Assignment 1.1, Due: Wednesday October 10th, 2018.

Q1.
(a) You are asked to implement a C++ class to model an array of bits. The idea is that we want to store at most 256 bits and want to make sure that we do not waste storage and each bit occupies exactly one bit of memory. This is because the class is to be used in an embedded application that cannot assume the presence of the STL and must also use the smallest amount of storage possible.

(b)You are asked to implement a C++ class to model a set of octets (unsigned 8 bit numbers often referred to as bytes). The class is to be used in an embedded application that cannot assume the presence of the STL and must also use the smallest amount of storage possible (for the worst case of a full set) while being as efficient as possible during execution.
Your class should use the bit array of question (a) and should have the appropriate constructors and destructor; in addition to implementing methods that allow the class user to add and remove numbers to/from the set, and check if a number belongs to the set. Once more, your set class should be self contained and **should not use the C++ STL library** but should be based on built-in C++ types.

You are also asked to implement a main program that uses your classes ((a) and (b)) to demonstrate the above interfaces and functionality.