

# This

Last updated 3/10/19

# This

- This
  - Unknown to us, every object is assigned a pointer
  - This pointer is assigned the name `this` inside the object
  - The `this` pointer is also implicitly passed to every member function of an object
    - Making the reference to the object available

# This

- This
  - In this example – the default constructor is OK
  - The generalized constructor is not OK
    - Note that r is declared as a formal parameter to the function
    - This means that the member variable r is hidden
    - The r=r line does not set the objects member variable
    - **This will not compile**

```
class Circle2 {  
    // member data  
private:  
    double r;  
  
    // member functions  
public:  
    Circle2();  
    Circle2(double r);  
    void setRadius(double r);  
    double getRadius(void);  
    double calcArea(void);  
    double calcCirc(void);  
}; // end Circle2 class
```

```
Circle2::Circle2() {  
    r = 1;  
    return;  
}  
  
Circle2::Circle2(double r){  
    r = r;  
    return;  
}
```

# This

- This
  - To get around this problem we can use the `this` pointer
    - `this` references the objects pointer
    - `this->var` references the member variable `var`

# This

- This example

```
/*
 * Circle2.h
 *
 * Created on: Mar 9, 2019
 * Author: johnsontimoj
 */
//
// class declaration for Circle2 class
// for ee2510 class notes
//
#ifndef CIRCLE2_H_
#define CIRCLE2_H_

class Circle2 {
// member data
private:
    double r;

// member functions
public:
    Circle2();
    Circle2(double r);
    void setRadius(double r);
    double getRadius(void);
    double calcArea(void);
    double calcCirc(void);
    void printPointer(void);
}; // end Circle2 class

#endif /* CIRCLE2_H_ */
```

```
/*
 * Circle2.cpp
 *
 * Created on: Mar 9, 2019
 * Author: johnsontimoj
 */

#include "Circle2.h"
#include <iostream>// only for printing
using namespace std;// only for printing

#define PI 3.14159

Circle2::Circle2() {
    r = 1;
    return;
}

Circle2::Circle2(double r){
    this->r = r;
    return;
}

void Circle2::setRadius(double r){
    this->r = r;
    return;
}

. . .

void Circle2::printPointer(void){
    cout << "This objects -this- pointer value is " << this << endl;
    cout << "this objects member variable r is " << this->r << endl;
}
```

Normally we would not  
print in a member function  
- for illustration only

# This

- This example

```
/*
 * this_ex.cpp
 *
 * Created on: Feb 27, 2019
 * Author: johnsontimoj
 */

////////////////////////////////////
// program to the -this- functionality
////////////////////////////////////

#include <iostream>
#include "Circle2.h"
using namespace std;

int main(void){
    double foo;

    ////////////
    // Create an object
    ////////////
    Circle2 obj1;
    obj1.setRadius(5);
    obj1.printPointer();

    system("pause");
    return 0;
}
```

```
<terminated> (exit value: 0) class_notes.exe [C/C++ Application]
This objects this pointer value is 0x66ff18
this objects member variable r is 5
Press any key to continue . . .
```