COL215: LAB ASSIGNMENT 1

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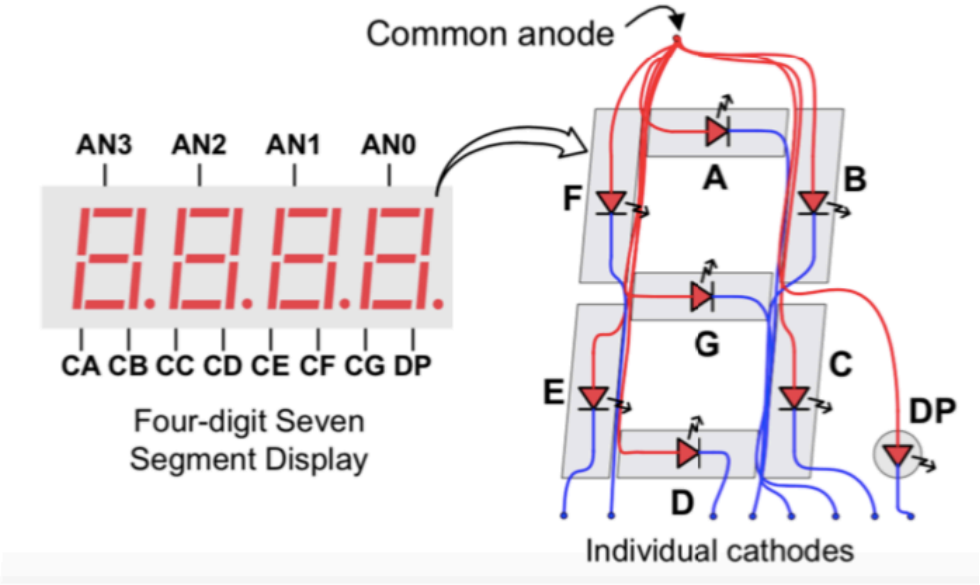
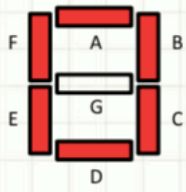
With the help of Decoder we have used four bit input to display 7 bit output. These 7 outputs will go to the cathodes of the 7-segment displays.



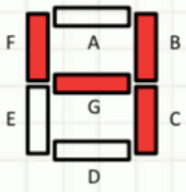
In order to display number we have used following pattern given on next page. When we want to display a number, let's say "2" we will make LED_A, LED_B, LED_G, LED_E, LED_D glow.
These diodes have a common anode and individual cathodes. To display a digit, it is required to give a '1' as input to the 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 CASEES OF HEXADECIMAL FROM 0 TO F ON BOTH SIMULATOR AS WELL AS FPGA BOARD.

