



## **ACM40660 Practical 4**

**ICHEC**

**September 23, 2020**

## 1 Overview

This week we shall create additional program blocks. We shall use material from last week's practical and from this week's lectures.

## 2 Exercises

- Calculate the values of  $\tan(x)$  where  $x$  is in radians in the range  $[0, 60]$  every five degrees. Place the results in an array. Print the array. Make the array a global variable.
  1. Use the function (or subroutine) from the third lecture in Week 4, to convert degrees to radians.
  2. Construct *main*, in *main* have a loop where the loop counter does  $0, 1, 2 \dots 12$ .
  3. Use the loop counter to generate the degree angles.
  4. Use the function to generate the radian values.
  5. Compute  $\tan(x)$ , store in the array.
- Create a function/subroutine that calculates the area under the curve of  $\tan(x)$  from  $0 \rightarrow 60$  degrees using the Trapezoidal Rule. (You did this last week).
- There should be one argument, the number of points, and the return value is the area.
- When compiling with C use `#include <math.h>` and compile with `-lm`. This will ensure the tan function is available.