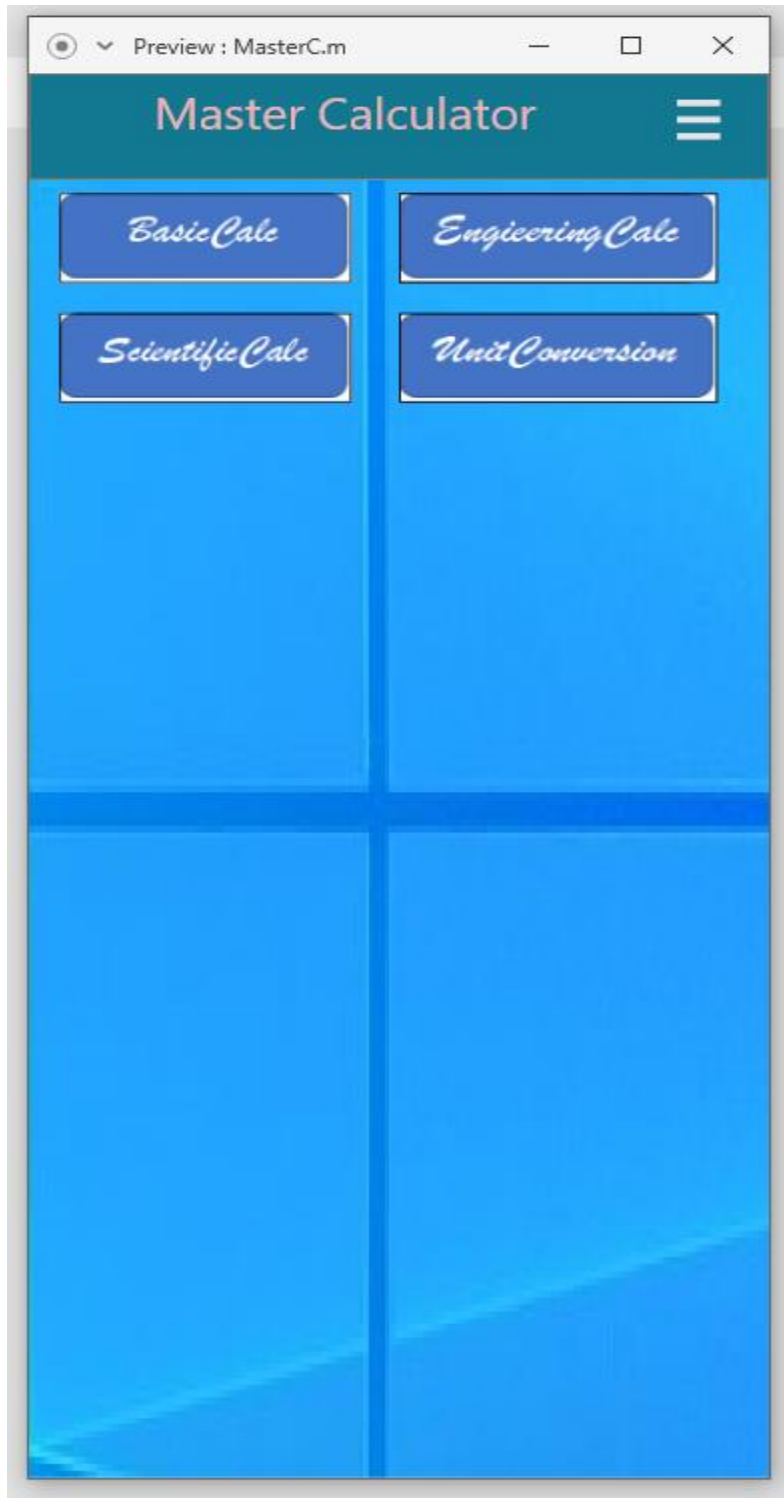


**ENSE 400 Capstone project.**

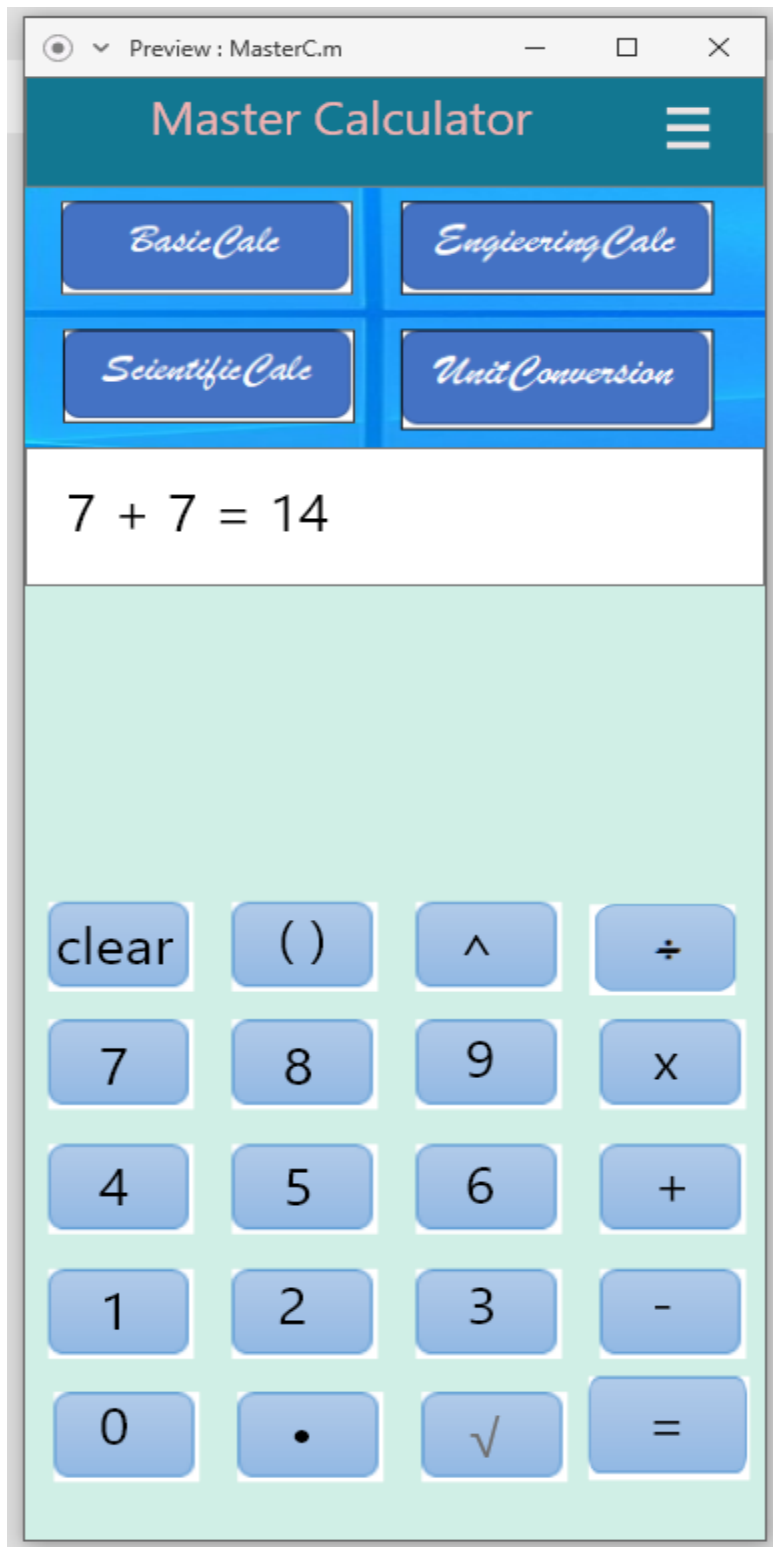
