

# Range of N vs Allowed Time Complexity

## Table

| Range of N       | Allowed Time complexity              |
|------------------|--------------------------------------|
| $N \leq 10$      | $O(N!)$                              |
| $N \leq 25$      | $O(2^N)$                             |
| $N \leq 100$     | $O(N^4)$                             |
| $N \leq 500$     | $O(N^3)$                             |
| $N \leq 5000$    | $O(N^2)$                             |
| $N \leq 10^5$    | $O(N\sqrt{N})$ , $O(N \log^2 N)$     |
| $N \leq 10^6$    | $O(N \log N)$                        |
| $N \leq 10^7$    | $O(N \log \log N)$ , $O(N)$          |
| $N \leq 10^8$    | $O(\sqrt{N})$ , optimized $O(N)$     |
| $N \leq 10^{12}$ | $O(\sqrt{N})$                        |
| $N \leq 10^{16}$ | optimized $O(\sqrt{N})$              |
| $N \leq 10^{18}$ | $O(\log N)$                          |
| 😊                | Keep coding, don't forget to smile 😊 |

- Made with love by  
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