In this worst case, the number of

3

quick (split, last)
quick (first, split)
split (first, last, split)

if (first < last)

if (split point)

v1 = quick (inf, first, last, split)

quick sort

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In each case you need \((n-1)\) comparisons to
\[s_0 + (s_0 - 1) + \ldots + (s_0 - (n-1))\]

Sort in elements using Guard Sort.

Let \(g(n)\) be the # of comparisons needed.

Now let us consider the average case.
\( (cn) \text{ is decreasing by Equation (1)} \)

Let \( (cn) \ni (an) = 2^n \log_2(n) \) where

Now we will show that \( (cn) = 2^n \log_2(n) \) (An2i)

\[ (cn) = c(n) \leq \frac{c(n)}{2} \log_2(c(n)) \]

\[ \Rightarrow (cn) \leq c(n) + \frac{c(n)}{2} \log_2(c(n)) \]

But \( (c0) = c(0) = 0 \)

Hence \( (cn) \leq c(n) + 1/2 (c(n) + c(n-1) + c(n-2) + \cdots + c(1) + c(0)) \)

Hence \( C(n) \text{ is constant where } C \text{ is constant} \)

\( C(n) \text{ cannot exceed } \lim_{n \to \infty} c(n) \)}
We must show $P(n)$ here. I.e.

$$P(n) = 3 \cdot c \cdot n \log_2 n$$

We have $P(n) = 3 c \cdot 2 \log_2 n$.

Hence $P(n) = 3 c \cdot 2 \log_2 n$.

We have $n = 2$.

We have $n = 1$.

We have $n = 0$.
\[
\frac{u^2}{2c^2} = \text{scnlog}_e - \text{scnlog} = (u^2 + \frac{\text{scnlog}}{c})
\]

\[
\frac{u^2}{2c^2} + \frac{3u^2}{5c} + 3cu - \frac{9}{6u} + \frac{1}{2}
\]

\[
\text{Substituting in A in } A
\]

\[
\text{Solution: } u = \frac{\text{scnlog}}{\frac{1}{2}c + \frac{1}{2}}
\]

\[
\int \frac{1}{2x} \left( \frac{u^2}{2} \cdot \frac{u^2}{2} - \frac{u^2}{2} \right) = \text{scnlog} \cdot \frac{u^2}{2}
\]