

ICPC Assiut Community

Newcomers Training

String



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community

String Definition

- What is the **String** ?

String is an array of characters and it has some special functions to help.
The library of the **String** is *#include<string>*

- What is the **String** functions ?

1- str.size() / str.length()

5- str.substr()

9- getline()

2- str.push_back()

6- str.resize()

3- str.pop_back()

7- str.insert()

4- str.erase()

8- str.back()

String Functions

1- str.size() / str.length()

This function return the size / length of the string, in other word, it return the number of characters that the string has.

```
#include<iostream>
#include<string>
using namespace std;
int main() {
    string s = "ahmed";
    cout << s.size() << endl;
    return 0;
}
```

Output : 5

String Functions

2- str.push_back(char C)

This function add the character (**C**) in the end of the string.

```
#include<iostream>
#include<string>
using namespace std;
int main() {
    string s = "Ahmed";
    s.push_back('F');
    cout << s << endl;
    return 0;
}
```

Output : AhmedF

String Functions

3- str.pop_back()

This function remove the last character from the string.

```
#include<iostream>
#include<string>
using namespace std;
int main() {
    string s = "ahmed";
    s.pop_back();
    cout << s << endl;
    return 0;
}
```

Output : ahme

String Functions

4- `str.erase(int pos, int len)`

This function remove a substring from the string.

This substring start from index (`pos`) and the length of this substring is (`len`)

$0 \leq \text{pos} < \text{str.size}()$, if (`pos`) doesn't satisfy this condition, you will get **Runtime Error**

`str.erase(int pos)`

this line will remove a substring, start from index (`pos`) to the end of the string.

```
#include<iostream>
#include<string>
using namespace std;
int main() {
    string s = "Ibrahim";
    s.erase(1, 4);
    cout << s << endl;
    return 0;
}
```

Output : Iim

String Functions

5- `str.substr(int pos, int len)`

This function return a substring from the string.

This substring start from index (`pos`) and the length of this substring is (`len`)

$0 \leq \text{pos} < \text{str.size}()$, if (`pos`) doesn't satisfy this condition, you will get **Runtime Error**

`str.substr(int pos)`

this line will return a substring, start from index (`pos`) to the end of the string.

```
#include<iostream>
#include<string>
using namespace std;
int main() {
    string s = "Ibrahim";
    cout << s.substr(2, 5) << endl;
    return 0;
}
```

Output : rahim

String Functions

6- str.resize(int len)

This function change the size of the string to (len).

- if (len) is smaller than the original size of the string, the string will contain the first (len) characters and the remain characters will be removed.
- if (len) is greater than the original size of the string, the string add white spaces in the end of it until it's size will equal (len)

```
#include<iostream>
#include<string>
using namespace std;
int main() {
    string a = "Mohamed";
    string b = "Ahmed";
    a.resize(2);
    b.resize(7);
    cout << b << a;
    return 0;
}
```

Output : Ahmed Mo

String Functions

7- str.insert(int pos, string S)

This function insert a string or a character to the original string.

This function will start to insert (S) in index (pos) in the original string and shift right the remaining characters

```
#include<iostream>
#include<string>
using namespace std;
int main() {
    string a = "Aed";
    a.insert(1, "hm");
    cout << a;
    return 0;
}
```

Output : Ahmed

String Functions

8- str.back()

This function return the last character in the string

```
#include<iostream>
#include<string>
using namespace std;
int main() {
    string s = "Ibrahim";
    cout << s.back() << endl;
    return 0;
}
```

Output : m

String Functions

9- `getline(cin, string S)`

This function help you to take all the line in the string with the white spaces.

`getline(cin, string S, char c)`

This line will take all the line until he found the character (`c`) then stop and will not take (`c`).

```
#include<iostream>
#include<string>
using namespace std;
int main() {
    string a;
    getline(cin, a);
    cout << a;
    return 0;
}
```

Input : Ahmed Mohamed Ali

Output : Ahmed Mohamed Ali

For more information about **string** visit this [Link](#)

Now it's time to practise and solve
the problems of string

String Sheet

Good luck <3