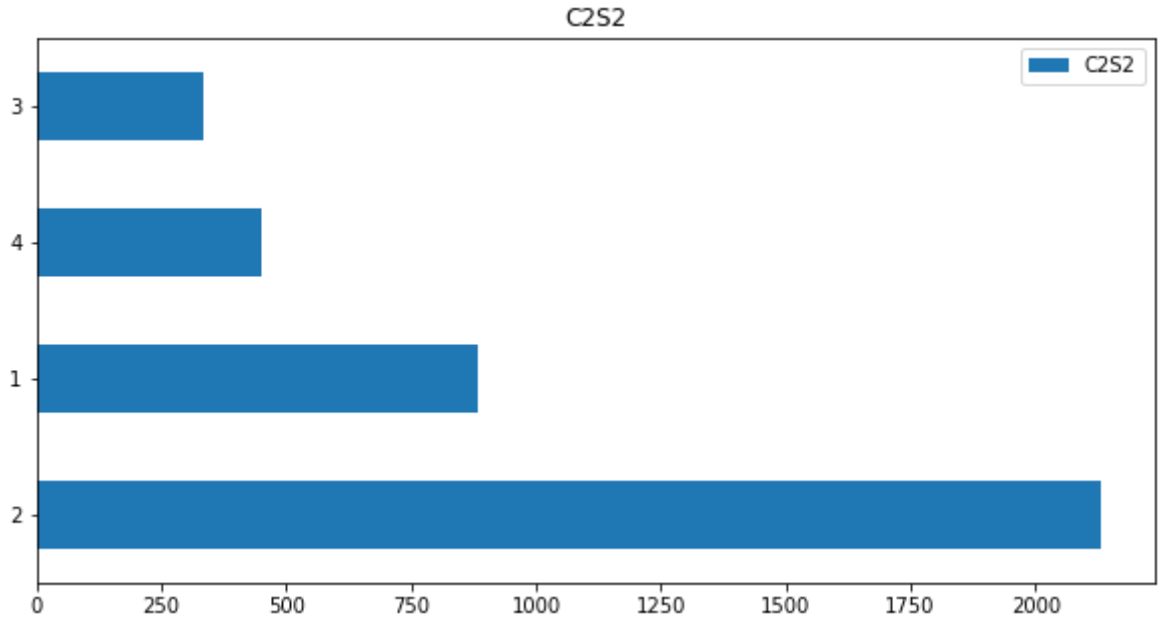
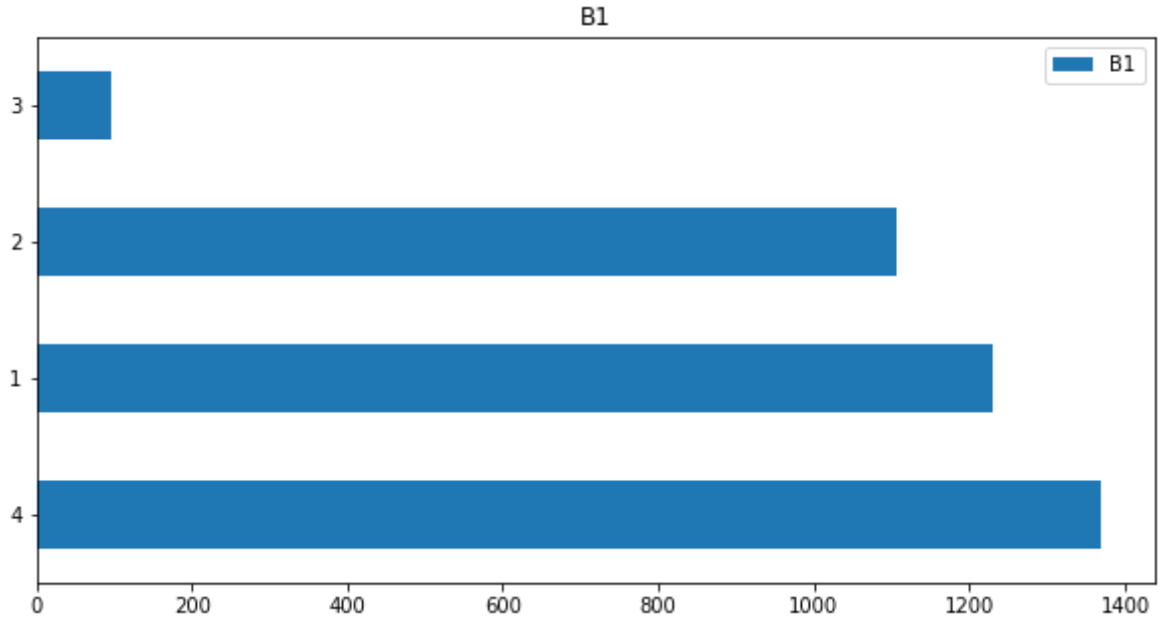
A3P7
1.0
0.0
0
5
10
15
20
25


CN1
CN1
1
3
2
0
500
1000
1500
2000
2500
3000


C2S1
C2S1
1
2
3
4
0
200
400
600
800
1000
1200
1400


C2S2
C2S2
3
4
1
2
0
250
500
750
1000
1250
1500
