Indian Institute of Technology Tirupati

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CS3500 Operating Systems Lab - Inter-Process Communication

1. (10 marks) Read and understand the following Xinu components: send.c, “prmsg” and “prhasmsg” fields of process table entry (in other words, PCB), receive.c, and other associated Xinu components. In rollnumber_lab6a.c implement the following: Send roll number from ProcessA to ProcessB, subsequently send a random number from ProcessB to ProcessA.

2. (20 marks)Implement the following in rollnumber_lab6b.c: Create a custom sender and receiver functions (named as rollnumbersend.c, rollnumberreceive.c), sender can send two messages in one go (at any instant of time), mailbox to contain two messages, and receiver at any instant of time can receive only one message. Note that the sender is allowed to send only if both the buffers are not outstanding at (or consumed by) the receiver. rollnumber_lab6b.c should demo the scenario described using the developed functions.

3. (20 marks) Implement the following in rollnumber_lab6c.c Use rollnumbersend.c just created, two-buffered mailbox (as discussed), and create a new receiver function namely, rollnumberreceivesum.c which receives the sum of the two numbers in the mailboxes. rollnumber_lab6c.c should demo the scenario described using the developed functions.

Note:

- In the main folder of rollnumber_lab6, attach all the .c, .txt files (if any), and screenshot images (if any).

- Let the process that sends message print the message after successfully sending the following: sender process name, and message sent. If not sent, print the reason as why not sent. Let the process that receives the message print the receiver process name, and message received.