12.排序

希尔排序

Sedgewick序列

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❖ Pratt 's sequence performs best asymptotically but

  - requires too many iterations and hence

  - is not good for pre-sorted sequences

❖ Sedgewick 's sequence: a combination of PS 's sequence with Pratt 's

$$\{ \ 1 \quad ^{5} \quad _{19} \quad ^{41} \quad _{109} \quad ^{209} \quad _{505} \quad ^{929} \quad _{2161} \quad ^{3905} \quad _{8929} \quad ^{16001} \quad _{36289} \quad ^{64769} \quad \cdots \ \}$$

$$\{ \ 9 \times 4^k - 9 \times 2^k + 1 \mid k \geq 0 \ \} \quad \cup \quad \{ \ 4^k - 3 \times 2^k + 1 \mid k \geq 2 \ \}$$

  - **worst** $\mathcal{O}(n^{4/3})$ **& average** $\mathcal{O}(n^{7/6})$

  - best performance in practice

❖ Is there a step sequence with $\mathcal{O}(nlogn)$ worst-case performance?