```
-- NAME: Owen Bailey
-- COURSE AND SECTION: CE 1901 031
-- FILE: CONTROLLER.vhd
-- DESCRIPTION: Implements a motion controller for the Digibot using muxes

-- include ieee standard logic signal library
library ieee;
use ieee.std_logic_1164.all;

-- describe the functional block diagram symbol
entity SEG7DECODE is
   port(
      A: in std_logic_vector(5 downto 0);
      SEG: out std_logic_vector(7 downto 0)
   );
end entity SEG7DECODE;

-- describe signals and vectors using multiplexer with-select syntax
architecture MULTIPLEXER of SEG7DECODE is
begin

      with A select
         SEG <=   8X"C0" when 6X"00", -- 0
                  8X"F9" when 6X"01", -- 1
                  8X"A4" when 6X"02", -- 2
                  8X"B0" when 6X"03", -- 3
                  8X"99" when 6X"04", -- 4
                  8X"92" when 6X"05", -- 5
                  8X"82" when 6X"06", -- 6
                  8X"D8" when 6X"07", -- 7
                  8X"80" when 6X"08", -- 8
                  8X"90" when 6X"09", -- 9
                  8X"88" when 6X"0A", -- A
                  8X"83" when 6X"0B", -- B
                  8X"A7" when 6X"0C", -- C
                  8X"A1" when 6X"0D", -- D
                  8X"86" when 6X"0E", -- E
                  8X"8E" when 6X"0F", -- F
                  8X"C2" when 6X"10", -- G
                  8X"8B" when 6X"11", -- H
                  8X"FB" when 6X"12", -- I
                  8X"E1" when 6X"13", -- J
                  8X"8A" when 6X"14", -- K
                  8X"C7" when 6X"15", -- L
                  8X"C8" when 6X"16", -- M
                  8X"AB" when 6X"17", -- N
                  8X"A3" when 6X"18", -- O
                  8X"8C" when 6X"19", -- P
                  8X"98" when 6X"1A", -- Q
                  8X"AF" when 6X"1B", -- R
                  8X"93" when 6X"1C", -- S
                  8X"87" when 6X"1D", -- T
                  8X"E3" when 6X"1E", -- U
                  8X"C1" when 6X"1F", -- V
                  8X"81" when 6X"20", -- W
                  8X"89" when 6X"21", -- X
                  8X"91" when 6X"22", -- Y
                  8X"E4" when 6X"23", -- Z
                  8X"BF" when 6X"24", -- dash
                  8X"F7" when 6X"25", -- underscore
                  8X"7F" when 6X"26", -- decimal
                  8X"FF" when others; -- blank

end architecture MULTIPLEXER;

```