```python
import numpy as np
import pandas as pd
```

```
In [14]:

v=[[0,0,0,0,0,0],[0,0,0,0,0,0],[0,0,0,0,0,0],[0,0,0,0,0,0],[0,0,
0,0,0,0],
   [0.50,0,0,0,0,0],
   [1,0,0,0,0,0],[1,0,0,0,0,0],[1,0,0,0,0,0],[1,0,0,0,0,0],[1,0,0
,0,0,0],]
policy=[[0,0,0,0,0,0],[0,0,0,0,0,0],[0,0,0,0,0,0],[0,0,0,0,0,0],
[0,0,0,0,0,0],
   [0,0,0,0,0,0],
   [0,0,0,0,0,0],[0,0,0,0,0,0],[0,0,0,0,0,0],[0,0,0,0,0,0],[0,0,0
,0,0,0],]


for t in range(1,6):
    for x in range(1,10):
        if x<t or x+t>10:
            v[x][t]='NaN'
            policy[x][t]='NaN'
        else:
            timid=round(0.8*v[x][t-1]+0.1*v[x-1][t-1]+0.1*v[x+1]
[t-1],4)
            bold=round(0.45*v[x+1][t-1]+0.55*v[x-1][t-1],4)
            if timid>bold:
                v[x][t]=timid
                if v[x][t]==0 or v[x][t]==1:
                    policy[x][t]='any'
                else:
                    policy[x][t]='timid'
            else:
                v[x][t]=bold
                if v[x][t]==0 or v[x][t]==1:
                    policy[x][t]='any'
                else:
                    policy[x][t]='bold'
    x=x-1
t=t-1
for x in range(0,11):
    print(v[x][0], v[x][1], v[x][2], v[x][3], v[x][4], v[x][5],)
print("\n")
for x in range(0,11):
    print(policy[x][0], policy[x][1], policy[x][2], policy[x][3]
, policy[x][4], policy[x][5],)
print("\n")
```

```
0 0 0 0 0 0
0 0.0 NaN NaN NaN NaN
0 0.0 0.0 NaN NaN NaN
0 0.0 0.1013 0.104 NaN NaN
0 0.225 0.23 0.3038 0.3089 NaN
0.5 0.5 0.5513 0.555 0.5643 0.5684
1 0.95 0.91 0.8826 0.8603 NaN
1 1.0 0.995 0.987 NaN NaN
1 1.0 1.0 NaN NaN NaN
1 1.0 NaN NaN NaN NaN
1 0 0 0 0 0


0 0 0 0 0 0
0 any NaN NaN NaN NaN
0 any any NaN NaN NaN
0 any bold timid NaN NaN
0 bold timid bold timid NaN
0 timid bold timid bold timid
0 timid timid timid timid NaN
0 any timid timid NaN NaN
0 any any NaN NaN NaN
0 any NaN NaN NaN NaN
0 0 0 0 0 0
```