CustomJS primer for Calculatorians®

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Omni Calculator Project

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Chapter 1

What is this? Who am I? What is the meaning of life, the universe and everything?[Preface]

Let's start answering this questions in reverse order. The last question's answer is **42**. The previous one I can't really answer for you, it takes a lifetime to discover. And for the last answer I have bad news: It's long[1]

This *CustomJS primer* is meant as a quick-reference, or star-guide or user-manual for Calculatorians to first get started using Javascript in their calculators and later solve quick simple doubts that you might have while using that knowledge.

This is NOT a formal, technical, precise, dense, boring, all-encompassing[2] Javascript book or written lecture on programming. This document aims to provide understandable, applicable knowledge and will sacrifice technicality and precision if needed. If you have any programming experience you will find the first sections of the second chapter to be extremely basic and you might prefer to start reading from the chapter 3. If you already know how to program in Javascript, you might find most of it useless and some even probably offensive (if your style choices differ from ours) so we recommend to just read those sections that relate to the application of such knowledge to making OmniCalculators such as REFSSS

Before we move on with the actual content let's faff around just a bit more and take a look at the different parts of this document and what to expect from them:

This document is divided into 3 different chapters of increasing length. The first chapter proper (2) will is an overview of why and when to use CustomJS additions in your calculator and when it is not needed. This chapter also includes a short list of "best practices" regarding the technical side of CustomJS and an explanation of why they are like they are. To finish it off and to properly get you prepared for the second chapter, there is an overview of the most basic principles of programming with specific focus an examples in Javascript. After this chapter you should be able to understand the Javascript code that will be presented in the following chapters as well as understand most of the Javascript code you will ever find.

The second chapter is a rundown of all the custom functions available in only at Omni. This is a collections of calculator-specific functions that lets you modify the behaviour of each component of the

[1] That's what she said

[2] Thanks for the word Jack

calculator as well as add new functionalities. The aim of this section is to replace the old gist that was in Polish. Feel free to use this section as your main reference to understand, use and solve any basic problems regarding Omni's own functions.

The third and last chapter is focused on applying the previous knowledge in an effective and efficient manner. It is composed of a collection of common uses, combinations and behaviours implements in the calculators we've made so far an includes a list of reference calculators where you can check these principles being applied (list on Trello). The we included a collections of tips, tricks to prevent, diagnose and fix problems as well as a list of typical error behaviours and typical solutions. To finish it off, the last section of this chapter is devoted to setting some guidelines to make the process of creating, fixing, editing and improving customJS calculators as simple and painless as possible. Most of these guidelines have been set by the group of calculatorians and might deviate from the traditional "programming best practices"

Chapter 2

Before you start coding

2.1 Who is this CustomJS guy? [An introduction to customJS]

2.1.1 You only need food, water and sleep

Most calculators don't require customJS

2.1.2 Do what you can because you must

But CJS is generally a good addition to most calcualtors (pictures, interactive options...)

2.1.3 when freedom is subjugated to the marketing needs

If you're doing a marketing calculator you MUST please the marketing team, and they will not settle for anything without some customJS in it. Make it wacky!

2.2 Programming vs witchcraft spells [Fundamentals of coding]

2.2.1 What is a program?

Text that tells the computer what to (only here for completeness)

2.2.2 Javascript vs HTML

JS does HTML shows

2.2.3 Variables, functions, operations...

Variables - Primitives

int vs float. Number vs string. boolean

Operations

obv, isn't it? but it depends on the type of variable

Variables - Compounding like I have interest

Arrays, lists, dictionaries, objects...

Functions

Interactive variables

2.2.4 Order of execution and loops - Basics

Bla bla bla up to down unless modifiers or functions.

if (if-else)

don't over use them

for

the protytpe loop 4.4.2

while

for's brother

break

DENIED!

switch...case

A fancy if, technically faster, only use for clarity

2.2.5 Order of execution and loops - Advanced

Don't use, but they are cool, so maybe use?

do-while

for's weird cousin

labeled

Make it your own!

continue

if you need help: click here

for...in

for's weird cousing from Alabama

for...of

for's weird-cousin-from-Alabama's normal son

2.2.6 The laziness principle

If it takes more than 5min to do think if someone might have done it before and look for it (or ask politely) If you're doing the same thing more than 3 times, it can probably be automated. Never write the same thing (or almost the same thing) more than 5 times, there's surely a more efficient way[1]

2.3 A short list of strong suggestions [Do's and Don'ts]

2.3.1 Do's

follow the rules

2.3.2 Don'ts

follow the rules ALWAYS

[1] Exceptions might apply

Chapter 3

CustomJS at Omni [Built-in functions]

3.1 onInit

3.1.1 `one for each function`

and its functions (and shortcomings) here

3.2 onResult

3.2.1 `one for each function`

and its functions (and shortcomings) here

Chapter 4

Okay, so you are already coding...

4.1 What can you do [typical additions in customJS]

4.1.1 The obvious answer

omni.functions && his friend

4.1.2 Mix it up, spice it up!

you are free[1]

4.1.3 Useful examples

source from trello

4.1.4 How to memorize everything

Don't!

4.2 Sh*t! Why is this not working! [debugging for normies]

4.2.1 The disappearing calculator

Maybe you've triggered some unexpected behaviour, check how you are using omni functions and ctx functions

4.2.2 The error message in place of the calculator

You made a mistake, find it using this hints (google = friend)

4.2.3 The "everything works but the result is wrong"

You made a mistake, find it

[1] restrictions may apply. Free will is not guaranteed by Omni or the Universe

4.2.4 developer options, call html for help and other tricks

plan ahead and your life will be easier. Then again, where is the fun in that?

4.3 Do yourself a favor, do your colleagues a favor [Style guide]

4.3.1 I don't like rules, why do we have them?

Because rule number 1 is "You must have rules"

4.3.2 Organizing the code

Omni.defines
functions
general variables
onInit
OnResult
[final convention to be determined by democratic voting cause idc enough to be a dictator]

4.3.3 Formal style conventions

Bracket positioning, indentations, truncation of lines, spaces...
[final convention to be determined by democratic voting cause idc enough to be a dictator]

Naming conventions

thisIsAVariableNameThatLooksGood
this_i_do_not_like_but_is_alright_i_guess
this_ISHorrendous
DontDoThis
andneitherdothispls

Commenting

Comment the weird bits, comment for visual aid comment as much as needed and as little as possible

Space vs Tabs: the age old debate nobody should've had :(_)

Tabs are for losers, end of the story

4.4 The artform of asking for help and not being a total dick. [Give help, get help]

4.4.1 When to ask and when not to ask

4.4.2 How to ask and who to ask

test1: 2.2.4
test2: 4.2
test3: 2.2.1
test4: 4.2.1

4.4.3 Give back, everyone needs help some day

4.5 Okay, but how can I...? [additional resource]

Appendix A

To infinity and beyond!

A.1 A collection of helpful resources

Bibliography