C Programming Basics

SDS 322/329

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Recap & Administrative Trivia

- Functions in C
  - Pointers

Overview of the Course

- Writing a Basic C Program
- Understanding Errors
- Comments Keywords, Identifiers, Variables
- Operators
- Standard Input and Output (Basic)
- Control Structures
- Standard Input and Output
- Arrays, Structures
- Functions in C
- Pointers
- Working with Files

All the concepts will be accompanied with examples.

Storage Classes in C – Understanding `static`

- The life-time and scope of a variable is defined by its storage class

- The following are four types of storage classes available in C
  - auto: default storage class for local variables
  - register: used to define local variables that *might be* stored in a register instead of RAM
  - extern: defines a global variable that is visible to ALL program files
  - static: the default storage class for global variables; a static variable can be defined within a function if its value needs to be retained between function calls and the use of global variables is not desirable

Usage of `static` Variables: staticExample.c

```c
#include <stdio.h>
void foo(){
    int a = 10;
    static int sa = 10;
    a += 5;
    sa += 5;
    printf("a = %d, sa = %d\n", a, sa);
}

int main(){
    int i;
    for (i = 0; i < 10; ++i){
        foo();
    }
}
```