**University of Regina.**

**High Fidelity Prototyping Screen Shot:**

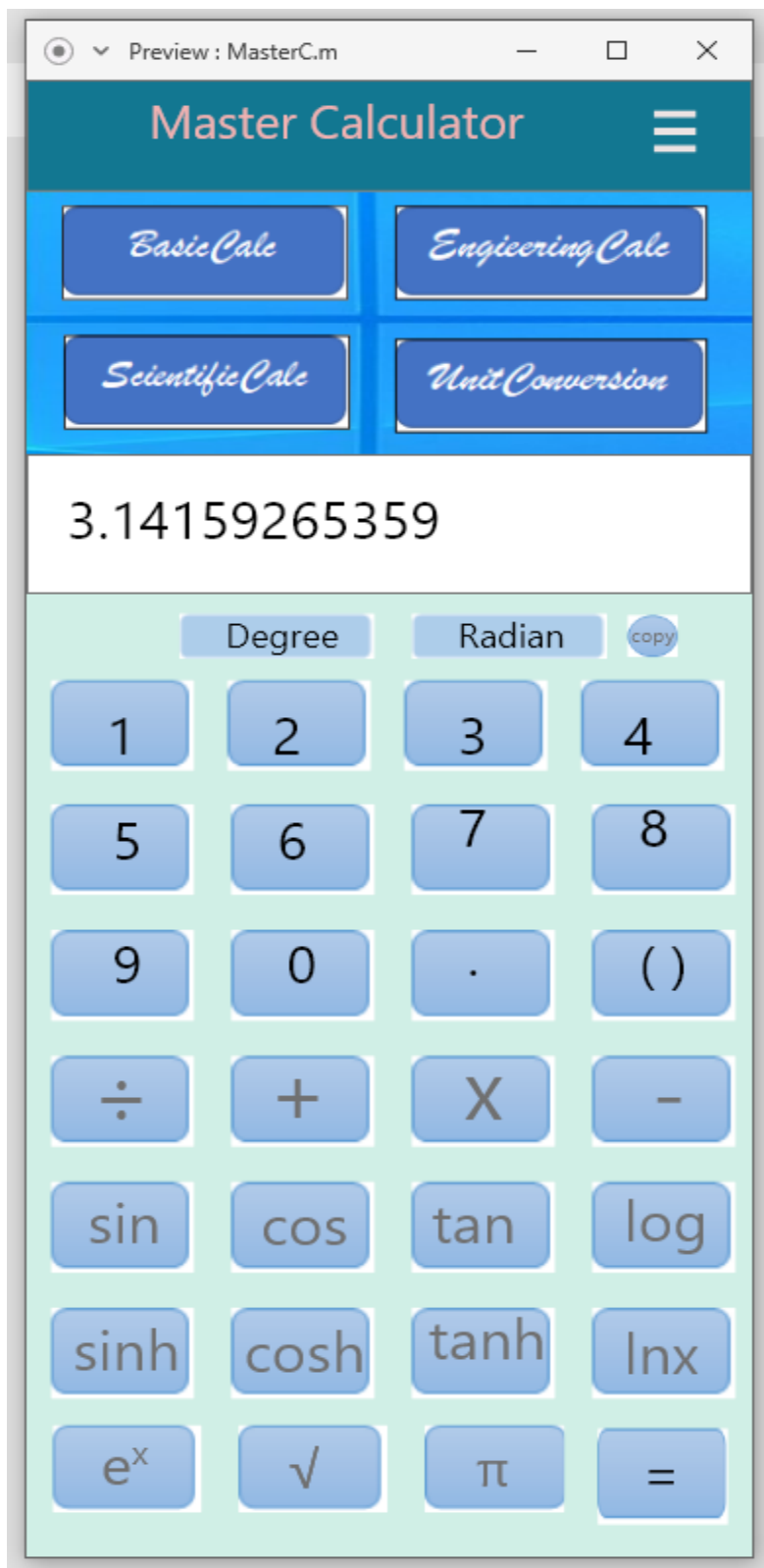
On the main page you can click one of the interfaces to calculate the required work.



