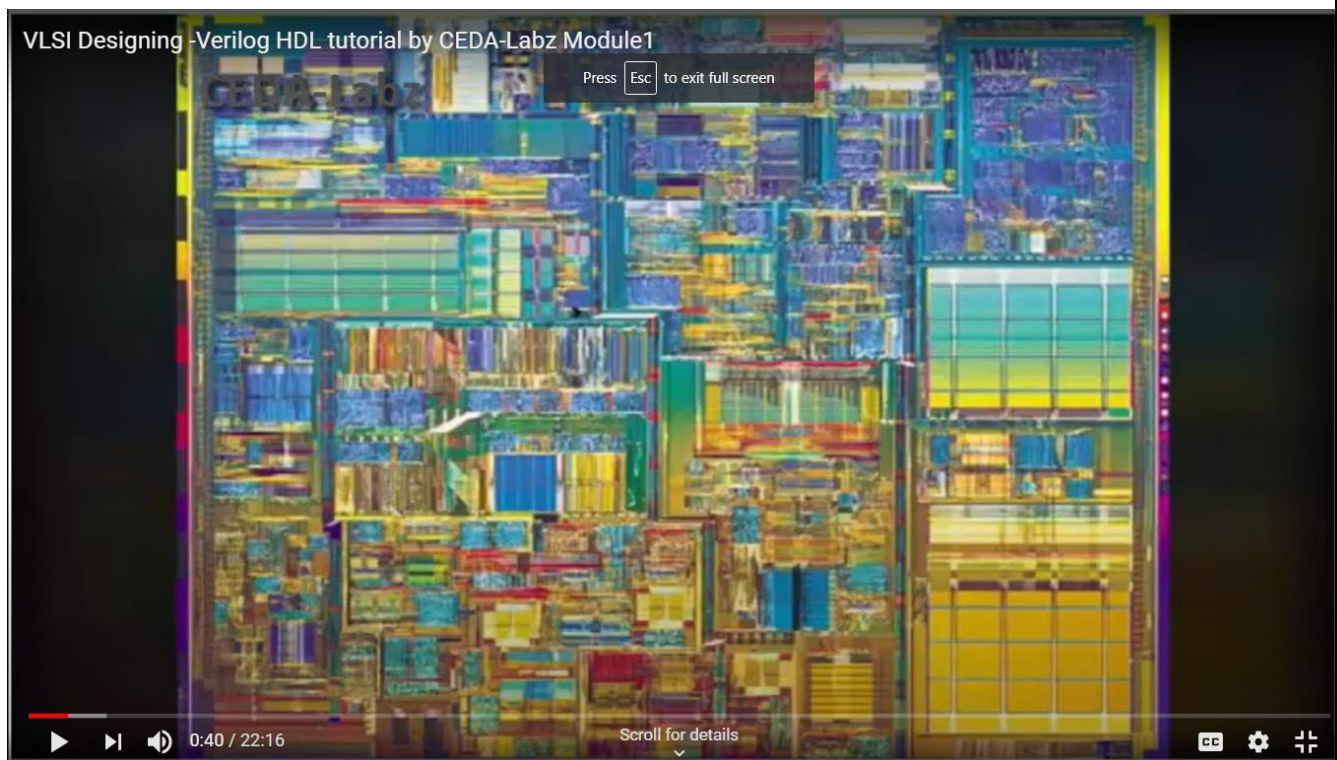


DAILY ASSESSMENT FORMAT

Date:	05/06/2020	Name:	Akshay
Course:	Digital Design Using HDL	USN:	4AL17EC008
Topic:	Verilog Tutorials and Demo projects using FPGA	Semester & Section:	6 TH & A
Github Repository:	Akshay-Online-Course		

FORENOON SESSION DETAILS



Report:

What is HDL

A hardware description Language Is a language used to describe a digital system, for example, a network switch, a microprocessor or a memory or a simple flip–flop. This just means that, by using a HDL one can describe any hardware (digital) at any level.

One can describe a simple Flip flop as that in above figure as well as one can describe a complicated designs having 1 million gates. Verilog is one of the HDL languages available in the industry for designing the Hardware. Verilog allows us to design a Digital design at

Behavior Level,

Register Transfer Level (RTL), Gate level and at switch level. Verilog allows hardware designers to express their designs with behavioral constructs, deterring the details of implementation to a later stage of design in the final design.

Design Styles:

- **Top Up Design**
- **Bottom Up Design**

Abstract Level of Verilog

- **Behavioral Level**

This level describes a system by concurrent algorithms (Behavioral). Each algorithm itself is sequential, that means it consists of a set of instructions that are executed one after the other. Functions, Tasks and Always blocks are the main elements. There is no regard to the structural realization of the design.

