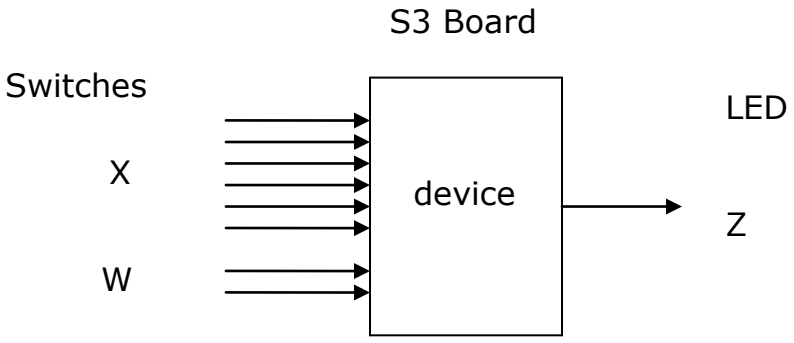
Electrical and Computer Engineering
ECE-C302
Quiz 1

Implement a combinational circuit with 6-bit input X. W is a select 2-bit input ranging from 0 to 3, i.e., "00", "01", "10", "11". The output Z is a one if the number of one's appearing at the input is greater than W.




```
Entity Q1 is
Port (X : in std_logic_vector(0 to 5);
      w : in std_logic_vector(1 downto 0);
      Z: out std_logic);
End Q1;
Architecture beh of q1 is
Begin
Process(x, w)
Variable count : integer;
Begin
Count := 0;
For I in 0 to 5 loop
If x(i) = '1' then count := count + 1; end if;
End loop;
Case w is
When "00" => if count > 0 then z <= '1'; else Z <= '0'; end if;
When "01" => if count > 1 then z <= '1'; else Z <= '0'; end if;
When "10" => if count > 2 then z <= '1'; else Z <= '0'; end if;
When "11" => if count > 3 then z <= '1'; else Z <= '0'; end if;
End case;
End process;
End beh;
```