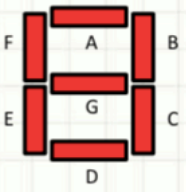
Bin: 0000 Hex: 0



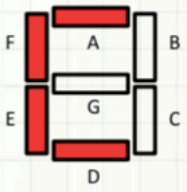
Bin: 0100 Hex: 4



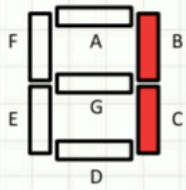
Bin: 0100 Hex: 8



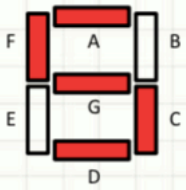
Bin: 1100 Hex: C



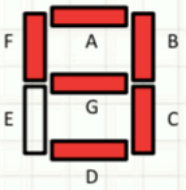
Bin: 0001 Hex: 1



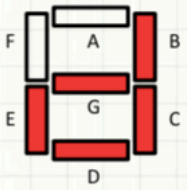
Bin: 0101 Hex: 5



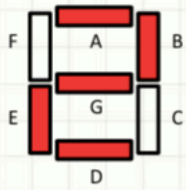
Bin: 1001 Hex: 9



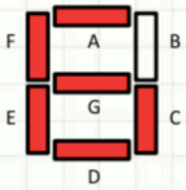
Bin: 1101 Hex: d



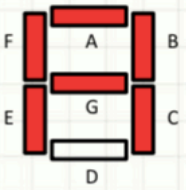
Bin: 0010 Hex: 2



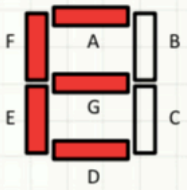
Bin: 0110 Hex: 6



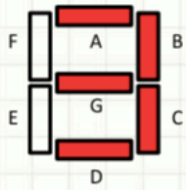
Bin: 1010 Hex: A



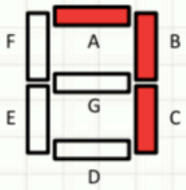
Bin: 1110 Hex: E



