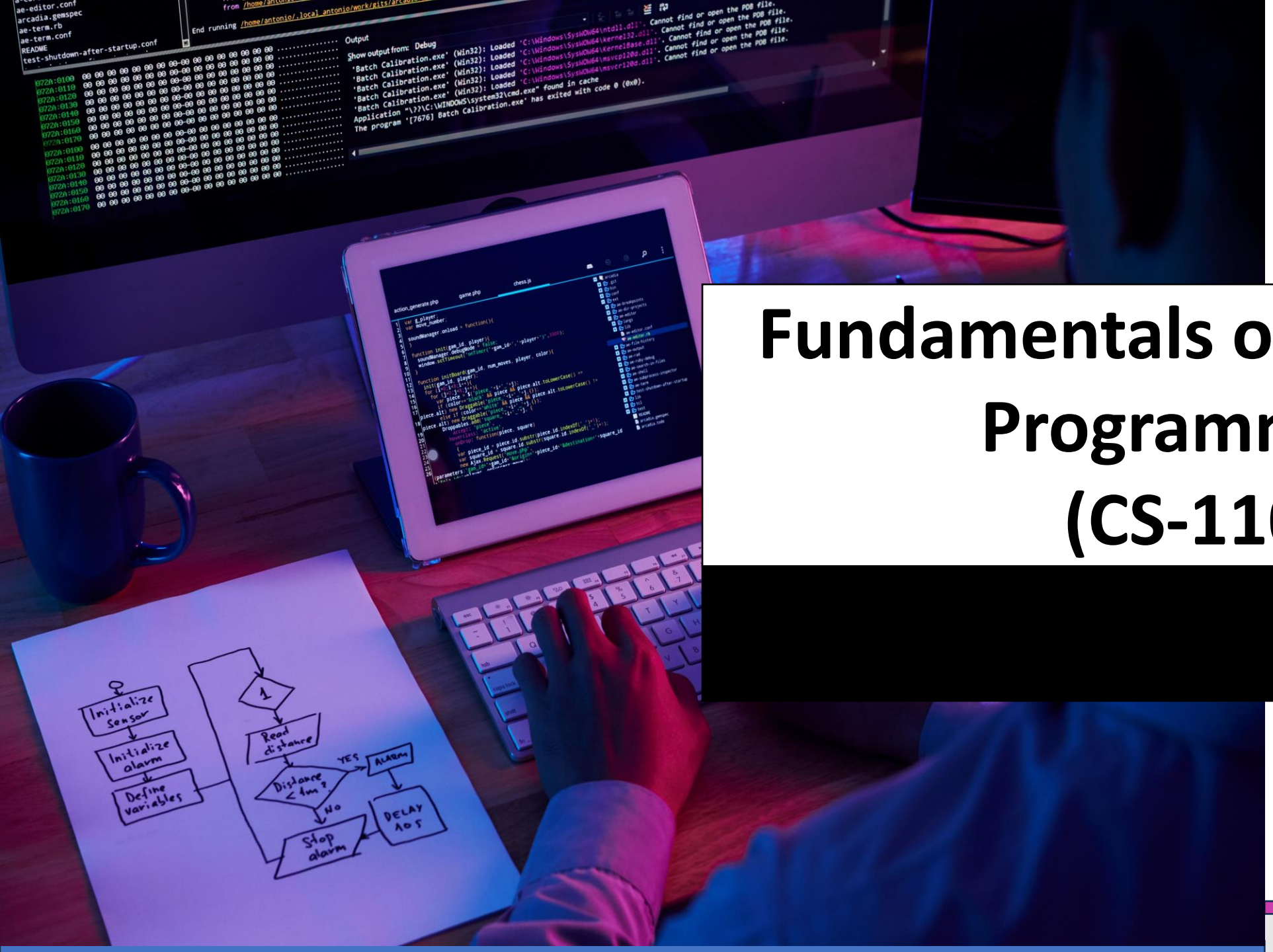

Fundamentals of Computer Programming (CS-110)

