# C Language Tutorial
## (Basic to Advanced)

**Topics** to be covered :

# Instructions & Operators
## (Chapter 2)

1. **Type Declaration Instructions**

```c
#include<stdio.h>

int main() {
    int age = 22;
    int oldAge = age;
    int newAge = oldAge + 2;
    printf("new age is : %d", newAge);

    int rupee = 1, dollar;
    dollar = 74;

    /*
        order of declaration is important - Wrong Declaration Order
        float pi = 3.14;
        float area = pi * rad * rad;
        float rad = 3;
    */
```

```c
    // valid declaration
    int age1, age2, age3;
    age1 = age2 = age3 = 22;

    //invalid
    //int a1 = a2 = a3 = 22;

    return 0;
}
```

## 2. Arithmetic Instructions

```c
#include<stdio.h>

int main() {
    int a = 1, b = 2, c = 3;
    //valid
    a = b + c;

    //invalid
    // b + c = a;

    printf("%d \n", 3 % 2);
    printf("%d \n", -3 % 2);
    return 0;
}
```

### > Type Conversion

```c
#include<stdio.h>

int main() {
    printf("sum of 2 & 3 : %d", 2 + 3);
    printf("sum of 2.0 & 3 : %f", 2.0 + 3);
    printf("sum of 2.0 & 3.0 : %f", 2.0 + 3.0);
    return 0;
}
```

### > Associativity

```c
#include<stdio.h>

int main() {
    printf(" Output : %d", 5+2/2*3);
```

```
    return 0;
}
```

### 3. Relational Operator

```c
#include<stdio.h>

int main() {
    printf("%d \n", 4==4);

    printf("%d \n", 4<3);
    printf("%d \n", 3<4);
    printf("%d \n", 4<4);
    printf("%d \n", 4<=4);

    printf("%d \n", 4>3);
    printf("%d \n", 3>4);
    printf("%d \n", 4>4);
    printf("%d \n", 4>=4);

    printf("%d \n", 4!=4);
    printf("%d \n", 3!=4);
    return 0;
}
```

### 4. Logical Operator

```c
#include<stdio.h>

int main() {
    printf("%d \n", 3<4 && 3<5);
    printf("%d \n", 3<4 && 5<4);

    printf("%d \n", 3<4 && 5<4);
    printf("%d \n", 3>4 && 5>4);
    printf("%d \n", 3<4 && 3<5);

    printf("%d \n", !(3<4 && 3<5));
    printf("%d \n", !(4<3 || 5<3));
    return 0;
}
```

### 5. Assignment Operator

```c
# include <stdio.h>

int main() {
    int a = 10;
    a += 10;
    printf("a+10 = %d \n", a);
    a -= 10;
    printf("a-10 = %d \n", a);
    a *= 10;
    printf("a*10 = %d \n", a);
    a /= 10;
    printf("a/10 = %d \n", a);
    a %= 10;
    printf("a%c10 = %d \n", '%', a);
    return 0;
}
```