

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI (RAJASTHAN)
I SEMESTER 2018-2019

ASSIGNMENT-1

Course No.: IS F462

Deadline: 06-Oct-2018

Course Title: Network Prog.

Maximum Marks: 60 (10%)

Note:

- Maximum two students per group.
 - Upload code in <http://nalanda>. Name your file `idno1_idno2_assignment1.tar`.
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P1. We have studied that System V Message queues can be used to send messages to different processes within OS. Let us consider implementing a similar mechanism called Network Message Bus (NMB) on a LAN using UDP sockets and System V Message Queues. Following are the characteristics of this bus.

- in NMB, processes can send messages to other processes residing in any operating system on the network.
- Any process can use NMB through the following API. Type of message is formed by ip address (higher 4 bytes) and port no (lower 2 bytes). Use network byte-order.
 - `msgget_nmb()` similar to `msgget()`. Assume that there is only one message bus in the network.
 - `msgsnd_nmb()` similar to `msgsnd()`
 - `msgrcv_nmb()` similar to `msgrcv()`
- When a process uses above API, the messages are sent to a local tcp server (running at 1111) through TCP sockets. Local server uses UDP socket to send this message to all local servers in the network on port 1112.
- When a local server receives messages on UDP socket from other processes, it accepts only those those messages which are meant for its ip address. If the process bound on that port is up, it will deliver it on the TCP socket, otherwise it is delivered whenever a process connects with source port number matching the port no in the message type.

Implement the API specified in the above requirements in file *nmb.c*. Implement local server in file *local_server.c*.

Deliverables:

- *nmb.c*, *local_server.c*, *driver.c*
- PDF file explaining the design.

[60M]