C Cheat Sheet

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July 22, 2022

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1 Hello World

```
#include <stdio.h>
int main(void){
    printf("hello world\n");
    return 0;
}
```

2 Fundamentals

2.1 Variables

```
/*  definition of constants  */
main(){
  char c = 'x';
  char c1 = '0';    /* the char 'zero', with the int value for ASCII(0) */
  char c2 = '\0';   /* has the "integer" value zero */

  int n = 10;
  int n_oct = 065;  /* octal */
  int n_hex = 0x3d; /* hexadecimal */

  long m = 10L;
  unsigned int k = 304U;
  unsigned long l = 3040UL;

  float x1 = 143.0;
  float x2 = 24.6e-3;
  double y = 34.1L;
}
```

2.2 I/O

2.2.1 Basic I/O

printf("control string", variable1, variable2, ...);
scanf("control string",&pointer1,&pointer2, ...);

2.2.2 Input using pointers

```
/* Input and Output */
main(){
        /*Use pointers for input*/
        scanf("%d", &x); /* correct */
        scanf("%d", x); /* incorrect */
}
```

2.2.3 More I/O

```
/*  using printf() and scanf() */
main()
{
  int x=10;
  float y;

  printf("(1)  %d\n", x);
  printf("(2)  %d\n", x*5);

  printf("(3)  x = ");
  printf("%d", x);
  printf("\n");

  printf("(4)  x = %d\n", x);

  printf("input x: "); scanf("%d", &x);
  printf("(5)  x = %d\n", x);

/*
can input several values of different types
with one scanf command
*/
  printf("input x, y: "); scanf("%d %f", &x, &y);
  printf("(6)  x = %d, y = %f\n", x, y);
}
```

Outputs:
(1) 10
(2) 50
(3) x = 10
(4) x = 10
input x: 40
(5) x = 40
input x, y: 20 34.5
(6) x = 20, y = 34.500000

2.3 Conditional Operators

2.4 Loops

2.5 Statements

2.6 Notes