In [3]:
```
import numpy as np
import matplotlib.pyplot as plt
import json
```

In [17]:
```
N = 36
in_layer = 10
out_layer = 1
```

In [33]:
```
#two layer networks
max_val = 0
max_layers = []
for i in range(N):
    weights = 10*(i) + (i+1)*(N-(i+1)-1) + (N-(i+1))
    #print(weights,(i+1),(N-(i+1)))
    if weights > max_val:
        max_val = weights
        max_layers = [(i+1),(N-(i+1))]
print(max_val, max_layers, sum(max_layers))
```

```
(510, [22, 14], 36)
```

In [34]:
```
#three layer networks
max_val = 0
max_layers = []
for i in range(N):
    for j in range(N-(i+1)):
        weights = 10*(i) + (i+1)*(j-1) + (j)*(N-j-(i+1)-1) + (N-j-(i+1))
        if weights > max_val:
            max_val = weights
            max_layers = [(i+1),j,(N-j-(i+1))]
print(max_val, max_layers)
```

```
(475, [22, 13, 1])
```