- **Register Transfer Level**

Designs using the Register-Transfer Level specify the characteristics of a circuit by operations and the transfer of data between the registers. An explicit clock is used. RTL design contains exact timing possibilities, operations are scheduled to occur at certain times. Modern definition of a RTL code is "Any code that is synthesizable is called RTL code".

- **Gate Level**

Within the logic level the characteristics of a system are described by logical links and their timing properties. All signals are discrete signals. They can only have definite logical values (`0', `1', `X', `Z'). The usable operations are predefined logic primitives (AND, OR, NOT etc gates). Using gate level modeling might not be a good idea for any level of logic design. Gate level code is generated by tools like synthesis tools and this netlist is used for gate level simulation and for backen

Verilog module to count number of 0's in a 16-bit number.

```
module num_zeros_for(
input [15:0] A,
output reg [4:0] ones
);
integer i;
always@(A)
begin
ones = 0;
for(i=0;i<16;i=i+1)
if(A[i] == 0)
ones = ones + 1;
end
```

endmodule

output

Input = "1010_0010_1011_0010" => Output = "01001" (9 in decimal)

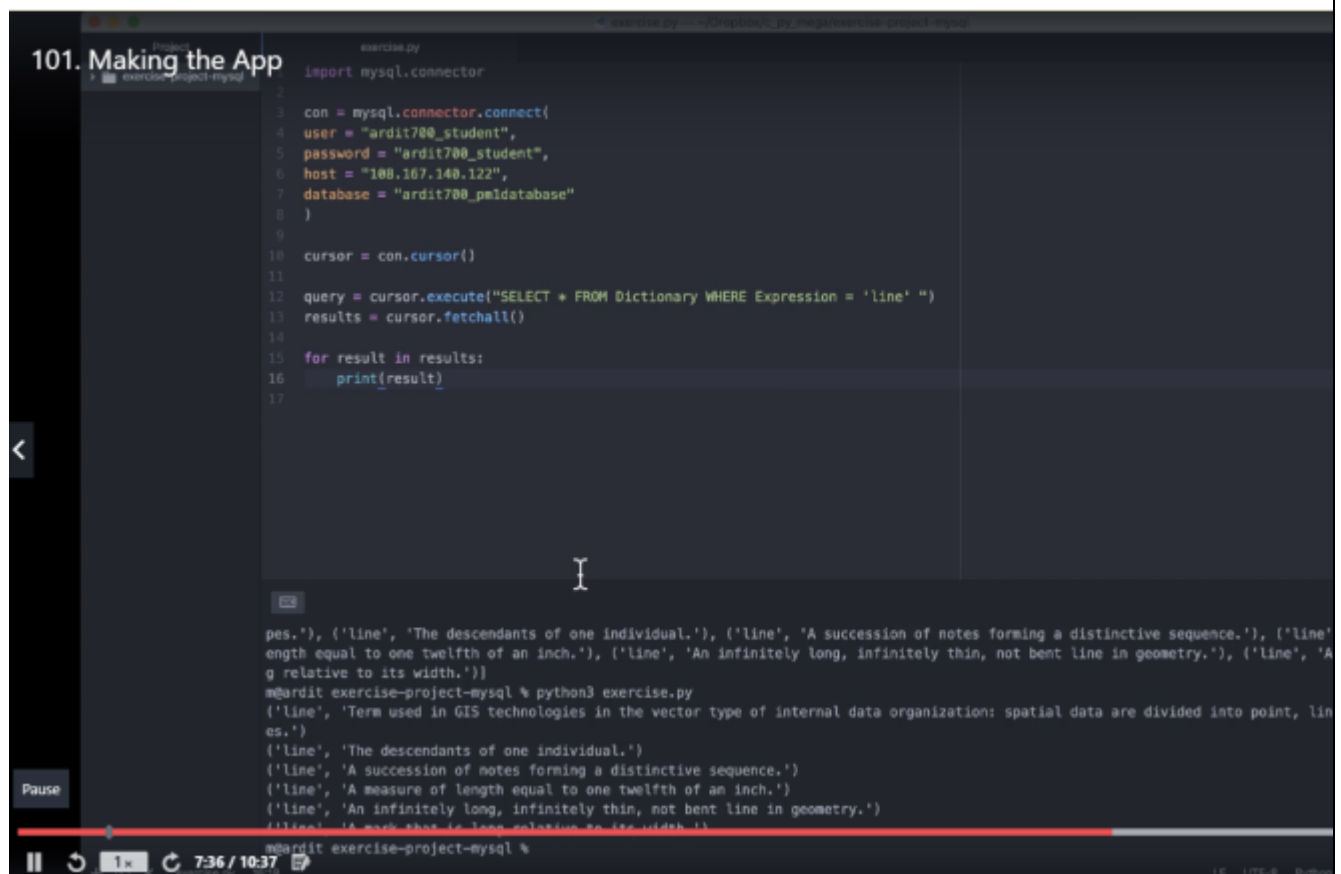
Input = "0011_0110_1000_1011" => Output = "01000" (8 in decimal)

DAILY ASSESSMENT FORMAT

Date:	05/06/2020	Name:	Akshay
Course:	Python	USN	4a116ec008
Topic:	Data analysis with pandas	Semester & Section:	6 th A
Github Repository:	Akshay_Online-Course		

AFTERNOON SESSION DETAILS

Image of session



```
101. Making the App
exercise.py
import mysql.connector

con = mysql.connector.connect(
    user = "ardit700_student",
    password = "ardit700_student",
    host = "100.107.140.122",
    database = "ardit700_pmlatabase"
)

cursor = con.cursor()

query = cursor.execute("SELECT * FROM Dictionary WHERE Expression = 'line' ")
results = cursor.fetchall()

for result in results:
    print(result)
```

```
pes.'], ('line', 'The descendants of one individual.'], ('line', 'A succession of notes forming a distinctive sequence.'], ('line',
length equal to one twelfth of an inch.'], ('line', 'An infinitely long, infinitely thin, not bent line in geometry.'], ('line', 'A
g relative to its width.']))
@ardit exercise-project-mysql % python3 exercise.py
('line', 'Term used in GIS technologies in the vector type of internal data organization: spatial data are divided into point, lin
es.')
('line', 'The descendants of one individual.')
('line', 'A succession of notes forming a distinctive sequence.')
('line', 'A measure of length equal to one twelfth of an inch.')
('line', 'An infinitely long, infinitely thin, not bent line in geometry.')
('line', 'A word that is long relative to its width.')
@ardit exercise-project-mysql %
```

Making the app:

```
import mysql.connector
con=mysql.connector.connect(
user="ardit700_student",
password="ardit700_student",
host=108.167.140.122",
database='ardit700_pm1database'.
)
cursor=con.cursor()
query=cursor.execute("SELECT*FROM dictionary WHERE expression='inlay'")
result=cursor.fetchall()
print(results)
```

output:

```
>>python3 exercise.py
[['inlay' 'something filling up a gap or covering up a (small) distance']]
```

Data analysis with pandas:

- Pandas is a important python library
- Pandas is a library that providing data structure and data analysis tools within python

```
import pandas
df1=pandas.dataframe([[2,4,6],[10,20,30]])
df1
```

For deleting any column we need to use drop command

Ex:df7.drop("city")

This will delete the column named city in the data.

localhost:8888/notebooks/S06-Working.ipynb

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3

Code

	ID	Address	City	ZIP	Country	Name	Employees
1	2	3986 21st St	San Francisco	CA 94114	USA	Madeira	8
2	3	332 Hill St	San Francisco	California 94114	USA	Super River	25
3	4	3995 23rd St	San Francisco	CA 94114	USA	Ben's Shop	10
4	5	1056 Sanchez St	San Francisco	California	USA	Sanchez	12
5	6	551 Alvarado St	San Francisco	CA 94114	USA	Richvalley	20

```
In [14]: df8.columns = ["ID", "Address", "City", "ZIP", "Country", "Name", "Employees"]
df8
```

Out[14]:

	ID	Address	City	ZIP	Country	Name	Employees
0	1	3986 21st St	San Francisco	CA 94114	USA	Madeira	8
1	2	736 Dolores St	San Francisco	CA 94119	USA	Brady Shop	15
2	3	332 Hill St	San Francisco	California 94114	USA	Super River	25
3	4	3995 23rd St	San Francisco	CA 94114	USA	Ben's Shop	10
4	5	1056 Sanchez St	San Francisco	California	USA	Sanchez	12
5	6	551 Alvarado St	San Francisco	CA 94114	USA	Richvalley	20

101. Making the App

```
import mysql.connector

con = mysql.connector.connect(
    user = "ardit700_student",
    password = "ardit700_student",
    host = "198.50.137.148:3306",
    database = "ardit700_mydatabase"
)

cursor = con.cursor()

query = cursor.execute("SELECT * FROM Dictionary WHERE Expression = 'line' ")
results = cursor.fetchall()

for result in results:
    print(result)
```

('line', 'The descendants of one individual.'). ('line', 'A succession of notes forming a distinctive sequence.'). ('line', 'A measure of length equal to one twelfth of an inch.'). ('line', 'An infinitely long, infinitely thin, not bent line in geometry.'). ('line', 'A mark that is long relative to its width.').

ardit exercise-project-mysql % python3 exercise.py
 ('line', 'Term used in GIS technologies in the vector type of internal data organisation: spatial data are divided into point, line and polygon type.').
 ('line', 'The descendants of one individual.').
 ('line', 'A succession of notes forming a distinctive sequence.').
 ('line', 'A measure of length equal to one twelfth of an inch.').
 ('line', 'An infinitely long, infinitely thin, not bent line in geometry.').

