ACM-W Weekly Quiz
(This quiz is open to everyone.)

Quiz 7

We understand that this is a busy part of semester and hence doesn’t allow everyone to spend much time on the quiz. Hence we will be focusing on short and direct questions from now on. This Week’s question:

Marked by a Duke, it was originally known as Oak and then as Green. How do we better know it as now?

How to answer?
Email your answers along with your name and affiliation to:-
quiz.ugacs@gmail.com
Keep Subject line as “Answer to ACM-W Quiz #7.”

Last Week’s Question:

This is a traditional problem, a variant of the Dutch National Flag problem.
You are given an array of N integers containing only 0, 1 & 2 appearing randomly any number of time (need not be equal). You are to rearrange the numbers of the array, in situ (without using and external array, you may use an extra integer for swapping), in such a way that the array is in a non-descending order All the 0s followed by all the 1s followed by all the 2s. Can you provide an algorithm that allows only one pass through the array (i.e. each number can be moved only once)?
Provide answer in form of pseudo-code or Java or C/C++ code snippet.

Answer:
The idea is to keep two markers, one (M1) marking the end of 0 part and one (M2) marking the beginning of 2 part. The iterator on the array will be in the part in the middle. We then swap the item marked by the iterator by element at (M1+1) if it is a 0 and increment both M1 and iterator. If it is a 2, we swap it with element at (M2-1) then decrement M2 only. If it a 1, we just increment the iterator.

Here are the people who got it right:-
1) Fan Deng
2) Wesley McKettrick

If you have questions you would like to be included in the weekly quiz please email them to quiz.ugacs@gmail.com along with its answer. Your contribution will be acknowledged along side the solution to the quiz (i.e. with the next quiz).