

problemaConway

January 23, 2025

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[184]: import numpy as np
import time
listaD=[1,2,3,4,6,7,8,9] #J=0 -> E=5
np.math.factorial(8) # posibles candidatos
```

[184]: 40320

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[185]: x=1234567890
for i in range(1,11):
    print(int(x/10**(10-i)), "divisible por", i, "?")
```

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1 divisible por 1 ?
12 divisible por 2 ?
123 divisible por 3 ?
1234 divisible por 4 ?
12345 divisible por 5 ?
123456 divisible por 6 ?
1234567 divisible por 7 ?
12345678 divisible por 8 ?
123456789 divisible por 9 ?
1234567890 divisible por 10 ?
```

```
[186]: def condicion(x,n):
        for i in range(1,n+1):
            if int(x/10**(n-i))%(i)!=0:
                return False
        return True
condicion(2496,4)
```

[186]: True

```
[224]: #ABCDEFGHJIJ
done=False
start=time.time()
while not done:
    candidato=np.random.permutation(listaD)
    num=0+candidato[7]*10+candidato[6]*10**2+candidato[5]*10**3
    num+=candidato[4]*10**4+5*10**5+candidato[3]*10**6+candidato[2]*10**7
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num+=candidato[1]*10**8+candidato[0]*10**9
done=condicion(num,10)
print(num,"{:.2f}".format(time.time()-start)+" s")

```

3816547290 0.46 s

```

[231]: listaTime=[]
for _ in range(1000):
    #ABCDEFGHJIJ
    done=False
    start=time.time()
    while not done:
        candidato=np.random.permutation(listaD)
        num=0+candidato[7]*10+candidato[6]*10**2+candidato[5]*10**3
        num+=candidato[4]*10**4+5*10**5+candidato[3]*10**6+candidato[2]*10**7
        num+=candidato[1]*10**8+candidato[0]*10**9
        done=condicion(num,10)
    #print(num,"{:.2f}".format(time.time()-start)+" s")
    listaTime.append(time.time()-start)

```

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[232]: print(max(listaTime))

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2.487152099609375

```

[235]: import matplotlib.pyplot as plt
a,bins=np.histogram(listaTime,bins=[0,0.5,1,1.5,2,2.5])
plt.hist(bins[:-1], bins, weights=a)

```

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[235]: (array([779., 163., 40., 14., 4.]),
array([0. , 0.5, 1. , 1.5, 2. , 2.5]),
<a list of 5 Patch objects>)

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