Bottom-up design:

1. Draw the graph (draw the graph of y, y1 and y2 and annotate the local max and local min)
2. need:

* The function
* The first derivative function
* The second derivative function
* Local max/min

1. Use plt: plt.plot
2. Local max/min (need to be annotate)
3. Legend
4. The Local max/min (find the local max and min while using for loop and if statement)

a. need:

* + The original function

b. use:

* + While loop to make a loop for every x and y
  + If statement to compare with the values of every x and y

1. The second derivative function and the first derivative:

a. need:

* + The first derivative function
  + The function

b. use:

* Numpy package: “.deriv()”

1. The original function (ask user for a original function and make a list of every coefficient and power number)
   * User input
     1. For , first let user input ‘n’, which is the highest power.
     2. Ask for ‘a’, ’b’…..’z’ (the coefficient)

Top-down design:

1. Ask for an original function
   1. User input:
      1. While loop for unsure power number
      2. Coefficient
2. First and second derivative
   1. Using the numpy package: “.deriv()”
3. Draw the graph:
   1. Every point on the x and y axis in [-100,100]
   2. Plot y, y1, y2
4. Find the local max and local min
   1. Compare with every value of y which is near to it