$n = 50$

最坏情况:

$$T(n) = T(n-1) + T(1) + \theta(n) = T(n-1) + \theta(n)$$

$$a_n = (n-1) + (n-2) + \ldots + 1 = \frac{n(n-1)}{2} = 1225$$

最好情况:

$$T(n) = T(\frac{n}{2}) + T(\frac{n}{2}) + \theta(n)$$

$$a_n = a_{\lfloor \frac{n-1}{2} \rfloor} + a_{\lceil \frac{n-1}{2} \rceil} + n - 1$$

最好情况下的比较次数:

$$
\begin{aligned}
a_{50} &= a_{24} + a_{25} + 49 \\
&= a_{11} + a_{12} + 23 + 2a_{12} + 24 + 49 \\
&= a_{11} + 3a_{12} + 72 + 24 \\
&= 2a_5 + 10 + 3(a_5 + a_6 + 11) + 96 \\
&= 5a_5 + 3a_6 + 139 \\
&= 5(2a_2 + 4) + 3(a_2 + a_3 + 5) + 139 \\
&= 13a_2 + 3a_3 + 174 \\
&= 13a_2 + 3(2a_1 + 2) + 174 \\
&= 6a_1 + 13a_2 + 180 \\
&\text{易得，} a_1 = 0, a_2 = 1 \\
&\text{原式} = 193
\end{aligned}
$$

综上，a_{50} 最大为 1225, a_{50} 最小为 193