Questão 5

September 9, 2019

[1]:
```
from numpy import loadtxt

x = loadtxt('similaridade_Terra.txt')

w = [0.57, 1.07, 0.7, 5.58]

corpos_celestes = [
    'Terra',
    'Marte',
    'Mercurio',
    'Lua',
    'Venus',
    'Io',
    'Jupiter',
    'Tita',
    'GJ 581 g',
    'GJ 581 b',
    'HD 96167 b',
    'WASP-26 b'
]

IST = {}

for j in range(len(corpos_celestes)):
    ISTj = 1
    for i in range(len(w)):
        ISTj *= (1 - abs((x[j][i]-x[0][i])/(x[j][i]+x[0][i])))**(w[i]/len(w))

    IST[corpos_celestes[j]] = ISTj
```

[2]:
```
print(IST)
print()
```

[2]:
```
{'Terra': 1.0,
 'Marte': 0.6967437770068843,
 'Mercurio': 0.5952280054357734,
 'Lua': 0.5574048710057411,
```

```
 'Venus': 0.44416899132028365,
 'Io': 0.36252129797707083,
 'Jupiter': 0.29298061349188215,
 'Tita': 0.24260676606490955,
 'GJ 581 g': 0.8903703266879102,
 'GJ 581 b': 0.4829174057109495,
 'HD 96167 b': 0.46536207433211974,
 'WASP-26 b': 0.09382421442571512}
```

[3]:
```
print(f'''
O corpo celeste mais semelhante a Terra eh:
{sorted(IST, key=IST.get, reverse=True)[1]}
''')
```

```
O corpo celeste mais semelhante a Terra eh:
GJ 581 g
```