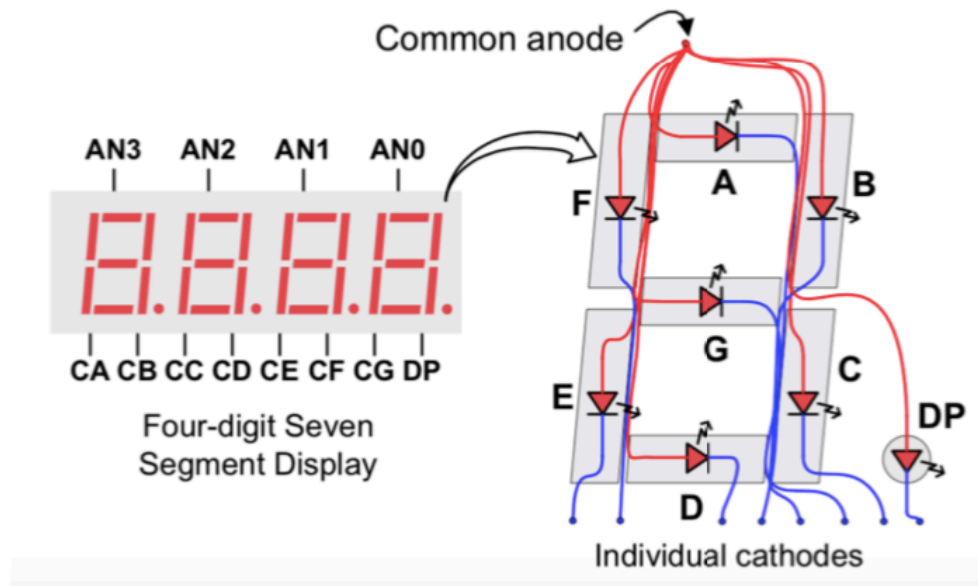


## COL215: LAB ASSIGNMENT 1

**Student\_1: Pavas Goyal (2018CS10363)**

**Student\_2: Dipen Kumar (2018CS50098)**

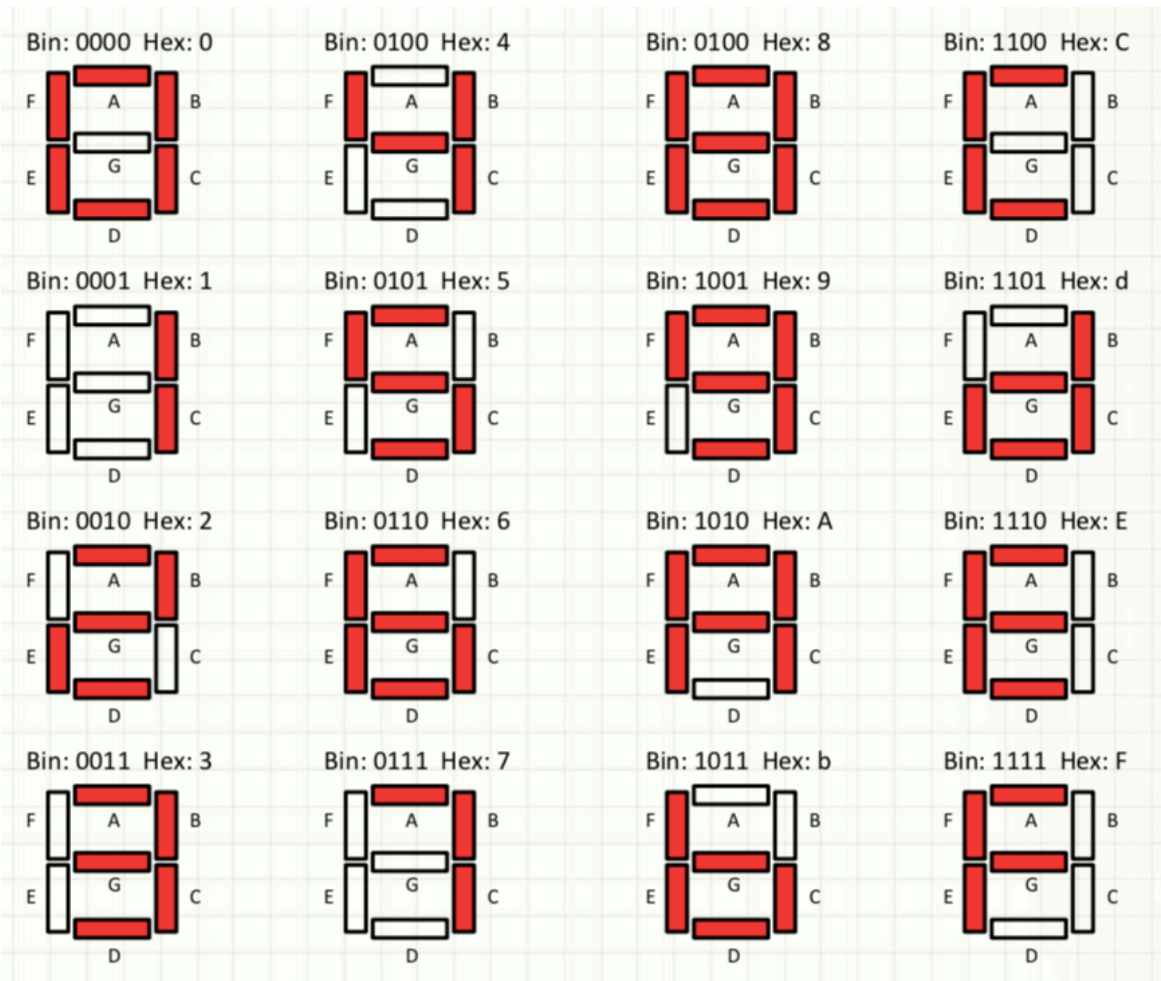
With the help of Decoder we have used four bit input to display 7 bit output. These 7 outputs will go to the cathodes of the 7-segment displays.