1750
2000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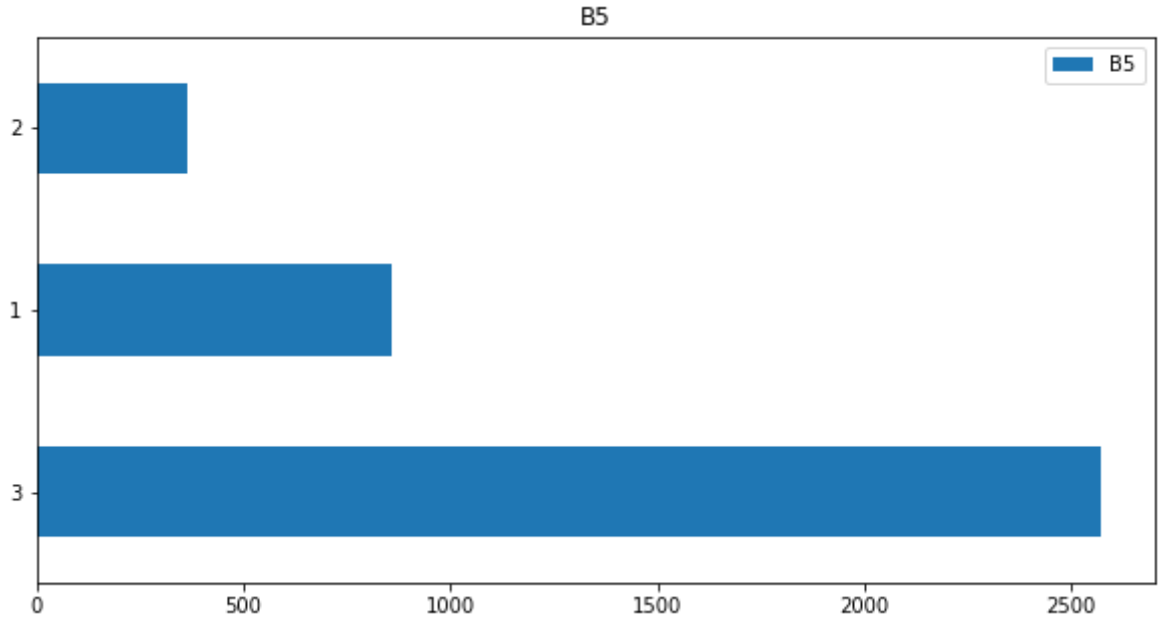
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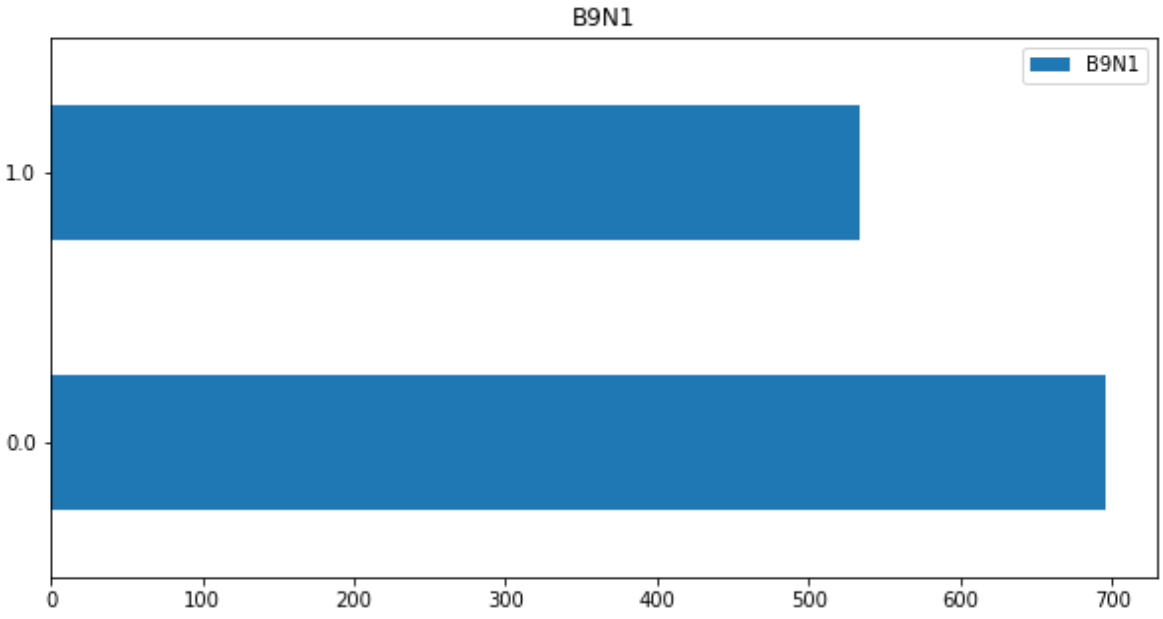
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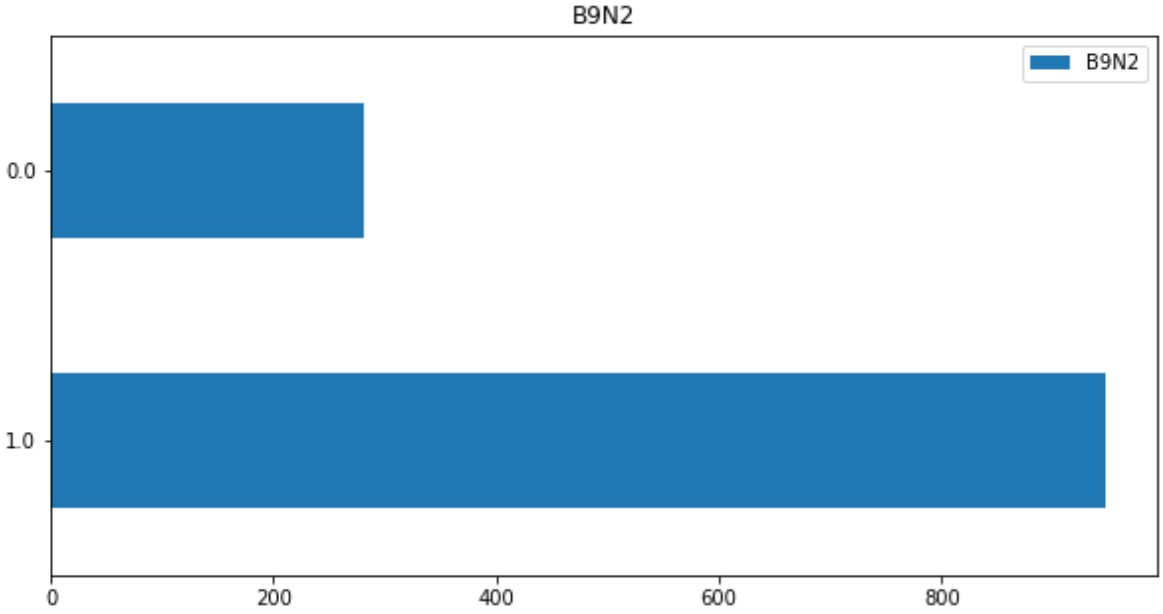
