BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI (RAJASTHAN)
II SEMESTER 2017-2018
ASSIGNMENT-3

Course No.:	**IS F462**	**Course Title:**	**Network Prog.**
Due Date:	**26-April-2018**	**Maximum Marks:**	**60 (10%)**

Note:

- Maximum two students per group.
- Upload code in http://nalanda. Name your file idno1_idno2_assignment3.tar .

P1. Explore one of the following event-driven web servers. Implement a web server containing salient features of the selected model. It should be able to handle traffic from httperf for at least 10k simultaneous connections.

- Nginx
- lighthttpd
- tornado
- Node.js

Deliverables:

- event_driven_server.c
- PDF file explaining the salient features of the selected server and how you implemented them using Linux API calls.
- a screen shot of httperf output

[30M]

P2. 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 multicasting 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).
  - msgget_nmb() similar to msgget(). Assume that there is only one message bus in the network.
  - msgsnd_nmb() similat 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 multicasts this message to all local servers (part of multicast group 239.0.0.1) in the network on port 1112.

- A receiving local server receives only 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 no 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.

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