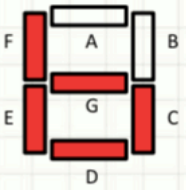
Bin: 0011 Hex: 3



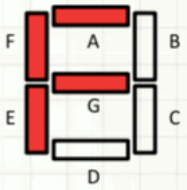
Bin: 0111 Hex: 7



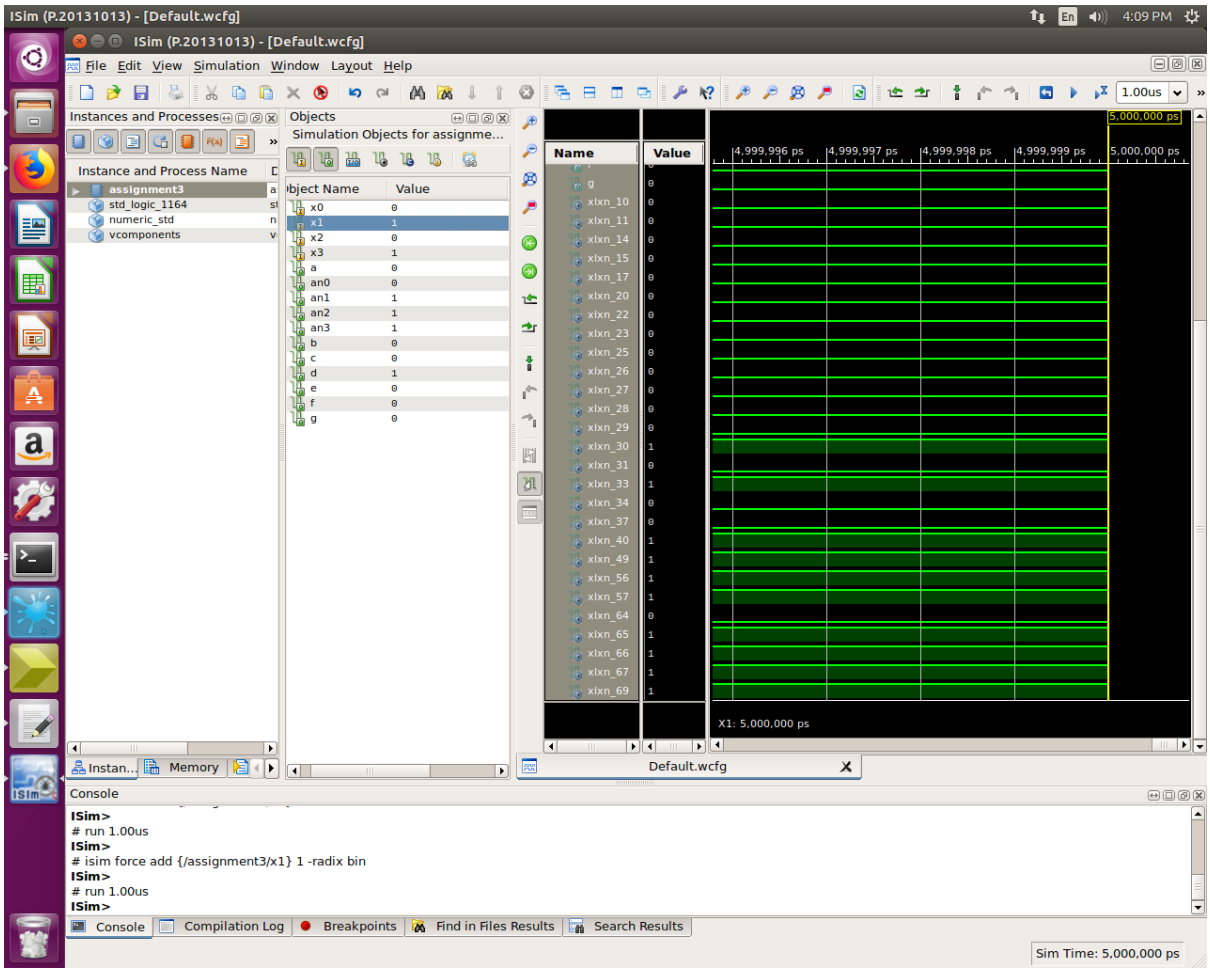
Bin: 1011 Hex: b



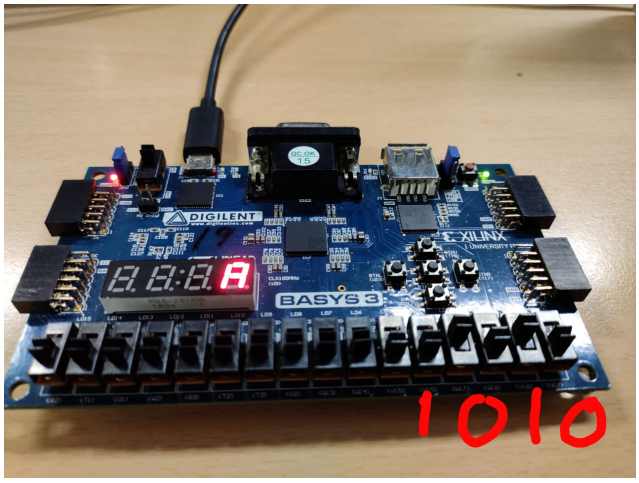
Bin: 1111 Hex: F



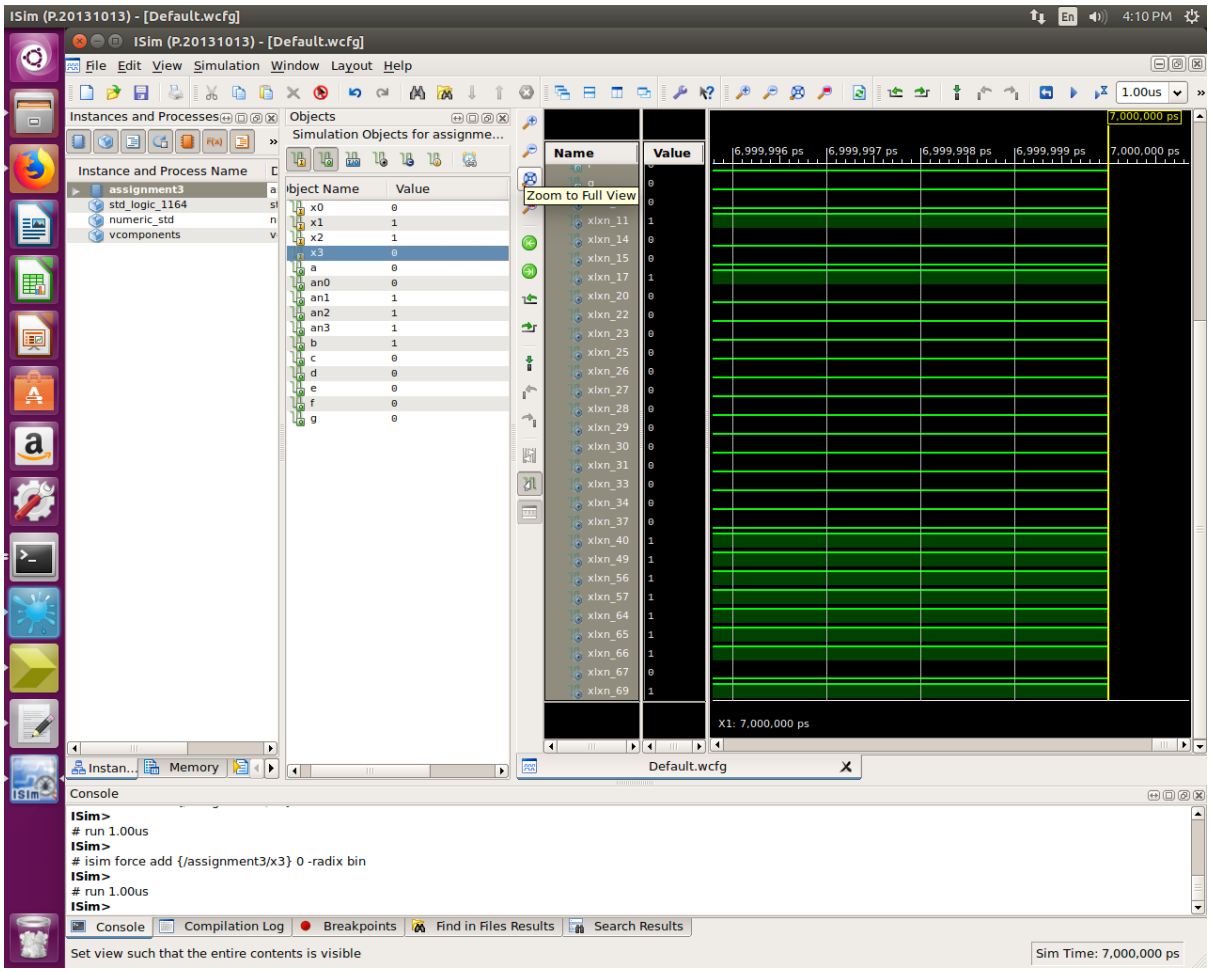
TESTCASE 1



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.