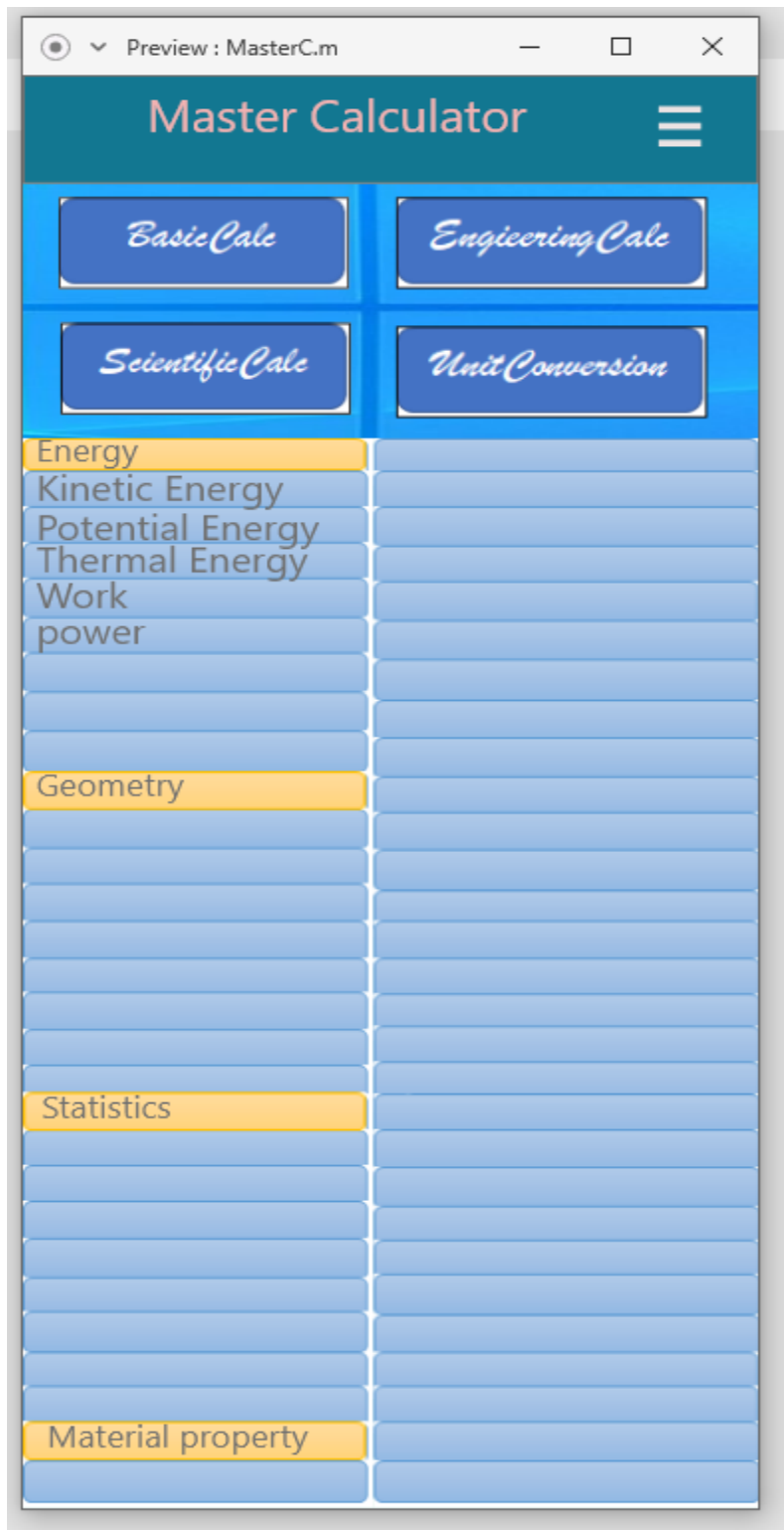
By clicking the Basic Calc, you are trying to do simple calculation. The following master Calculator interface will show.



