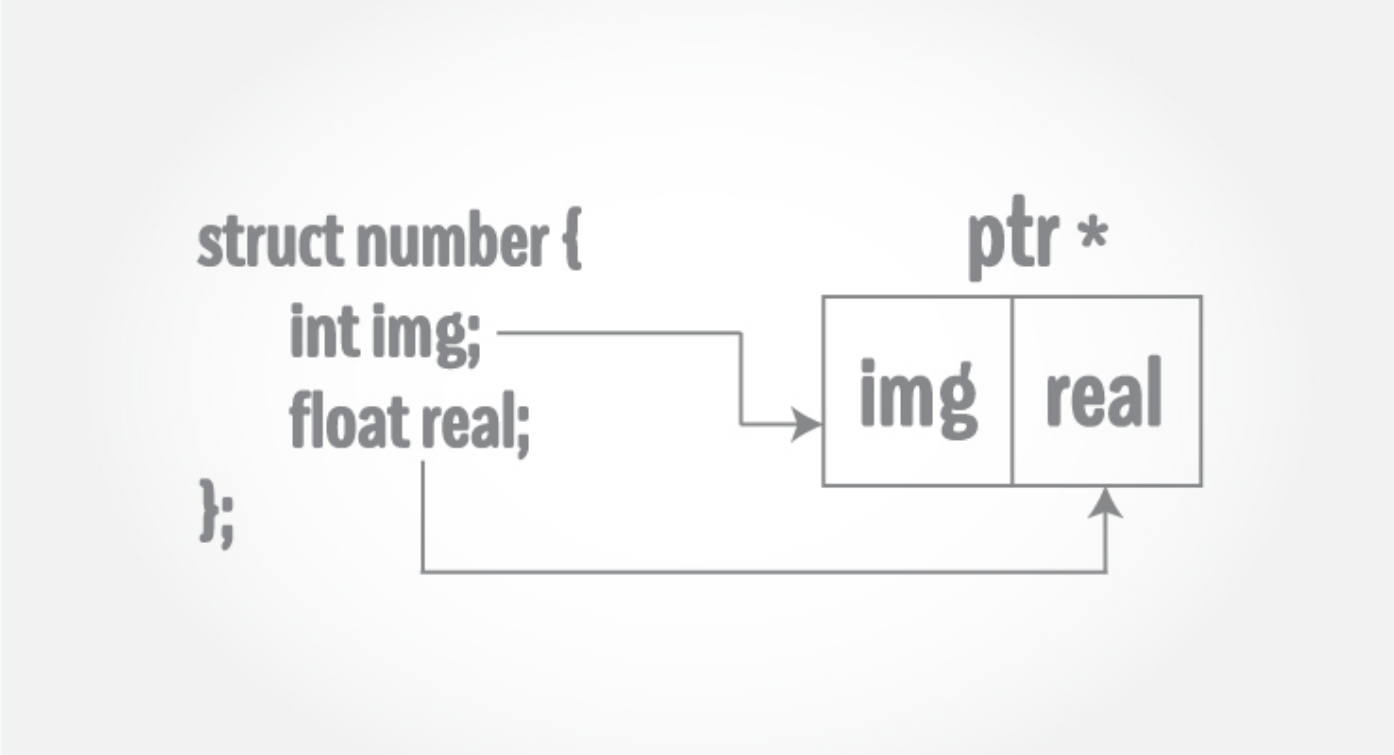
C Programming Structure and Pointer

In this article, you'll find relevant examples that will help you to work with pointers to access data within a structure.



Structures can be created and accessed using pointers. A pointer variable of a structure can be created as below:

```
struct name {
     member1;
     member2;
     .
     .
};

int main()
```

```
(*personPtr).age is same as personPtr->age
(*personPtr).weight is same as personPtr->weight
```

2. Accessing structure member through pointer using dynamic memory allocation

To access structure member using pointers, memory can be allocated dynamically using malloc() function defined under `"stdlib.h"` header file.

Syntax to use malloc()

```
ptr = (cast-type*) malloc(byte-size)
```

Example to use structure's member through pointer using malloc() function.

```
#include <stdio.h>
#include <stdlib.h>
struct person {
    int age;
    float weight;
    char name[30];
};

int main()
{
    struct person *ptr;
    int i, num;

    printf("Enter number of persons: ");
    scanf("%d", &num);

    ptr = (struct person*) malloc(num * sizeof(struct person));
    // Above statement allocates the memory for n structures with pointer personP

    for(i = 0; i < num; ++i)
    {
         printf("Enter name, age and weight of the person respectively:\n");
         scanf("%s%d%f", &(ptr+i)->name, &(ptr+i)->age, &(ptr+i)->weight);
    }

    printf("Displaying Infromation:\n");
    for(i = 0; i < num; ++i)
         printf("%s\t%d\t%.2f\n", (ptr+i)->name, (ptr+i)->age, (ptr+i)->weight);

    return 0;
}
```

Output

```
Adam
2
3.2
Enter name, age and weight of the person respectively:
Eve
6
2.3
Displaying Information:
Adam    2       3.20
Eve     6       2.30
```

Check out these examples to learn more:

- Calculate Difference Between Two Time Periods

PREVIOUS
C STRUCTURES

NEXT
STRUCTURE & FUNCTION