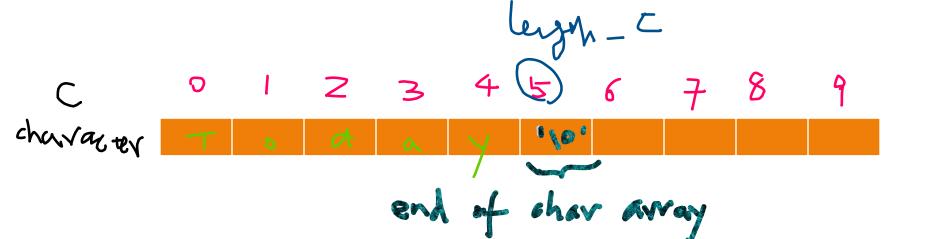


Str/variable)

string str;
str = "today";

tiday



Strings

```
char char_array[10];
char_array[0] = 'a';
.....
char_array[5] = '\0'; // \0 means that it's the end of an array character.
string str_var;
str_var = "aegioufznx";
```



a	е	g	i	0	' \0'				
0	1	2	3	4	5	6	7	8	9

Strings

- C-style strings are null-terminated arrays of chars
 - e.g. char my string[100];
 - To get the length of a c-style string:

```
int length = 0;
while( my_string[length] != '\0')
{
   length++;
}
```

– To copy a c-style string:

```
int i = 0;
while( my_string[i] != '\0')
{
   other_string[i] = my_string[i];
}
other_string[i] = '\0';
```

- These operations are wrapped up in standard functions
 - Used all the time, no sense rewriting the code
 - strlen, strcpy, strcmp, etc.
- But c-style strings are still inconvenient
 - Arrays are fixed size, so you have to always make sure the array is bigger than whatever text is coming in

That's why C++ introduced the class string

String variables don't have to specify a size

```
string s = "This is my string";
```

A string variable can take values of different sizes

```
string s = "short";
s = "looooooooooooooooooooooooooooo;
;
```

- Strings have built-in functionality
 - Length of a string

Copy a string

```
s2 = s1;
```

Append to a string

```
string s = "You win";
s.append( " a boot to the head" );
```

Find a sub-string, get a sub-string

```
string s = "Rapunzel";
int pos = s.find( "zel" ); // returns 5
cout << s.substr( 2, 5 ); // prints "punze"</pre>
```

bl/345274567070/1 this semester is almost over

Mrest 12 demants

How Can string Do All This?

- Variables can't hold different size things
 - Even arrays are fixed sized
- Variables don't have functions, they just store stuff

Any ideas?

Object-Oriented Programming

- In C++ classes provide the functionality necessary to use object-oriented programming
 - OOP is a particular way of organizing computer programs
 - It doesn't allow you to do anything you couldn't already do, but it makes it arguably more efficient
 - OOP is by far the dominant software engineering practice in the last two decades

- Classes combine data and functionality
 - Class members can store structured data, as we've seen
 - Class members can also be functions
 - Class-specific functions are called methods

- The string class has private data members to store the characters that make up a string
 - It probably uses an array, although it doesn't have to
 - It probably has ints to keep track of the size of the array and the number of characters
- The string class has public methods to do stuff
 - Return the number of characters in the internal storage int length();
 - Append the characters in s to the internal storage
 void append(string s);
 - returns the position of s within the internal storage
 int find(string s);

class Poi

int main(

};

```
• i++
```

```
i = 0;

j = 5;

++i; // updated value of i is 1; the stored value is 1;

j = j + i; // j values would be only depends on the store i

value => j = 5 + 1 = 6;
```