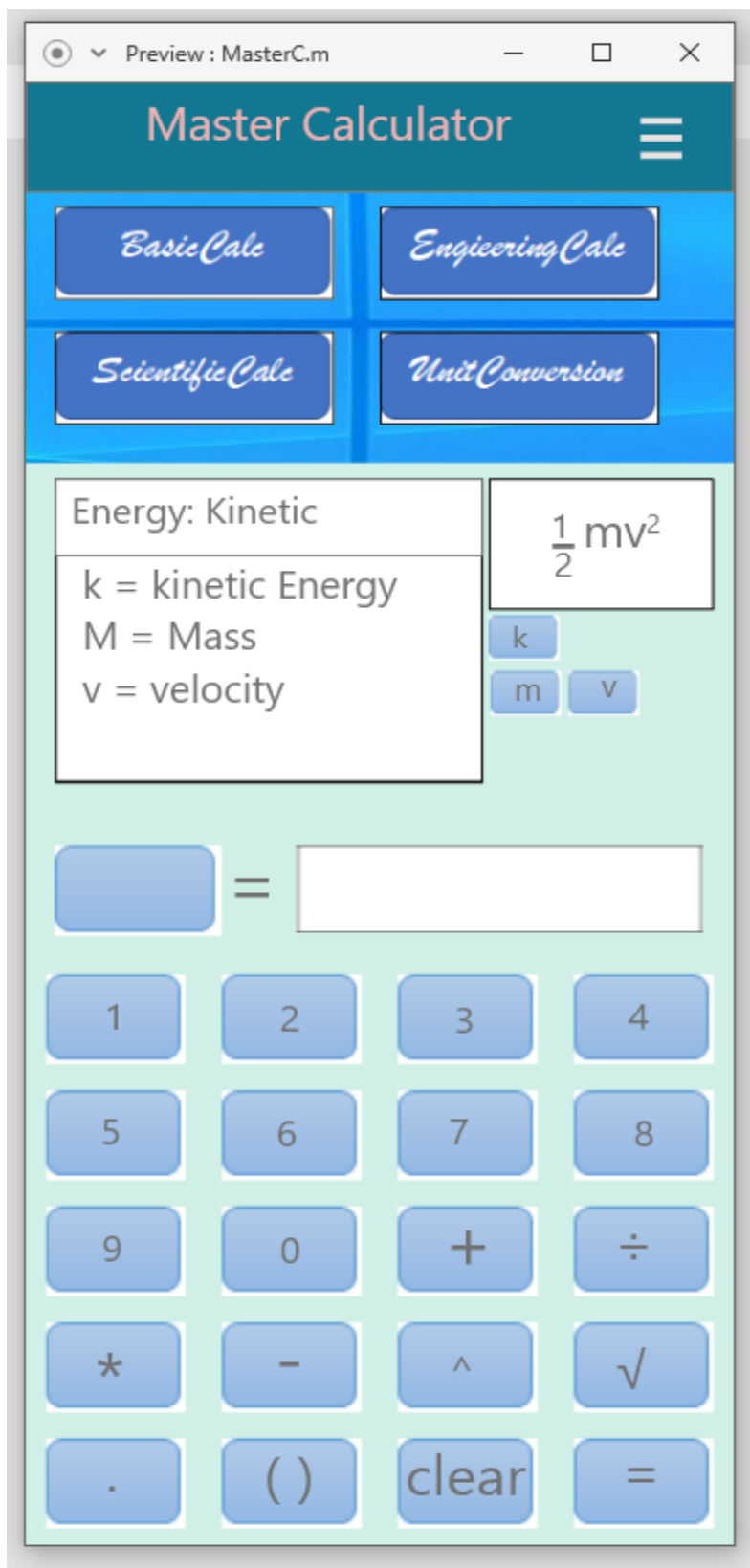
If your option was the Scientific Calc, you will be directed to the following window.



If your option was Engineering Calc, the engineering calculator interface will show up. On the engineering calculator interfaces, you must select the specific name of the property you need to calculate. For example, kinetic energy or potential energy. The following window shows the options.



If you click Kinetic energy, you will see the following window.



But if you click potential energy, you will see the following screen.

