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Creating a Route Constraint in ASP.NET MVC

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Mannan   🕐 Apr 13 2016   👁 28.7k   💬 2   👍 3

In this article, you will learn about how to control browser requests by specifying the route constraints with the help of regular expressions.

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In this article, you will learn about how to control browser requests by specifying the route constraints with the help of regular expressions.

For that consider the default route specified in RegisterRoutes() method in RouteConfig.cs under the App_Start folder.

```
01.    routes.MapRoute(
02.        name: "Default",
03.        url: "{controller}/{action}/{id}",
04.        defaults: new { controller = "Home", action = "Index", id = UrlParameter.Optional }
05.    );
```

Now imagine that you have Details() action method in StudentController. that excepts only integer value as parameter.

So when you call this Details() method with URL that contain three segments and last segments end with integer value then it will work fine. Because route table will match any URLs with three segments. First segment in URL is corresponding to Controller name. Second segment is corresponding to action name and third segment is corresponding to an id parameter.

For example: Valid URL

Student/Details/1

Student/Details/566

```
01.    public class StudentController : Controller
02.    {
03.        // GET: Student
04.        [Route("student/{id}")]
05.        public ActionResult Details(int id)
06.        {
07.            return View();
08.        }
```
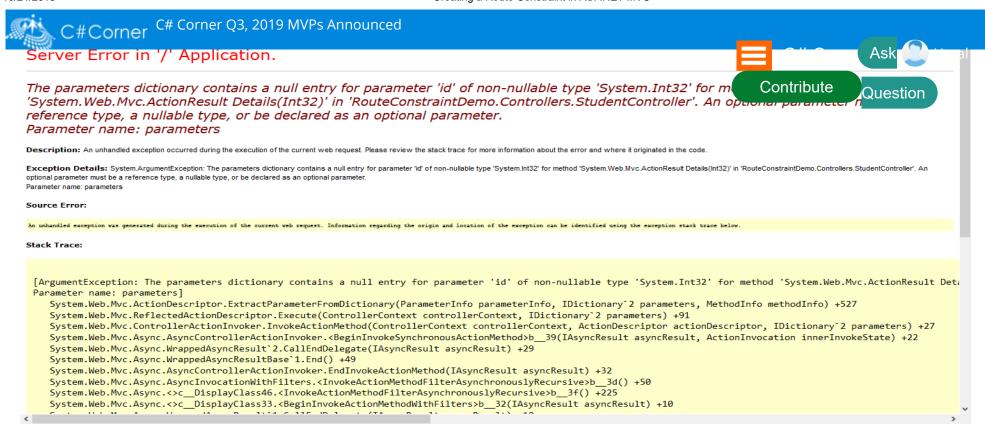
But, what happens when a request comes with URL that contains three segments and third segments (id parameter) contain non integer value?

For example:

Student/Details/mannan

Unfortunately, you will get the following error. Here your intention is to match the URLs that contain three segments and third segment (id) must be an int.

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Server Error in '/' Application.

*The parameters dictionary contains a null entry for parameter 'id' of non-nullable type 'System.Int32' for m
'System.Web.Mvc.ActionResult Details(Int32)' in 'RouteConstraintDemo.Controllers.StudentController'. An optional parameter m
reference type, a nullable type, or be declared as an optional parameter.*
Parameter name: parameters

Description: An unhandled exception occurred during the execution of the current web request. Please review the stack trace for more information about the error and where it originated in the code.

Exception Details: System.ArgumentException: The parameters dictionary contains a null entry for parameter 'id' of non-nullable type 'System.Int32' for method 'System.Web.Mvc.ActionResult Details(Int32)' in 'RouteConstraintDemo.Controllers.StudentController'. An
optional parameter must be a reference type, a nullable type, or be declared as an optional parameter.
Parameter name: parameters

Source Error:

An unhandled exception was generated during the execution of the current web request. Information regarding the origin and location of the exception can be identified using the exception stack trace below.

