1. (a) (2 points) Describe the general idea of a search tree algorithm (in about 4 lines).

> **Solution:** The idea of a search tree is to solve a problem by considering a limited set of *strictly smaller subproblems*. Usually the best of the outcomes from the subproblems is taken as the outcome of the complete problem.

(b) (2 points) Explain how an upper bound on the runtime of a search tree algorithm can be obtained (in about 4 lines).

> **Solution:**
>
> - The runtime can then be expressed by a *recurrence relation*, where the runtime for the complete algorithm is the sum of the runtimes of the strictly smaller problems.
> - This runtime can be then computed by *rewriting this to a polynomial equation*, for example to be solved numerically.

End of assignment