

# q2报告

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## 步骤

### 1. 读取所需的数据

```
1 df_plu = pd.read_csv("../q1/sldatetime_pluno.csv", index_col=0)
2 df_plu
```

### 2. 做出商品与品牌的一一对应字典

```
1 bnd_dict =
  df[["pluno", "bndno"]].drop_duplicates().reset_index(drop=True).set_index("pluno")
  .T.to_dict()
```

### 3. 添加工作日判断

```
1 for i in range(df.shape[0]):
2     df.loc[i, "isweekday"] = not (df.index[i]%7==5 or df.index[i]%7==6)
```

### 4. 生成特征工程1

```
1 feature1 = pd.DataFrame(columns=
  ['sldatetime', 'pluno', 'bndno', 'kind1', 'kind2', 'kind3', 'kind4', 'qty', 'isweekda
  y', 'qty1', 'qty2', 'qty3', 'qty4', 'qty5', 'qty6', 'qty7'])
2 feature1
3
4 for i in plu_list:
5     plu=df[df['pluno'].isin([i])]
6     for day in range(1,8):
7         d_sales = 'qty' + str(day)
8         plu[d_sales] = plu['qty'].shift(day)
9     feature1 = feature1.append(plu, ignore_index=True)
10 feature1 = feature1.fillna(0)
11 feature1
```

### 5. 生成特征工程2

```
1 for i in plu_list:
2     print(i)
3     plu=df[df['pluno'].isin([i])]
4     for day in range(1,8):
5         d_sales = 'bndqty' + str(day)
6         bnd = bndqty_df[bndqty_df['bndno']==bnd_dict.get(i)['bndno']]
7         plu[d_sales] = bnd['qty'].shift(day)
8     feature2 = feature2.append(plu, ignore_index=True)
9 feature2 = feature2.fillna(0)
```

```

10 feature2
11
12
13 # In[441]:
14
15
16 feature2 = feature2.drop(["isweekday", "kind1", "kind2", "kind3", "kind4"], axis
= 1)

```

## 6. 生成特征工程3

```

1 for i in plu_list:
2     print(i)
3     plu=df[df['pluno'].isin([i])]
4     for day in range(1,8):
5         d_sales = 'kind1qty' + str(day)
6         kind1 = kind1_df[kind1_df['kind1']==int(i/1000000)]
7         plu[d_sales] = kind1['qty'].shift(day)
8     for day in range(1,8):
9         d_sales = 'kind2qty' + str(day)
10        kind2 = kind2_df[kind2_df['kind2']==int(i/100000)]
11        plu[d_sales] = kind2['qty'].shift(day)
12    for day in range(1,8):
13        d_sales = 'kind3qty' + str(day)
14        kind3 = kind3_df[kind3_df['kind3']==int(i/10000)]
15        plu[d_sales] = kind3['qty'].shift(day)
16    for day in range(1,8):
17        d_sales = 'kind4qty' + str(day)
18        kind4 = kind4_df[kind4_df['kind4']==int(i/1000)]
19        plu[d_sales] = kind4['qty'].shift(day)
20    feature3 = feature3.append(plu, ignore_index=True)
21 feature3 = feature3.fillna(0)
22 feature3

```

## 7. 生成特征工程4

```

1 s4 = pd.DataFrame(columns=
2     ['sldatetime', 'pluno', 'bndno', 'kind1', 'kind2', 'kind3', 'kind4', 'qty', 'isweekda
3     y', 'qty8', 'qty9', 'qty10', 'qty11', 'qty12', 'qty13', 'qty14', 'qty15', 'qty16', 'q
4     ty17', 'qty18', 'qty19', 'qty20', 'qty21', 'qty22', 'qty23', 'qty24', 'qty25', 'qty2
5     6', 'qty27', 'qty28'])
6
7 # In[422]:
8
9
10 for i in plu_list:
11     print(i)
12     plu=df[df['pluno'].isin([i])]
13     for day in range(8,29):
14         d_sales = 'qty' + str(day)
15         plu[d_sales] = plu['qty'].shift(day)
16     s4 = s4.append(plu, ignore_index=True)
17 s4 = s4.fillna(0)
18 s4 = s4.drop(['bndno', 'kind1', 'kind2', 'kind3', 'kind4', 'isweekday'], axis =
19 1)

