CS241 Discussion 0
Check code out from SVN

Handin instruction:
https://courses.engr.illinois.edu/cs241/handin.html

Command to checkout SVN directory:
svn checkout https://subversion.ews.illinois.edu/svn/sp14-cs241/NETID
svn up

DO NOT COMMIT AFTER DEADLINE !!!!!
MPs: up to 24 hours, 30% deduction, with no submissions accepted past 24 hours late.
Setup Piazza

https://piazza.com/class/ho7vaxphwq9283

Post any mp/lecture related materials there
void *

void * can point at any memory location

Pointer arithmetic
int *p; p++ increments by 4 instead of 1
String Functions

- Commonly used string functions are:
  1) `strcpy` - String Copy
  2) `strcat` - String Concatenation
- standard string functions defined in `string.h`
- look up man pages
String functions contd…

char *str1=malloc(7);
strcpy(str1,"hello");
char str2[7]="world!";

// What would happen ?
strcat(str1, str2);
// strcpy(str1, str2);
printf("%s", str1);
String functions contd…

char *str_buf=(char *)malloc(5);
strcat(str_buf,"123");

// What would happen?
printf("%s\n",str_buf);
String cont.

difference between the following:
char * tmp_a = “Hello World!”; (const)
char tmp_b [] = “Hello World!”;
char tmp_c [13] = “Hello World!”;
tmp_a[5] = ‘a’;
tmp_b[1] = ‘b’;
Endianness

```c
int magic_number=2189672;
printf("%s\n",(char *)&magic_number);

/* magic_number in hex: */
/* 0 21 69 68 */
/* \0 ! i h */
```
malloc/free

- Dynamic memory allocation on heap

  example:

  ```c
  int *ptr = (int *)malloc(sizeof(int));
  if ( NULL == ptr )
      // Handle error here
  ```

- Needs to be freed explicitly

  example:

  ```c
  free(ptr)
  ```

- Careful about double frees
- `malloc` returns a `void*`. Hence casting necessary
- `malloc` may return NULL. Error handling is a good practice
sizeof

char arr_example[6]; sizeof(arr_example) ?
char * arr_example = malloc(6); sizeof (arr_example)?
sizeof(char) = 1;
sizeof(int) = 4;
Address Alignment

struct mystruct{
    char a[5];
    int b;
}

what is sizeof(struct mystruct)?