APPM 2460 **Homework** **Week 6**

Submit a published pdf of your script and any other supporting code needed to solve the following problem to Canvas by Monday, Oct. 12at 11:59 p.m. See the 2460 webpage for formatting guidelines.

This is the 5×5 Hilbert matrix.

$$\begin{bmatrix} 1 & 1/2 & 1/3 & 1/4 & 1/5 \\ 1/2 & 1/3 & 1/4 & 1/5 & 1/6 \\ 1/3 & 1/4 & 1/5 & 1/6 & 1/7 \\ 1/4 & 1/5 & 1/6 & 1/7 & 1/8 \\ 1/5 & 1/6 & 1/7 & 1/8 & 1/9 \end{bmatrix}$$

(a) What is the pattern for entries of this matrix*? (Hint: The entries only depends on the row and column index).

(b) Using this pattern, write a function called `myHilb.m` that constructs an $n \times n$ Hilbert matrix.

(c) Write a script that shows the function in action for two different values of n.

(* You do *not* need to explicitly answer question (a) in your homework. We will be able to see if you found the correct pattern from your code.)