

What is Copy Constructor 1

A **Copy Constructor** is a special type of constructor that is used to create a new object by copying the values of another object of the same class

?Why do we use Copy Constructor

- To create an exact copy of an existing object •
- To avoid sharing the same reference between objects •
- To control how object data is duplicated •

:(#Example (C

```
class Person
}
;public string Name
;public int Age

Copy Constructor //
(public Person(Person other
})
;Name = other.Name
;Age = other.Age
{
}
```

:Business Use Case

- Cloning objects in applications •
- Creating backup or snapshot of data •
- Undo / Redo functionality •
- Passing objects safely between layers •

What is Indexer 2

. [] An **Indexer** allows an object to be accessed like an array using square brackets

:Example

```
class Students
}
;[private string[]] names = new string[5]
```

```

    [public string this[int index
    ]
    { ;[get { return names[index
    { ;set { names[index] = value
    }
    {

```

:Usage

```

;()Students s = new Students
;"s[0] = "Ayman
;([Console.WriteLine(s[0

```

:Business Use Cases

- Custom collections •
- Permission systems •
- ["permissions["Admin
 Pricing systems •
 ["prices["USD
 Configuration settings •
 Cache management •

(Keywords Summary (Last Lecture 3)

- Class:** Blueprint used to create objects •
- Object:** Instance of a class •
- Constructor:** Initializes object data •
- Default Constructor:** Constructor with no parameters •
- Parameterized Constructor:** Constructor with parameters •
- Copy Constructor:** Copies another object •
- Static Constructor:** Executes once per class •
- Indexer:** Access object like array •
- this keyword:** Refers to current object •
- Encapsulation:** Protecting data using access modifiers •
- Value Type:** Stored in Stack •
- Reference Type:** Stored in Heap •