The screenshot shows a web browser window titled "Preview : MasterC.m" displaying the "Master Calculator" application. The app has a teal header with the title and a menu icon. Below the header are four blue buttons: "Basic Calc", "Engineering Calc", "Scientific Calc", and "Unit Conversion". The "Engineering Calc" button is selected, leading to the "Energy: Potential" screen. This screen features a white box with the formula  $PE = mgh$  and definitions: "P.E = Potential Energy", "M = Mass", "a = Acceleration", and "h = Height". To the right of the text box are three input fields labeled "PE", "m", "g", and "h". Below these is a large white input field for the result, preceded by an equals sign. At the bottom is a numeric keypad with buttons for digits 1-9, 0, decimal, parentheses, a "clear" button, and an equals sign, along with mathematical operators like multiplication, subtraction, exponentiation, and square root.

Master Calculator

Basic Calc Engineering Calc Scientific Calc Unit Conversion

Energy: Potential

$PE = mgh$

P.E = Potential Energy  
M = Mass  
a = Acceleration  
h = Height

PE m g h

=

1 2 3 4  
5 6 7 8  
9 0 + ÷  
\* - ^ √  
· ( ) clear =

If you click the thermal energy, it will lead you to the following window.

The screenshot shows a web browser window titled "Preview : MasterC.m" displaying the "Master Calculator" application. The application has a teal header with the title "Master Calculator" and a hamburger menu icon. Below the header are four blue buttons: "Basic Calc", "Engineering Calc", "Scientific Calc", and "Unit Conversion". The "Engineering Calc" button is selected, leading to the "Energy: Thermal" section. This section contains a list of variables: "Q = Thermal energy", "M = Mass", "c = specific heat", " $\Delta T$  = change in temperature.", "T1 = initial temperature", and "T2 = final temperature". To the right of this list are the formulas  $Q = mc\Delta T$  and  $Q = mc(T_2 - T_1)$ , followed by input fields for "Q", "m", "c", and " $\Delta T$ ". Below these is a large input field with an equals sign. At the bottom is a numeric keypad with buttons for digits 1-9, 0, decimal point, parentheses, a "clear" button, and an equals sign, along with mathematical operators: multiplication, subtraction, exponentiation, division, square root, and a plus/minus button.

Preview : MasterC.m

## Master Calculator

*Basic Calc* *Engineering Calc*

*Scientific Calc* *Unit Conversion*

### Energy: Thermal

Q = Thermal energy  
M = Mass  
c = specific heat  
 $\Delta T$  = change in temperature.  
T1 = initial temperature  
T2 = final temperature