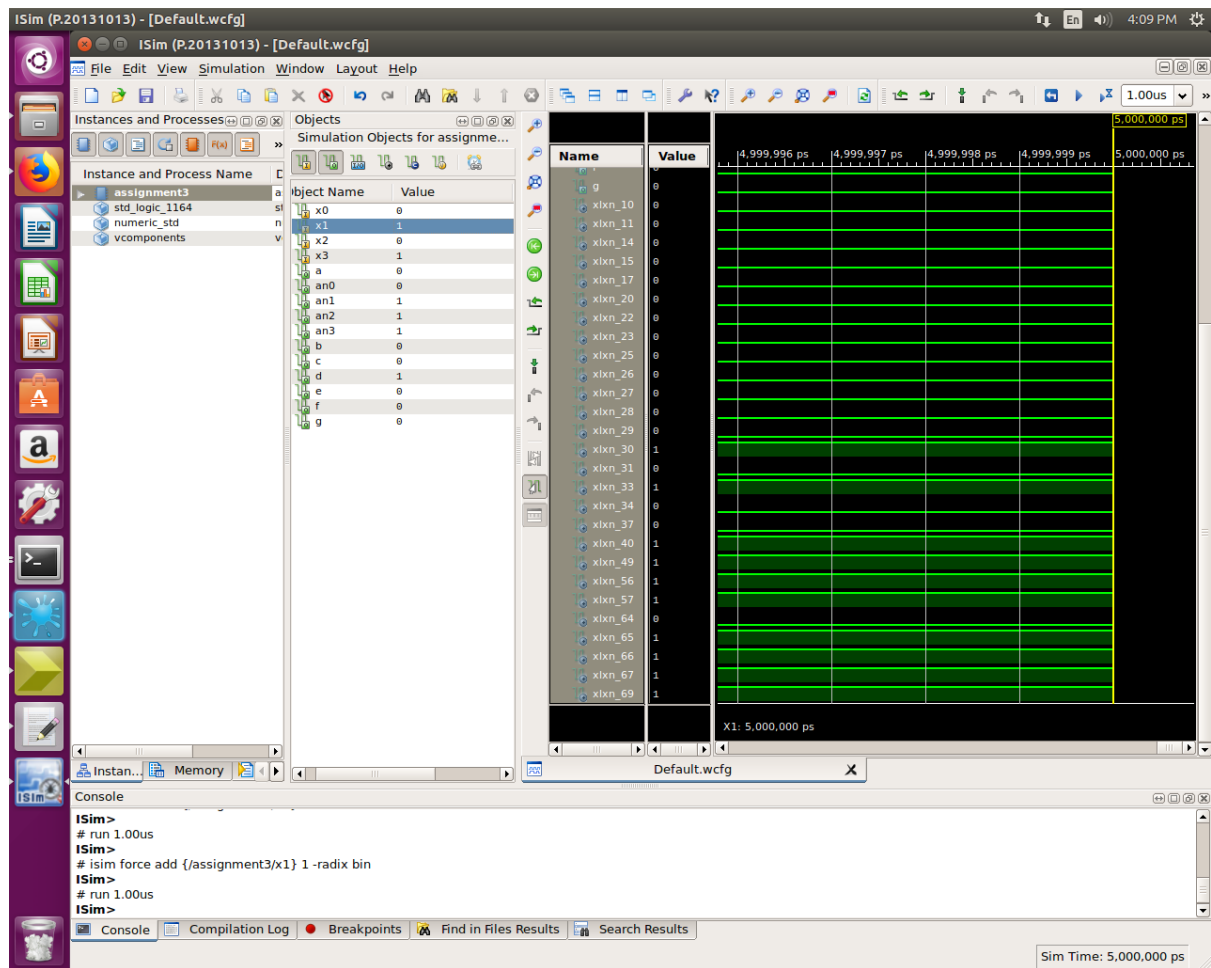
In order to display number we have used following pattern given on next page. When we want to display a number, let's say "2" we will make LED\_A, LED\_B, LED\_G, LED\_E, LED\_D glow.

