DESIGN

Pre-lab Questions and Flow Diagram
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PRE-LAB
part one
1. Pseudocode for Exponent Function

- For finding the exponent values, divide the equation given in the Assignment2.pdf into two functions.
- The values provided for x in function will be from 0 to 9 in steps of 0.1
- EXP FUNCTION
- First, in function Exp, initialize epsilon, termVal, n, and total.
- Epsilon will be used to see when the last term has been added to the total
- termVal is used to find the current term, initial termVal is 1.
- n increments to the next factorial number
- total is initialized to one, given with Maclaurin series equation
- Loop through until last term, which will be less than epsilon
- In loop, get termVal for each term --> Go to term function
- Add together to total
- TERM FUNCTION
- Initialize return value = 1
- Loop from 1 (first term) until n (last term)
- For each term, return value = (x divided by current term) multiplied by ret

2. Pseudocode for Printing Exponents

- Loop from 0 to 9 in steps of 0.1 (make a variable for step)
- In loop, create variable that calls Exp() Function as well as a variable that calls the built-in exp function from math.h
- Print these two values in printf function given in Assignment 2 PDF (with same formatting.

part two
1. What does getopt() return?

- The getopt() function has four return codes. If getopt() returns error code 0, parsing was successful. If 1 is returned, there are errors being returned. 2 is returned when it doesn't return its own parameters. Error code 3 gets returned if an internal error occurs like out-of-memory, and 4 is returned if it is called with -T.

2. Is bool or enum better? Explain why.

- I believe using bool would be a smarter choice because you are able to flag when one argument has been called and implement mutually exclusive arguments. For enum we'd have to make an array of options that check to see if a certain amount of arguments has been called and I think would be more difficult overall.

3. Pseudocode for Main Function

- Initialize step variables, getopt variable, pi, and boolean
- Include switch function
- Initialize loop variable,
- Case 's':
- Loop from -2pi to 2pi in steps of pi/16 : Runs Sin Function, Built in sin function, and prints with each step
- Case 'c':
- Loop from -2pi to 2pi in steps of pi/16 : Runs Cos Function, Built in cos function, and prints with each step
- Case 't':
- Loop from -pi/3 to pi/3 in steps of pi/16 : Runs Tan Function, Built in tan function, and prints with each step
- Case 'e':
- Loop from 0 to 9 in steps of 0.1: Runs Exp Function, Built in exp function, and prints with each step
- Case 'a':
- Combine steps s, c, t, and e

FLOW DIAGRAM