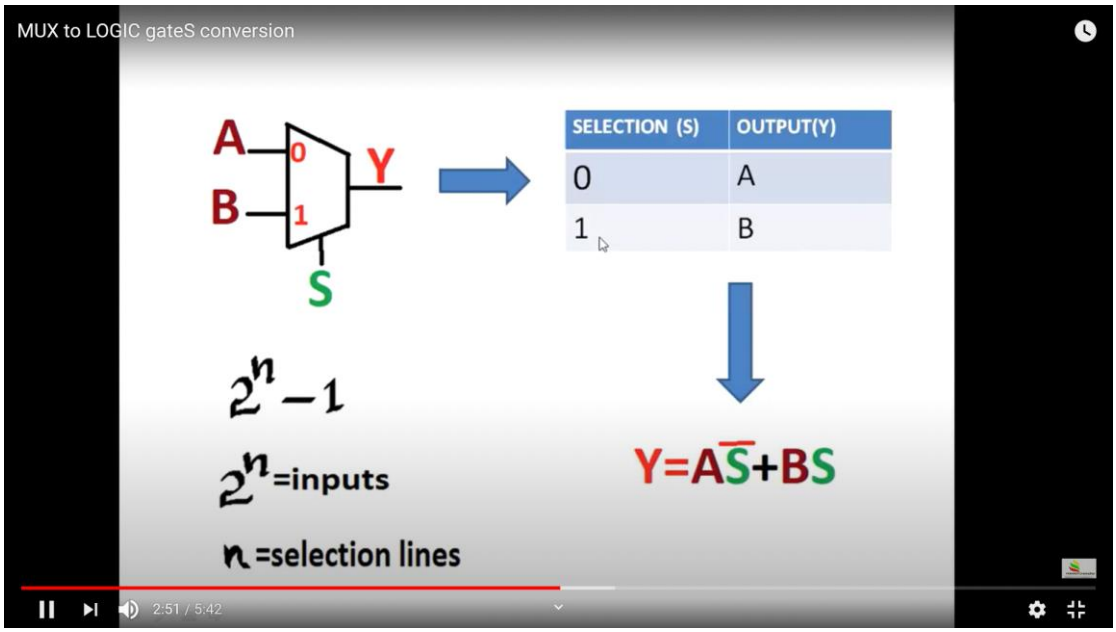
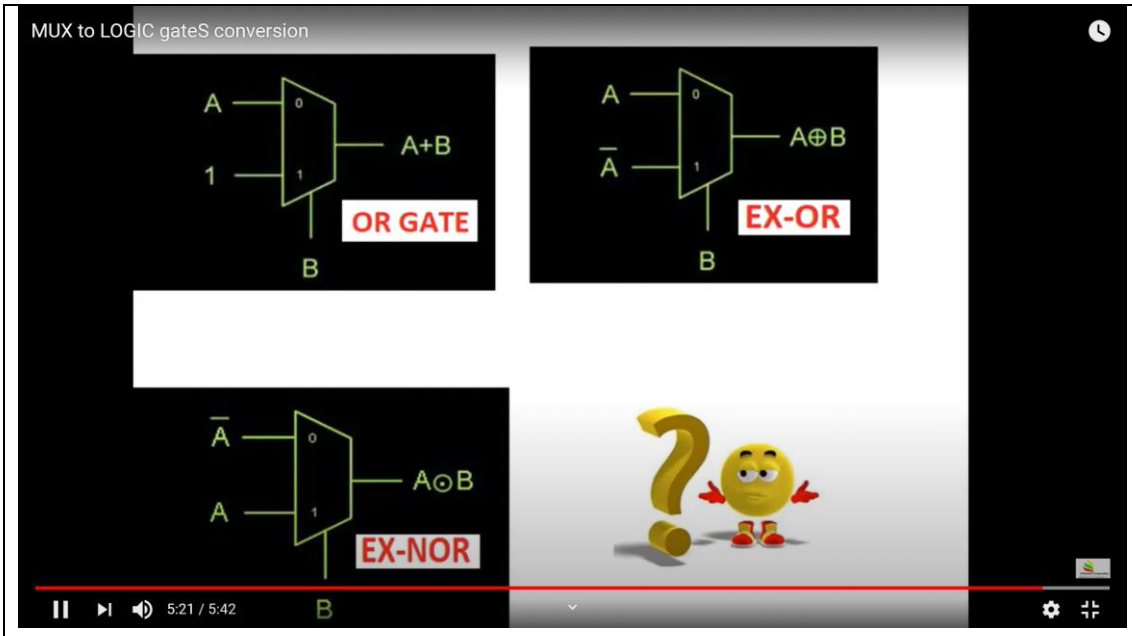
DAILY ASSESSMENT FORMAT

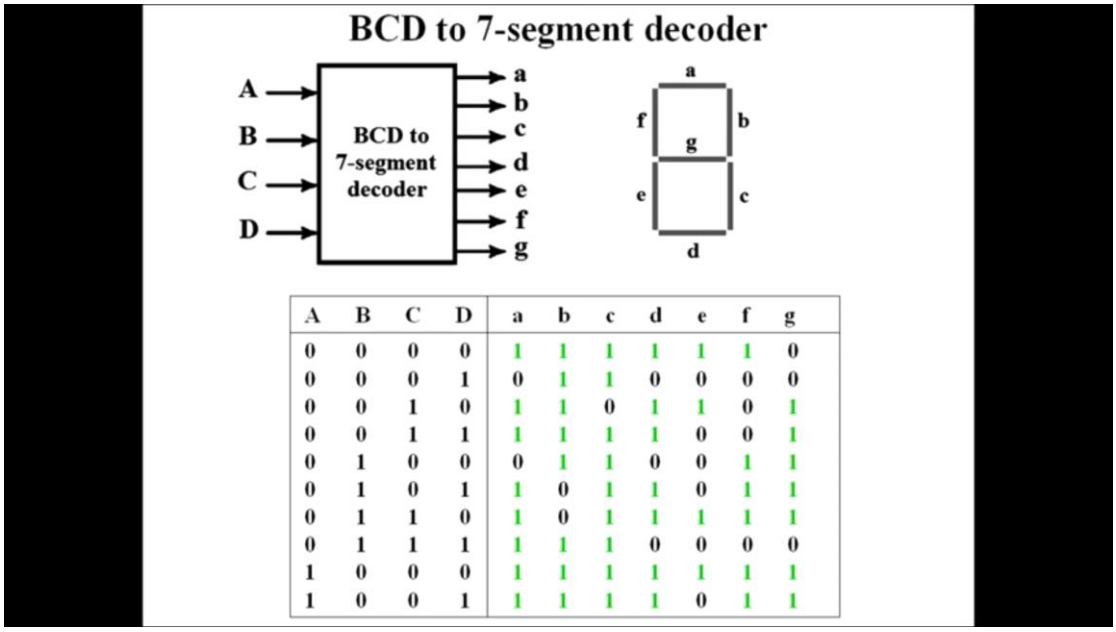
Date:	28/05/2020	**Name:**	Poorvi hj
Course:	LOGIC DESIGN	**USN:**	4al17ec071
Topic:	Boolean equations for digital circuits Conversion of MUX and Decoders to logic gates. design of 7 segment decoder with common anode display	**Semester & Section:**	6th Bsec
Github Repository:	Poorvi-2000		

FORENOON SESSION DETAILS

Image of session







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 dmeloped an algebraic system now called boolean algebra.

and operation	OR operation	Not operation
$0.0 = 0$	$0+0=0$	$\bar{0}$ (or) $0' = 1$
$0.1 = 0$	$0+1=1$	$\bar{1} = 0$
$1.0 = 0$	$1+0=1$	
$1.1 = 1$	$1+1=1$	

In boolean algebra

$A+A = A$ & $A.A = A$

$1+1 = 1$ & $1.1 = 1$

In ordinary algebra

$A + A = 2A$ $\quad$ $A.A = A^2$

$1+1 = 2$ $\quad$ $1.1 = 1$

In binary number system

$1+1 = (10)$ $\quad$ $1.1 = 1$

$x + 0 = x$ $\quad$ $x . 0 = 0$ $\quad$ $x + \bar{x} = 1$

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

$x + x = x$ $\quad$ $x . x = x$ $\quad$ $0 + 1 = 1$

$x + \bar{x} = 1$ $\quad$ $x . \bar{x} = 0$ $\quad$ $=$

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

$= 1$

→ $\overline{(\bar{x})}$ (or) $(x')' = x$

∴ "Identity element" :- OR operation $\quad$ AND operation

$x + 0 = x$, $0 + x = x$ $\quad$ $x . 1 = x$, $1 . x = x$

The additive identity = '0'

The multiplication identity = '1'

Laws of Boolean Algebra

(i) commutative law:-

$x + y = y + x$ | $x \cdot y = y \cdot x$

$A + B = B + A$ | $A \cdot B = B \cdot A$

(ii) Associative law

$x + (y + z) = (x + y) + z$ | $x \cdot (y \cdot z) = (x \cdot y) \cdot z$

$A + (B + C) = (A + B) + C$ | $A \cdot (BC) = (A \cdot B) C$

(iii) distributive law

① $x(y + z) = xy + xz$

$A(B + C) = AB + AC$

(2) $x + yz = (x + y)(x + z)$

$= x \cdot x + xz + xy + yz$

$= x + xz + xy + yz$

$= x[1 + z + y] + yz$

$= x + yz$

Theorems of Boolean algebra

1) Absorption theorem:

$x + xy = x$

$\rightarrow x(1 + y)$

$\rightarrow x \cdot 1$

$\rightarrow x$

$A + AB = A$

(b) $x + \bar{x}y = x + y$

$(x + \bar{x})(x + y)$

$1 \cdot (x + y) = x + y$

$A + \bar{A}B = A + B$

$A + BC = (A + B)(A + C)$

$= A \cdot A + A \cdot C + B \cdot A + BC$

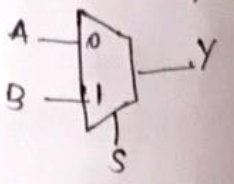
$= A + AC + AB + BC$

$= A(1 + C) + AB + BC$

$= A + AB + BC = A + BC$

Mux to logic gates

Multiplexer



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

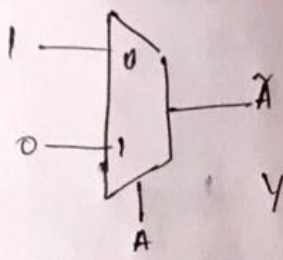
$Y = A\bar{S} + BS$

$2^n - 1$

2^n = inputs

n = selection line

Inverter design with the help of mux

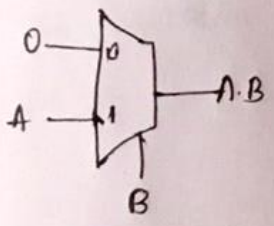


$Y = A\bar{S} + BS$

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

$Y = \bar{A}$

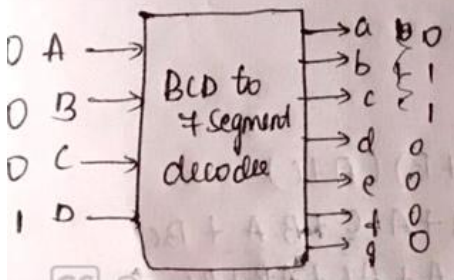
And gate by the help of mux



$Y = 0\bar{B} + A.B$

$Y = A.B$

BCD to 7 segment decoder



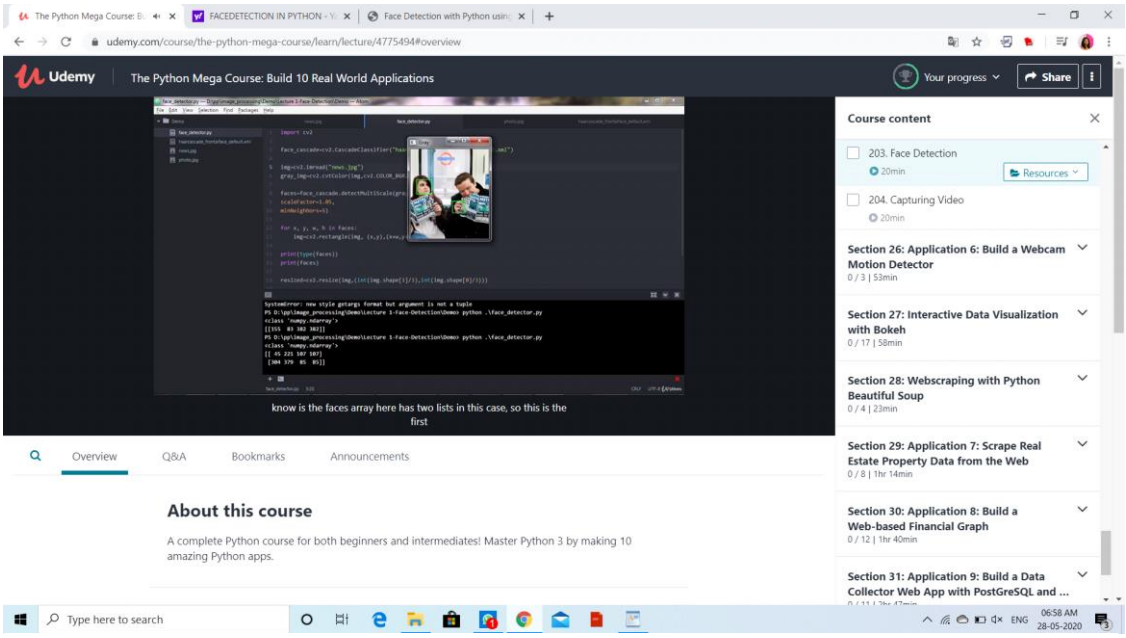
b

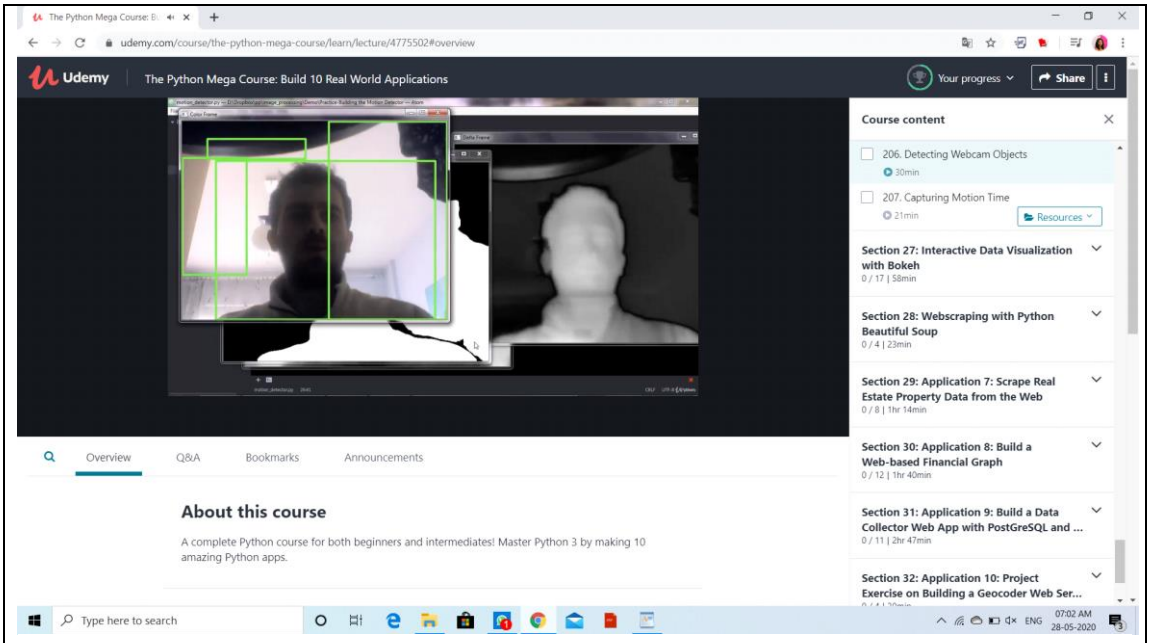
c

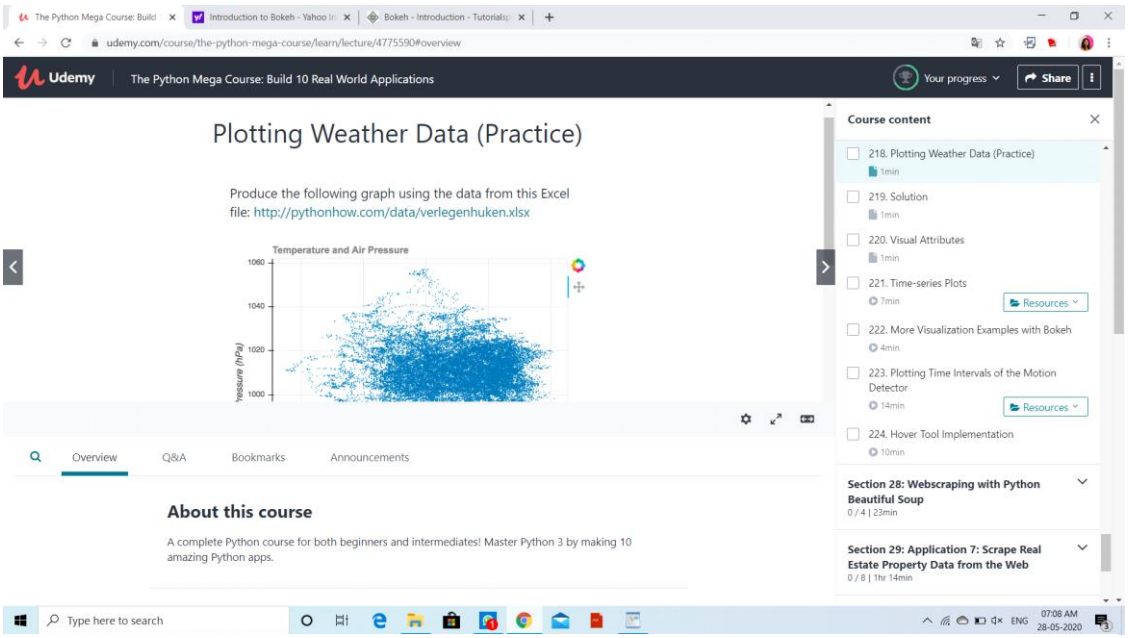
Date:	**28/05/2020**	**Name:**	Poorvi j
Course:	**PYTHON**	**USN:**	**4AL17EC071**
Topic:	**Python for Image and Video Processing with OpenCV Build a Webcam Motion Detector Interactive Data Visualization with Bokeh**	**Semester & Section:**	**6th Bsec**

AFTERNOON SESSION DETAILS

Image of session







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.