These diodes have a common anode and individual cathodes. To display a digit, it is required to give a '1' as input to the anode and a '0' or '1' to each segment depending upon whether that segment needs to be lighted ('0') or not ('1').

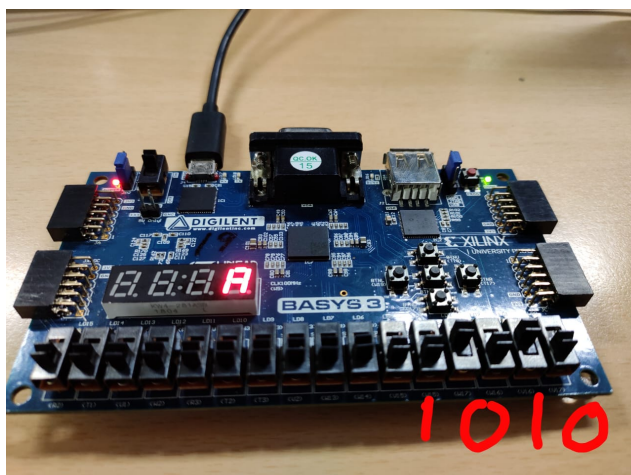
WE HAVE TESTED ALL THE TEST CASES OF HEXADECIMAL FROM 0 TO F ON BOTH SIMULATOR AS WELL AS FPGA BOARD.



# TESTCASE 1



Given Input is 1010 which in hexagon is "A" according to above chart it will have to glow all six LEDs except LED\_D. And as we know that in order to glow a LED we have to give low voltage at its cathode. And same result we are getting after simulation. We are getting '0' as an output for all six LEDs except LED\_D when we had given 1010 as an input.



The screenshot shows the ISim (P.20131013) - [Default.wcfg] window. The interface is divided into several panes:

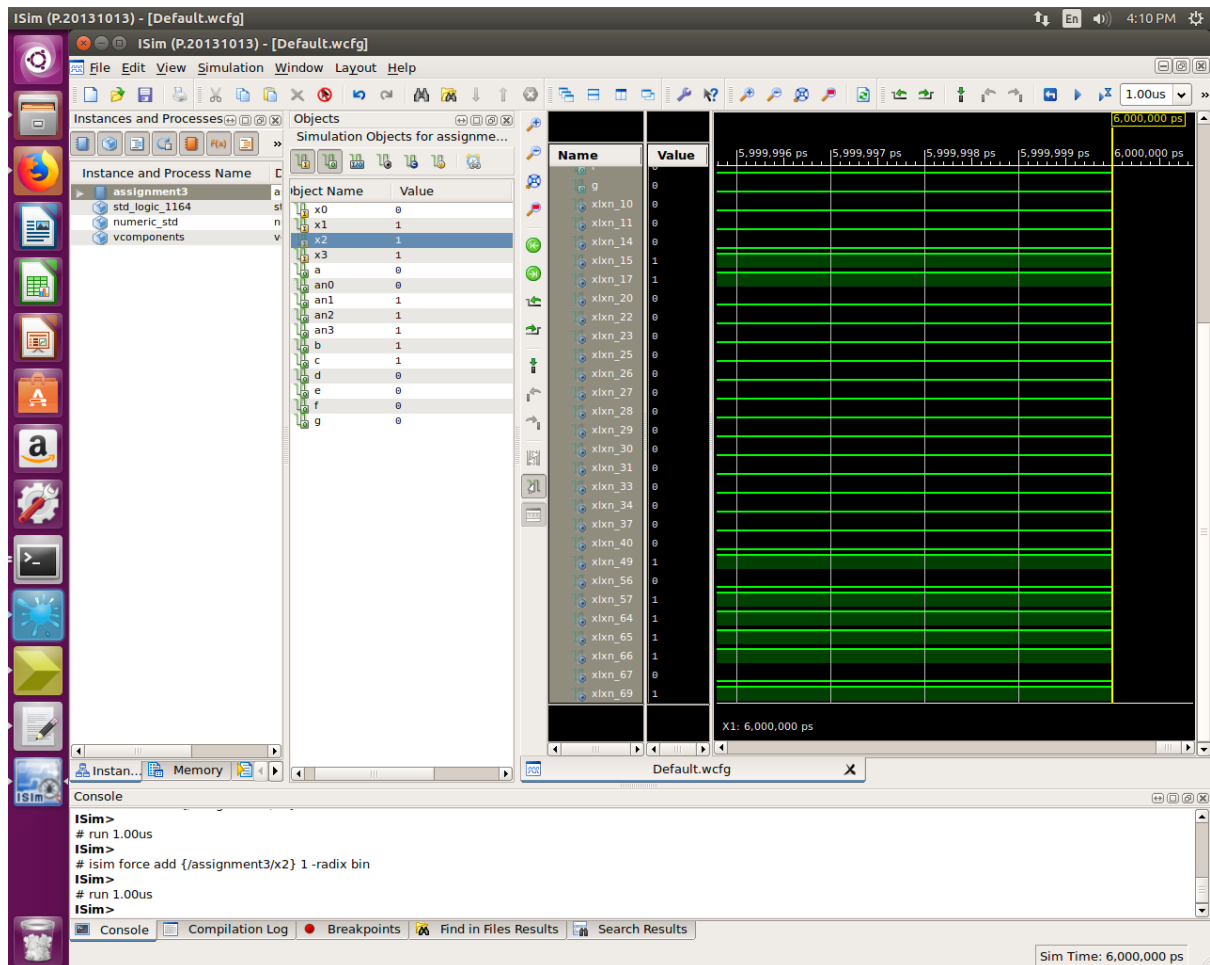
- Top Pane:** Contains the 'Instances and Processes' tree on the left, showing 'assignment3' and its components: 'std\_logic\_1164', 'numeric\_std', and 'vcomponents'.
- Objects Pane:** Displays 'Simulation Objects for assignme...'. It lists object names and their values:
 

Object Name	Value
x0	0
x1	1
x2	1
x3	0
a	0
an0	0
an1	1
an2	1
an3	1
b	1
c	0
d	0
e	0
f	0
g	0
- Waveform Viewer:** A large table-like structure showing signal values over time. The columns represent time points: 6,999,996 ps, 6,999,997 ps, 6,999,998 ps, 6,999,999 ps, and 7,000,000 ps. The rows list signals: x0 through x9. The values are mostly 0, with some 1s appearing for signals like x1, x2, x3, a, an1, an2, an3, b, c, d, e, f, g, and x1 through x9. A yellow vertical line is positioned at 7,000,000 ps.
- Console:** Located at the bottom, it shows the command-line interface:
 

```
ISim>
# run 1.00us
ISim>
# isim force add {/assignment3/x3} 0 -radix bin
ISim>
# run 1.00us
ISim>
```
- Bottom Bar:** Includes buttons for 'Console', 'Compilation Log', 'Breakpoints', 'Find in Files Results', and 'Search Results'. A status bar at the bottom right indicates 'Sim Time: 7,000,000 ps'.

Which in decimal represents “6”.

## TESTCASE 3



Input 1110 which in hexadecimal means “E”.  
Expected output :: Led\_B and Led\_C are 1 rest all 0.

