CMPS 148 Homework #2

Write a program that tests the "randomness" of the C++ random number generator.

Your program should generate 10,000 random numbers between 0 and 99. It would keep track of how many times *each* number was generated.

Have the program report the following information:

- Median number of times each number was generated
- Maximum times a number was generated (and which numbers they were)
- Minimum times a number was generated (and which numbers they were)

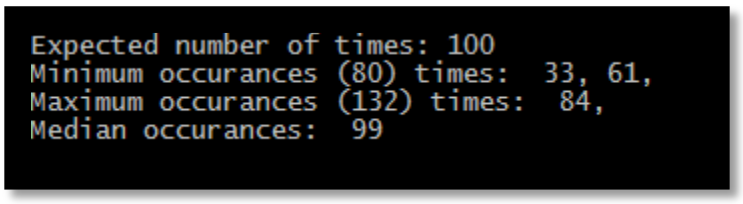
Example:

For clarity, I will restrict the values to be between 0 and 4, and I will only generate 10 for the example.

Let's say the random numbers generated were: 0, 3, 4, 2, 1, 1, 2, 1, 4, 2

- That means:
  - 0 appeared once
  - 1 appeared 3 times
  - 2 appeared 3 times
  - 3 appeared once
  - and 4 appeared twice.
- Then the median number of times each number appears is found by **sorting** the occurrences, and then taking the middle value (1 , 1 , **2** , 3 , 3) = 2
- The maximum number of times a number appeared is 3 – and 1 and 2 appeared three times.
- The minimum number of times a number appeared is 1 – and 0 and 3 appeared only once.

A typical run might look something like this, where 2 different numbers ended up appearing 80 times, and 84 appeared 132 times.



You should expect to get different numbers each time you run the program, but the median occurrences should be right around 100.

Note – you'll need to use the srand and rand functions (look them up in the text book) to generate your random number appropriately.