

## DAILY ASSESSMENT FORMAT

<b>Date:</b>	<b>28/05/2020</b>	<b>Name:</b>	<b>Poorvi hj</b>
<b>Course:</b>	<b>LOGIC DESIGN</b>	<b>USN:</b>	<b>4a117ec071</b>
<b>Topic:</b>	Boolean equations for digital circuits Conversion of MUX and Decoders to logic gates. design of 7 segment decoder with common anode display	<b>Semester &amp; Section:</b>	<b>6th Bsec</b>
<b>Github Repository:</b>	<b>Poorvi-2000</b>		

### FORENOON SESSION DETAILS

#### Image of session

MUX to LOGIC gateS conversion

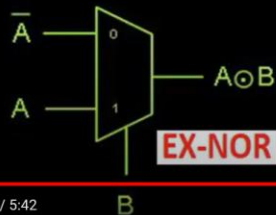
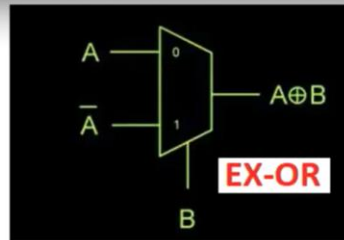
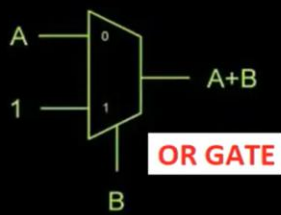
SELECTION (S)	OUTPUT(Y)
0	A
1	B

↓

$$Y = A\bar{S} + BS$$

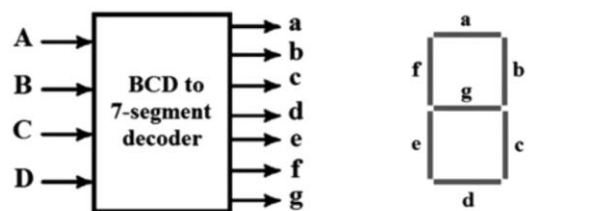
$2^n - 1$   
 $2^n = \text{inputs}$   
 $n = \text{selection lines}$

2:51 / 5:42



5:21 / 5:42

### BCD to 7-segment decoder



A	B	C	D	a	b	c	d	e	f	g
0	0	0	0	1	1	1	1	1	1	0
0	0	0	1	0	1	1	0	0	0	0
0	0	1	0	1	1	0	1	1	0	1
0	0	1	1	1	1	1	1	0	0	1
0	1	0	0	0	1	1	0	0	1	1
0	1	0	1	1	0	1	1	0	1	1
0	1	1	0	1	0	1	1	1	1	1
0	1	1	1	1	1	1	0	0	0	0
1	0	0	0	1	1	1	1	1	1	1
1	0	0	1	1	1	1	1	0	1	1

Report – Report can be typed or hand written for up to two pages.

28/05/2020

Boolean equations for digital circuits.

→ In 1854, George boole developed an algebraic system now called boolean algebra.

and operation

$$0 \cdot 0 = 0$$

$$0 \cdot 1 = 0$$

$$1 \cdot 0 = 0$$

$$1 \cdot 1 = 1$$

OR operation

$$0+0=0$$

$$0+1=1$$

$$1+0=1$$

$$1+1=1$$

Not operation

$$0 \text{ (or) } 0' = 1$$

$$1' = 0$$

In boolean algebra

$$A+A=A$$

$$A \cdot A=A$$

$$1+1=1$$

$$1 \cdot 1=1$$

In ordinary algebra

$$A+A=2A$$

$$A \cdot A=A^2$$

$$1+1=2$$

$$1 \cdot 1=1$$

In binary number system

$$1+1=(10)$$

$$1 \cdot 1=1$$

$$x+0=x$$

$$x+1=1$$

$$x+x=x$$

$$x+\bar{x}=1$$

$$x \cdot 0=0$$

$$x \cdot 1=x$$

$$x \cdot x=x$$

$$x \cdot \bar{x}=0$$

$$x+\bar{x}=1$$

$$x=0 \Rightarrow 0+\bar{0}=1$$

$$0+1$$

$$=1$$

$$x=1 \Rightarrow 1+\bar{1}=1+0$$

$$=1$$

$$\rightarrow (\bar{x}) \text{ (or) } (x')' = x$$

"Identity element" :- OR operation

The additive identity = '0'

The multiplication identity = '1'

AND operation

$$x+0=x$$

$$0+x=x$$

$$x \cdot 1=x$$

$$1 \cdot x=x$$

## Laws of Boolean Algebra

(i) Commutative law:-

$$\begin{array}{l|l} x+y = y+x & x \cdot y = y \cdot x \\ A+B = B+A & A \cdot B = B \cdot A \end{array}$$

(ii) Associative law

$$\begin{array}{l|l} x+(y+z) = (x+y)+z & x \cdot (y \cdot z) = (x \cdot y) \cdot z \\ A+(B+C) = (A+B)+C & A \cdot (B \cdot C) = (A \cdot B) \cdot C \end{array}$$

(iii) Distributive law

$$\begin{array}{l} x(y+z) = xy+xz \\ A(B+C) = AB+AC \end{array}$$

$$\begin{aligned} (2) \quad x+yz &= (x+y)(x+z) \\ &= x \cdot x + xz + xy + yz \\ &= x + xz + xy + yz \\ &= x(1+z+y) + yz \\ &= x + yz \end{aligned}$$

## Theorems of Boolean algebra

1) Absorption Theorem:

$$\begin{aligned} x+xy &= x \\ \rightarrow x(1+y) \\ \rightarrow x \cdot 1 \\ \rightarrow x \end{aligned}$$

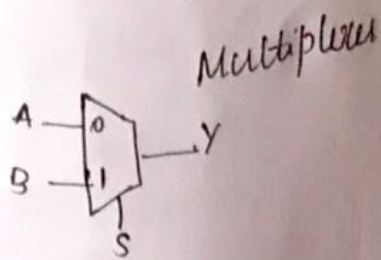
$$A+AB=A$$

$$\begin{aligned} (b) \quad x+\bar{x}y &= x+y \\ (x+\bar{x})(x+y) \\ 1 \cdot (x+y) &= x+y \\ A+\bar{A}B &= A+B \end{aligned}$$

$$\begin{aligned} A+BC &= (A+B)(A+C) \\ &= A \cdot A + A \cdot C + B \cdot A + BC \\ &= A + AC + AB + BC \\ &= A(1+C) + AB + BC \\ &= A + AB + BC = A+BC \end{aligned}$$



# Mux to logic gates

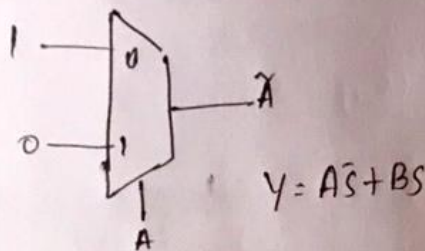


$2^n - 1$   
 $2^n = \text{inputs}$   
 $n = \text{selection lines}$

Selection (S)      Output (Y)  
 0      A  
 1      B

$$Y = A\bar{S} + BS$$

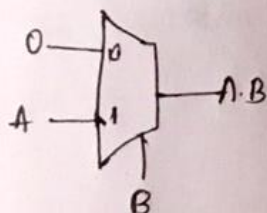
## Inverter design with the help of mux



$$Y = 1\bar{A} + 0 \cdot A$$

$$Y = \bar{A}$$

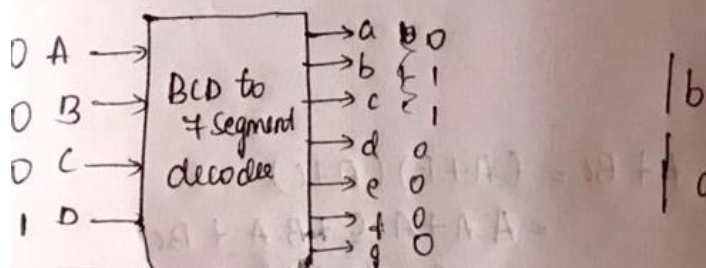
## And gate by the help of mux



$$Y = 0\bar{B} + 1 \cdot B$$

$$Y = A \cdot B$$

## Bcd to 7 segment decoder.



--

<b>Date:</b>	<b>28/05/2020</b>	<b>Name:</b>	<b>Poorvi j</b>
<b>Course:</b>	<b>PYTHON</b>	<b>USN:</b>	<b>4AL17EC071</b>
<b>Topic:</b>	<b>Python for Image and Video Processing with OpenCV Build a Webcam Motion Detector Interactive Data Visualization with Bokeh</b>	<b>Semester &amp; Section:</b>	<b>6th Bsec</b>

### AFTERNOON SESSION DETAILS

#### Image of session

The screenshot displays the Udemy course interface for 'The Python Mega Course: Build 10 Real World Applications'. The main video player shows a code editor with Python code for face detection using OpenCV. The code includes imports for cv2, numpy, and argparse, and defines a FaceDetector class. The video player has a progress bar and a 'Share' button. To the right, the 'Course content' sidebar lists sections 203 through 311, including 'Face Detection', 'Capturing Video', 'Application 6: Build a Webcam Motion Detector', 'Interactive Data Visualization with Bokeh', 'Web scraping with Python', 'Application 7: Scrape Real Estate Property Data from the Web', 'Application 8: Build a Web-based Financial Graph', and 'Application 9: Build a Data Collector Web App with PostgreSQL and ...'. The 'About this course' section at the bottom states: 'A complete Python course for both beginners and intermediates! Master Python 3 by making 10 amazing Python apps.' The Windows taskbar at the bottom shows the time as 06:58 AM on 28-05-2020.

The Python Mega Course: Build 10 Real World Applications

Overview Q&A Bookmarks Announcements

**About this course**

A complete Python course for both beginners and intermediates! Master Python 3 by making 10 amazing Python apps.

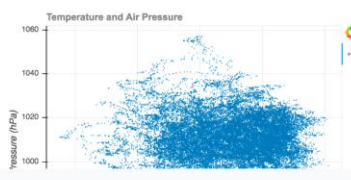
Course content

- 206. Detecting Webcam Objects (30min)
- 207. Capturing Motion Time (21min)
- Section 27: Interactive Data Visualization with Bokeh (0 / 17 | 58min)
- Section 28: Webscraping with Python Beautiful Soup (0 / 4 | 23min)
- Section 29: Application 7: Scrape Real Estate Property Data from the Web (0 / 8 | 1hr 14min)
- Section 30: Application 8: Build a Web-based Financial Graph (0 / 12 | 1hr 40min)
- Section 31: Application 9: Build a Data Collector Web App with PostgreSQL and ... (0 / 11 | 2hr 47min)
- Section 32: Application 10: Project Exercise on Building a Geocoder Web Ser... (0 / 4 | 30min)

The Python Mega Course: Build 10 Real World Applications

Plotting Weather Data (Practice)

Produce the following graph using the data from this Excel file: <http://pythonhow.com/data/verlegenhuken.xlsx>



Course content

- 218. Plotting Weather Data (Practice) (1min)
- 219. Solution (1min)
- 220. Visual Attributes (1min)
- 221. Time-series Plots (7min)
- 222. More Visualization Examples with Bokeh (4min)
- 223. Plotting Time Intervals of the Motion Detector (14min)
- 224. Hover Tool Implementation (10min)
- Section 28: Webscraping with Python Beautiful Soup (0 / 4 | 23min)
- Section 29: Application 7: Scrape Real Estate Property Data from the Web (0 / 8 | 1hr 14min)

**Report – Report can be typed or hand written for up to two pages.**

- PIL is the Python Imaging Library which provides the python interpreter with image editing capabilities. It was developed by Fredrik Lundh and several other contributors.
- The Python Imaging Library supports a wide variety of raster file formats. Over 30 different file formats can be identified and read by the library. Write support is less extensive, but most common interchange and presentation formats are supported.
- Face detection is a computer vision technology that helps to locate/visualize human faces in digital images.
- Pre-requisites. Hands-on knowledge of Numpy and Matplotlib is essential before working on the concepts of OpenCV. Make sure that you have the following packages installed and running before installing OpenCV.
- OpenCV was started at Intel in the year 1999 by Gary Bradsky. The first release came a little later in the year 2000.
- OpenCV was started at Intel in the year 1999 by Gary Bradsky. The first release came a little later in the year 2000. OpenCV essentially stands for Open Source Computer Vision Library. Although it is written in optimized C/C++, it has interfaces for Python and Java along with C++. OpenCV boasts of an active user base all over the world with its use increasing day by day due to the surge in computer vision applications.
- Bokeh is a data visualization library for Python. Unlike Matplotlib and Seaborn, they are also Python packages for data visualization, Bokeh renders its plots using HTML and JavaScript. Hence, it proves to be extremely useful for developing web based dashboards.
- The Bokeh project is sponsored by NumFocus also supports PyData, an educational program, involved in development of other important tools such as NumPy, Pandas and more. Bokeh can easily connect with these tools and produce interactive plots, dashboards and data applications.
- Bokeh primarily converts the data source into a JSON file which is used as input for BokehJS, a JavaScript library, which in turn is written in TypeScript and renders the visualizations in modern browsers.