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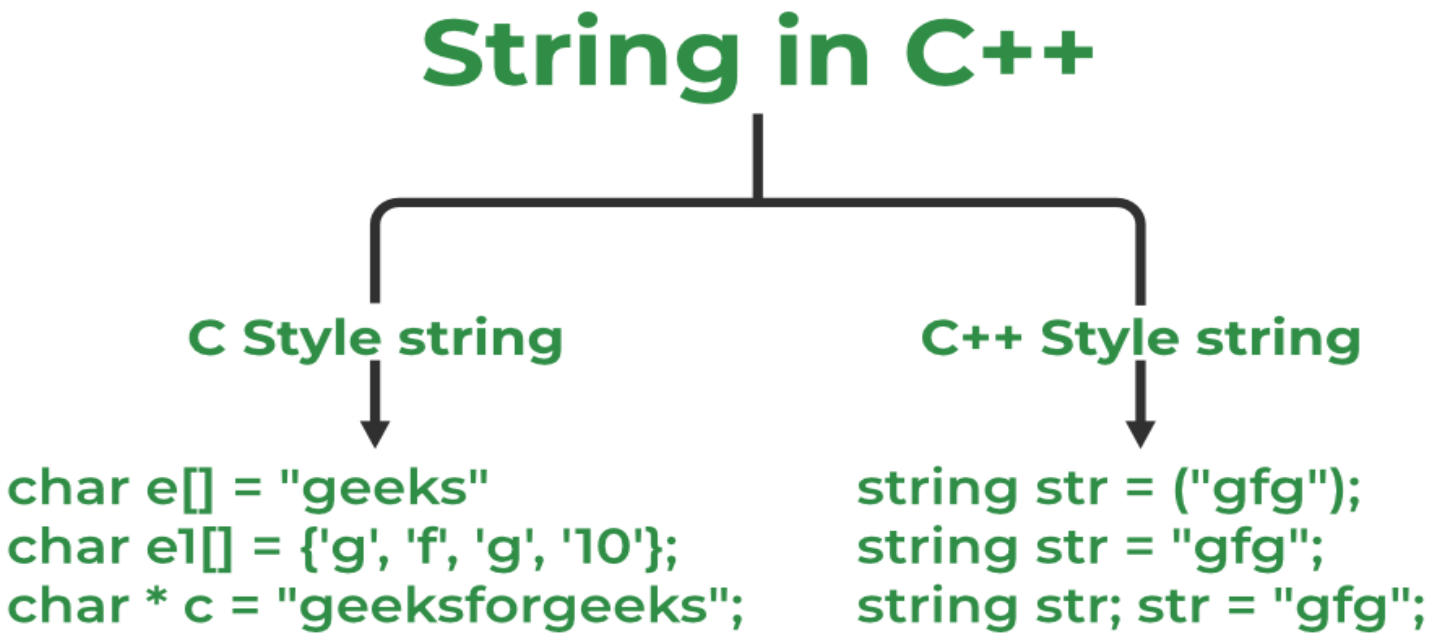
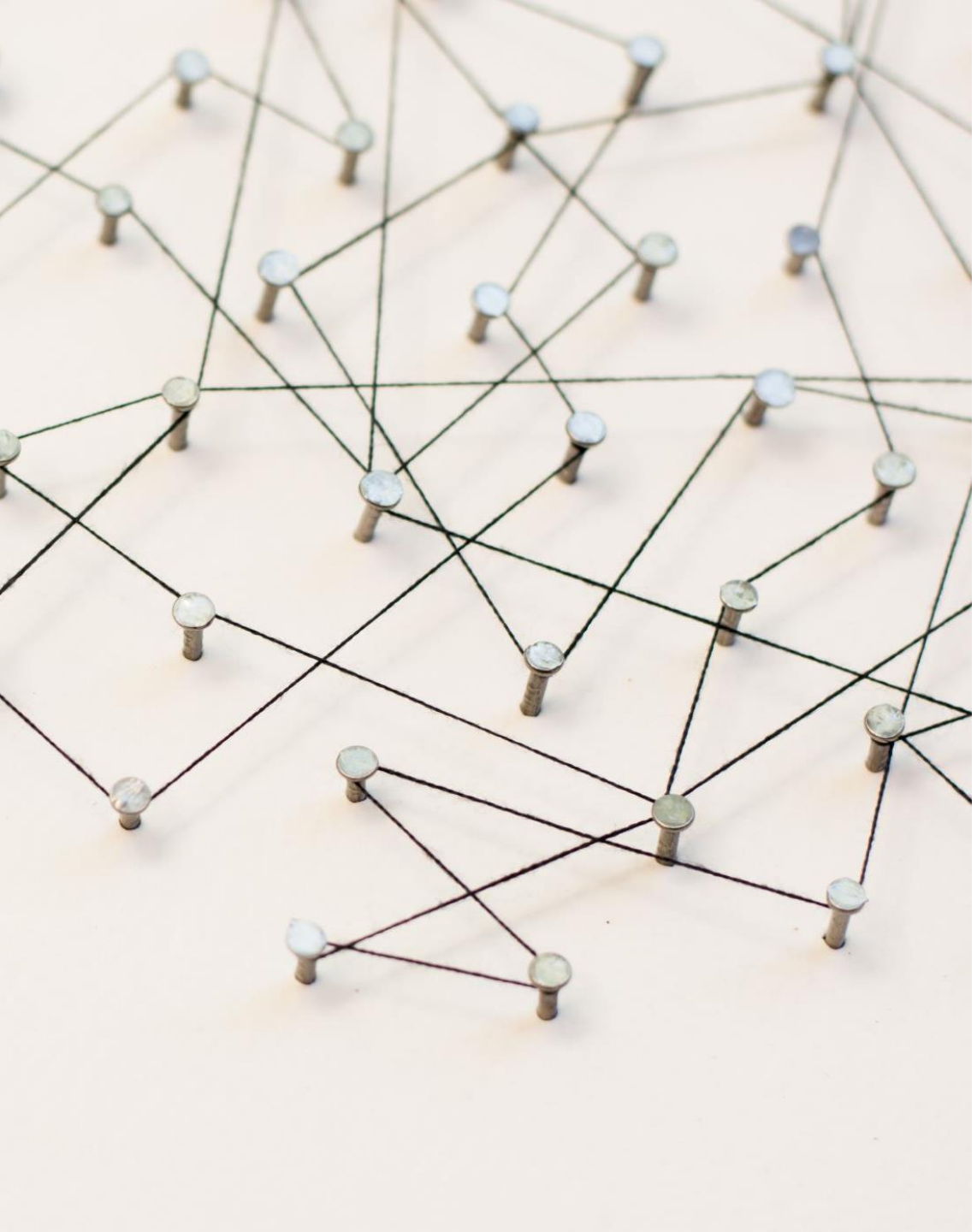
Strings & Character Arrays



