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CS340

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Homework 4

**Part I**

A18

[zoha2717@venus ~]$ ls -l > dirlist &

[2] 12384

[zoha2717@venus ~]$ fg [%jobid]

fg: No such job.

Suspend

[zoha2717@venus ~]$ ps

PID TTY TIME CMD

11082 pts/20 00:00:00 tcsh

11767 pts/20 00:00:00 vim

12535 pts/20 00:00:00 ps

[zoha2717@venus ~]$ vi

#include <stdio.h>

#include <stdio.h>

#define SIZE 100

main (int argc,char \*argv[])

{

~

~

~

~

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~

~

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~

~

~

~

~

~

5,1 All

Suspended

[zoha2717@venus ~]$ sleep 300&

[3] 12575

[zoha2717@venus ~]$ ps

PID TTY TIME CMD

11082 pts/20 00:00:00 tcsh

11767 pts/20 00:00:00 vim

12548 pts/20 00:00:00 vim

12575 pts/20 00:00:00 sleep

12584 pts/20 00:00:00 ps

[zoha2717@venus ~]$ jobs

[1] - Suspended vim

[2] + Suspended vim

[3] Running sleep 300

19 - Nice

[zoha2717@venus ~]$ man nice

NICE(1) User Commands NICE(1)

NAME

nice - run a program with modified scheduling priority

SYNOPSIS

nice [OPTION] [COMMAND [ARG]...]

DESCRIPTION

Run COMMAND with an adjusted niceness, which affects process scheduling.

With no COMMAND, print the current niceness. Nicenesses range from -20

(most favorable scheduling) to 19 (least favorable).

-n, --adjustment=N

add integer N to the niceness (default 10)

20 – Abnormal termination process

[zoha2717@venus ~]$ kill -l

HUP INT QUIT ILL TRAP ABRT BUS FPE KILL USR1 SEGV USR2 PIPE ALRM TERM STKFLT CHLD CONT

STOP TSTP TTIN TTOU URG XCPU XFSZ VTALRM PROF WINCH POLL PWR SYS RTMIN RTMIN+1 RTMIN+2

RTMIN+3 RTMAX-3 RTMAX-2 RTMAX-1 RTMAX

[zoha2717@venus ~]$ ps

PID TTY TIME CMD

11082 pts/20 00:00:00 tcsh

11767 pts/20 00:00:00 vim

12548 pts/20 00:00:00 vim

12852 pts/20 00:00:00 man

12855 pts/20 00:00:00 sh

12856 pts/20 00:00:00 sh

12860 pts/20 00:00:00 less

12922 pts/20 00:00:00 ps

[zoha2717@venus ~]$ kill -1 12852

[zoha2717@venus ~]$ ps

PID TTY TIME CMD

11082 pts/20 00:00:00 tcsh

11767 pts/20 00:00:00 vim

12548 pts/20 00:00:00 vim

12929 pts/20 00:00:00 ps

B)

[zoha2717@venus ~]$ Mon Oct 28 13:50:51 EDT 2013

/usr/bin/who: Permission denied.

zoha2717

Linux

hello, world!

[4] Done ( who; whoami; uname; echo hello, world! )

[3] Done date

**Part II**

Window XP uses a fixed priority pre-emptive scheduling algorithm. The processes are arranged so that process with higher priority will be executed first. Process with lower priority will be interrupted while they are processing if a process with higher priority comes in. Processes will have their priority rate increase for each wait event. The part of kernel that handles the scheduling is called the dispatcher. Dispatcher uses a 32-level priority scheme to distinguish the order of the process execution. The priority of the process are divided into two classes, the Variable class which contains thread priority from 1 to 15 and real time class which contains thread priorities from 16 to 31.

Linux uses two type of process scheduling called real time processing and Timesharing algorithms. Real time process schedule means that the process must be able to finish within an absolute time range and they have the highest priority and will be able to pre-empt any process with lower priority. For the real time processes, Round Robin and FIFO schedule algorithms are used to switch between real time processes. FIFO schedule means that the real time process that comes in first will be complete first. For normal processes, Linux uses timesharing algorithms, an algorithm that is prioritized where each process will be given priority. The system prioritizes interactive and I/O- bound processes which increases user-perceived performance.

Mac OSX uses a priority scheduling algorithm combined with a time quantum. Each process is given a priority value range from -20 to 20 with higher values indicating lower level priority. The system reschedules the priority every tenth of a second and recomputed the priorities once every second. The priority of the process changes base on the wait time which prevents process starvation.