Introduction to distributed and parallel processing

Laboratory 3

Write using MPI the following programs:

1. Implement one to all broadcast communication for hypercube network using only send and receive functions. Use algorithm presented during lecture.
   Function header:

   ```
   void one2AllBroadcastHypercube(int &msg)
   or
   void one2AllBroadcastHypercube(int &msg, inr srcProc)
   ```

   where: in the first case we assume, that processor 0 broadcast its message. In the another case `srcProc` start the broadcast. Only starting process has an important value as `msg`, after end of the function call, all processors have in `msg` copy of sender's message.

2. Implement one to all broadcast communication using group communication function from MPI.

*Use `printf(...)` command **before** and **after** every communication function similar like for laboratory 2. Use this also in the main program before and after calling the function.*