CSE 29 Week 6 Discussion

Project 3, background processes, and sizeof (again)

PA3 - The Sea(C) Shell: Due Friday, 11/06 at 10:00pm - Classroom50 Link

Learning Goals

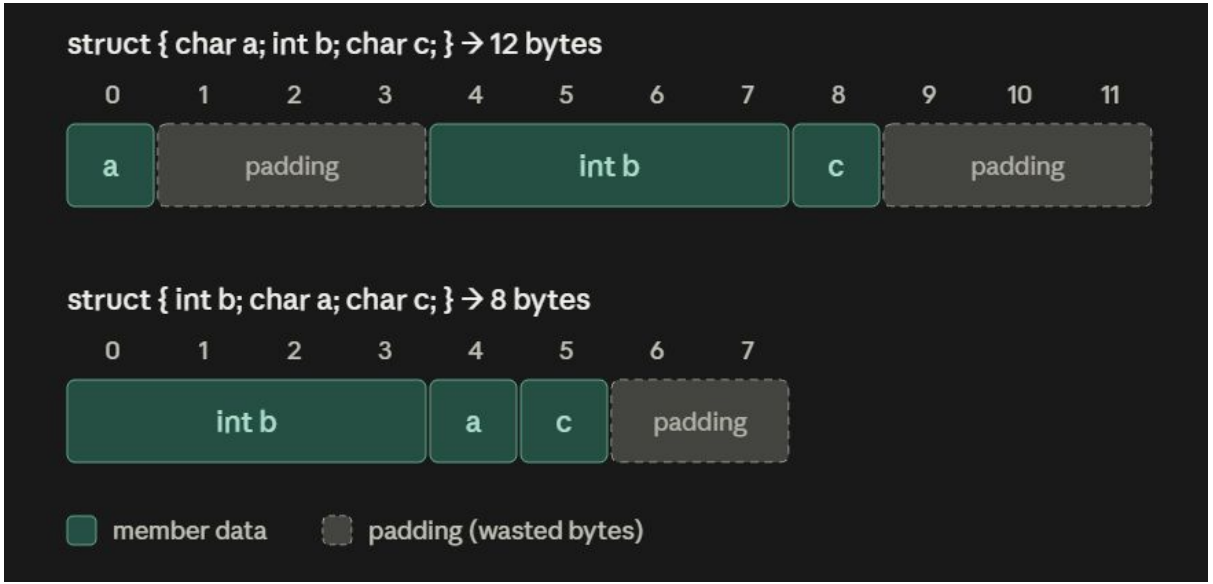
This assignment calls upon many of the concepts that you have practiced in previous PAs. Specifically, we will practice the following concepts in C:

- string manipulation,
- command line arguments,
- process management using fork(), exec(), wait(), and waitpid(), and of course,
- using the terminal and vim.

We'll also get practice with a new set of functions for opening, reading from, and writing to files.

Structs

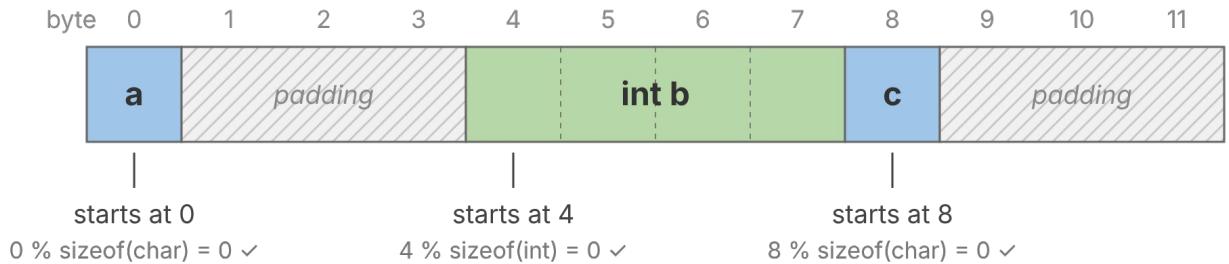
- Order of member declaration matters
- Changes layout in memory space



What's with all that padding?

- Members of a struct when stored in memory must be byte aligned
  - Start byte = multiple of sizeof(variable type)

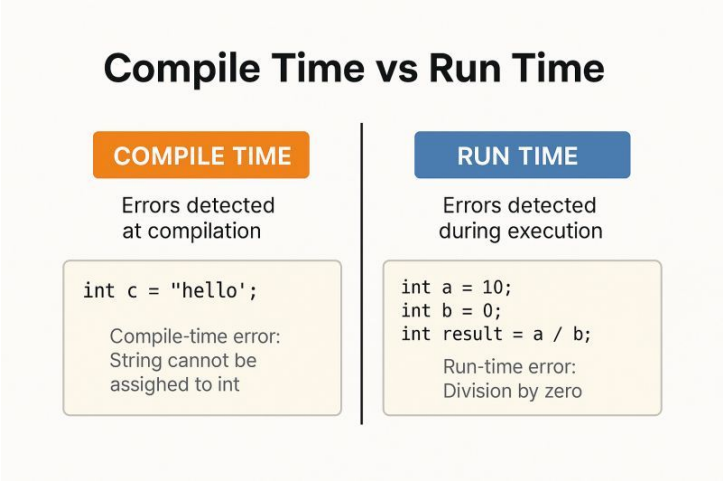
```
struct example { char a; int b; char c; };
```



sizeof(struct example) = **12** bytes (only 6 are data)

What exactly is sizeof()?

- `sizeof` behaves differently compared to other functions (e.g. `printf`, `fgets`, etc)
- Compiler operator
- Compile time vs runtime



Background processes



Background processes

- Using `&` in a shell will run your command in the background
  - Allows you to continue to use shell and run other commands
- `fg` brings command to foreground
  - Can’t use shell or send new commands till process finishes
- `Jobs` shows active and completed processes

Background process demo

Questions

- **Project 3**
- Lecture content: pointers, stack, memory allocation, structs, ...
- Labs: unix commands, git, vim, ...
- etc

Reminders

- Project 2 resubmission due **10PM** this Friday, 11/6
- Project 3 due **10PM** this Friday, 11/6
- Lab 6 check-off due **11AM** Monday, 11/9

Attendance

https://forms.gle/zs5tXLhXvSBP4nrq9

