

# STAT 778 Homework #1: a C Implementation of the Kaplan-Meier Estimator

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## 1 Program Structure

There are three files. `misc.c` and its associated header file contain miscellaneous utility functions (e.g. to create a vector). `km.c` contains the `main` function and is where the more substantive code occurs.

## 2 Compiling the Program

The program uses the `math.h` standard library and so must be compiled with the `-lm` flag. The following is an example of compilation on a Linux system:

```
gcc km.c misc.c -lm
```

## 3 Using the Program

The program is designed to read in data and output Kaplan-Meier survival estimates and 95% confidence intervals. The user must provide input and output file arguments on the command line. Example:

```
km -i input_file -o output_file
```

## 4 Verification and Validation

This program's computed Kaplan-Meier estimates were compared to that obtained using the `survival` package in R. Nearly identical results were obtained, as visualized in Figure 1.

Figure 1: Comparison of output

