

This Ohm Calculator

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Server

Server has a standard web controller that serves html page request, and a WebApi end points that handles data request such as retrieve color codes and calculate ohm value.

The ohm calculation logic is sitting in a App service layer, WebApi controller doesn't have any business logic, it simply pass the task to App service layer, very light, there is really no need to unit test its logic except testing is passing task to correct service.

Dependency Injection is used in WebApi Controller creation and it is loosely coupled with App service.

Asp.Net Core

Used Aasp.Net Core 2.0 for server technology, used .net Core build in dependency container.

Swagger API Documentation and Discovery

WebApi used Swagger middleware to generate useful documentation and help pages for WebAPIs, it provides benefits such as interactive documentation, client SDK generation, and API discoverability. The swagger page can even be used to test Api End points.

Wager API discovery link: <http://localhost:50333/swagger/>

localhost:50333/swagger/

GET /api/Calculator/ColorCodes

POST /api/Calculator/CalculateOhmValue

Parameters Cancel

Name	Description
bandAColor string (query)	<input type="text" value="Red"/>
bandBColor string (query)	<input type="text" value="Blue"/>
bandCColor string (query)	<input type="text" value="Yellow"/>
bandDColor string (query)	<input type="text" value="bandDColor"/>

Execute

Responses Response content type: text/plain

localhost:50333/swagger/

Responses Response content type: text/plain

Code	Description
200	<div>Success</div> <div>Example Value Model</div> <div><pre>{ "minValue": 0, "maxValue": 0}</pre></div>
400	<div>Bad Request</div>
404	<div>Not Found</div>
500	<div>Server Error</div>

Server Unit Test

Use XUnit and Moq for server side unit test

Client Side Angular 4

Client side is SPA build with angular 4, the home component is the UI interface of the Ohm Calculator. It is a simple and easy to use interface, user select from 4 dropdown to pick colors for each band of a resistor, as user picks color the corresponding band color changes to match the picked value. The components automatically detects changes and send calculation request to server through a DataService.

DataService

This service encapsulates the Api call to server

HomeComponent

This component handles user input and activate DataService calls to retrieve data.

Calculates the Ohm value of a resistor based on the band colors

Select different colors for band A, B, C and D to calculate

Band A Color

-- choose color --

Band B Color

-- choose color --

Band C Color

-- choose color --

Band D Color(+/-20% if left blank)

Calculated Resistor Values:

Reset

Home Page - Calculator

localhost:50333/home

Calculator

Ohm Calculator

Electronic color c...

Calculates the Ohm value of a resistor based on the band colors

Select different colors for band A, B, C and D to calculate

Band A Color

Black

Band B Color


Brown

Band C Color

Orange

Band D Color(+/-20% if left blank)

Green



Calculated Resistor Values:
from 995Ω to 1005Ω

Reset

Client Unit Test

Use Angular Test bed, Jasmine

A link to knowledge about Electronic Color Code


Home Page - Calculator

localhost:50333/color-code

Calculator

Ohm Calculator

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Electronic color code

From Wikipedia, the free encyclopedia

The **electronic color code** is used to indicate the values or ratings of electronic components, usually for [resistors](#), but also for [capacitors](#), [inductors](#), [diodes](#) and others. A separate code, the **25-pair color code**, is used to identify wires in some [telecommunications](#) cables. Color-coding is not the only method of marking components; for example,



RMA (Radio Manufacturers Association) Resistor Color Code Guide, ca. 1945–1955.