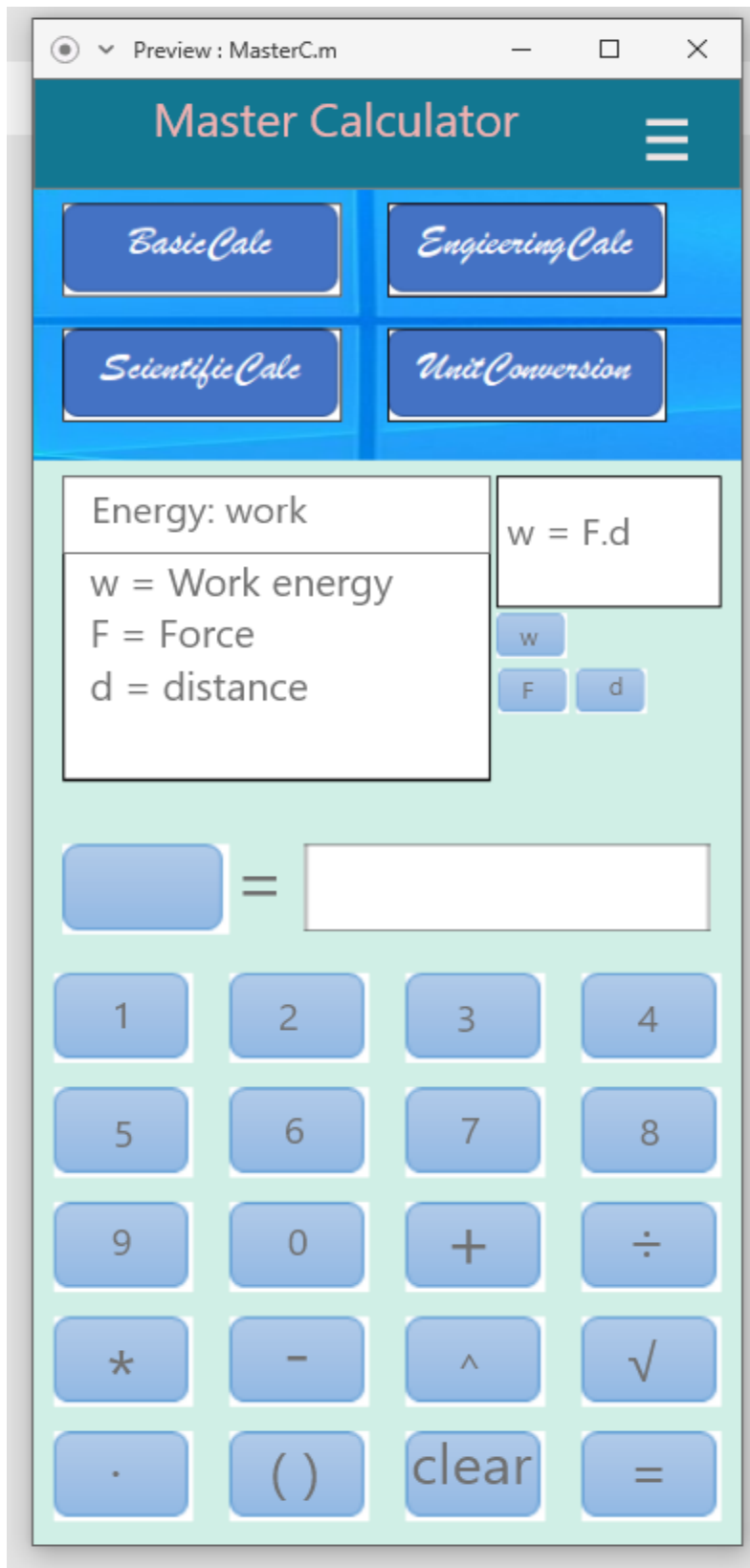
$Q = mc\Delta T$   
 $Q = mc(T_2 - T_1)$

