lec1_step6

October 14, 2020

In [ ]:
```
## Python basics for novice data scientists, supported by Wagatsuma Lab@Kyutech
#
# The MIT License (MIT): Copyright (c) 2020 Hiroaki Wagatsuma and Wagatsuma Lab@Kyutec
#
# Permission is hereby granted, free of charge, to any person obtaining a copy of this
# The above copyright notice and this permission notice shall be included in all copie
# THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED,
#
# # @Time    : 2020-10-14
# # @Author  : Hiroaki Wagatsuma
# # @Site    : https://github.com/hirowgit/2A_python_basic_course
# # @IDE     : Python 3.7.7 (default, Mar 10 2020, 15:43:27) [Clang 10.0.0 (clang-1000
# # @File    : lec1_step6.py
```

In [ ]:
```
# Practice 2-3 (page 24/28)
# https://www.slideshare.net/tadahirotaniguchi0624/2-46861654
```

In [50]:
```
TargetGraph={
    'S':['A','B'],
    'A':['S','C','D'],
    'B':['S','C'],
    'C':['A','B','D'],
    'D':['A','C']
#    'G':'unknown now
}
```

In [51]:
```
OpenList=['S']
ClosedList=[]
while OpenList:
    state=OpenList[0]
    del OpenList[0]
    ClosedList.append(state)
    print(state)
    if state=='G':
        break
    activeNodes=[item for item in TargetGraph[state] if item not in ClosedList]
#   OpenList.insert(-1, activeNodes)  # the first item
    OpenList.append(activeNodes)  # the last item
```

```
            OpenList=[item for i in OpenList for item in i if item not in ClosedList]
        print('completed')
```

```
S
A
B
C
D
completed
```

In [52]:
```
TargetGraph={
        'A':['B','C'],
        'B':['A','D','E'],
        'C':['A','F','G','H'],
        'D':['B','I'],
        'E':['B'],
        'F':['C'],
        'G':['C','J'],
        'H':['C'],
        'I':['D'],
        'J':['G']
#     'G':'unknown now
}
```

In [49]:
```
OpenList=['A']
ClosedList=[]
k=1
while OpenList:
    state=OpenList[0]
    del OpenList[0]
    ClosedList.append(state)
    print(str(k)+": "+state)
    if state=='Goal':
        break
    activeNodes=[item for item in TargetGraph[state] if item not in ClosedList]
    OpenList.append(activeNodes)  # the last item
    OpenList=[item for i in OpenList for item in i if item not in ClosedList]
    k=k+1
print('completed')
```

```
1: A
2: B
3: C
4: D
5: E
6: F
7: G
8: H
```

```
9: I
10: J
completed
```

In [ ]: