IIT Madras

ONLINE DEGREE

Modern Application Development II
Online Degree Programme
B. Sc in Programming and Data Science
Diploma Level
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Week 2 - JavaScript - GUI Calculator

(Video Start: 00:14)

Hi welcome back to modern application development 2 Screencast. In this second Screencast we will continue with our previous experiment of building a calculator using just html and Javascript. In the last episode we built a small you know calculator with just text box and one button. In this stream cast we will try to replicate calculator that looks almost like the built-in calculator in the operating system.

Here is the one that I have running on my Ubuntu. We will try to make it similar by using grids in bootstrap and then you know we will attach functionality to it and see how it works. I will not complete this task I will do three fourth of it or like 60% of it and leave the 40% of it for you to continue and complete. So, it works like an exercise for you. So, here is where we did uh here is what we did last time we have the calculator running.

It is running fine, we are doing calculations it is working. Now we are going to do somewhat like this we first will we will just try to do some bit of UI to look like this. So, basically we will not do this column we will just do four by four and I and a text box on the top. So, here we have a grid system with only one row I am going to keep that first row and add three more rows to actually give more buttons too as. So, just to start with I am just going to create another row like that in somewhat similar structure.

So, I will just copy the whole row and remove this here input we do not need input we do not need a log here. We just need a button we do not need to give an id for now because we will decide what id it will be later just remove this two three and four buttons. Let us see how it looks yeah somewhat like that. And now I want to actually give the names to the button.

Let's say in the top row it was 7, 8, 9 and division 7, 8, 9 and division right. So, let's see how it looks okay it looks okay now I do not want lock to be here I want the lock to be at the bottom. So, we do not have to put it within the row we can create a last row and then put that there. So, let us create one more you know final row just put more space here remove everything else and just keep only log and then I will remove the log from here okay.

So, if you see now okay that's gone this calculator but here we will remove that as well but you know log has gone down. So, let us add one more two more rows you know to add the rest of the numbers and stuff. So, let's add one more row and that will contain 4, 5, 6 and multiplication 4, 5, 6 and star. So, multiplication you can also give x and then one two three minus one two three minus the last row is zero dot and I will make this instead of percentage I will just make it equal.

So, that actually we need plus as well. So, we can do plus and equal let us copy this and say 0 and then dot and then let us do equal let us do plus okay it is not exactly the same but somewhat similar there you can see here what you can just reset to see how it looks it looks much better if you reset the correct thing but we can adjust the things later okay let us do one more thing let's move this calculate because it is not required we are attaching the same thing to the equal button.

So, remove this. So, there you go. So, that is the thing you can adjust a bit of values here I actually want spaces before and after oh like that like this around the button. So, you know button looks better for now I won't do but you can do that I also want to change the colour of these buttons action buttons these. So, we can just check in the grid button colours bootstrap button colors okay let's go here.

So, let's make it yellow. So, I will just make it button warning let's make it button and button warning okay this will be button warning again button warning button warning yeah so if I go back here. So, they become l1 this alter button warning okay let us make this is green or red. So, you know that is the one to click success it is better to have green than red okay, equals will make it as red equals okay where is it yeah okay.

So, this is the one which will evaluate this is the one which are the numbers and stuff like that these are the operations that we support. We can add other buttons like clear cancel backspace etcetera. I can add one more row here yeah as an exercise. Now two things that we need to do most important thing is you know attach events to these number buttons that when you press number your number gets added here and when you click, click an operator the operator gets added here.

And when you click equal to it gets calculated. So, that is what we want to do yeah. So, let's write one function called input number. So, this I think we can use the same as calculate button I think that should be straightforward this equal if I make id equal to calculate and that should work let's see if I give 4 by 5 and click on equal yeah. So, that's working okay.

So, now we will have to attach events to these number buttons. So, let's do that okay let's write a function called input number. So, it takes a number v and then inputs it to this area. So, you can get that current expression by using this. So, it will be current expression will be this then you know expression becomes expression plus, plus here is concatenation of v and then I am going to set back this value equal to expression.

So, let's see whether this is working semicolon is not compulsory but sometimes I do give okay we can try it out from here oh like say I want see the whole thing of eval both in math.js and in just a regular Javascript values it needs string whole expression of string. So, I am sending numbers also as string here. So, the expression becomes string okay it's not working okay we did not refresh okay.

Now if I do let's say 65 okay it is adding. So, we don't need uh. So, you can also do like you know 6 again. So, it becomes 5, 6, 7. So, if you click multiple times the number gets entered. So, now we can attach this to all of our number buttons. So, I am just going to add it to one here for on click button all. So, here I am going to send 7, 8, 9 I am not going to do for all of it.

So, if I refresh this. So,7,9,8, 7, 8, 9 should be able to be added. So, you know that is working. Now I will just do similar thing for the operator similarly input operator. So, operator I will consider it as O similarly I will add O and then expression is expression.

So, I will input operator here let's add input operator division on click input operator. So, similarly you can add multiplication here okay.

So, let's refresh this. So, like 7 divided by 8 equal to 0.875. So, that part is working. So, this is how you build actually next level of calculator. So, there are ways to optimize it you can make it look better you can add cancel button clear button backspace button those are the things that you can improve. So, like for example you can do following things one clear, clear functionality just make it large clear and then to backspace and then I have not handled a dot or the point decimal point.

So, you can handle that. So, three decimal point four you can make it look better I do not think it looks great. So, you can make it look better bring the size of this dome to back to this give some space between the rows make it all of them same size by adding you know spaces and stuff like that you know what you can do is make it look good. Fifth one you can just optimize the ad listeners part here you know it is too much of work add to each one of them you can optimize it by probably initializing everything inside the initialize app.

You can do many other ways but you know this should not be a problem either this also works and then you can add another couple of functionalities of this x square and especially the bracket ones because it is important you know you know operation precedence you can do that things like that you can add and experiment and build upon what we've done until now and that's it that's the end of the Screencast, thank you for listening and watching.

(Video End: 14:20)