

R.T.S Assignment Report

Real Time System



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# Problem 1.1

The first problem contain 4 processes, startup and 3 other processes.

***P2***

Startup program forks 3 processes. Process 2 and 3 takes in a sets of parameters.

***P1***

***Startup***

* P1 prints out 3 OS-9 system call messages. Each message delayed for 1.5 seconds before displaying.

{"P3", "3", "-", "2", 0}

{"P2", "A", "AB", "ABC", 0}

* P2 expecting a list of string and then it calculate the length of the string.

***P3***

* P3 expecting a string that contain 2 numbers and a mathematical operator [i.e.] ‘+’, ‘-’, ‘\*’, ‘/’

## Results:

(INSERT IMAGE HERE)

# Problem 1.2

To solve this problem instead of using parameter passing to each process from the startup, an alarm cycle us used during the process.

***P1***

***Startup***

Startup fork a process, and it doesn’t pass in any parameters.

* P1 contain a signal handler, alarm cycle and array of temperature. Alarm Cycle is used to wake up the program every 1.5 seconds to print out a temperature within the array.

Alarm Cycle

## Results:

(INSERT IMAGE HERE)

# Problem 1.4

This problem involve using 6 processes and a startup program, the startup program fork 6 processes then it save all child PID into an array and writes it into the data module then sleep forever. Startup program is set to sleep because if it exited the other child program will be shutdown.

* Each of the 6 processes are linked to the data module (DM) as shown in the diagram.

***Startup***

***DM***

***P3***

***P2***

***P1***

***P4***

***P5***

***P6***

* Once the children processes are forked, they will be put to sleep for several seconds.
* P1 wakes up and link to DM to retrieve the PID of P2 then send a signal to P2.
* Then P2 wakes up and link to DM to retrieve the PID of P3, P4 and P5 then send signal to each of them. The P5 send signal to P6 and P6 send to P1.

Link to

Send to

Fork

* And Process repeats to P1 to P6 and the P6 send it to P1 and the cycle repeats.

## Results:

(INSERT IMAGE HERE)