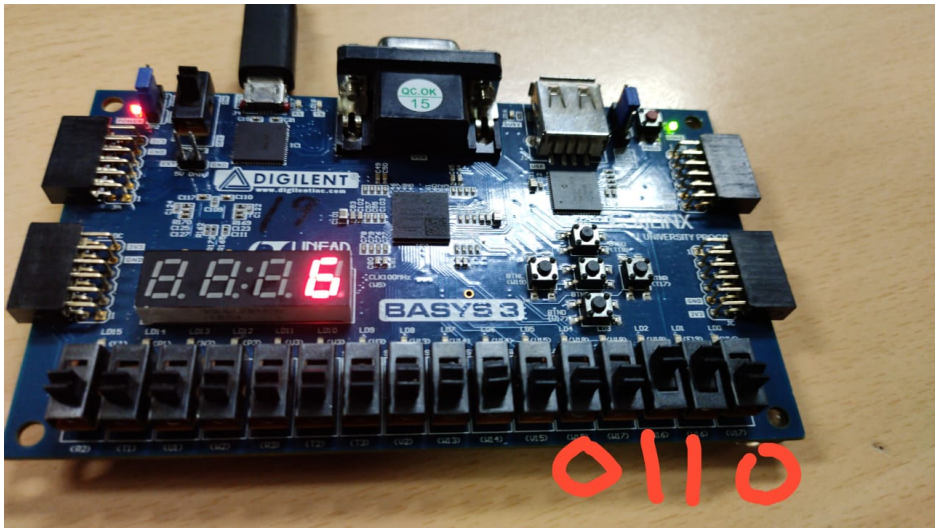
TESTCASE 2



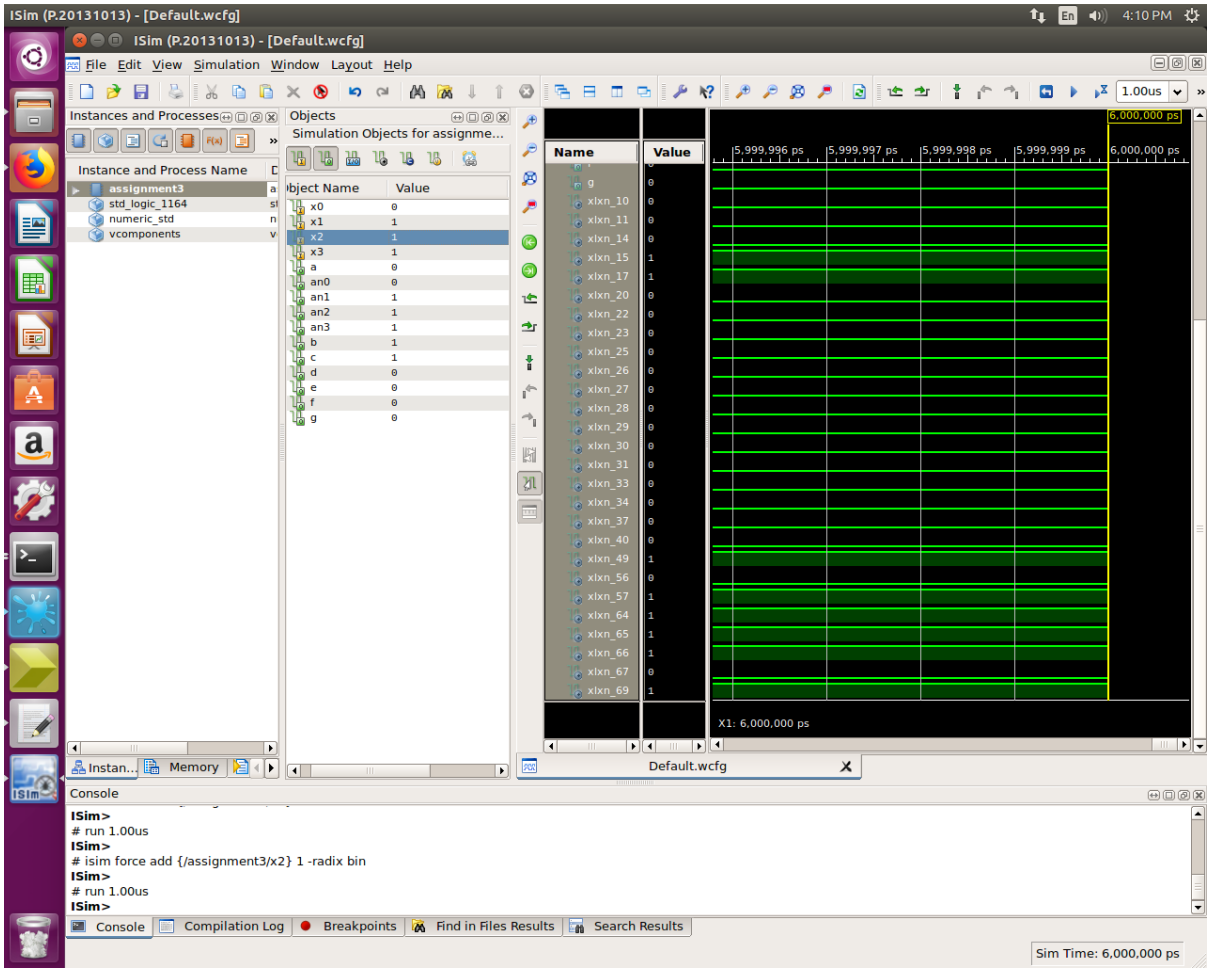
Input 0110

Which in decimal represents “6”.

Expected output after simulation all Led should be 0 except Led_B.



TESTCASE 3



Input 1110 which in hexadecimal means “E”.
Expected output :: Led_B and Led_C are 1 rest all 0.