

1.

- a. The issue with the previous code is that for `memset` to work it needs to be provided a pointer, to do this we use the ampersand. The `errno` is also unnecessary as `memset` returns a void.
- b. This code is also not correct as the AI forgot to subtract one from the length when checking for and removing the `'\n'` character. It also does not correctly remove `'\n'`, to do that I used `'\t'`.
- c. This code does not print to `stdout`, `perror` prints to `stderr`. This can be fixed by using `fprintf` while using `errno`.
- d. The function returns the tokens correctly but if the string exceeds the global limit the function will fail.
- e. The first example used is between the `printf`, `strcpy`, and `atoi` functions and the `write` system call. Here it explains that the `printf` function utilizes the `write` system call to access the kernel to output a string while `strcpy` and `atoi` do not use any system calls to complete their jobs. The other example is between `sbrk(2)` and `malloc(3)`. With this example it is explained that `sbrk(2)` is not a general purpose memory manager, it only increases or decreases the address space of the process by a specified number of bytes. `Malloc` functions tell a process how to manage the memory allocation in its given memory space.

2.

- a. The code provided almost works but has two mistakes. The first is that it got `'w'` and `'s'` backwards with `'w'` causing the program to sleep when that should be caused by `'s'`. The other problem is that it provides the wrong value to `waitpid()`. `Status` should be `&Status` to provide a pointer for the function instead of the value itself.
- b. `WIFEXITED` is a macro not a function call, it is part of the library `"#include <sys/wait.h>"` and uses `#define`.

Experiment 1: a1p2.w

	PID	PPID	State	CMD
parent	3002244	2971194	S	./a1p2 w
child	3002245	3002244	S	/bin/sh ./myclock out1
grandchild	3002458	3002245	S	sleep 2

Experiment 2: a1p2 s

	PID	PPID	State	CMD
parent	3004280	1	S	/bin/sh ./myclock out1
child	3004441	30047280	S	sleep 2

Acknowledgements

- Usage of chatgpt to explain concepts and functions in part 3.
- Usages of APUE 3/E for pr_times function and explanations of concepts and functions