

Algorithm: Make up homework

Due in my mailbox before Thursday 9:00 pm in printed form.

The grade on this homework will replace the worst homework score.

1. Write a Turing machine program that accepts when the input string is divisible by three and otherwise not. Show the result of your program on the Turing machine simulator in Morphett.
2. Explain why the non-existence of a Turing machine that solves the Halting Problem does **not** imply that humans can do things that machines can do.
3. Find an example of a directed graph and an instance of the DFS-algorithm on this graph such that for two vertices u and v , there is a path from u to v but $v.d > u.f$, i.e. v is discovered after u finishes. (Hint: The white path theorem tells you that by the time u is discovered, the path from u to v can no longer be white.)