## Pass By Reference vs values

```
pass by reference

cup = cup = fillCup( ) fillCup( )

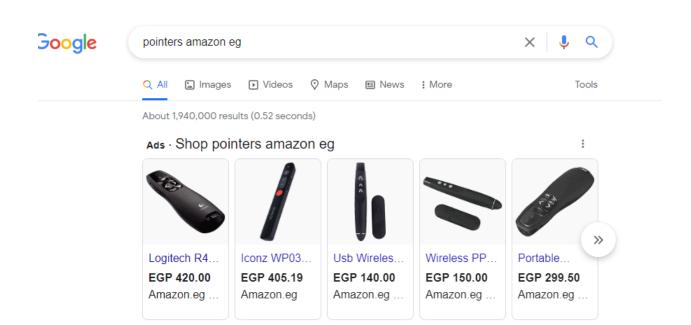
www.penjee.com
```

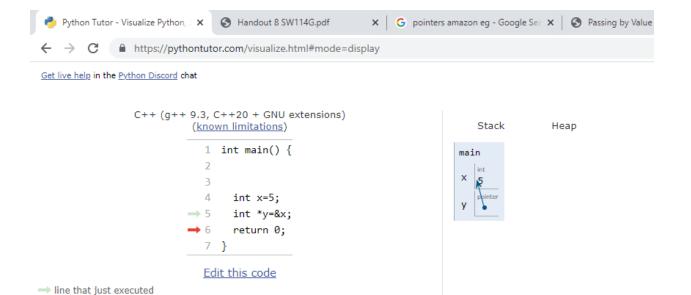
```
main.cpp X
    1
          #include <iostream>
    2
    3
          using namespace std;
    4
    5
          void withdraw(int &money);
    6
          int main()
    7
    8
              int AccountBalance=1000;
    9
              cout<<"The value of Balance before withdraw:"<<AccountBalance<<endl;</pre>
   10
              withdraw(AccountBalance);
   11
              cout<<"The value of Balance after withdraw:"<</pre>AccountBalance<<endl;
   12
              return 0;
   13
       void withdraw(int &money) {
              money=money-100;
   17
```

```
int maximumNumber=20;
int minimumNumber=90;

cout<<"The maximum number is:"<<maximumNumber<<"The Minimum Number is:"<<minimumNumber<<endl;
swaping (maximumNumber, minimumNumber);
cout<<"The maximum number is:"<<maximumNumber<<<"The Minimum Number is:"<<minimumNumber<<endl;
return 0;
}

void swaping (int maximumNumber, int minimumNumber) {
   int temp;
   temp=maximumNumber;
   maximumNumber=minimumNumber;
   minimumNumber=temp;
}</pre>
```





Last >>

next line to execute

Customize visualization

<< First

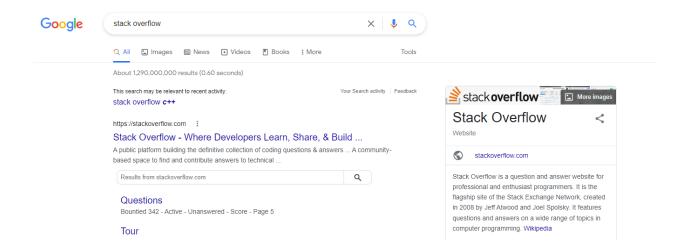
< Prev Next >
Step 3 of 3

Int \*9= borc -
15)

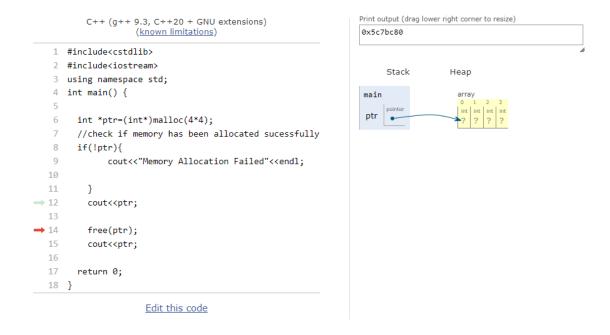
Value

Original

Origina



**memory and heap memory** is that the stack is used to store the order of method execution and local variables while the heap memory stores the objects and it uses dynamic memory allocation and deallocation.



```
main.cpp X
      1
             #include <iostream>
      2
             #include<string.h>
      3
             #include<cstdlib>
      4
             using namespace std;
      5
      6
      7
             int main()
      8
      9
                  int *ptr=(int*)malloc(4*4);
                      //check if memory has been allocated sucessfully
     10
     11
                     if(!ptr){
     12
                            cout<<"Memory Allocation Failed"<<endl;</pre>
     13
     14
     15
                       cout<<ptr<<endl;</pre>
     16
                       *ptr=1000;
     17
                       cout<<*ptr<<endl;;</pre>
     18
     19
                       free (ptr);
     20
     21
                        🔳 "C:\Users\THE LAPTOP SHOP\Desktop\Intro To Software Engineering\Source Code\passbyrefrence\bin\Debug\passby
Logs & others
                       0x716e48
                  Q Sear 1000
   Code::Blocks
```

## People also ask :

What is calloc and malloc function?

Malloc() function is used to allocate a single block of memory space while the calloc() in C is used to allocate multiple blocks of memory space. Each block allocated by the calloc() function is of the same Size. Mar 26, 2022



https://www.guru99.com > c-dynamic-memory-allocation

Dynamic Memory Allocation in C using malloc(), calloc() Functions

```
C++ (g++ 9.3, C++20 + GNU extensions)
(known limitations)
   1 #include<cstdlib>
   2 #include<iostream>
   3 using namespace std;
   4 int main() {
   6
        int *ptr=(int*)calloc(5,4);
        //check if memory has been allocated sucessfully
→ 8
        if(!ptr){
   9
              cout<<"Memory Allocation Failed"<<endl;</pre>
  10
  11
→ 12
          cout<<ptr;
  13
  14
          free(ptr);
  15
          cout<<ptr;
  16
  17
        return 0;
  18 }
```

```
main.cpp \times
             #include <iostream>
     1
            #include<string.h>
     2
     3
            #include<cstdlib>
     4
            using namespace std;
     5
                                                                  ■ "C:\Users\THE LAPTOP SHOP\Desktop\Intro To Software Engineering\Source Code\passbyrefrence\bir
     6
            int main()
                                                                  x6dfee0
         □ {
     8
                                                                  ame
     9
                  char name[]="Mohamed";
                                                                  Process returned 0 (0x0) execution time : 1.080 \ {
m s} Press any key to continue.
                  char name2[]="Mohamed";
    10
    11
                  cout<<&name<<endl;</pre>
    12
                  cout<<&name2<<endl;</pre>
    13
                  if(strcmp(name, name2) == 0) {
                       cout<<"Same"<<endl;</pre>
    14
    15
    16
                  else{
                       cout<<"Different"<<endl;</pre>
    17
    18
```