

Object-Oriented Programming Concepts

Session: 7

Overloading

Objectives

- ◆ Explain Overloading
- ◆ List the different forms of Overloading
- ◆ Explain Method Overloading
- ◆ Explain Constructor Overloading
- ◆ Explain Operator Overloading

Introduction

Overloading describes the way in which a single function can be implemented in several ways

Meaning or behavior of a function or method can be changed based on the context in which it is used

Different forms of overloading are Method overloading, Constructor overloading, and Operator overloading

Overloading

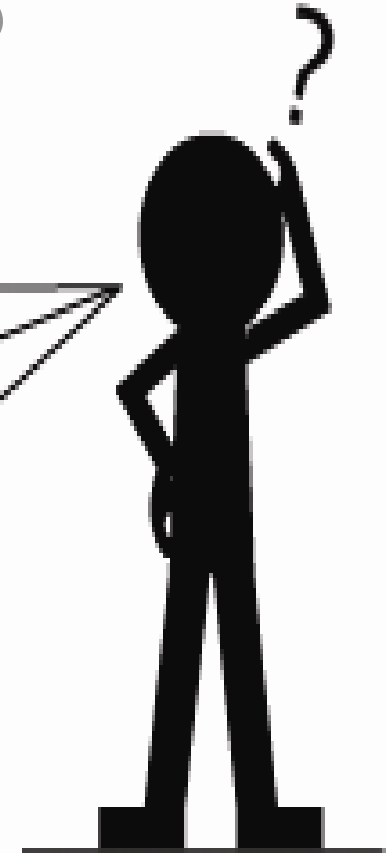
class: Calc

addInteger(int a, int b)

addFloat(float a, float b)

addString(string a, string b)

object: c1



Method Overloading

class: **Calc**

void add(int a, int b)

void add(int a, float b)

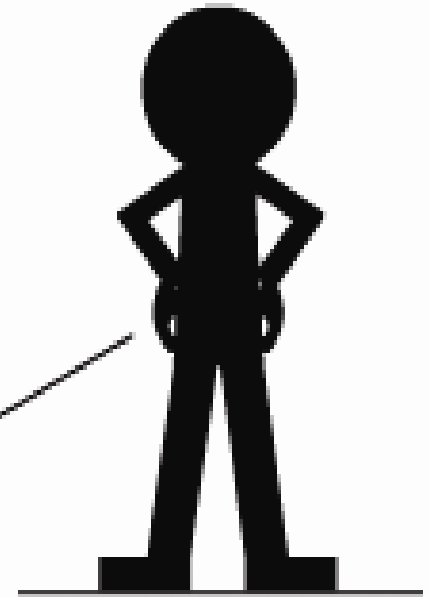
void add(string a, string b)

void add(float a, float b)

void add(int a, float b, int c)

object: c1

c1.add(3,4.5,6)

