# Class in C++ I

**Overview**

- Today's topics include:
  - Structures and classes
- We will demonstrate how to create and use a structure and a class using two C++ example


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# C++ Structures

- In C++ a structure is a way to create a composite data type
- A structure in C++ is of the form:

```
struct <Name> {
        <data_1>
        …
        <data_n>
};
```


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# C++ Structures - Example

- We will now work through an example to see how C++ structures work.

See struct_ex.cpp for an example of a Person composite structure.


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# C++ Classes

- Just like other object-oriented languages (e.g., Java), C++ also has classes!
  - However, classes in C++ have a different syntax
  - Classes can contain both variables and functions – these are referred to as member variables and member functions


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# C++ Classes - Accessiblity

- In C++ classes, member variables and member functions can be public or private
  - Public = accessible within any function
  - Private = accessible from only within member functions of the same class


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# C++ Classes – Member Variables

- Some guidelines to follow:
  - All member variables are normally private
  - For private member variables you typically define
    - An accessor function and a mutator function

```
class Movie {
  private:
        string title;
  public:
        string getTitle(); //accessor
        void setTitle(string t); //mutator
};
```


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# C++ Classes – Member Functions

- Member functions are declared inside the class and are often defined outside of the class:

```
string Movie::getTitle() {
    return (title);
}
```

- In the above member function definition we see that
  - Movie is the type qualifier (it qualifies getTitle() as a function of the Movie class)
  - :: is the scope resolution operator and indicates that getTitle() is a member of Movie


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# C++ Classes - Example

- We will now work through an example to see how C++ classes work.

See class_ex1.cpp for a Person example class.


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# Class in C++ I

**Summary**

- We have introduced structures and classes and have demonstrated their usage in a Person example

**Next time**

- More object-oriented programming in C++


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