

# Class 24

String Methods

# C-String vs String

```
// Example: c-string
#include <iostream>
using namespace std;
int main() {
    char cs[5] = "Hello";
    char cs1[] = "Hello";
    char cs2[] = "World";
    char cs3[];
    cs2 = cs1;
    cout << cs1 + cs2 << endl;
    return 0;
}
```

*//Contains errors*

```
// Example: string
#include <iostream>
using namespace std;
int main() {
    string s1 = "Hello";
    string s2 = "World";
    string s3;
    s3 = s1;
    cout << s3 << endl;
    s3 = s3 + s2;
    cout << s3 << endl;
    s3 += s2;
    cout << s3 << endl;
    cout << s1 + " " + s2 << endl;
    return 0;
}
```

# String Class and Methods

- String is a class type
- Class types have methods, which are special functions to call on
- Use methods: `VariableName.MethodName(Arguments)`
  - The “.” is called the method selection operator
- Creating user-defined classes and methods is a CS 211 topic

# String Methods

- String class methods include:
  - length(), size()
  - find(target), find(target, start\_index)
  - rfind(target)
  - erase(index, amount)
  - replace(index, amount, addition)
  - append(addition)
  - insert(index, addition)
  - substr(index), substr(index, amount)

# Call on class methods

- Variable.Method(Required\_Input)
- Example:

```
string s = "Hello";
```

```
cout << s.length() << endl;
```

```
cout << s.size() << endl;
```

# Find methods

- Finding methods locate a target in a string

- Example:

```
string s = "Queens College";
```

```
cout << s.find("C") << endl; // returns position in string
```

```
cout << s.find("e") << endl; // returns first find from left
```

```
cout << s.rfind("e") << endl; // returns first find from right
```

```
cout << s.find("e",7) << endl; // returns first "e" starting from position 7
```

# Overloaded methods

- C++ allows two or more functions with the same name so long as they require different types of input

# Substring methods

- Extract a substring from a position in a string
- `substr(index)`
- `substr(index, length)`
- Examples:

```
string s = "Queens College";
```

```
string t = s.substr(7); // t stores College
```

```
string u = s.substr(0, 6); // u stores Queens
```



# Erase, Replace

- `erase(position, amount)`
- `replace(position, amount, newText)`
- Example:

```
string s = "Queens College";
```

```
s.erase(6, 2); // s now stores Queensollege
```

```
s.replace(0, 6, "C"); !! s now stores College
```

# Append

- `append(addition)`
- Example:

```
string s = "Queens";
```

```
s.append(" College"); // s now stores Queens College
```

# Insert

- `insert(position, newText)`

- Example:

```
string s = "College";
```

```
s.insert(0, "Queens "); // s now stores Queens College
```