

```
1  -- 3x8 Decoder Using If-else Statement
2  -----
3  library IEEE;                                --Importing Library
4  use IEEE.STD_LOGIC_1164.ALL;
5
6  entity decoder3x8_if is                        -- Entity Declaration
7      Port ( x,y,z : in bit;
8              e : out bit_vector(7 downto 0));
9  end decoder3x8_if;
10
11  architecture Behavioral of decoder3x8_if is    --Architecture Declaration
12
13  begin
14  process(x,y,z)                                -- Start of process
15  variable a,b,c : bit;                          --Declaring Variables
16  variable n:bit_vector(7 downto 0);
17  begin
18  a := x;
19  b := y;
20  c := z;
21  if a = '0' and b = '0' and c = '0' then        --Start of if
22      n:= "00000001";
23  elsif a = '0' and b = '0' and c = '1' then
24      n:= "00000010";
25  elsif a = '0' and b = '1' and c = '0' then
26      n:= "00000100";
27  elsif a = '0' and b = '1' and c = '1' then
28      n:= "00001000";
29  elsif a = '1' and b = '0' and c = '0' then
30      n:= "00010000";
31  elsif a = '1' and b = '0' and c = '1' then
32      n:= "00100000";
33  elsif a = '1' and b = '1' and c = '0' then
34      n:= "01000000";
35  elsif a = '1' and b = '1' and c = '1' then
36      n:= "10000000";
37  end if;                                        --End of if
38  e<=n;                                         --Assigning value to signal
39  end process;                                --End of Process
40  end Behavioral;                              --End of Architecture
41
42
```