

CSE216 Programming Abstractions

Strings

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String

- String is a null terminated char array

```
#include <stdio.h>
```

```
void print_str(char *str) { //str points to the beginning
                           // of the char array
    for(; *str; str++)      //*str: until the null char
                           //str++: increase the pointer by 1
        printf("%c", *str); //*str: contents of the str
}
```

```
int main() {
    //string is a null (0 or '\0') terminated char array
    char str[] = { 'H', 'e', 'l', 'l', 'o', '\n', 0 };

    char *pstr = str;    //str is a constant pointer
                        //pstr is a pointer

    print_str(str);
    print_str(pstr);
}
```

```
> a.exe
Hello
Hello
```

```
#include <stdio.h>

//TODO: implement my_strlen
static int my_strlen(char *str) {...}

//TODO: implement my_strcpy
static void my_strcpy(char *dst, char *src) {...}

//TODO: implement my_strcat
//use my_strlen and my_strcpy
static void my_strcat(char *dst, char *src) {...}

//TODO: implement my_strcmp
static int my_strcmp(char *s1, char *s2) {...}

//TODO: implement my_strncmp
static int my_strncmp(char *s1, char *s2, int n) {...}

//TODO: implement my_strchr
static char *my_strchr(char *str, char chr) {...}

//TODO: implement my_strstr
//use my_strncmp
static char *my_strstr(char *str, char *substr) {...}
```

```

int main() {
    char *str = "Hello World";
    char buf[256];
    int cmp;

    printf("my_strlen(str): %d\n", my_strlen(str));

    my_strcpy(buf, str);
    printf("my_strcpy(buf, str): %s\n", buf);

    my_strcat(buf, "!!!");
    printf("my_strcat(buf, \"!!!\"): %s\n", buf);

    str = my_strchr(buf, 'W');
    printf("my_strchr(buf, 'W'): %s\n", str);

    cmp = my_strncmp(buf, "Hello");
    printf("my_strncmp(buf, \"Hello\"): %d\n", cmp);

    cmp = my_strncmp(buf, "Hello", 5);
    printf("my_strncmp(buf, \"Hello\", 5): %d\n", cmp);

    str = my_strstr(buf, "ello");
    printf("my_strstr(buf, \"ello\"): %s\n", str);

    return 0;
}

```

Expected result

```
> a.exe  
my_strlen(str): 11  
my_strcpy(buf, str): Hello World  
my_strcat(buf, "!!!"): Hello World!!!  
my_strchr(buf, 'W'): World!!!  
my_strncmp(buf, "Hello"): 1  
my_strncmp(buf, "Hello", 5): 0  
my_strstr(buf, "ello"): ello World!!!
```