CS242
System Programming Lab No. - 3

Objective

In this lab you will expose you to termination status and fork-exec-wait loops.

Farmer and his sons

1. A farmer (process) has four sons (child process) with the following traits – wise, foolish, wicked and hardworking. Write a program that will fork four child process, each terminating in the following way:
   a. The Wise Son: sleeps for 1 second and the exits with status 16
   b. The foolish Son: derferences NULL and causes a segmentation fault
   c. The Wicked Son: sends itself a terminating `SIGABRT` signal
   d. The hardworking son: runs the SystemInfo.c program that you wrote in the last lab record the amount of time it takes to execute, and then print the result afterwards.

Hints: Open up the man page for `wait()` and you'll find the following macros, which you will need to use

- `WIFEXITED(status)` : returns true if child terminated due to exit or return from main
- `WEXITSTATUS(status)` : returns the exit status number
- `WIFSIGNALED(status)` : returns true if the child terminated due to termination signal, like SEGFAULT.
- `WTERMSIG(stuats)` : returns the signal number that caused the termination.

To print the signal number, use the library function `strsignal()` from `string.h`. You can use it like so print the signal information

```
printf("Signal: %s", strsignal( WTERMSIG(status) ) );
```

Deliverables

Create a pdf document containing the output of your program. Next create an archive file by the name <roll number>.tar that contains the pdf document and the C program.
Mail the document to cs242@iitp.ac.in with subject “Lab 1”.

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