```

```

16 s4
17
18
19 # In[427]:
20
21
22 s4 = s4.drop_duplicates().reset_index(drop=True)
23
24
25 # In[429]:
26
27
28 feature4 = pd.DataFrame(columns=
["sldatetime", "pluno", "qty", "week2AvgQty", "week2MaxQty", "week2MinQty", "week3A
vgQty", "week3MaxQty", "week3MinQty", "week4AvgQty", "week4MaxQty", "week4MinQty
"])
29
30
31 # In[431]:
32
33
34 for i in range(s4.shape[0]):
35     feature4.loc[i] =
[s4.loc[i, 'sldatetime'], s4.loc[i, 'pluno'], s4.loc[i, "qty"], np.mean([s4.loc[i, "
qty8"], s4.loc[i, "qty9"], s4.loc[i, "qty10"], s4.loc[i, "qty11"], s4.loc[i, "qty12
"], s4.loc[i, "qty13"], s4.loc[i, "qty14"]]), np.max([s4.loc[i, "qty8"], s4.loc[i,
"qty9"], s4.loc[i, "qty10"], s4.loc[i, "qty11"], s4.loc[i, "qty12"], s4.loc[i, "qty
13"], s4.loc[i, "qty14"]]), np.min([s4.loc[i, "qty8"], s4.loc[i, "qty9"], s4.loc[i
, "qty10"], s4.loc[i, "qty11"], s4.loc[i, "qty12"], s4.loc[i, "qty13"], s4.loc[i, "q
ty14"]]), np.mean([s4.loc[i, "qty15"], s4.loc[i, "qty16"], s4.loc[i, "qty17"], s4.
loc[i, "qty18"], s4.loc[i, "qty19"], s4.loc[i, "qty20"], s4.loc[i, "qty21"]]), np.m
ax([s4.loc[i, "qty15"], s4.loc[i, "qty16"], s4.loc[i, "qty17"], s4.loc[i, "qty18"]
, s4.loc[i, "qty19"], s4.loc[i, "qty20"], s4.loc[i, "qty21"]]), np.min([s4.loc[i, "
qty15"], s4.loc[i, "qty16"], s4.loc[i, "qty17"], s4.loc[i, "qty18"], s4.loc[i, "qty
19"], s4.loc[i, "qty20"], s4.loc[i, "qty21"]]), np.mean([s4.loc[i, "qty22"], s4.lo
c[i, "qty23"], s4.loc[i, "qty24"], s4.loc[i, "qty25"], s4.loc[i, "qty26"], s4.loc[i
, "qty27"], s4.loc[i, "qty28"]]), np.max([s4.loc[i, "qty22"], s4.loc[i, "qty23"], s
4.loc[i, "qty24"], s4.loc[i, "qty25"], s4.loc[i, "qty26"], s4.loc[i, "qty27"], s4.l
oc[i, "qty28"]]), np.min([s4.loc[i, "qty22"], s4.loc[i, "qty23"], s4.loc[i, "qty24
"], s4.loc[i, "qty25"], s4.loc[i, "qty26"], s4.loc[i, "qty27"], s4.loc[i, "qty28"]
])]
36     print(i)
37 feature4

```

## 8. 生成特征工程5

```

1 s5 = pd.DataFrame(columns=
["sldatetime", "pluno", "bndno", "kind1", "kind2", "kind3", "kind4", "qty", "isweekda
y", "bndqty8", "bndqty9", "bndqty10", "bndqty11", "bndqty12", "bndqty13", "bndqty1
4", "bndqty15", "bndqty16", "bndqty17", "bndqty18", "bndqty19", "bndqty20", "bndqt
y21", "bndqty22", "bndqty23", "bndqty24", "bndqty25", "bndqty26", "bndqty27", "bnd
qty28"])
2
3
4 # In[444]:
5
6

```

```

7  for i in plu_list:
8      print(i)
9      plu=df[df['pluno'].isin([i])]
10     for day in range(8,29):
11         d_sales = 'bndqty' + str(day)
12         bnd = bndqty_df[bndqty_df['bndno']==bnd_dict.get(i)['bndno']]
13         plu[d_sales] = bnd['qty'].shift(day)
14     s5 = s5.append(plu, ignore_index=True)
15 s5 = s5.fillna(0)
16 s5
17
18
19 # In[445]:
20
21
22 feature5 = pd.DataFrame(columns=
["sldatetime", "pluno", "qty", "week2AvgBndQty", "week2MaxBndQty", "week2MinBndQty",
"week3AvgBndQty", "week3MaxBndQty", "week3MinBndQty", "week4AvgBndQty", "week
4MaxBndQty", "week4MinBndQty"])
23
24
25 # In[446]:
26
27
28 for i in range(s5.shape[0]):
29     feature5.loc[i] =
[s5.loc[i, 'sldatetime'], s5.loc[i, 'pluno'], s5.loc[i, 'qty'], np.mean([s5.loc[i, "
bndqty8"], s5.loc[i, "bndqty9"], s5.loc[i, "bndqty10"], s5.loc[i, "bndqty11"], s5.
loc[i, "bndqty12"], s5.loc[i, "bndqty13"], s5.loc[i, "bndqty14"]]), np.max([s5.lo
c[i, "bndqty8"], s5.loc[i, "bndqty9"], s5.loc[i, "bndqty10"], s5.loc[i, "bndqty11"
], s5.loc[i, "bndqty12"], s5.loc[i, "bndqty13"], s5.loc[i, "bndqty14"]]), np.min([
s5.loc[i, "bndqty8"], s5.loc[i, "bndqty9"], s5.loc[i, "bndqty10"], s5.loc[i, "bndq
ty11"], s5.loc[i, "bndqty12"], s5.loc[i, "bndqty13"], s5.loc[i, "bndqty14"]]), np.
mean([s5.loc[i, "bndqty15"], s5.loc[i, "bndqty16"], s5.loc[i, "bndqty17"], s5.loc
[i, "bndqty18"], s5.loc[i, "bndqty19"], s5.loc[i, "bndqty20"], s5.loc[i, "bndqty21
"]]), np.max([s5.loc[i, "bndqty15"], s5.loc[i, "bndqty16"], s5.loc[i, "bndqty17"]
, s5.loc[i, "bndqty18"], s5.loc[i, "bndqty19"], s5.loc[i, "bndqty20"], s5.loc[i, "b
ndqty21"]]), np.min([s5.loc[i, "bndqty15"], s5.loc[i, "bndqty16"], s5.loc[i, "bnd
qty17"], s5.loc[i, "bndqty18"], s5.loc[i, "bndqty19"], s5.loc[i, "bndqty20"], s5.l
oc[i, "bndqty21"]]), np.mean([s5.loc[i, "bndqty22"], s5.loc[i, "bndqty23"], s5.lo
c[i, "bndqty24"], s5.loc[i, "bndqty25"], s5.loc[i, "bndqty26"], s5.loc[i, "bndqty2
7"], s5.loc[i, "bndqty28"]]), np.max([s5.loc[i, "bndqty22"], s5.loc[i, "bndqty23"
], s5.loc[i, "bndqty24"], s5.loc[i, "bndqty25"], s5.loc[i, "bndqty26"], s5.loc[i, "
bndqty27"], s5.loc[i, "bndqty28"]]), np.min([s5.loc[i, "bndqty22"], s5.loc[i, "bn
dqty23"], s5.loc[i, "bndqty24"], s5.loc[i, "bndqty25"], s5.loc[i, "bndqty26"], s5.
loc[i, "bndqty27"], s5.loc[i, "bndqty28"]])]
30     print(i)
31 feature5

```

## 9. 生成特征工程6

```

1 s6 = pd.DataFrame(columns=
  ['sldatetime','pluno','bndno','kind1','kind2','kind3','kind4','qty','isweekda
y','kind1qty8','kind1qty9','kind1qty10','kind1qty11','kind1qty12','kind1qty
13','kind1qty14','kind1qty15','kind1qty16','kind1qty17','kind1qty18','kind1
qty19','kind1qty20','kind1qty21','kind1qty22','kind1qty23','kind1qty24','ki
nd1qty25','kind1qty26','kind1qty27','kind1qty28','kind2qty8','kind2qty9','k
ind2qty10','kind2qty11','kind2qty12','kind2qty13','kind2qty14','kind2qty15'
,'kind2qty16','kind2qty17','kind2qty18','kind2qty19','kind2qty20','kind2qty
21','kind2qty22','kind2qty23','kind2qty24','kind2qty25','kind2qty26','kind2
qty27','kind2qty28','kind3qty8','kind3qty9','kind3qty10','kind3qty11','kind
3qty12','kind3qty13','kind3qty14','kind3qty15','kind3qty16','kind3qty17','k
ind3qty18','kind3qty19','kind3qty20','kind3qty21','kind3qty22','kind3qty23'
,'kind3qty24','kind3qty25','kind3qty26','kind3qty27','kind3qty28','kind4qty
8','kind4qty9','kind4qty10','kind4qty11','kind4qty12','kind4qty13','kind4qt
y14','kind4qty15','kind4qty16','kind4qty17','kind4qty18','kind4qty19','kind
4qty20','kind4qty21','kind4qty22','kind4qty23','kind4qty24','kind4qty25','k
ind4qty26','kind4qty27','kind4qty28'])
2
3
4 # In[461]:
5
6
7 for i in plu_list:
8     print(i)
9     plu=df[df['pluno'].isin([i])]
10    for day in range(8,29):
11        d_sales = 'kind1qty' + str(day)
12        kind1 = kind1_df[kind1_df['kind1']==int(i/1000000)]
13        plu[d_sales] = kind1['qty'].shift(day)
14    for day in range(8,29):
15        d_sales = 'kind2qty' + str(day)
16        kind2 = kind2_df[kind2_df['kind2']==int(i/100000)]
17        plu[d_sales] = kind2['qty'].shift(day)
18    for day in range(8,29):
19        d_sales = 'kind3qty' + str(day)
20        kind3 = kind3_df[kind3_df['kind3']==int(i/10000)]
21        plu[d_sales] = kind3['qty'].shift(day)
22    for day in range(8,29):
23        d_sales = 'kind4qty' + str(day)
24        kind4 = kind4_df[kind4_df['kind4']==int(i/1000)]
25        plu[d_sales] = kind4['qty'].shift(day)
26    s6 = s6.append(plu, ignore_index=True)
27 s6 = s6.fillna(0)
28 s6
29
30
31 # In[465]:
32
33

