

Tutorial 10: CS21003 Algorithms I

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1. In the disjoint set union-find data structure, if the union is performed by height, the height of any tree in the data structure is $\mathcal{O}(\log n)$.
2. We say that a string y has a repetition factor of r if r is the largest integer such that there exists a string x such that y is x concatenated with itself r times. For a pattern $P[1, \dots, m]$, we denote the repetition factor of $P_i = P[1, \dots, i]$ by $\rho(P_i)$. Design a $\mathcal{O}(m)$ time algorithm to compute $\rho(P_1), \dots, \rho(P_i)$.