CSCI-7645: Practice Problem Set 2

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Problem Statement

Suppose a parent process with id `p` creates three child processes with ids `x`, `y`, and `z`. After creating each child process, the parent prints a message, such as:

```
Parent process p created child process x
Parent process p created child process y
Parent process p created child process z
```

When child process `x` gets created, it prints

```
Child process x going to sleep for 10 seconds
```

and sleeps for 10 seconds using the `sleep` system call (see: `https://man7.org/linux/man-pages/man3/sleep.3.html`). At the end of 10 seconds, it should print

```
Exiting child process x
```

and exit. Child processes `y` and `z` should do the same thing, but the duration of sleep should be 5 seconds and 2 seconds, respectively. Write a C program for the above and observe the output under the following conditions:

1. Parent process does not `wait` for the child processes.
2. Parent process waits for the child processes using the `wait` system call.
3. Parent process waits for the child processes using the `waitpid` system call (see page 544 of the text book), with `pid` being `x`, `y`, and `z` in that order.