1.)

Compasison formula:

$$\sum_{1}^{n} = 1 + 2 + 3 + \ldots + (n-1) \quad eq(1)$$

$$\sum_{1}^{n} = (n-1) + (n-2) + (n-3) + \ldots + 3 + 2 + 1 \quad eq(2)$$

eq1 + eq2 =>

$$2\sum_{1}^{n} = n + n + n \ldots + n - 1$$

$$\Sigma = \frac{[n \cdot (n-1)]}{2} = O(n^2)$$

Swap Formula. ↑

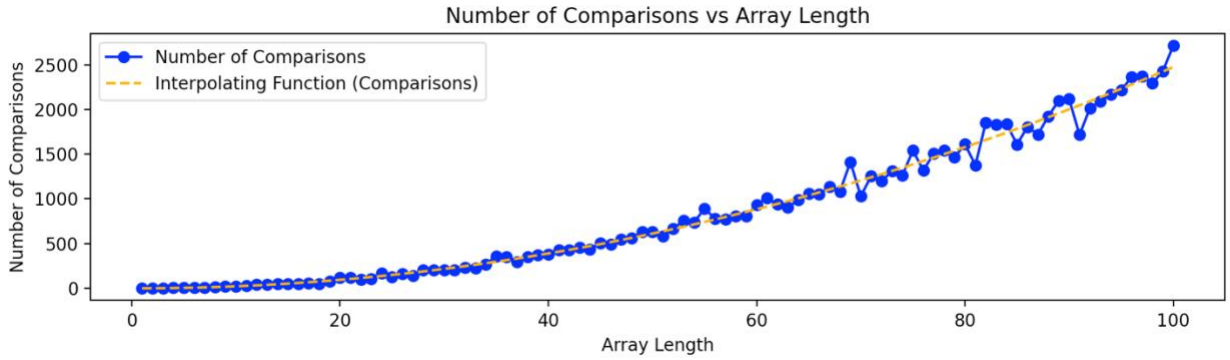
Same for worst case

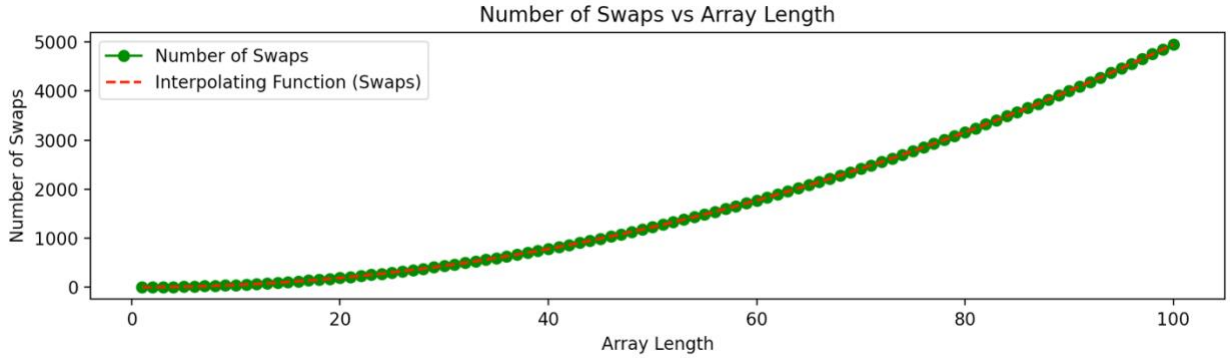
for Best case No swaps.

for avg case: $\Sigma = \frac{[n \cdot (n-1)]}{4}$

Notes ↗

4.)





This graph makes sense as the average complexity is quadratic, and the interpolating function is a quadratic function graph.
Therefore it matches the complexity analysis