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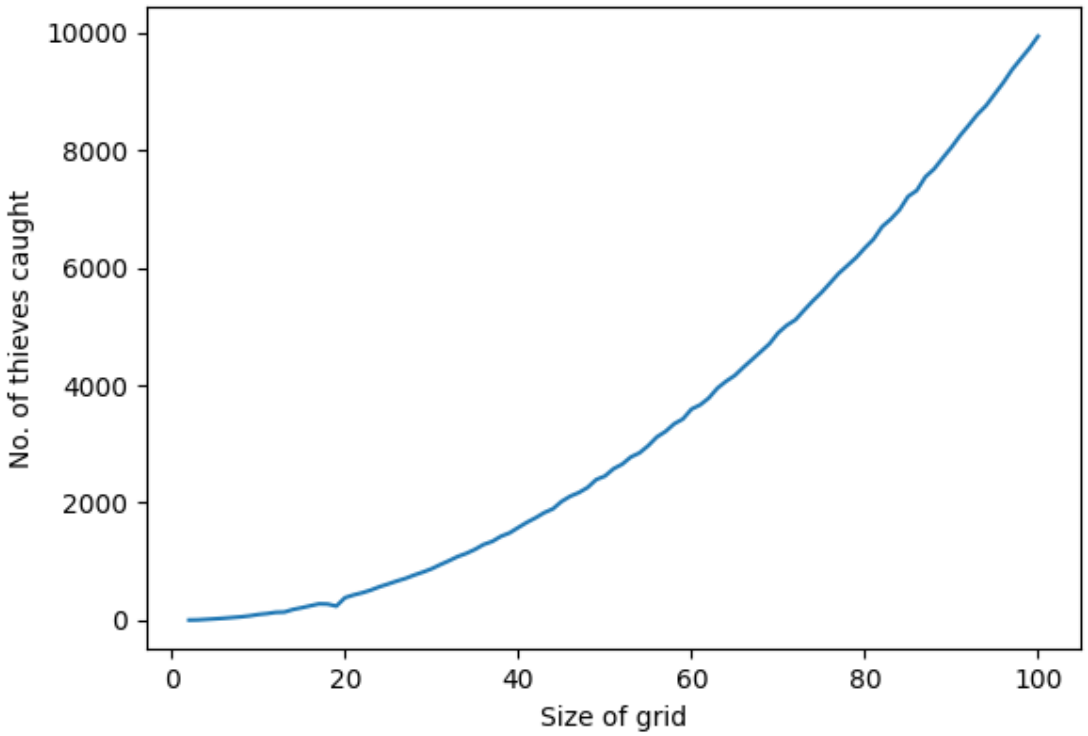
Assignment 6- Catching thieves (Greedy)

Functions used:- Greedy approach for Catching thieves

```
def catchThieves(grid, k):
    m, n = len(grid), len(grid[0])
    policemen = []
    thieves = []


    for i in range(m):
        for j in range(n):
            if grid[i][j] == 'P':
                policemen.append((i, j))
            elif grid[i][j] == 'T':
                thieves.append((i, j))

    caught_thieves = 0

    for policeman in policemen:
        x1, y1 = policeman
        for thief in thieves[:]:
            x2, y2 = thief
            distance = abs(x1 - x2) + abs(y1 - y2)

            if distance <= k:
                caught_thieves += 1
                thieves.remove(thief)

    return caught_thieves
```

Graph:



Analysis:

1. we take only square grids of size N which have 1 to N policemen randomly
2. We have plotted number of thieves caught vs the size of grid
3. We can see we have got a **Polynomial** graph