lec4_step4_BarStack_Aligned_Stage3

November 30, 2022

[ ]:
```
## Python basics for novice data scientists, supported by Wagatsuma Lab@Kyutech
#
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#
# # @Time    : 2020-11-30
# # @Author  : Hiroaki Wagatsuma
# # @Site    : https://github.com/hirowgit/2A1_python_intermediate_course
# # @IDE     : Python 3.9.14 (main, Sep  6 2022, 23:29:09) [Clang 13.1.6␣
 ↪(clang-1316.0.21.2.5)] on darwin
# # @File    : lec4_step4_BarStack_Aligned_Stage3.py
```

[1]:
```
import numpy as np
#prFill=[90    60    50    50    50    90    40    30    80    40  20 ]/100;
prFill=np.array([90, 60, 50, 50, 50, 90, 40, 30, 80, 40, 20])
prFill=prFill/100
fillLine=np.full(len(prFill),True)
LineT=[]
k=0
#for i in range(len(prFill)):
#for i in range(5):
```

```
for i in range(4):
    if fillLine[i]:
        remF=1-prFill[i]
        IDrem=np.where((prFill[i+1:len(prFill)]<=remF) & fillLine[i+1:
↪len(prFill)])
        tmp=i
        fID=i
        j=0
        while IDrem[0].size > 0:
            fID=IDrem[0][0]+fID+1
            tmp=np.append(tmp,fID)
            remF=remF-prFill[fID]
            IDrem=np.where((prFill[fID+1:len(prFill)]<=remF) & fillLine[fID+1:
↪len(prFill)])
        LineT.append(tmp)
        fillLine[tmp]=False
        print(k)
        print(LineT)
        k=k+1
        print(k)
```

```
0
[0]
1
1
[0, array([1, 6])]
2
2
[0, array([1, 6]), array([2, 3])]
3
```

[ ]:

[181]:
```
prFill[0:1:len(prFill)]
```

[181]:
```
array([], dtype=float64)
```

[230]:
```
i=4
```

[231]:
```
remF=1-prFill[i]
IDrem=np.where((prFill[i+1:len(prFill)]<=remF) & fillLine[i+1:len(prFill)])
tmp=i
fID=i
```

[197]:
```
remF
```

[197]:
```
0.5
```

[198]:
```
IDrem
```

[198]:
```
(array([2, 4, 5]),)
```

[200]:
```
IDrem[0][0]
```

[200]:
```
2
```

[201]:
```
fID
```

[201]:
```
4
```

[220]:
```
IDrem[0][0]+fID+1
```

[220]:
```
7
```

[214]:
```
j
```

[214]:
```
0
```

[215]:
```
i
```

[215]:
```
4
```

[ ]:
```

```

[232]:
```
fID=IDrem[0][0]+fID+1
print(fID)
tmp=np.append(tmp,fID)
print(tmp)
```

```
7
[4 7]
```

[233]:
```
prFill[IDrem[j][0]+i]
```

[233]:
```
0.4
```

[216]:
```
IDrem[j][0]
```

[216]:
```
2
```

[234]:
```
prFill[fID]
remF=remF-prFill[fID]
IDrem=np.where((prFill[fID+1:len(prFill)]<=remF) & fillLine[fID+1:len(prFill)])
```

```
print(IDrem)
```

```
(array([2]),)
```

[235]:
```
fID=IDrem[0][0]+fID+1
print(fID)
tmp=np.append(tmp,fID)
print(tmp)
```

```
10
[ 4  7 10]
```

[221]:
```
prFill[fID]
remF=remF-prFill[fID]
IDrem=np.where((prFill[fID+1:len(prFill)]<=remF) & fillLine[fID+1:len(prFill)])
print(IDrem)
```

```
0.0
(array([], dtype=int64),)
```