```

```
34 feature6 = pd.DataFrame(columns=  
    ["sldatetime", "pluno", "qty", "week2AvgKind1Qty", "week2MaxKind1Qty", "week2MinKind1Qty", "week3AvgKind1Qty", "week3MaxKind1Qty", "week3MinKind1Qty", "week4AvgKind1Qty", "week4MaxKind1Qty", "week4MinKind1Qty", "week2AvgKind2Qty", "week2MaxKind2Qty", "week2MinKind2Qty", "week3AvgKind2Qty", "week3MaxKind2Qty", "week3MinKind2Qty", "week4AvgKind2Qty", "week4MaxKind2Qty", "week4MinKind2Qty", "week2AvgKind3Qty", "week2MaxKind3Qty", "week2MinKind3Qty", "week3AvgKind3Qty", "week3MaxKind3Qty", "week3MinKind3Qty", "week4AvgKind3Qty", "week4MaxKind3Qty", "week4MinKind3Qty", "week2AvgKind4Qty", "week2MaxKind4Qty", "week2MinKind4Qty", "week3AvgKind4Qty", "week3MaxKind4Qty", "week3MinKind4Qty", "week4AvgKind4Qty", "week4MaxKind4Qty", "week4MinKind4Qty"])  
35  
36  
37 # In[469]:  
38  
39  
40 for i in range(s6.shape[0]):
```

```

feature6.loc[i] =
[s6.loc[i, 'sldatetime'], s6.loc[i, 'pluno'], s6.loc[i, 'qty'], np.mean([s6.loc[i, "
kind1qty8"], s6.loc[i, "kind1qty9"], s6.loc[i, "kind1qty10"], s6.loc[i, "kind1qty
11"], s6.loc[i, "kind1qty12"], s6.loc[i, "kind1qty13"], s6.loc[i, "kind1qty14"]]))
, np.max([s6.loc[i, "kind1qty8"], s6.loc[i, "kind1qty9"], s6.loc[i, "kind1qty10"]
, s6.loc[i, "kind1qty11"], s6.loc[i, "kind1qty12"], s6.loc[i, "kind1qty13"], s6.lo
c[i, "kind1qty14"]]), np.min([s6.loc[i, "kind1qty8"], s6.loc[i, "kind1qty9"], s6.
loc[i, "kind1qty10"], s6.loc[i, "kind1qty11"], s6.loc[i, "kind1qty12"], s6.loc[i,
"kind1qty13"], s6.loc[i, "kind1qty14"]]), np.mean([s6.loc[i, "kind1qty15"], s6.l
oc[i, "kind1qty16"], s6.loc[i, "kind1qty17"], s6.loc[i, "kind1qty18"], s6.loc[i, "
kind1qty19"], s6.loc[i, "kind1qty20"], s6.loc[i, "kind1qty21"]]), np.max([s6.loc
[i, "kind1qty15"], s6.loc[i, "kind1qty16"], s6.loc[i, "kind1qty17"], s6.loc[i, "ki
nd1qty18"], s6.loc[i, "kind1qty19"], s6.loc[i, "kind1qty20"], s6.loc[i, "kind1qty
21"]]), np.min([s6.loc[i, "kind1qty15"], s6.loc[i, "kind1qty16"], s6.loc[i, "kind
1qty17"], s6.loc[i, "kind1qty18"], s6.loc[i, "kind1qty19"], s6.loc[i, "kind1qty20
"], s6.loc[i, "kind1qty21"]]), np.mean([s6.loc[i, "kind1qty22"], s6.loc[i, "kind1
qty23"], s6.loc[i, "kind1qty24"], s6.loc[i, "kind1qty25"], s6.loc[i, "kind1qty26"
], s6.loc[i, "kind1qty27"], s6.loc[i, "kind1qty28"]]), np.max([s6.loc[i, "kind1qt
y22"], s6.loc[i, "kind1qty23"], s6.loc[i, "kind1qty24"], s6.loc[i, "kind1qty25"],
s6.loc[i, "kind1qty26"], s6.loc[i, "kind1qty27"], s6.loc[i, "kind1qty28"]]), np.m
in([s6.loc[i, "kind1qty22"], s6.loc[i, "kind1qty23"], s6.loc[i, "kind1qty24"], s6
.loc[i, "kind1qty25"], s6.loc[i, "kind1qty26"], s6.loc[i, "kind1qty27"], s6.loc[i
, "kind1qty28"]]), np.mean([s6.loc[i, "kind2qty8"], s6.loc[i, "kind2qty9"], s6.lo
c[i, "kind2qty10"], s6.loc[i, "kind2qty11"], s6.loc[i, "kind2qty12"], s6.loc[i, "k
ind2qty13"], s6.loc[i, "kind2qty14"]]), np.max([s6.loc[i, "kind2qty8"], s6.loc[i
, "kind2qty9"], s6.loc[i, "kind2qty10"], s6.loc[i, "kind2qty11"], s6.loc[i, "kind2
qty12"], s6.loc[i, "kind2qty13"], s6.loc[i, "kind2qty14"]]), np.min([s6.loc[i, "k
ind2qty8"], s6.loc[i, "kind2qty9"], s6.loc[i, "kind2qty10"], s6.loc[i, "kind2qty1
1"], s6.loc[i, "kind2qty12"], s6.loc[i, "kind2qty13"], s6.loc[i, "kind2qty14"]]),
np.mean([s6.loc[i, "kind2qty15"], s6.loc[i, "kind2qty16"], s6.loc[i, "kind2qty17
"], s6.loc[i, "kind2qty18"], s6.loc[i, "kind2qty19"], s6.loc[i, "kind2qty20"], s6.
loc[i, "kind2qty21"]]), np.max([s6.loc[i, "kind2qty15"], s6.loc[i, "kind2qty16"],
s6.loc[i, "kind2qty17"], s6.loc[i, "kind2qty18"], s6.loc[i, "kind2qty19"], s6.lo
c[i, "kind2qty20"], s6.loc[i, "kind2qty21"]]), np.min([s6.loc[i, "kind2qty15"], s
6.loc[i, "kind2qty16"], s6.loc[i, "kind2qty17"], s6.loc[i, "kind2qty18"], s6.loc[
i, "kind2qty19"], s6.loc[i, "kind2qty20"], s6.loc[i, "kind2qty21"]]), np.mean([s6
.loc[i, "kind2qty22"], s6.loc[i, "kind2qty23"], s6.loc[i, "kind2qty24"], s6.loc[i
, "kind2qty25"], s6.loc[i, "kind2qty26"], s6.loc[i, "kind2qty27"], s6.loc[i, "kind
2qty28"]]), np.max([s6.loc[i, "kind2qty22"], s6.loc[i, "kind2qty23"], s6.loc[i, "
kind2qty24"], s6.loc[i, "kind2qty25"], s6.loc[i, "kind2qty26"], s6.loc[i, "kind2q
ty27"], s6.loc[i, "kind2qty28"]]), np.min([s6.loc[i, "kind2qty22"], s6.loc[i, "ki
nd2qty23"], s6.loc[i, "kind2qty24"], s6.loc[i, "kind2qty25"], s6.loc[i, "kind2qty
26"], s6.loc[i, "kind2qty27"], s6.loc[i, "kind2qty28"]]), np.mean([s6.loc[i, "kin
d3qty8"], s6.loc[i, "kind3qty9"], s6.loc[i, "kind3qty10"], s6.loc[i, "kind3qty11"
], s6.loc[i, "kind3qty12"], s6.loc[i, "kind3qty13"], s6.loc[i, "kind3qty14"]]), np
.max([s6.loc[i, "kind3qty8"], s6.loc[i, "kind3qty9"], s6.loc[i, "kind3qty10"], s6
.loc[i, "kind3qty11"], s6.loc[i, "kind3qty12"], s6.loc[i, "kind3qty13"], s6.loc[i
, "kind3qty14"]]), np.min([s6.loc[i, "kind3qty8"], s6.loc[i, "kind3qty9"], s6.loc
[i, "kind3qty10"], s6.loc[i, "kind3qty11"], s6.loc[i, "kind3qty12"], s6.loc[i, "ki
nd3qty13"], s6.loc[i, "kind3qty14"]]), np.mean([s6.loc[i, "kind3qty15"], s6.loc[
i, "kind3qty16"], s6.loc[i, "kind3qty17"], s6.loc[i, "kind3qty18"], s6.loc[i, "kin
d3qty19"], s6.loc[i, "kind3qty20"], s6.loc[i, "kind3qty21"]]), np.max([s6.loc[i,