Q m c  $\Delta T$

=

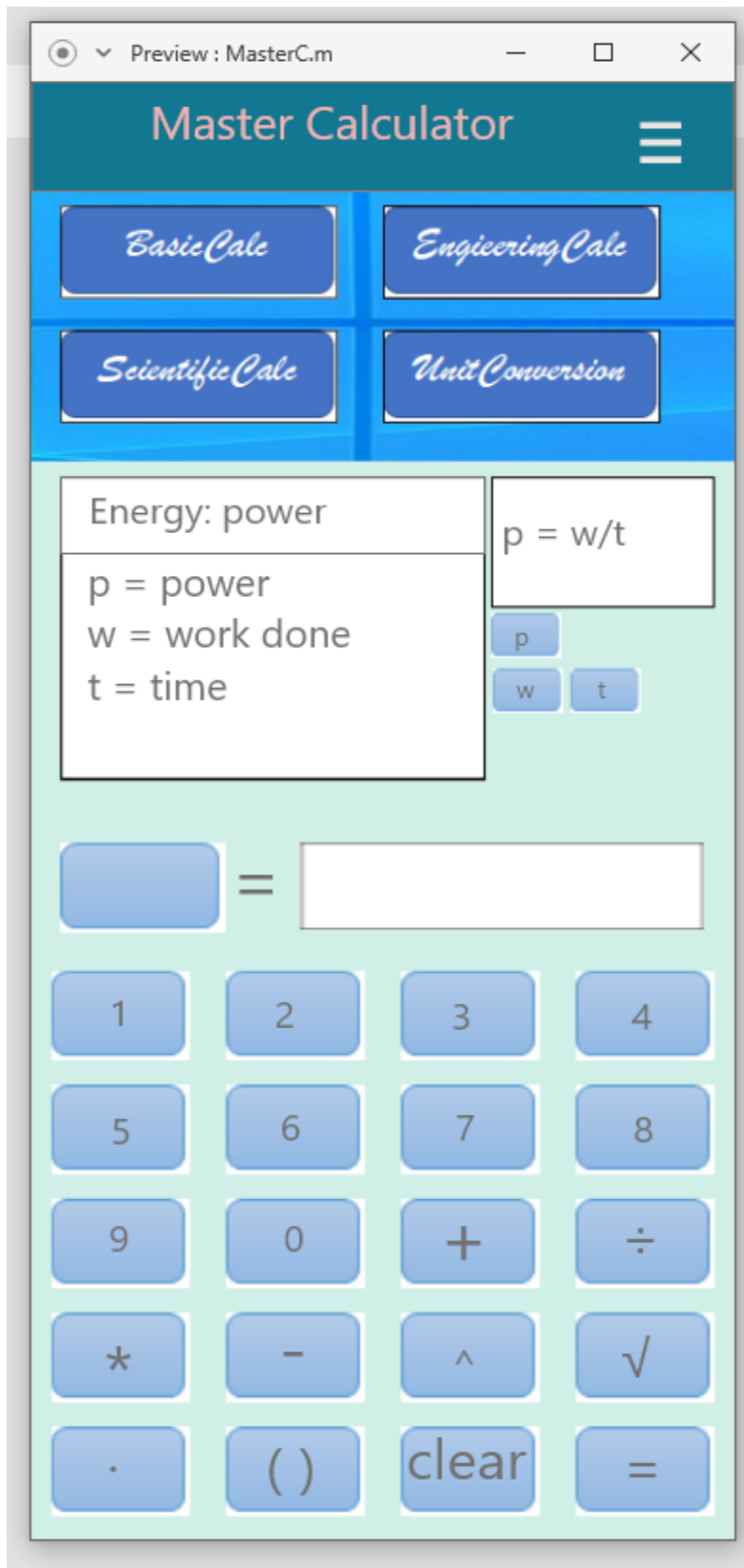
1 2 3 4  
5 6 7 8  
9 0 +  $\div$   
\* -  $\wedge$   $\sqrt{\phantom{x}}$   
· ( ) clear =

For the work interface.

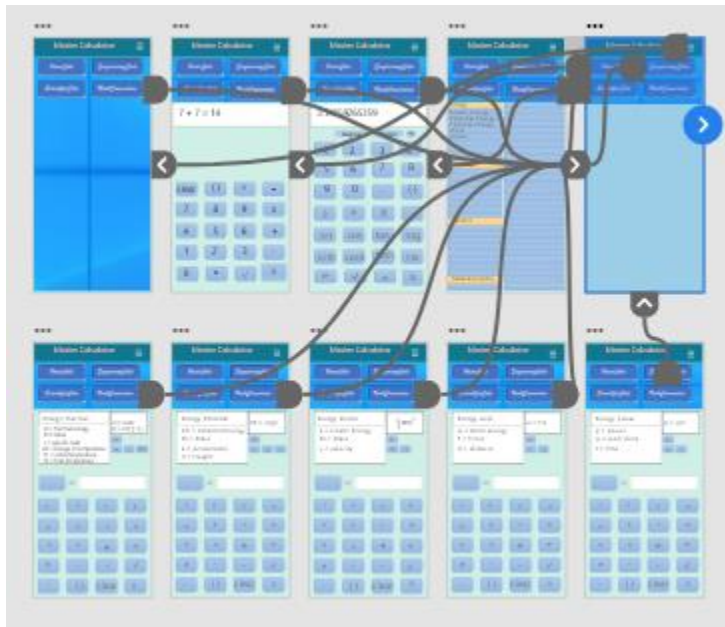




For the power, you see the following window.



The following screen shot shows interaction between the interfaces.



The whole interfaces are not limited to the above, but still more may be added if there is enough time. This prototype is just to show the envisioned plan for the better calculator.