

Homework 19 Solutions

```
LIBRARY ieee;
USE ieee.std_logic_1164.all;

ENTITY gray_code IS
    PORT (x : IN std_logic_vector( 3 downto 0);
          y : OUT std_logic_vector(3 downto 0));
END gray_code;

ARCHITECTURE convert_code OF gray_code IS
BEGIN
y <=  "0000" WHEN x = "0000" ELSE
      "0001" WHEN x = "0001" ELSE
      "0011" WHEN x = "0010" ELSE
      "0010" WHEN x = "0011" ELSE
      "0110" WHEN x = "0100" ELSE
      "0111" WHEN x = "0101" ELSE
      "0101" WHEN x = "0110" ELSE
      "0100" WHEN x = "0111" ELSE
      "1100" WHEN x = "1000" ELSE
      "1101" WHEN x = "1001" ELSE
      "1111" WHEN x = "1010" ELSE
      "1110" WHEN x = "1011" ELSE
      "1010" WHEN x = "1100" ELSE
      "1011" WHEN x = "1101" ELSE
      "1001" WHEN x = "1110" ELSE
      "1000";
END convert_code;
```