DAA Homework Assignment 1

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Problem 1: The order of the functions as per their asymptotic growth is as follows.

$$log^3\ n,\ (log\ n)!,\ 2^{\sqrt{log\ n}},\ n^2,\ n^{log\ n}$$

Problem 2: Consider the case when all men have the same order of preference of women namely $(w_1,\ w_2, ...\ w_n)$ and the women also have a similar order of preference $(m_1,\ m_2, ...\ m_n)$.
Now, the men will start proposing to the women in their order of preference. Clearly for each man m_i, he will be engaged to the woman w_i.
Assuming this every man m_i makes i proposals. Summing up,

$$\sum_{1}^{n} i\ =\ (n)(n+1)/2\ \in\ \theta(n^2)$$