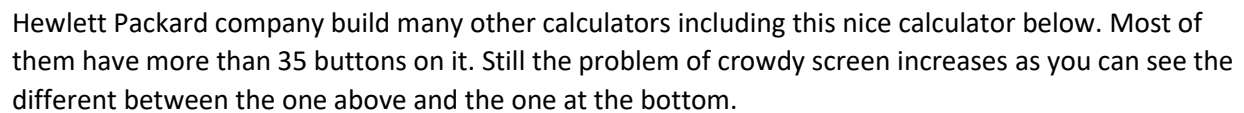


Regarding the different between the master calculator and the rest of the calculators outside there, I would bring an example of HP 35 electronic calculator which was developed by Thomas Whitney in 1967. The calculator has 35 buttons, and it was named HP 35, or Hewlett Packard 35. It was a wonderful calculator that handles many scientific calculations.



When you zoom out you can see the following keyboard.



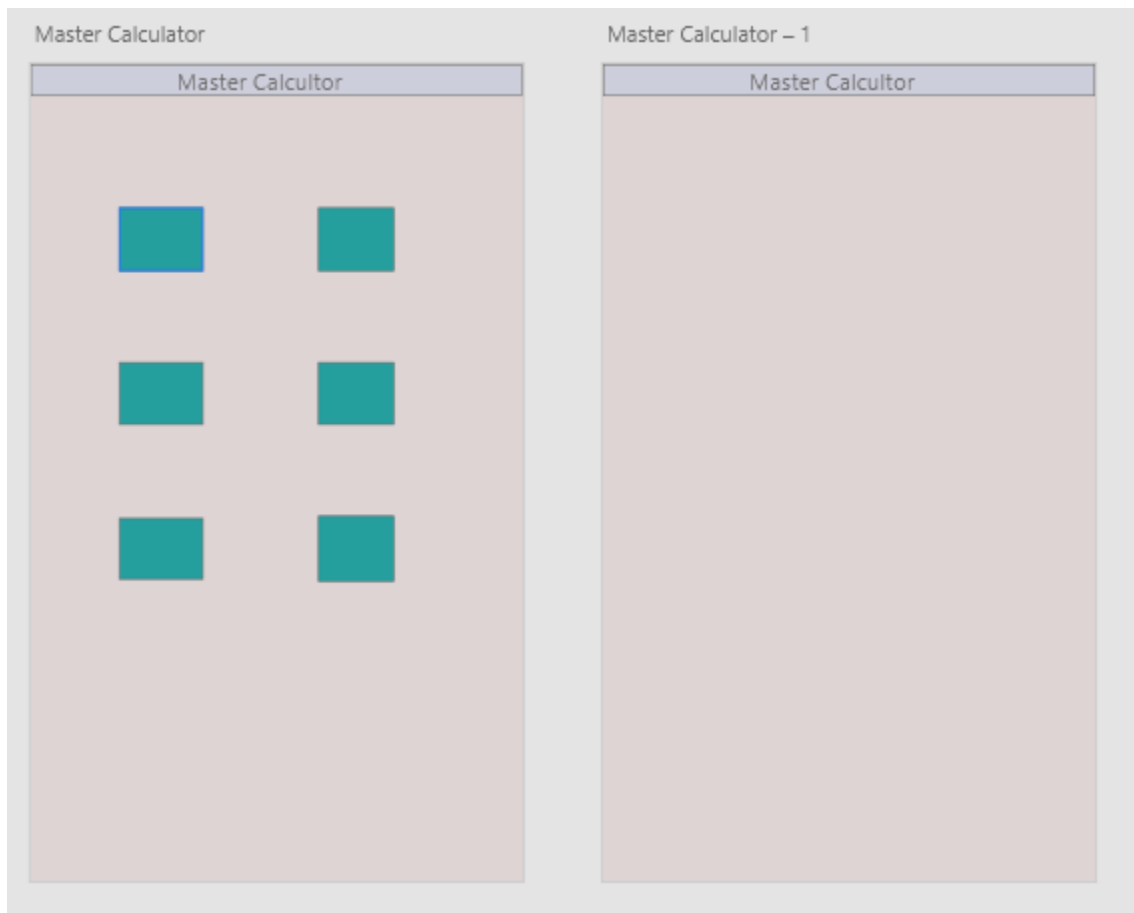
Let take number 8 on the keyboard. What is HMS with arrow represent? and what is S? you can see many other symbols too. The problem of putting more symbols on one button is because there is no room to place each one on its place. What will you learn from those symbols? What will you learn from the number on the screen and where dose it come from? No formula to follow and nothing to remember about the problem that was calculated accept the answer.

Let us see a rough sketch of the interface of a Master Calculator.

In the following example, if I have only 6 buttons to let me navigate the rest of the interfaces as the one on the right which I did not put any formula on it yet;

1. Basic calculator
2. Scientific calculator
3. Engineering Calculator
4. Graphic calculator
5. Statistic calculator
6. Unit conversion

Is it not be easy to add many engineering problems to the master calculator as long as we have enough memory? By making many interfaces you will be able to eliminate the space problem on the current calculator. You will also be able to add the formula to the problem you are calculating. A student should be able to learn by associate the problem he or she is calculating with the formula. That is what I think to be a different between the master calculator and the rest of the calculators outside there.



**The question about whether google have something similar.** Base on my research google has nothing like this calculator. All calculators have same pattern and slightly different on design and functions. I showed most of them on the previous video.

**The question whether I will make it electronically,** I don't have clear answer at this moment because I put the embedded to the next part of the project.

Feed back to the following narration:

- Let me try an example, and you can give me feedback on it:
  1. Brenda wants to calculate the volume of a sphere, she knows the formula is  $\frac{4}{3}\pi r^3$
  2. She lays out the equation in a two-dimensional view on the screen, which appears similar to the way one would write the formula on paper.
  3. She enters the **known** quantities (r) and the volume (V) appears in the solution box.
  4. She is now free to vary either r or V and the corresponding unknown is automatically filled in.
  5. as a result, she gets a much better intuitive feel for the relation between r and V

**I may answer it wrongly, but what I understood is that, making a clear and understandable interface even if it was one, it would allow others many problems to be answered easily using the same pattern. It going to be efficient and reduced the risk of the scope creep. Based on that idea I have to reduce the scope even much more to get a high quality of product.**

## References

Whitney. T. 1995-2021. Inventor of the World's First Scientific Handheld Calculator. Retrieved on Sept 23, 2021 from <https://www.ece.iastate.edu/profiles/thomas-m-whitney/>

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