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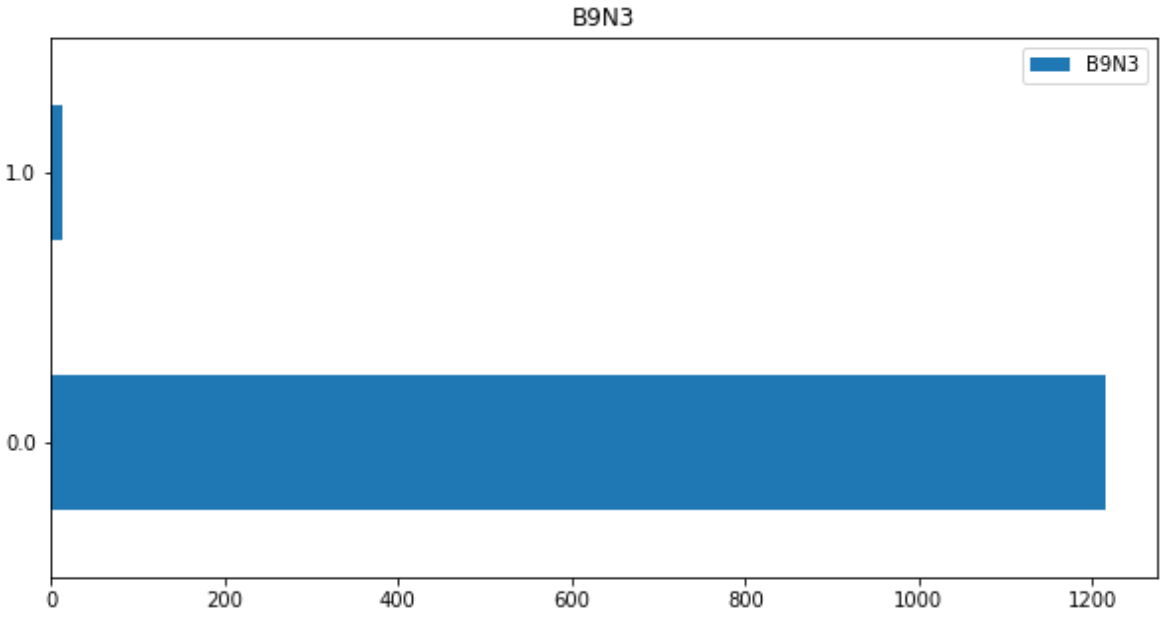
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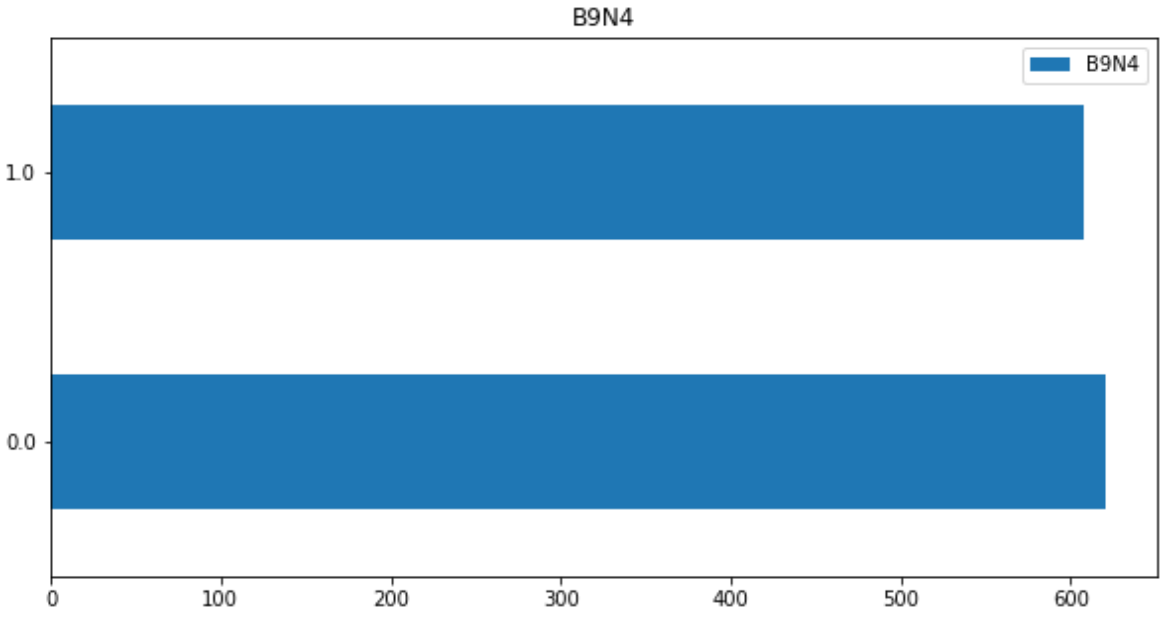
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B9N4
