VHDL ASSIGNMENT: 1:8 DEMUX

Name: Shreya Mamadapur
Student ID: C0774035

Source code:

```
library IEEE;
use IEEE.STD_LOGIC_1164.ALL;

entity DeMUX_onetoeight is
    Port ( I: in  STD_LOGIC; --1 input pin
           S: in  STD_LOGIC_vector( 2 downto 0); --3 select pins required for 8 DEMUX outputs
           STRB_n : in  STD_LOGIC; -- active low enable pin
           O : out  STD_LOGIC_vector( 7 downto 0)); --8 ouput pins
end DeMUX_onetoeight;

architecture Behavioral of DeMUX_onetoeight is
begin
process(STRB_n,S,I)
begin
if STRB_n = '0' then -- chip is enabled only when STROBE is low
O <= (others => '0'); -- all other pins except the selected output must be low
          if S = "000" then -- output pin O(0) is selected
          O(0) <= I; -- O(0) will follow the value in input pin
          elsif S = "001" then
          O(1) <= I;
          elsif S = "010" then
          O(2) <= I;
          elsif S = "011" then
          O(3) <= I;
          elsif S = "100" then
          O(4) <= I;
          elsif S = "101" then
          O(5) <= I;
          elsif S = "110" then
          O(6) <= I;
          elsif S = "111" then
          O(7) <= I; -- O(7) will follow the value in input pin
          end if;
end if;
end process;
end Behavioral;
```

VHDL ASSIGNMENT: 1:8 DEMUX

Waveform editor:

Select pin S = 101 i.e O(5) is selected.

So, O(5) follows input I, whenever strb_n is low.

All other outputs are low.