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April 15, 2021
CSE 13S

Assignment 2: A Small Numerical Library

Prototypes for the math functions that are given.

mathlib.h

```
double arcSin(double x);  
double arcCos(double x);  
double arcTan(double x);  
double Log(double x);
```

The math library that approximates the given functions. The trigonometric functions will be approximated by a Taylor expansion. The log function will be approximated by Newton's method.

Mathlib.c

```
function taylor()  
    double a = x, b, sum = a;  
    Int i = 0  
    for( i < 10; i++) {  
        b = a;  
        a = a *  
  
        double arcSin(double x);  
        Taylor expansion  
        double arcCos(double x);  
        Taylor expansion  
        double arcTan(double x);  
        Taylor expansion  
        double Log(double x);  
        Taylor expansion
```

The main function runs the program and starts the user interaction.

Mathlib.test

```
function main()  
    -a: to run all tests.  
    -s: to run arcsin tests.  
    -c: to run arccos tests.  
    -t: to run arctan tests.
```

-l: to run log tests.