

CSci 430/530 HOMEWORK 2 (60 points, Due on Fri Mar 4)

Problem 1: (20 points) In textbook, procedure *chprio* contains a serious design flaw if the process (whose priority is being changed) is in the ready queue.

- (a) Find the design flaw, describe its consequences, and propose solution to fix it.
- (b) If the process (whose priority is being changed) is in another state (other in the ready state), is there any problem. Justify your answer.

Problem 2: (15 points) Global variable *numproc* tells the number of active processes. Considering the code in *kill* can you tell whether the count in *numproc* should include the null process or not? A brief justification is required as a part of the answer.

Problem 3: (25 points)

Process Management

Suppose the ready queue of the running Xinu system contains the following list of processes.

process id	priority
0	0
2	20
3	10
7	15
9	12

(a) (15 points) Assume that $N \text{ PROC} = 10$. Complete the snapshot of the running Xinu Q array as shown below.

	key	next	prev
0	0		
1	10	8	10
2	20		
3	10		
4	20	11	8
5	20	101	2
6	25	1	10
7	15		
8	15	4	1
9	12		
10	MININT	1	-1
11	MAXINT	-1	4

rdyhead → 100	MININT		-1
rdytail → 101	MAXINT	-1	

(b) (10 points) From the above table, can you determine the current process? If yes, what is the **currently running process**? Explain your answer in either case.