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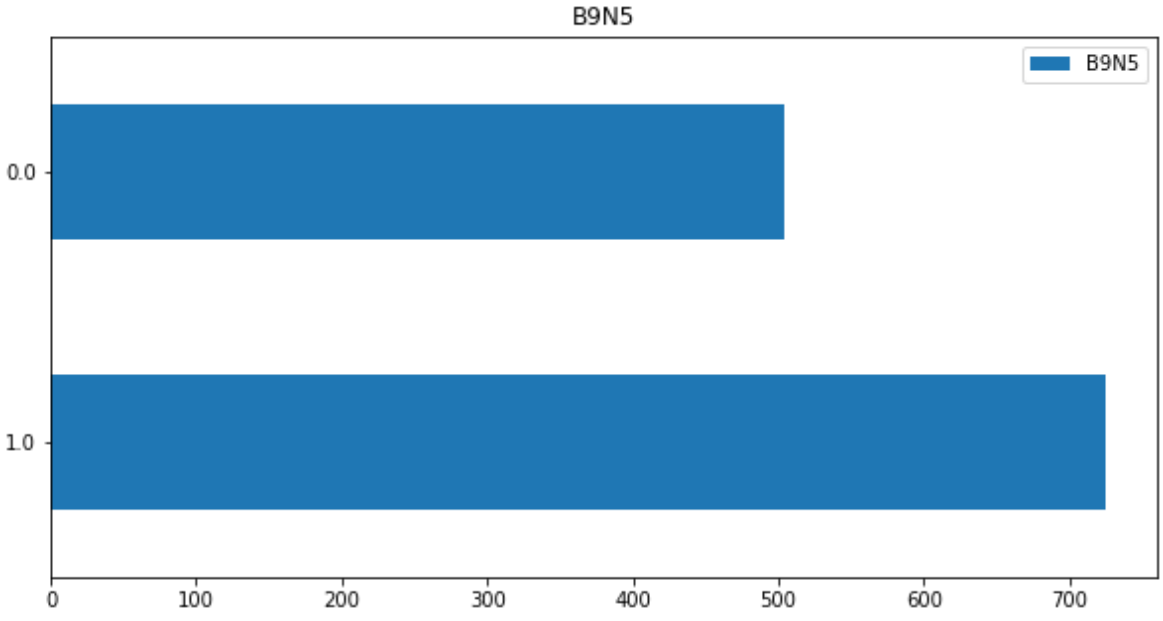
600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B9N5
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1.0
