

Thursday Operating Systems Tutorial Group 6

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Conceptual Questions

1.)

- read
 - o r or rb
- write
 - o w or wb
- read and write
 - o r+ or rb+ or r+b
- append
 - o a+ or ab+ or a+b

2.)

- dynamic memory uses the heap
 - o allocated at startup
 - o reclaimed when the process exits
- the stack is used as scratch space for thread execution
 - o always LIFO, to make sure that processes are executed in the correct order
 - o allows for simple tracking of which block to use in the stack, as it just involves moving a pointer
 - o stacks are attached to a thread, so when threads exit their stack is reclaimed in memory

3.)

- Pointers are variables that hold the address of another variable as their value
- Pointers in C are defined as:
 - o `type *name;`
 - o type is the type of the variable the pointer is pointing too
 - o name is the name of the pointer
- to set the value a pointer points to, use `name = &var`
 - o name is the pointer, var is the variable address to have name point to
 - o to get the address, you can now access the value of name

4.)

- malloc allocates memory of the given size and gives a
- to use malloc, you can initialize arrays of variables, such as characters, by initializing with:
 - o `var = (char *) malloc(15)`
 - o this would allocate 15 character bytes at the returned address

- you can free the memory at a point by calling `free(pointer)`, where `pointer` is the pointer variable pointing to the memory location you want to clear

5.)

- `malloc` takes 1 argument (number of bytes), `calloc` takes 2 arguments (number of blocks, and the size of the blocks)
- `malloc` returns a pointer to the given number of bytes of uninitialized storage, or `NULL` if it cannot allocate the given number of bytes in storage
- `calloc` returns a pointer to enough free space for an array of `n` objects of the specified size, or `NULL`

Bonus

Git is like a filing cabinet that stores records that are constantly changing. Each new record is a git commit, and the filing cabinet is GitHub.