C++ strings are sequences of characters stored in a char array. Strings are used to store words and text. Strings in C++ can be defined either using the **std::string class** or the **C-style character arrays.**



Way to define strings

- Strings can be defined in several ways in C++.
- Strings can be accessed from the standard library using the string class.
- Character arrays can also be used to define strings.
- String provides a rich set of features, such as searching and manipulating, which are commonly used methods.
- Ways to define a string in C++ are:
  - Using String keyword
  - Using C-style strings

String Keyword

```
// C++ Program to demonstrate use of string keyword
#include <iostream>
using namespace std;

int main()
{
        string s = "GeeksforGeeks";
        string str("GeeksforGeeks");
        cout << "s = " << s << endl;
        cout << "str = " << str << endl;
        return 0;
}
```

C-Style Strings

```
// C++ Program to demonstrate C-style string declaration
#include <iostream>
using namespace std;

int main()
{
        char s1[] = { 'g', 'f', 'g', '\0' };
        char s2[4] = { 'g', 'f', 'g', '\0' };
        char s3[4] = "gfg";
        char s4[] = "gfg";
        cout << "s1 = " << s1 << endl<< "s2 = " << s2 << endl << "s3 = " << s3 << endl;
        cout << "s4 = " << s4 << endl;
        return 0;
}
```

User input to Strings

- String input means accepting a string from a user.
- In C++, we have different ways of taking input from the user which depends on the string.
- Methods to take a string as input are:
  - cin
  - getline
  - stringstream

Example

```
// C++ Program to demonstrate string input using cin
#include <iostream>
using namespace std;

int main() {
        string s;
        cout<<"Enter String"<<endl;
        cin>>s;
        cout<<"String is: "<<s<<endl;
        return 0;
}
```

Example

```
// C++ Program to demonstrate use of getline function
#include <iostream>
#include<string>
using namespace std;

int main()
{
        string s;
        cout << "Enter String" << endl;
        getline(cin, s);
        cout << "String is: " << s << endl;
        return 0;
}
```

Example

```
// C++ Program to demonstrate use of stringstream object
#include <iostream>
#include <sstream>
#include<string>
using namespace std;
int main()
{
        string s = " GeeksforGeeks to the Moon ";
        stringstream obj(s);
        // string to store words individually
        string temp;
        // >> operator will read from the stringstream object
        while (obj >> temp) {
                cout << temp << endl;
        }
        return 0;
}
```

Passing a string in Function

```
// C++ Program to print string using function
#include <iostream>
using namespace std;

void print_string(string s)
{
        cout << "Passed String is: " << s << endl;
        return;
}

int main()
{
        string s = "GeeksforGeeks";
        print_string(s);
        return 0;
}
```

Acknowledgment

- Content of these slides are taken from:
  - https://www.geeksforgeeks.org/
  - https://www.tutorialspoint.com/
  - https://www.programiz.com/
  - https://www.w3schools.com/