

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

```
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:

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

- Needs to be freed explicitly

example:

```
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)?