HW3

November 5, 2018

```python
In [1]: import numpy as np


        X = [ 'A', 'B1', 'B2', 'C', 'D', 'E', 'F']

        A = ['a', 'b', 'c']

        Z = ['A', 'B', 'C', 'D', 'E', 'F']

        # Preserving the order in X

        Pa =np.array([[0, 0.5, 0.5, 0, 0, 0, 0],
            [0, 0, 0, 0, 0, 1, 0],
            [0, 0, 0, 0, 0, 0, 1],
            [0, 1, 0, 0, 0, 0, 0],
            [0, 0, 1, 0, 0, 0, 0],
            [1, 0, 0, 0, 0, 0, 0],
            [1, 0, 0, 0, 0, 0, 0]
            ])

        Pb =np.array([[0, 0.5, 0.5, 0, 0, 0, 0],
            [0, 0, 0, 0, 0, 0, 1],
            [0, 0, 0, 0, 0, 1, 0],
            [0, 1, 0, 0, 0, 0, 0],
            [0, 0, 1, 0, 0, 0, 0],
            [1, 0, 0, 0, 0, 0, 0],
            [1, 0, 0, 0, 0, 0, 0]
            ])




        Pc =np.array([[0, 0.5, 0.5, 0, 0, 0, 0],
            [0, 0, 0, 1, 0, 0, 0],
            [0, 0, 0, 0, 1, 0, 0],
            [0, 1, 0, 0, 0, 0, 0],
            [0, 0, 1, 0, 0, 0, 0],
            [1, 0, 0, 0, 0, 0, 0],
            [1, 0, 0, 0, 0, 0, 0]
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    ])

Za = np.array([
    [1, 0, 0, 0, 0, 0],
    [0, 1, 0, 0, 0, 0],
    [0, 1, 0, 0, 0, 0],
    [0, 0, 1, 0, 0, 0],
    [0, 0, 0, 1, 0, 0],
    [0, 0, 0, 0, 1, 0],
    [0, 0, 0, 0, 0, 1]
    ])

Zb = Zc = Za

C = np.array([
    [1, 1, 1],
    [1, 1, 1],
    [1, 1, 1],
    [1, 1, 1],
    [1, 1, 1],
    [1, 1, 1],
    [0, 0, 0]
    ])


bt = np.array([0, 0.5, 0.5, 0, 0, 0, 0])

ba = np.dot(bt,Pa)

bb = np.dot(bt,Pb)

bc = np.dot(bt,Pc)

print(ba)
print("\n")
print(bb)
print("\n")
print(bc)
print("\n")
```

```
[0.  0.  0.  0.  0.  0.5 0.5]


[0.  0.  0.  0.  0.  0.5 0.5]


[0.  0.  0.  0.5 0.5 0.  0. ]
```

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In [ ]:
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