[191]:
```
fID=IDrem[0][0]+fID+1
```

[172]:
```
prFill[1:-1]
```

[172]:
```
array([0.6, 0.5, 0.5, 0.5, 0.9, 0.4, 0.3, 0.8, 0.4])
```

[174]:
```
len(prFill[fID+1:len(prFill)])
```

[174]:
```
7
```

[176]:
```
 fillLine[fID+1:len(prFill)]
```

[176]:
```
array([ True,  True, False,  True,  True,  True,  True])
```

[171]:
```
prFill[fID+1:-1]
```

[171]:
```
array([0.5, 0.9, 0.4, 0.3, 0.8, 0.4])
```

[152]:
```
i=4
```

[158]:
```
remF=1-prFill[i]
print(remF)
```

```
0.5
```

[159]:
```
prFill[i+1:-1]
```

[159]:
```
array([0.9, 0.4, 0.3, 0.8, 0.4])
```

[160]:
```
fillLine[fID+1:-1]
```

[160]:
```
array([ True,  True, False,  True,  True,  True])
```

[ ]:
```

```

[154]:
```
prFill
```

[154]:
```
array([0.9, 0.6, 0.5, 0.5, 0.5, 0.9, 0.4, 0.3, 0.8, 0.4, 0.2])
```

[149]:
```
fID=IDrem[0][0]+fID+1
print(fID)
tmp=np.append(tmp,fID)
print(tmp)
remF=remF-prFill[IDrem[j][0]+i]
print(remF)
IDrem=np.where((prFill[fID+1:-1]<=remF) & fillLine[fID+1:-1])
print(IDrem)
```

```
7
[4 7]
0.09999999999999998
(array([], dtype=int64),)
```

[146]:
```
remF=1-prFill[i]
IDrem=np.where((prFill[i+1:-1]<=remF) & fillLine[i+1:-1])
print(IDrem)
tmp=i
fID=i
j=0
```

```
(array([2, 4]),)
```

[131]:
```
fID=IDrem[0][0]+fID+1
print(fID)
```

```
5
```

[133]:
```
tmp=np.append(tmp,fID)
remF=remF-prFill[IDrem[j][0]+i]
```

[134]:
```
remF
```

[134]:
```
0.0
```

[118]:
```
remF
```

[118]:
```
0.5
```

[112]:
```
fillLine
```

[112]:
```
array([False, False, False, False,  True,  True, False,  True,  True,
        True,  True])
```

[119]:
```
prFill[i+1:-1]
```

[119]:
```
array([0.5, 0.9, 0.4, 0.3, 0.8, 0.4])
```

[100]:
```
print(IDrem[0].size)
```

```
3
```

[101]:
```
fID=IDrem[0][0]+fID+1
print(fID)
tmp=np.append(tmp,fID)
print(tmp)
```

```
4
[3 4]
```

[103]:
```
print(remF)
print(IDrem[j][0])
print(i)
print(prFill[IDrem[j][0]+i])
```

```
0.5
0
3
0.5
```

[105]:
```
prFill[IDrem[j][0]+i]
```

[105]:
```
0.5
```

[107]:
```
j
```

[107]:
```
0
```

[95]:
```
remF=remF-prFill[IDrem[j][0]+i]
print(remF)
IDrem=np.where((prFill[fID+1:-1]<=remF) & fillLine[fID+1:-1])
print(IDrem)
print(IDrem[0].size)
LineT.append(tmp)
print(LineT)
```

```
0.0
(array([], dtype=int64),)
0
[0, array([1, 6]), array([2, 3]), array([3, 4])]
```

[62]:
```
np.where((prFill[fID+1:-1]<=remF) & fillLine[fID+1:-1])
```

[62]:
```
(array([0, 3, 5]),)
```

[ ]:

[97]:
```
prFill[fID+1:-1]
```

[97]:
```
array([0.9, 0.4, 0.3, 0.8, 0.4])
```

[57]:
```
fID=IDrem[0][0]+fID+1
print(fID)
tmp=np.append(tmp,fID)
print(tmp)
```

```
4
[3 4]
```

[49]:
```
prFill[IDrem[j][0]+i]
```

[49]:
```
0.5
```

[51]:
```
remF=remF-prFill[IDrem[j][0]+i]
print(remF)
```

```
-0.5
```

[43]:
```
prFill[IDrem[j][0]+i]
```

[43]:
```
0
```

[44]:
```
IDrem
```

[44]:
```
(array([], dtype=int64),)
```

[ ]: