

# CS 216 Homework 1

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## **Problem 4**

### **Problem 4a**

The variable  $x$  will be assigned to an array that is the numbers 1 through 5 arranged in a random order.

### **Problem 4b**

The variable  $a$  will be assigned to an array that is the numbers 1 through 10 arranged in chronological order. The variable  $b$  will end up being assigned an array that is the numbers 1, 4, 7, 10 because it is the first number and then every third number after that.

### **Problem 4c**

The variable  $f$  will be assigned to an array that is the numbers 1501 to 2000 in chronological order. The variable  $g$  will be assigned to the indices of  $f$  where the entries are greater than 1850 which is 351 to 500. The variable  $h$  will then be assigned an array that is the numbers 1851 to 2000.

### **Problem 4d**

The variables  $x$  will be assigned to a vector of 10 entries where each entry has value 22. The variable  $y$  will be assigned the sum of the entries which will be 220.

### **Problem 4e**

The variable  $a$  will be assigned an array that is the numbers 1 to 1000 in chronological order. The variable  $b$  will be assigned a vector that is the numbers 1 to 1000 in reverse order.

## Problem 5



Figure 1: Original Image from the Internet



Figure 2: Modified 100 by 100 image



Figure 3: Modified 100 by 100 image in grayscale

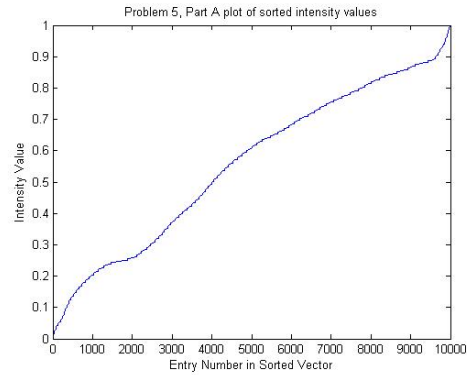
**Problem 5a**

Figure 4: Plot of Intensity Values

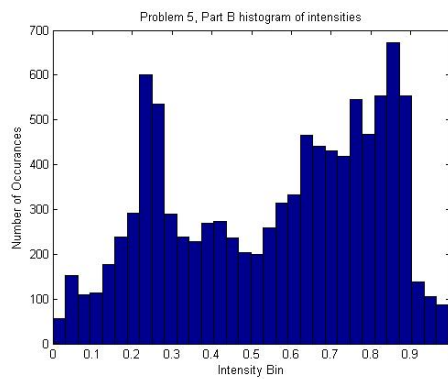
**Problem 5b**

Figure 5: Histogram of Intensities with 32 bins

**Problem 5c**

Figure 6: Binary Image using 0.65 as the threshold

**Problem 5d**

Figure 7: Bottom Right Quadrant of A

**Problem 5e**

Figure 8: New image with mean subtracted

**Problem 5f**

```
function [ result ] = diceRoll_partF()
%DICEROLL_PARTF Summary of this function goes here
% Detailed explanation goes here

result = floor(rand(1)*6) + 1;

end
```

**Problem 5g**

```
y = [1:6];
z = reshape(y,3,2);
```

**Problem 5h**

Result is that  $x = 0$  and  $[r, c] = [95, 99]$ . Code to accomplish it is the following

```
x = min(singleVectorA);  
[r,c] = find(A==x,1);
```

### **Problem 5i**

The result is 5 unique values. Here is the code that was used:

```
v = [1 8 8 2 1 3 9 8];  
sizeUniqueV = size(unique(v));  
numUnique = sizeUniqueV(2);
```