Class Functions

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Class Functions

- Class Functions
  - Any allowed C++ function
  - return_type function_name(formal_parameter_list)

Class Functions

- Class Functions
  - Class access specifiers
    - Public
    - Private

  - Private
    - Scope is within the class
    - Cannot be called from outside the class
    - Sometimes called "helper functions"
    - Default mode

  - Public
    - Visible outside the class
    - Called via objectName.function(actual parameters) syntax
    - Primary mode for most functions

Class Functions

- Class Functions
  - Getter and Setter functions
    - Setter functions are used to set the values for private variables
    - Getter functions are used to read private variable values

  - Mutator and Accessor functions
    - Mutators functions change values for class variables
    - Accessor functions read/use class variables

    Mutator <-> Setter

    Accessor <-> Getter

Class Functions

- Class Functions

```
// Circle class declaration
class Circle{
   private:
      double radius;
   public:
      void setRadius(double r);
      double getRadius(void);
      double calcArea();
};
```

Notes:
  This would be placed in the file circle.h

Class Functions

- Class Functions

```cpp
// Circle class function definitions
void Circle::setRadius(double r){
    radius = r;
}

double Circle::getRadius(void){
    return radius;
}

double Circle::calcArea(void){
    return (3.14 * radius * radius);
}
```

Notes:

This would be placed in the file circle.cpp

The ClassName:: is required to tell the compiler which class the function is assigned to – :: is called the Scope Resolution Operator

Class Functions

- Class Functions – const
  - If the function does not change a member variable value we can declare it as const

```
// Circle class declaration
class Circle{
  private:
    double radius;
  public:
    void setRadius(double r);
    double getRadius(void) const;
    double calcArea() const;
};
```

Notes:

This would be placed in the file circle.h

Class Functions

- Class Functions – const
  - If the function does not change a member variable value we can define it as const

```
// Circle class function definitions
void Circle::setRadius(double r){
    radius = r;
}

double Circle::getRadius(void) const{

  return radius;

}
  double Circle::calcArea(void) const{
    return (3.14 * radius * radius);
  }
```

Notes:
This would be placed in the file circle.cpp