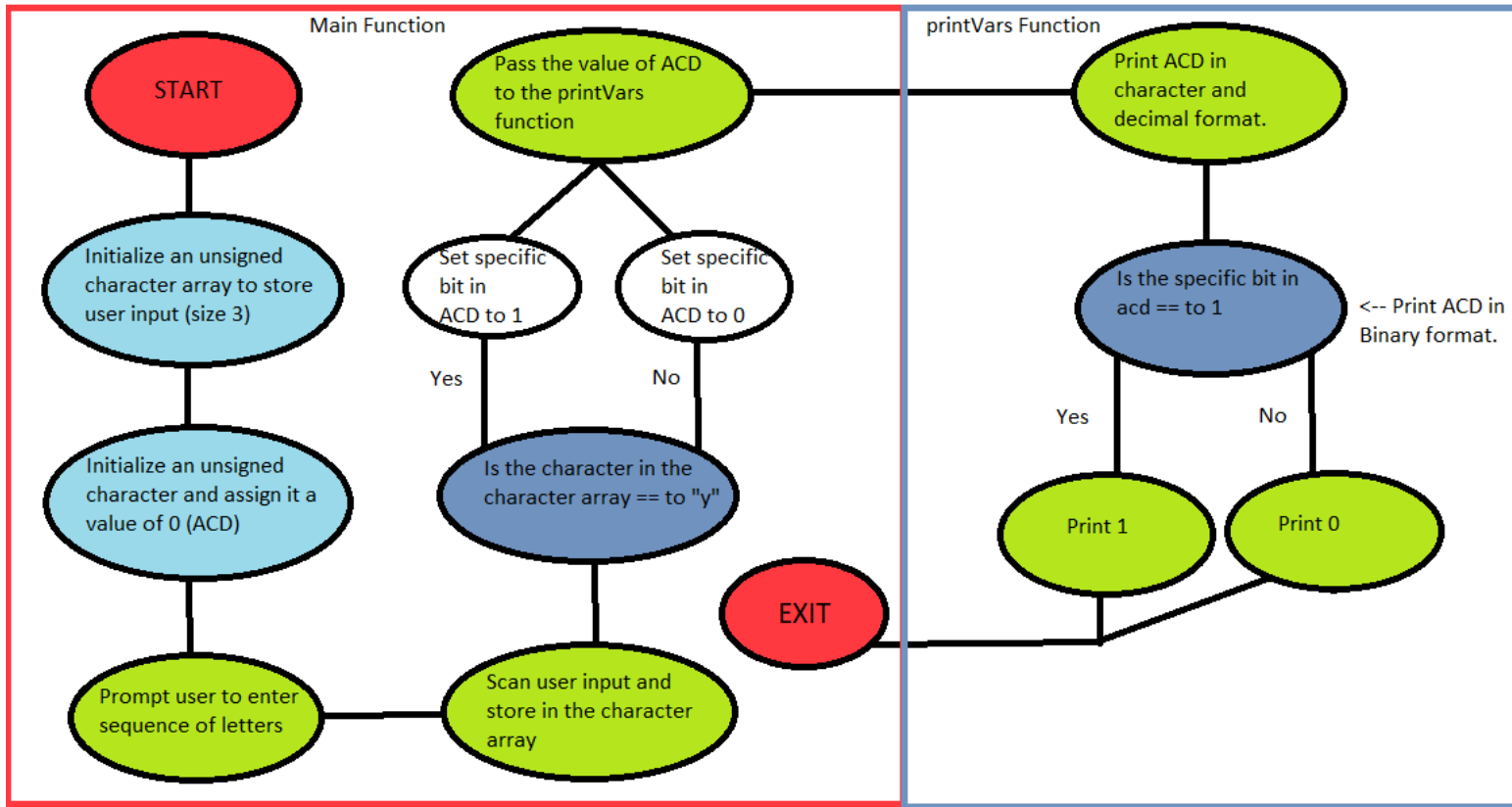## Design Document (Assignment 1) - Cameron Sparks

- The System Admin's input is first stored in an unsigned character array because the user is entering a string of "y"'s and "n"'s.
    - In C the way to store strings is through the use of a character array.
    - It stores 3 characters because that is all it needs for the required user input.
- The smallest primitive type variable in the C programming language is a char which holds 1 byte of information, the ACD will be a char to reduce as much memory as possible. The "y"'s and "n"'s located inside the character array can be mapped to "1" and "0" respectively inside the ACD using a bit mask operation.
    - Essentially the ACD stores the same information inside the character array just with 3x less the memory.
- Unsigned characters are used because negative numbers are not needed for the purpose of this assignment.
- **Expected Output:**
    - Expected output of ACD in Decimal format:
        - 0-7 (Range of 3 bits)
    - Expected output of ACD in Binary format:
        - 000-111 (Range of 3 bits)
    - Expected output of ACD in Character format:
        - (null-bell) or nothing as the ascii character output for values 0-7 displays nothing.