

## DAILY ASSESSMENT FORMAT

|                    |   |                     |                                   |
|--------------------|---|---------------------|-----------------------------------|
| Date:              | 29/05/2020  | Name:               | Prajwal Kamagethi Chakravarti P L |
| Course:            | Python  | USN:                | 4AL17EC073                        |
| Topic:             | 1.Object Oriented Programming   | Semester & Section: | 6 & B                             |
| Github Repository: | <a href="https://github.com/alvas-education-foundation/Prajwal-Kamagethi.git">https://github.com/alvas-education-foundation/Prajwal-Kamagethi.git</a> |                     |                                   |

## FORENOON SESSION DETAILS

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

**Solution**

Here are the *frontend.py* and *backend.py* scripts in OOP style.  
To execute this program you should execute the *frontend.py* file.

```

1 #frontend.py
2 from tkinter import *
3 from backend import Database
4
5 database=Database("books.db")
6
7 class Window(object):
8
9     def __init__(self,window):
10
11         self.window = window
12
13         self.window.wm_title("BookStore")
14
15         l1=Label(window,text="Title")
16         l1.grid(row=0,column=0)
17
18         l2=Label(window,text="Author")

```

**About this course**

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

**Course content**

- Section 25: Python for Image and Video Processing with OpenCV 0 / 8 | 1hr 2min
- Section 26: Application 6: Build a Webcam Motion Detector 0 / 3 | 53min
- 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 Flask

- The approach to solve a programming problem is by creating objects. This is known as Object-Oriented Programming (OOP). An object has two characteristics:  
  - attributes
  - behavior
- After the introduction, we learnt on converting the frontend and backend designs and approaches involved for turning an application in OOP style.
- Also, we learnt about the different terminologies (glossary) involved in OOP python.

**Inheritance is a way of creating new class for using details of existing class without modifying it.**

**A user-defined prototype for an object that defines a set of attributes that characterize any object of the class.**

**A variable that is defined inside a method and belongs only to the current instance of a class.**

**An individual object of a certain class. An object obj that belongs to a class Circle, for example, is an instance of the class Circle.**

**A special kind of function that is defined in a class definition.**

**The creation of an instance of a class.**

**A class variable or instance variable that holds data associated with a class and its objects.**

**Constructor:**

**A constructor is a special kind of method that Python calls when it instantiates an object using the definitions found in your class.**

**Objects:**

**In python, functions too are objects. So, they have attributes like other objects.**

#### **In this section**

|                           |  |                                |  |
|---------------------------|--|--------------------------------|--|
| <b>Date:</b>              | <b>29-05-2020</b>  | <b>Name:</b>                   | <b>Prajwal Kamagethi Chakravarti P L</b> |
| <b>Course:</b>            | <b>Logic Design</b>  | <b>USN:</b>                    | <b>4AL17EC073</b>                        |
| <b>Topic:</b>             | <b>1.Analysis of clocked sequential circuits<br/>2.Digital clock design</b>  | <b>Semester &amp; Section:</b> | <b>6<sup>TH</sup> &amp; B</b>            |
| <b>Github Repository:</b> | <b><a href="https://github.com/alvas-education-foundation/Prajwal-Kamagethi.git">https://github.com/alvas-education-foundation/Prajwal-Kamagethi.git</a></b> |                                |  |

## Report:

Analysis of Clocked Sequential Circuits (with D Flip Flop)

| $Q_A$ | $Q_B$ | $x$ | $Q_A$ | $Q_B$ | $y$ |
|-------|-------|-----|-------|-------|-----|
| 0     | 0     | 0   | 0     | 0     | 1   |
| 0     | 0     | 1   | 0     | 0     | 0   |
| 0     | 1     | 0   | 1     | 1     | 0   |
| 0     | 1     | 1   | 1     | 1     | 0   |
| 1     | 0     | 0   | 0     | 0     | 1   |
| 1     | 0     | 1   | 1     | 0     | 0   |
| 1     | 1     | 0   | 1     | 0     | 0   |
| 1     | 1     | 1   | 1     | 0     | 1   |

$S_0 = 00$      $S_2 = 10$   
 $S_1 = 01$      $S_3 = 11$

STEP:-3 state diagram

```

graph TD
    S0((00)) -- 0 --> S1((01))
    S0 -- 1 --> S2((10))
    S1 -- 0 --> S0
    S1 -- 1 --> S3((11))
    S2 -- 0 --> S0
    S2 -- 1 --> S3
    S3 -- 0 --> S1
    S3 -- 1 --> S2
  
```

$y = 1 \cdot 1 + 0 \cdot 0 = 1$   
 $y = 0 \cdot 1 + 1 \cdot 0 = 0$

- In this section, Some flip-flops have asynchronous inputs that are used to force the flip-flop to a particular state independently of the clock. The input that sets the flip-flop to 1 is called preset or direct set. The input that clears the flip-flop to 0 is called clear or direct reset. When power is turned on in a digital system, the state of the flip-flops is unknown. The direct inputs are useful for bringing all flip-flops in the system to a known starting state prior to the clocked operation. The knowledge of the type of flip-flops and a list of the Boolean expressions of the combinational circuit provide the information needed to draw the logic diagram of the sequential circuit. The part of the combinational circuit that generates external outputs is described algebraically by a set of Boolean functions called output equations. The part of the circuit that generates the inputs to flip-flops is described algebraically by a set of Boolean functions called flip-flop input equations (or excitation equations). The information available in a state table can be represented graphically in the form of a state diagram. In this type of diagram a state is represented by a circle and the (clock-triggered) transitions between states are indicated by directed lines connecting the circles. The time sequence of inputs, outputs, and flip-flop states can be enumerated in a state table (transition table). The table has four parts present state, next state, inputs and outputs. In general a sequential circuit with 'm' flip-flops and 'n' inputs needs  $2^{m+n}$  rows in the state table.