# C Cheatsheet

## Strings

strlen() - Find length of str
strcmp() - Compare 2 strings
strcpy() - Copy one string to another
strcat() - concatenate one string with another
strchr() - Find the given char in the str
strstr() - Find the given substring in the string

## Pointers

```c
int var = 10;
int* ptr;
ptr = &var;

printf("Value of ptr = %p \n", ptr);
printf("Value of var = %d \n", var);
printf("Value of *ptr = %d \n", *ptr);
return 0;
```

## OUTPUT

```
Value of ptr = 0x7ffd62e6408c
Value of var = 10
Value of *ptr = 10
```

## Dynamic Memory Management

1. malloc(size_t size);
   - Allocates the block of a specific size in the memory.
   - (☆) Returns the void pointer to the memory block.
   - (☆) If the allocation is failed, it returns the null pointer.

2. calloc(size_t num, size_t size)
   - Allocates the number of blocks of the specified size in the memory.
   - (☆) Same as (1)

3. realloc(void* ptr, size_t new-size);
   - Used to change the size of the already allocated memory.
   - (☆) Same as (1) & (2)

4. free(ptr);
   - Deallocates the already allocated memory

## Structure Template

```c
struct struct-name {
    member_type1 name1;
    member_type2 name2;
};
```

OR

```c
struct {

} struct str_name var1, var2, ... var N;
```

## Union

```c
union union-name {
    //members
};
```

## Enum (Enumeration)

```c
enum {name1, name2, name3 = value3};
```

## C File Operations

Create new file - fopen(attr) - attr ("a", "a+", "w" or "w+")
Open existing file - fopen()
Reading from file - fscanf() or fgets()
Writing to a file - fprintf() or fputs()
Moving to a specific Location in a file - fseek(), rewind()
Closing a file - fclose()

## Preprocessor Directives

#define   Used to define a macro
#undef    Used to undefine a macro
#include  Used to include a file in the source code program
#ifdef    Used to include a section of code if a certain macro is defined by #define
#endif    Used to mark the end of #endif
#ifndef   Used to include a section of code if a certain macro is not defined by #define
#if       Check for the specified condition
#else     Alternate code that executes when #if fails
#pragma   This directive is a special-purpose directive and is used to turn on or off some features.

## Format Specifiers

%c   For s type
%d   For signed int type
%f   For float type
%lf  Double
%p   pointer
%s   String
%ou  Unsigned int
%%   prints % char

## Escape Sequences

\b   Backspace
\n   New Line
\r   Carriage Return
\t   Horizontal Tab
\v   Vertical Tab
\\   Backslash
\"   Double Quote
\0   NULL