Test 2015

Exercise: Election. In Hungary there are several electoral districts. In each district there are an electorial committee, which protects the legality of voteing. The committe has got three members: a president and two other people. Usually one of them are checking the identification documents of the voters, the other one seals down the electorial paper. (The president will be the parent process, the other two members will be child processes.)

1) The president waits for the signals of each of the children that they are ready for work. After that, the president read from the command line argument the number of voters and generate a random identification number for each of them. The presidents write the numbers into an unnamed pipe and the first child process (checking member) has to read them and write to the screen.
2) The checking member (1st process) checks the identification cards of the voters and in 20% of the cases they are not good. The checking child send to the second child the identification numbers and the „can vote"/"can not vote" remark through a named pipe. The second child reads the data and writes everything to the screen.
3) The person who can vote will get the electorial paper and votes. (A random number between 1..6). The second child writes the result of the voters to a messagequeue. The president reads the messageqeue and writes everything to the screen.
4) Sometimes one of the members of the committee has a rest somewhere outside. You have to solve the problem not to leave the electorial room more than one member in the same time (semafor). You have to write the starting and ending time of each leaving into a file.