**Part 100 - Func delegate in c#**

In this video we will discuss, the purpose of **Func<T, TResult>** delegate in c# with an example.  
  
**What is Func<T, TResult> in C#?**  
In simple terms, Func<T, TResult> is just a generic delegate. Depending on the requirement, the type parameters (T and TResult) can be replaced with the corresponding type arguments.

For example, Func<Employee, string> is a delegate that represents a function expecting Employee object as an input parameter and returns a string.  
  
**Program used in the demo:**

usingSystem**;**

usingSystem.Collections.Generic**;**

usingSystem.Linq**;**

classProgram

**{**

publicstaticvoidMain**()**

**{**

List<Employee>listEmployees=newList<Employee>**()**

**{**

newEmployee**{**ID=101**,**Name="Mark"**},**

newEmployee**{**ID=102**,**Name="John"**},**

newEmployee**{**ID=103**,**Name="Mary"**},**

**};**

// Create a Func delegate

Func<Employee**,**string>selector=

employee=>"Name = "+employee.Name**;**

// Pass the delegate to the Select() LINQ function

IEnumerable<string>names=listEmployees.Select**(**selector**);**

// The above output can be achieved using

// lambda expression as shown below

// IEnumerable<string> names =

// listEmployees.Select(employee => "Name = " + employee.Name);

foreach**(**stringnameinnames**)**

**{**

Console.WriteLine**(**name**);**

**}**

**}**

publicclassEmployee

**{**

publicintID**{**get**;**set**; }**

publicstringName**{**get**;**set**; }**

**}**

**}**

**What is the difference between Func delegate and lambda expression?**  
They're the same, just two different ways to write the same thing. The lambda syntax is newer, more concise and easy to write.

**What if I have to pass two or more input parameters?**  
As of this recording there are **17 overloaded versions of Func,**which enables us to pass variable number and type of input parameters. In the example below, Func<int, int, string> represents a function that expects 2 int input parameters and returns a string.

usingSystem**;**

classProgram

**{**

publicstaticvoidMain**()**

**{**

Func<int**,**int**,**string>funcDelegate=**(**firstNumber**,**secondNumber**)**=>

"Sum = "+**(**firstNumber+secondNumber**)**.ToString**();**

stringresult=funcDelegate**(**10**,**20**);**

Console.WriteLine**(**result**);**

**}**

**}**