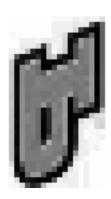
## Problem4

## September 30, 2016



```
In [10]: using Images
        using FileIO
        using ImageMagick
        grayim(X')
        save("problem4partA.png", grayim(X'))
In [26]: N = reshape(1:(4*4), 4, 4)
Out[26]: 4x4 Array{Int64,2}:
              2
                3
                     4
          1
             6
                7
                    8
          9 10 11 12
         13 14 15 16
In [24]: N = reshape(1:(4*4), 4, 4)
Out[24]: 4x4 Array{Int64,2}:
         1 5 9 13
         2 6 10 14
         3 7 11 15
         4 8 12 16
```

Out[6]:

```
In [18]: MY = Dict(1 \Rightarrow [1 2 33 34])
          k = 1;
          for i=2:(16*16)
               if MY[i-1][2] == k*32
                    MY[i] = MY[i-1] + 34
                    \texttt{MY[i]} = \texttt{MY[i-1]} + 2
               end
          \quad \text{end} \quad
          A = zeros(16*16,32*32)
          for j=1:(16*16)
               ind = MY[j]
               A[j, ind] = 1/4
          end
          x = reshape(X',32*32,1)
          y = A*x
          Y = reshape(y, 16, 16)
          using Images
          grayim(Y')
```

## Out[18]:

