File: //Mac/Home/Documents/SBU 2024 Spring/ESE 382/Prelab11/Prelab11/prelab11/src/decoder_2t

```
1   ----------------------------------------------------------------------------
    ----
2   --
3   -- Title       : decoder_2to4_tb
4   -- Design      : prelab11
5   -- Author      : Dongyun Lee
6   -- Company     : Stony Brook University
7   --
8   ----------------------------------------------------------------------------
    ----
9   --
10  -- File        : \\Mac\Home\Documents\SBU 2024 Spring\ESE
    382\Prelab11\Prelab11\prelab11\src\decoder_2to4_tb.vhd
11  -- Generated   : Mon Apr 29 22:33:59 2024
12  -- From        : interface description file
13  -- By          : Itf2Vhdl ver. 1.22
14  --
15  ----------------------------------------------------------------------------
    ----
16  --
17  -- Description :
18  --
19  ----------------------------------------------------------------------------
    ----
20
21  library ieee;
22  use ieee.std_logic_1164.all;
23  use ieee.numeric_std.all;
24  use work.all;
25
26
27  entity decoder_2to4_tb is
28  end decoder_2to4_tb;
29
30  architecture decoder_2to4_tb of decoder_2to4_tb is
31  signal a, b : std_logic;
32  signal Y : std_logic_vector(3 downto 0);
33
34  type test_vector is record
35      a : std_logic;
36      b : std_logic;
37      Y : std_logic_vector(3 downto 0);
38  end record;
39
40  type test_vector_table is array (natural range <>) of test_vector;
41
42  constant LUT : test_vector_table := (
43  --    a    b     Y
44      ('0', '0', "0001"),
45      ('0', '1', "0010"),
46      ('1', '0', "0100"),
47      ('1', '1', "1000")
48  );
49
50
51  begin
52      UUT : entity decoder_2to4
```

```
53          port map (
54          a => a,
55          b => b,
56          Y => Y
57          );
58
59      tb : process
60      begin
61          for i in LUT'range loop
62              a <= LUT(i).a;
63              b <= LUT(i).b;
64              wait for 20ns;
65              assert Y = LUT(i).Y
66              report "Error at input : " & std_logic'image(a) & std_logic'
    image(b)
67              severity error;
68          end loop;
69          std.env.finish;
70      end process;
71
72  end decoder_2to4_tb;
73
```