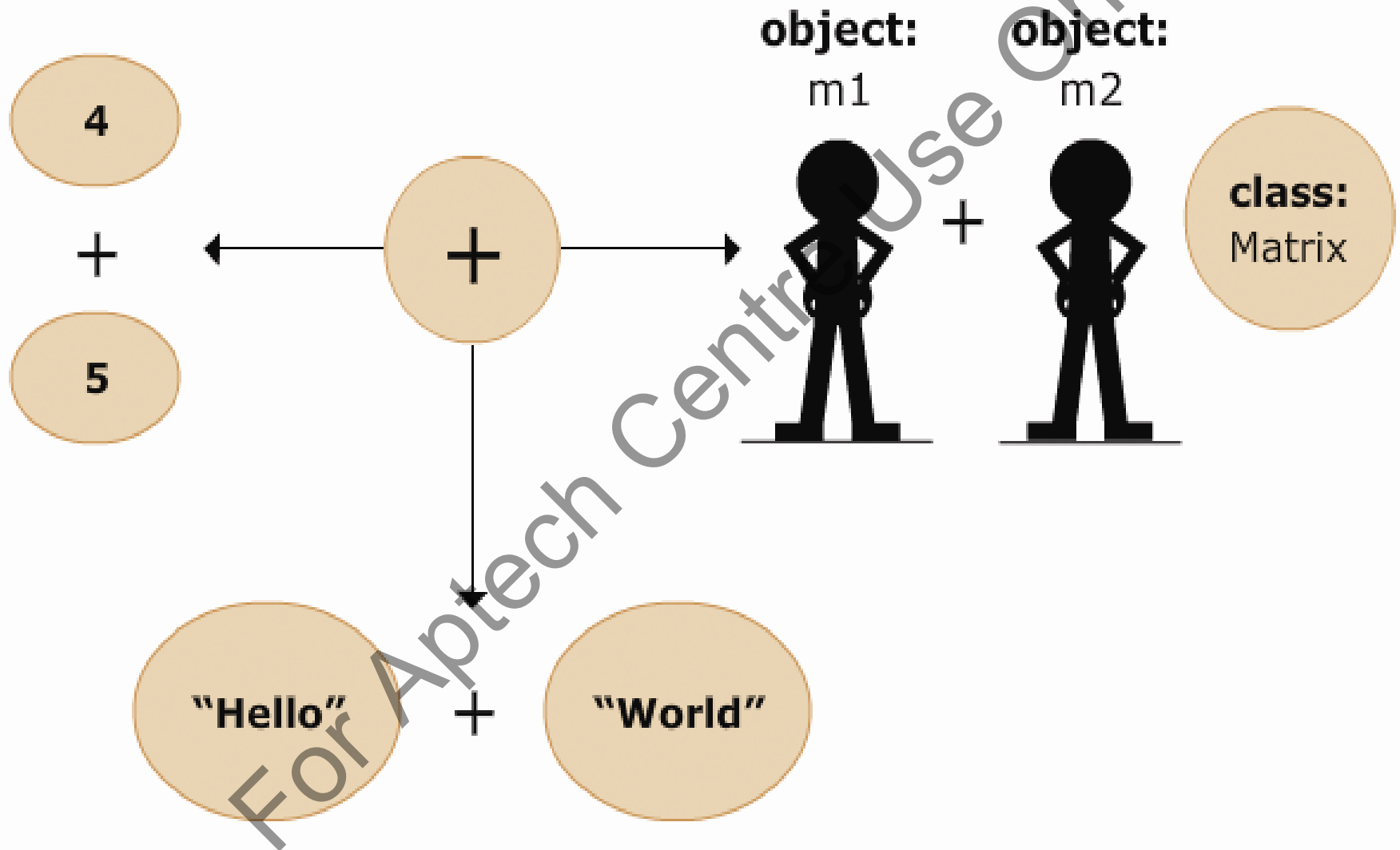


Constructor Overloading

It is required, to create multiple constructors with different arguments

To initialize selected members only, it is required to have a constructor with parameters

Operator Overloading 1-2



Operator Overloading 2-2

- ◆ This enables the user to define exactly how the operator behaves when used with his own class and other data types.

Syntax

```
public static <result-type>
operator <operator> (op-type1
operand1, op-type2 operand2)
{
// processing statements
}
```


Summary 1-2

- ◆ Overloading is a technique in which a method with the same name can have several implementations by changing the number, type, or sequence of parameters.
- ◆ A method in which only the return type or the names of the parameters have been changed cannot be considered overloaded.
- ◆ A constructor is a special method that has the same name as the class name and is used to initialize the data members of the class.
- ◆ Operator overloading is a technique used for extending the functionality of an existing operator so as to allow them to be used with user-defined types such as a class.

Summary 2-2

- ◆ The keyword 'operator' is used to implement operator overloading in C#.
- ◆ Operator overloading enables a user to convert data to and from one type to another.
- ◆ Operator overloading enables a user to perform arithmetic and logical operations on a type with itself or other types.