Stack Trace:

```
[ArgumentException: The parameters dictionary contains a null entry for parameter 'id' of non-nullable type 'System.Int32' for method 'System.Web.Mvc.ActionResult Deta
Parameter name: parameters]
    System.Web.Mvc.ActionDescriptor.ExtractParameterFromDictionary(ParameterInfo parameterInfo, IDictionary`2 parameters, MethodInfo methodInfo) +527
    System.Web.Mvc.ReflectedActionDescriptor.Execute(ControllerContext controllerContext, IDictionary`2 parameters) +91
    System.Web.Mvc.ControllerActionInvoker.InvokeActionMethod(ControllerContext controllerContext, ActionDescriptor actionDescriptor, IDictionary`2 parameters) +27
    System.Web.Mvc.Async.AsyncControllerActionInvoker.<BeginInvokeSynchronousActionMethod>b__39(IAsyncResult asyncResult, ActionInvocation innerInvokeState) +22
    System.Web.Mvc.Async.WrappedAsyncResult`2.CallEndDelegate(IAsyncResult asyncResult) +29
    System.Web.Mvc.Async.WrappedAsyncResultBase`1.End() +49
    System.Web.Mvc.Async.AsyncControllerActionInvoker.EndInvokeActionMethod(IAsyncResult asyncResult) +32
    System.Web.Mvc.Async.AsyncInvocationWithFilters.<InvokeActionMethodFilterAsynchronouslyRecursive>b__3d() +50
    System.Web.Mvc.Async.<>c__DisplayClass46.<InvokeActionMethodFilterAsynchronouslyRecursive>b__3f() +225
    System.Web.Mvc.Async.<>c__DisplayClass33.<BeginInvokeActionMethodWithFilters>b__32(IAsyncResult asyncResult) +10
```

But the value of the route parameter {id} is non integer (i.e 'mannan') and the Details() method expects an integer parameter. since value of id is not converted into an int. so the method will not execute.

In above case, you can avoid this type of error by specifying the route constraint.

Route constraint is just a condition that must be satisfied for the route to match with incoming request url.

In above case you only need the in-line integer constraint. In-line constraint is just specifying the constraint in the route template.

```
01.    public class StudentController : Controller
02.    {
03.        // GET: Student
04.        [Route("student/{id:int}")]
```

```
07.          return View();
08.      }
09.  }
```

List of in-line constraints.

1. {param:bool} = Boolean value

2. {param:datetime} = DateTime value

3. {param:decimal} = Decimal value

4. {param:double} = Double value

5. {param:float} = Single value

6. {param:guid} = Guid value

7. {param:int} = Int32 value

8. {param:long} = Int64 value

9. {param:minlength(n)} = string value with at least N number of characters (i.e. {param:minlength(5)})

10. {param:maxlength(n)} = string value with less than N number of characters (i.e. {param:maxlength(5)})

11. {param:length(n)} = string value with exactly N number of characters (i.e. {param:length(3)})

12. {param:length(minNumber,maxNumber)} = string value with minimum character and maximum character length.

13. {param:min(n)} = An Int64 value that is greater than or equal to N.(i.e. {param:min(2)})

14. {param:max(n)} = An Int64 value that is less than or equal to N.(i.e. {param:min(10)})

15. {param:range(min,max)}= An Int64 value that should be within range. (i.e. {param:range(2,5)})

17. {param:regex (pattern)} = (i.e {param:regex (\d+)}) match only number

I hope you have enjoyed this article. If you have any questions or feedback, then please mention it in the comment
that will help me to improve my knowledge.

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C#,ASP.NET MVC,Web services,Entity Framework,AJAX,jQuery,Google MAP API and many more. #Left-Handed w... Read more

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I can not seem to get this to work: [Route("detail/{id:alpha}")] public async Task<IActionResult> Details(string id) I'm not sure why. It just
leads to a url with the number as the id and says the webpage can not be found. It seems like this is not working at all. I've looked up
several sources but they all say the same thing as you, but it doesn't work.

Kelsey Steele   🕐 Oct 12, 2017

● 1846 ● 2 ● 0   👍 0   ↩ 0 ↩ Reply

good one Bro !!

Mayank Sharma   🕐 Apr 15, 2016

● 1570 ● 278 ● 81.3k   👍 1   ↩ 0 ↩

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