Homework Assignment 2.

Due: September 22, 2004 at class.

Problem 1:

Show using the layering technique that for any algorithm solving Non-Uniform Consensus in the synchronous stopping failure model with up to t failures, where $1 \leq t \leq n-2$, there exists an execution with f failures in which it takes at least $f+1$ rounds to decide.

Problem 2:

Modify the early deciding Non-Uniform Consensus algorithm from Homework Assignment 1 to solve Uniform Consensus and decide in $min(t+1, f+2)$ rounds where $0 \leq f \leq t < n$.

Problem 3 (Early Stopping):

1. Modify the Non-Uniform Consensus algorithm from Homework Assignment 1 to *halt* in $O(f)$ rounds.
2. Modify the Uniform Consensus algorithm from Problem 2 to *halt* in $O(f)$ rounds.

In both cases try to be as close as possible to the Dolev, Reischuk and Strong lower bound of $min(t+1, f+2)$ rounds.