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(10 pts) In the example code in the notes, we examined how to tabulate the sine function on some interval. For this assignment, you will pretend that MATLAB does not have a built-in cosine function. Instead, you will use the code you wrote from a previous homework.

Write a script that will tabulate the cosine function on some interval  $[a, b]$  for a given value of  $n$ . You should use your code from before to compute the cosine for each  $x$ -coordinate. Because you know about how many terms are necessary to obtain a reasonably accurate value for the cosine, you can replace the `while` loop with a `for` loop where the upper limit of the `for` loop is the value you found from the previous assignment.

Use your script to tabulate the cosine function on the interval  $\left[0, \frac{\pi}{2}\right]$  for  $n = 20$ . In addition, you should compute the relative error in your cosine approximation for each value in your table and store these in a vector. Recall that the relative error is

$$\text{Relative Error} = \frac{\text{approximate} - \text{exact}}{\text{exact}}.$$

However, this formula has a problem if the exact value is zero. One way to handle this case is to define

$$\text{Relative Error} = \text{approximate} - \text{exact}$$

in cases where the exact value is zero.