ASSIGNMENT3

February 19, 2025

[44]:
```
import numpy as np
import matplotlib.pyplot as plt

P=1
N=20
for a in range(N):
    p=1-((N-a)/365)
    P= p*P
chance=(1-P)
print(chance)

#After trying multiple values for N, I found that the result that was closest␣
 ↪to 50% was when N=20
```

```
0.44368833516520567
```

[45]:
```
import numpy as np
import matplotlib.pyplot as plt

choice=1
wins=0
for _ in range(10000):
    car=np.random.randint(0,4)
    if car==1:
        reveal=np.random.randint(1,4)
    if car==2:
        reveal=3
    if car==3:
        reveal=2
    if choice==car:
        wins+=1
print(wins)

#From this code at least, it seems like when choice=1, the "brand new car!" is␣
 ↪won more often.
```

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2586
```

[46]:
```
import numpy as np
import matplotlib.pyplot as plt

choice=1
wins=0
for _ in range(10000):
    car=np.random.randint(0,4)
    if car==1:
        reveal=np.random.randint(1,4)
    choice=1
    if car==2:
        reveal=3
    choice=2
    if car==3:
        reveal=2
    choice=3
    if choice==car:
        wins+=1
print(wins)
```

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2489
```

[ ]: