

```
In [44]: runfile('D:/CIS177/Change4aDollar/main.py', wdir='D:/CIS177/Change4aDollar')
```

Calculating total combinations to make change for 1 dollar...

```
-----  
100 Pennys  
1 Nickle, 95 Pennys  
2 Nickles, 90 Pennys  
3 Nickles, 85 Pennys  
4 Nickles, 80 Pennys  
5 Nickles, 75 Pennys  
6 Nickles, 70 Pennys  
7 Nickles, 65 Pennys  
8 Nickles, 60 Pennys  
9 Nickles, 55 Pennys  
10 Nickles, 50 Pennys  
11 Nickles, 45 Pennys  
12 Nickles, 40 Pennys  
13 Nickles, 35 Pennys  
14 Nickles, 30 Pennys  
15 Nickles, 25 Pennys  
16 Nickles, 20 Pennys  
17 Nickles, 15 Pennys  
18 Nickles, 10 Pennys  
19 Nickles, 5 Pennys  
20 Nickles  
1 Dime, 90 Pennys  
1 Dime, 1 Nickle, 85 Pennys  
1 Dime, 2 Nickles, 80 Pennys  
1 Dime, 3 Nickles, 75 Pennys  
1 Dime, 4 Nickles, 70 Pennys  
1 Dime, 5 Nickles, 65 Pennys  
1 Dime, 6 Nickles, 60 Pennys  
1 Dime, 7 Nickles, 55 Pennys  
1 Dime, 8 Nickles, 50 Pennys  
1 Dime, 9 Nickles, 45 Pennys  
1 Dime, 10 Nickles, 40 Pennys  
1 Dime, 11 Nickles, 35 Pennys  
1 Dime, 12 Nickles, 30 Pennys  
1 Dime, 13 Nickles, 25 Pennys  
1 Dime, 14 Nickles, 20 Pennys  
1 Dime, 15 Nickles, 15 Pennys  
1 Dime, 16 Nickles, 10 Pennys  
1 Dime, 17 Nickles, 5 Pennys  
1 Dime, 18 Nickles  
2 Dimes, 80 Pennys  
2 Dimes, 1 Nickle, 75 Pennys  
2 Dimes, 2 Nickles, 70 Pennys  
2 Dimes, 3 Nickles, 65 Pennys  
2 Dimes, 4 Nickles, 60 Pennys  
2 Dimes, 5 Nickles, 55 Pennys  
2 Dimes, 6 Nickles, 50 Pennys  
2 Dimes, 7 Nickles, 45 Pennys  
2 Dimes, 8 Nickles, 40 Pennys  
2 Dimes, 9 Nickles, 35 Pennys  
2 Dimes, 10 Nickles, 30 Pennys  
2 Dimes, 11 Nickles, 25 Pennys  
2 Dimes, 12 Nickles, 20 Pennys  
2 Dimes, 13 Nickles, 15 Pennys  
2 Dimes, 14 Nickles, 10 Pennys  
2 Dimes, 15 Nickles, 5 Pennys  
2 Dimes, 16 Nickles
```

3 Dimes, 70 Pennys  
3 Dimes, 1 Nickle, 65 Pennys  
3 Dimes, 2 Nickles, 60 Pennys  
3 Dimes, 3 Nickles, 55 Pennys  
3 Dimes, 4 Nickles, 50 Pennys  
3 Dimes, 5 Nickles, 45 Pennys  
3 Dimes, 6 Nickles, 40 Pennys  
3 Dimes, 7 Nickles, 35 Pennys  
3 Dimes, 8 Nickles, 30 Pennys  
3 Dimes, 9 Nickles, 25 Pennys  
3 Dimes, 10 Nickles, 20 Pennys  
3 Dimes, 11 Nickles, 15 Pennys  
3 Dimes, 12 Nickles, 10 Pennys  
3 Dimes, 13 Nickles, 5 Pennys  
3 Dimes, 14 Nickles  
4 Dimes, 60 Pennys  
4 Dimes, 1 Nickle, 55 Pennys  
4 Dimes, 2 Nickles, 50 Pennys  
4 Dimes, 3 Nickles, 45 Pennys  
4 Dimes, 4 Nickles, 40 Pennys  
4 Dimes, 5 Nickles, 35 Pennys  
4 Dimes, 6 Nickles, 30 Pennys  
4 Dimes, 7 Nickles, 25 Pennys  
4 Dimes, 8 Nickles, 20 Pennys  
4 Dimes, 9 Nickles, 15 Pennys  
4 Dimes, 10 Nickles, 10 Pennys  
4 Dimes, 11 Nickles, 5 Pennys  
4 Dimes, 12 Nickles  
5 Dimes, 50 Pennys  
5 Dimes, 1 Nickle, 45 Pennys  
5 Dimes, 2 Nickles, 40 Pennys  
5 Dimes, 3 Nickles, 35 Pennys  
5 Dimes, 4 Nickles, 30 Pennys  
5 Dimes, 5 Nickles, 25 Pennys  
5 Dimes, 6 Nickles, 20 Pennys  
5 Dimes, 7 Nickles, 15 Pennys  
5 Dimes, 8 Nickles, 10 Pennys  
5 Dimes, 9 Nickles, 5 Pennys  
5 Dimes, 10 Nickles  
6 Dimes, 40 Pennys  
6 Dimes, 1 Nickle, 35 Pennys  
6 Dimes, 2 Nickles, 30 Pennys  
6 Dimes, 3 Nickles, 25 Pennys  
6 Dimes, 4 Nickles, 20 Pennys  
6 Dimes, 5 Nickles, 15 Pennys  
6 Dimes, 6 Nickles, 10 Pennys  
6 Dimes, 7 Nickles, 5 Pennys  
6 Dimes, 8 Nickles  
7 Dimes, 30 Pennys  
7 Dimes, 1 Nickle, 25 Pennys  
7 Dimes, 2 Nickles, 20 Pennys  
7 Dimes, 3 Nickles, 15 Pennys  
7 Dimes, 4 Nickles, 10 Pennys  
7 Dimes, 5 Nickles, 5 Pennys  
7 Dimes, 6 Nickles  
8 Dimes, 20 Pennys  
8 Dimes, 1 Nickle, 15 Pennys  
8 Dimes, 2 Nickles, 10 Pennys  
8 Dimes, 3 Nickles, 5 Pennys  
8 Dimes, 4 Nickles  
9 Dimes, 10 Pennys  
9 Dimes, 1 Nickle, 5 Pennys  
9 Dimes, 2 Nickles  
10 Dimes  
1 Quarter, 75 Pennys

1 Quarter, 1 Nickle, 70 Pennys  
1 Quarter, 2 Nickles, 65 Pennys  
1 Quarter, 3 Nickles, 60 Pennys  
1 Quarter, 4 Nickles, 55 Pennys  
1 Quarter, 5 Nickles, 50 Pennys  
1 Quarter, 6 Nickles, 45 Pennys  
1 Quarter, 7 Nickles, 40 Pennys  
1 Quarter, 8 Nickles, 35 Pennys  
1 Quarter, 9 Nickles, 30 Pennys  
1 Quarter, 10 Nickles, 25 Pennys  
1 Quarter, 11 Nickles, 20 Pennys  
1 Quarter, 12 Nickles, 15 Pennys  
1 Quarter, 13 Nickles, 10 Pennys  
1 Quarter, 14 Nickles, 5 Pennys  
1 Quarter, 15 Nickles  
1 Quarter, 1 Dime, 65 Pennys  
1 Quarter, 1 Dime, 1 Nickle, 60 Pennys  
1 Quarter, 1 Dime, 2 Nickles, 55 Pennys  
1 Quarter, 1 Dime, 3 Nickles, 50 Pennys  
1 Quarter, 1 Dime, 4 Nickles, 45 Pennys  
1 Quarter, 1 Dime, 5 Nickles, 40 Pennys  
1 Quarter, 1 Dime, 6 Nickles, 35 Pennys  
1 Quarter, 1 Dime, 7 Nickles, 30 Pennys  
1 Quarter, 1 Dime, 8 Nickles, 25 Pennys  
1 Quarter, 1 Dime, 9 Nickles, 20 Pennys  
1 Quarter, 1 Dime, 10 Nickles, 15 Pennys  
1 Quarter, 1 Dime, 11 Nickles, 10 Pennys  
1 Quarter, 1 Dime, 12 Nickles, 5 Pennys  
1 Quarter, 1 Dime, 13 Nickles  
1 Quarter, 2 Dimes, 55 Pennys  
1 Quarter, 2 Dimes, 1 Nickle, 50 Pennys  
1 Quarter, 2 Dimes, 2 Nickles, 45 Pennys  
1 Quarter, 2 Dimes, 3 Nickles, 40 Pennys  
1 Quarter, 2 Dimes, 4 Nickles, 35 Pennys  
1 Quarter, 2 Dimes, 5 Nickles, 30 Pennys  
1 Quarter, 2 Dimes, 6 Nickles, 25 Pennys  
1 Quarter, 2 Dimes, 7 Nickles, 20 Pennys  
1 Quarter, 2 Dimes, 8 Nickles, 15 Pennys  
1 Quarter, 2 Dimes, 9 Nickles, 10 Pennys  
1 Quarter, 2 Dimes, 10 Nickles, 5 Pennys  
1 Quarter, 2 Dimes, 11 Nickles  
1 Quarter, 3 Dimes, 45 Pennys  
1 Quarter, 3 Dimes, 1 Nickle, 40 Pennys  
1 Quarter, 3 Dimes, 2 Nickles, 35 Pennys  
1 Quarter, 3 Dimes, 3 Nickles, 30 Pennys  
1 Quarter, 3 Dimes, 4 Nickles, 25 Pennys  
1 Quarter, 3 Dimes, 5 Nickles, 20 Pennys  
1 Quarter, 3 Dimes, 6 Nickles, 15 Pennys  
1 Quarter, 3 Dimes, 7 Nickles, 10 Pennys  
1 Quarter, 3 Dimes, 8 Nickles, 5 Pennys  
1 Quarter, 3 Dimes, 9 Nickles  
1 Quarter, 4 Dimes, 35 Pennys  
1 Quarter, 4 Dimes, 1 Nickle, 30 Pennys  
1 Quarter, 4 Dimes, 2 Nickles, 25 Pennys  
1 Quarter, 4 Dimes, 3 Nickles, 20 Pennys  
1 Quarter, 4 Dimes, 4 Nickles, 15 Pennys  
1 Quarter, 4 Dimes, 5 Nickles, 10 Pennys  
1 Quarter, 4 Dimes, 6 Nickles, 5 Pennys  
1 Quarter, 4 Dimes, 7 Nickles  
1 Quarter, 5 Dimes, 25 Pennys  
1 Quarter, 5 Dimes, 1 Nickle, 20 Pennys  
1 Quarter, 5 Dimes, 2 Nickles, 15 Pennys  
1 Quarter, 5 Dimes, 3 Nickles, 10 Pennys  
1 Quarter, 5 Dimes, 4 Nickles, 5 Pennys  
1 Quarter, 5 Dimes, 5 Nickles

1 Quarter, 6 Dimes, 15 Pennys  
1 Quarter, 6 Dimes, 1 Nickle, 10 Pennys  
1 Quarter, 6 Dimes, 2 Nickles, 5 Pennys  
1 Quarter, 6 Dimes, 3 Nickles  
1 Quarter, 7 Dimes, 5 Pennys  
1 Quarter, 7 Dimes, 1 Nickle  
2 Quarters, 50 Pennys  
2 Quarters, 1 Nickle, 45 Pennys  
2 Quarters, 2 Nickles, 40 Pennys  
2 Quarters, 3 Nickles, 35 Pennys  
2 Quarters, 4 Nickles, 30 Pennys  
2 Quarters, 5 Nickles, 25 Pennys  
2 Quarters, 6 Nickles, 20 Pennys  
2 Quarters, 7 Nickles, 15 Pennys  
2 Quarters, 8 Nickles, 10 Pennys  
2 Quarters, 9 Nickles, 5 Pennys  
2 Quarters, 10 Nickles  
2 Quarters, 1 Dime, 40 Pennys  
2 Quarters, 1 Dime, 1 Nickle, 35 Pennys  
2 Quarters, 1 Dime, 2 Nickles, 30 Pennys  
2 Quarters, 1 Dime, 3 Nickles, 25 Pennys  
2 Quarters, 1 Dime, 4 Nickles, 20 Pennys  
2 Quarters, 1 Dime, 5 Nickles, 15 Pennys  
2 Quarters, 1 Dime, 6 Nickles, 10 Pennys  
2 Quarters, 1 Dime, 7 Nickles, 5 Pennys  
2 Quarters, 1 Dime, 8 Nickles  
2 Quarters, 2 Dimes, 30 Pennys  
2 Quarters, 2 Dimes, 1 Nickle, 25 Pennys  
2 Quarters, 2 Dimes, 2 Nickles, 20 Pennys  
2 Quarters, 2 Dimes, 3 Nickles, 15 Pennys  
2 Quarters, 2 Dimes, 4 Nickles, 10 Pennys  
2 Quarters, 2 Dimes, 5 Nickles, 5 Pennys  
2 Quarters, 2 Dimes, 6 Nickles  
2 Quarters, 3 Dimes, 20 Pennys  
2 Quarters, 3 Dimes, 1 Nickle, 15 Pennys  
2 Quarters, 3 Dimes, 2 Nickles, 10 Pennys  
2 Quarters, 3 Dimes, 3 Nickles, 5 Pennys  
2 Quarters, 3 Dimes, 4 Nickles  
2 Quarters, 4 Dimes, 10 Pennys  
2 Quarters, 4 Dimes, 1 Nickle, 5 Pennys  
2 Quarters, 4 Dimes, 2 Nickles  
2 Quarters, 5 Dimes  
3 Quarters, 25 Pennys  
3 Quarters, 1 Nickle, 20 Pennys  
3 Quarters, 2 Nickles, 15 Pennys  
3 Quarters, 3 Nickles, 10 Pennys  
3 Quarters, 4 Nickles, 5 Pennys  
3 Quarters, 5 Nickles  
3 Quarters, 1 Dime, 15 Pennys  
3 Quarters, 1 Dime, 1 Nickle, 10 Pennys  
3 Quarters, 1 Dime, 2 Nickles, 5 Pennys  
3 Quarters, 1 Dime, 3 Nickles  
3 Quarters, 2 Dimes, 5 Pennys  
3 Quarters, 2 Dimes, 1 Nickle  
4 Quarters  
1 Half-Dollar, 50 Pennys  
1 Half-Dollar, 1 Nickle, 45 Pennys  
1 Half-Dollar, 2 Nickles, 40 Pennys  
1 Half-Dollar, 3 Nickles, 35 Pennys  
1 Half-Dollar, 4 Nickles, 30 Pennys  
1 Half-Dollar, 5 Nickles, 25 Pennys  
1 Half-Dollar, 6 Nickles, 20 Pennys  
1 Half-Dollar, 7 Nickles, 15 Pennys  
1 Half-Dollar, 8 Nickles, 10 Pennys  
1 Half-Dollar, 9 Nickles, 5 Pennys

```

1 Half-Dollar, 10 Nickles
1 Half-Dollar, 1 Dime, 40 Pennys
1 Half-Dollar, 1 Dime, 1 Nickle, 35 Pennys
1 Half-Dollar, 1 Dime, 2 Nickles, 30 Pennys
1 Half-Dollar, 1 Dime, 3 Nickles, 25 Pennys
1 Half-Dollar, 1 Dime, 4 Nickles, 20 Pennys
1 Half-Dollar, 1 Dime, 5 Nickles, 15 Pennys
1 Half-Dollar, 1 Dime, 6 Nickles, 10 Pennys
1 Half-Dollar, 1 Dime, 7 Nickles, 5 Pennys
1 Half-Dollar, 1 Dime, 8 Nickles
1 Half-Dollar, 2 Dimes, 30 Pennys
1 Half-Dollar, 2 Dimes, 1 Nickle, 25 Pennys
1 Half-Dollar, 2 Dimes, 2 Nickles, 20 Pennys
1 Half-Dollar, 2 Dimes, 3 Nickles, 15 Pennys
1 Half-Dollar, 2 Dimes, 4 Nickles, 10 Pennys
1 Half-Dollar, 2 Dimes, 5 Nickles, 5 Pennys
1 Half-Dollar, 2 Dimes, 6 Nickles
1 Half-Dollar, 3 Dimes, 20 Pennys
1 Half-Dollar, 3 Dimes, 1 Nickle, 15 Pennys
1 Half-Dollar, 3 Dimes, 2 Nickles, 10 Pennys
1 Half-Dollar, 3 Dimes, 3 Nickles, 5 Pennys
1 Half-Dollar, 3 Dimes, 4 Nickles
1 Half-Dollar, 4 Dimes, 10 Pennys
1 Half-Dollar, 4 Dimes, 1 Nickle, 5 Pennys
1 Half-Dollar, 4 Dimes, 2 Nickles
1 Half-Dollar, 5 Dimes
1 Half-Dollar, 1 Quarter, 25 Pennys
1 Half-Dollar, 1 Quarter, 1 Nickle, 20 Pennys
1 Half-Dollar, 1 Quarter, 2 Nickles, 15 Pennys
1 Half-Dollar, 1 Quarter, 3 Nickles, 10 Pennys
1 Half-Dollar, 1 Quarter, 4 Nickles, 5 Pennys
1 Half-Dollar, 1 Quarter, 5 Nickles
1 Half-Dollar, 1 Quarter, 1 Dime, 15 Pennys
1 Half-Dollar, 1 Quarter, 1 Dime, 1 Nickle, 10 Pennys
1 Half-Dollar, 1 Quarter, 1 Dime, 2 Nickles, 5 Pennys
1 Half-Dollar, 1 Quarter, 1 Dime, 3 Nickles
1 Half-Dollar, 1 Quarter, 2 Dimes, 5 Pennys
1 Half-Dollar, 1 Quarter, 2 Dimes, 1 Nickle
1 Half-Dollar, 2 Quarters
2 Half-Dollars

```

There are 292 total ways to make change for a \$1...

In [45]: