Exercise Session 6
NBAC, TRB, and GM

Problem 1

Devise two algorithms that, without consensus, implement weaker specifications of NBAC by replacing the termination property with the following ones:

1. Weak termination: Let p be a distinguished process, known to all other processes. If p does not crash then all correct processes eventually decide. Your algorithm may use a perfect failure detector.

2. Very weak termination: If no process crashes, then all processes decide. Is a failure detector needed to implement this algorithm?

Problem 2

Can we implement TRB with the eventually perfect failure detector $\diamond P$, if we assume that at least one process can crash?

Problem 3

In this problem we will change the *view-synchronous communication (VSC)* abstraction in order to allow joins of new processes. Answer to the following questions:

1. Are the properties of VSC (as given in the class) suitable to accommodate the joins of new processes. Why / Why not?

2. Change the properties of VSC, so that they allow for implementations that support the joins of new processes. (Hint: focus on the properties of *group membership*)