"kind3qty15"], s6.loc[i, "kind3qty16"], s6.loc[i, "kind3qty17"], s6.loc[i, "kind3
qty18"], s6.loc[i, "kind3qty19"], s6.loc[i, "kind3qty20"], s6.loc[i, "kind3qty21"
]), np.min([s6.loc[i, "kind3qty15"], s6.loc[i, "kind3qty16"], s6.loc[i, "kind3qt
y17"], s6.loc[i, "kind3qty18"], s6.loc[i, "kind3qty19"], s6.loc[i, "kind3qty20"],
s6.loc[i, "kind3qty21"]]), np.mean([s6.loc[i, "kind3qty22"], s6.loc[i, "kind3qty
23"], s6.loc[i, "kind3qty24"], s6.loc[i, "kind3qty25"], s6.loc[i, "kind3qty26"], s

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6.loc[i,"kind3qty27"],s6.loc[i,"kind3qty28"]]),np.max([s6.loc[i,"kind3qty22"],s6.loc[i,"kind3qty23"],s6.loc[i,"kind3qty24"],s6.loc[i,"kind3qty25"],s6.loc[i,"kind3qty26"],s6.loc[i,"kind3qty27"],s6.loc[i,"kind3qty28"]]),np.min([s6.loc[i,"kind3qty22"],s6.loc[i,"kind3qty23"],s6.loc[i,"kind3qty24"],s6.loc[i,"kind3qty25"],s6.loc[i,"kind3qty26"],s6.loc[i,"kind3qty27"],s6.loc[i,"kind3qty28"]]),np.mean([s6.loc[i,"kind4qty8"],s6.loc[i,"kind4qty9"],s6.loc[i,"kind4qty10"],s6.loc[i,"kind4qty11"],s6.loc[i,"kind4qty12"],s6.loc[i,"kind4qty13"],s6.loc[i,"kind4qty14"]]),np.max([s6.loc[i,"kind4qty8"],s6.loc[i,"kind4qty9"],s6.loc[i,"kind4qty10"],s6.loc[i,"kind4qty11"],s6.loc[i,"kind4qty12"],s6.loc[i,"kind4qty13"],s6.loc[i,"kind4qty14"]]),np.min([s6.loc[i,"kind4qty8"],s6.loc[i,"kind4qty9"],s6.loc[i,"kind4qty10"],s6.loc[i,"kind4qty11"],s6.loc[i,"kind4qty12"],s6.loc[i,"kind4qty13"],s6.loc[i,"kind4qty14"]]),np.mean([s6.loc[i,"kind4qty15"],s6.loc[i,"kind4qty16"],s6.loc[i,"kind4qty17"],s6.loc[i,"kind4qty18"],s6.loc[i,"kind4qty19"],s6.loc[i,"kind4qty20"],s6.loc[i,"kind4qty21"]]),np.max([s6.loc[i,"kind4qty15"],s6.loc[i,"kind4qty16"],s6.loc[i,"kind4qty17"],s6.loc[i,"kind4qty18"],s6.loc[i,"kind4qty19"],s6.loc[i,"kind4qty20"],s6.loc[i,"kind4qty21"]]),np.min([s6.loc[i,"kind4qty15"],s6.loc[i,"kind4qty16"],s6.loc[i,"kind4qty17"],s6.loc[i,"kind4qty18"],s6.loc[i,"kind4qty19"],s6.loc[i,"kind4qty20"],s6.loc[i,"kind4qty21"]]),np.mean([s6.loc[i,"kind4qty22"],s6.loc[i,"kind4qty23"],s6.loc[i,"kind4qty24"],s6.loc[i,"kind4qty25"],s6.loc[i,"kind4qty26"],s6.loc[i,"kind4qty27"],s6.loc[i,"kind4qty28"]]),np.max([s6.loc[i,"kind4qty22"],s6.loc[i,"kind4qty23"],s6.loc[i,"kind4qty24"],s6.loc[i,"kind4qty25"],s6.loc[i,"kind4qty26"],s6.loc[i,"kind4qty27"],s6.loc[i,"kind4qty28"]]),np.min([s6.loc[i,"kind4qty22"],s6.loc[i,"kind4qty23"],s6.loc[i,"kind4qty24"],s6.loc[i,"kind4qty25"],s6.loc[i,"kind4qty26"],s6.loc[i,"kind4qty27"],s6.loc[i,"kind4qty28"]])])
42     print(i)
43     feature6
44

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## 输出

六个特征工程对应的csv表格