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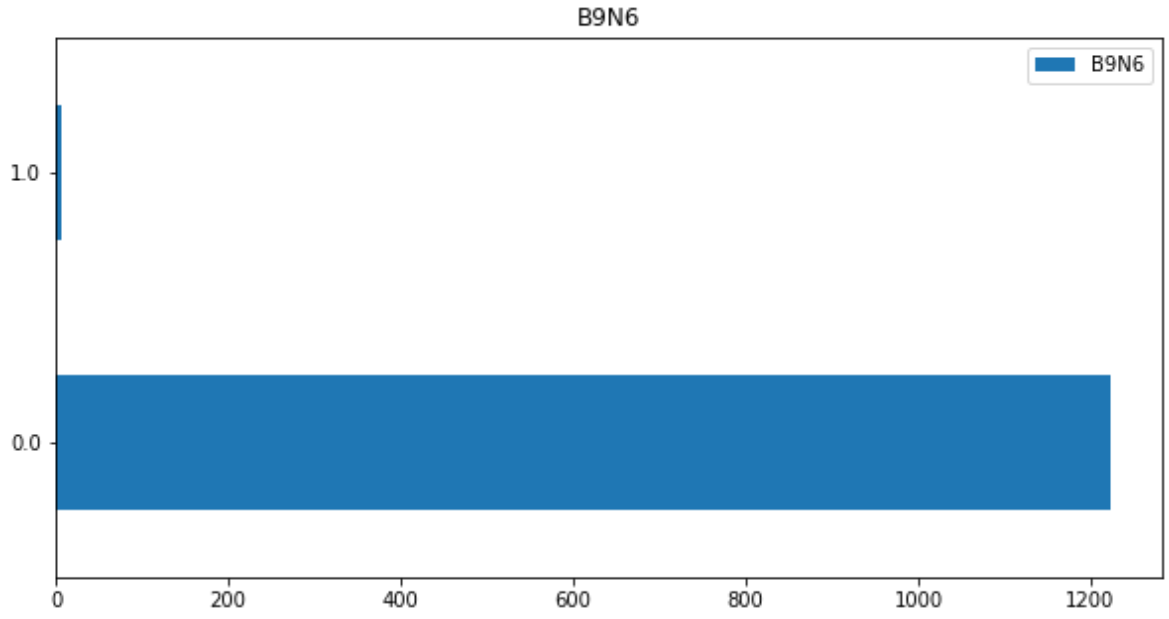
400
500
600
700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B9N6
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800
1000
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