

C++ Programming

Pass by reference

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Teaching, Training and Coaching since more than a decade!

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Parameter Vs Argument

```
5 // A parameter is the variable which is part of declaration
6 // a, b are parameters. 10 is default argument for b
7 void print(int a, int b = 10) {
8     cout << a << " " << b << "\n";
9 }
10
11 int main() {
12     // argument is an expression used when calling the method.
13     int x = 2;
14
15     // x, 5, 3*2+1 are arguments PASSED to print function
16     print(x, 5);
17     print(3*2+1, x);
18 }
```

Pass arguments: value vs reference

```
4 void change(int a, int &b) {  
5     a++;  
6     b++;  
7 }  
8  
9 void read(int x, int &y, string &str) {  
10     cin >> x >> y >> str;  
11 }  
12  
13 int main() {  
14     int a = 1, b = 1;  
15     change(a, b);  
16     cout << a << " " << b << "\n";  
17  
18     string name;  
19     read(a, b, name);  
20     cout << a << " " << b << " " << name << "\n";  
21  
22     return 0;  
23 }
```

- If you want the function change memory content of your variable, use &
- Otherwise it is copied

Console Problems Tasks Properties 1010 0101 Call Gr

<terminated> ztemp [C/C++ Application] /home/moustafa/world

```
1 2  
10 20 mostafa  
1 20 mostafa
```

Pass array by reference [default]

```
3
4 int sum_array(int arr[], int len) {
5     int sum = 0;
6     for (int i = 0; i < len; ++i)
7         sum += arr[i];
8     return sum;
9 }
10
11 int main() {
12     int arr[6] = {1, 2, 3, 4, 5, 6};
13     cout << sum_array(arr, 3) << "\n";
14     cout << sum_array(arr, 6) << "\n";
15
16     return 0;
17 }
18
```

Problems Tasks Console Properties

<terminated> ztemp [C/C++ Application] /home/mousta

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|

Function: Is lower string?

```
4 bool is_lower(string str) {  
5     for (int i = 0; i < (int)str.size(); ++i) {  
6         bool lower = 'a' <= str[i] && str[i] <= 'z';  
7  
8         if (!lower)  
9             return false;  
10    }  
11    return true;  
12 }  
13  
14 int main() {  
15     cout << is_lower("abc") << "\n";  
16     cout << is_lower("aBC") << "\n";  
17  
18     return 0;  
19 }  
20
```

- We can also send strings!
- But copying a big string just takes a lot of time?
 - More wise use &
 - string &str

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”