

Computer Architecture

Group 4 Manual

How to use Program:

On the home screen of the application, there will be four main menus, namely: **About**, **Objectives**, **Foundations** and **Synchronous Counters**.

About: This option shows the user the manual of the application. In fact, you are currently reading this manual because you clicked on the about option.

Objectives: This option will show the user the goals of this application.

Foundations: This option will teach the user all the fundamental topics that he/she needs to know, to build synchronous counters. These topics include Logic gates, Karnaugh's map and Flip Flops (JK, D, T). Each topic has a tutorial and quiz section.

- **Quizzes:** All quizzes are multiple choice questions and are chosen by clicking the option A, B, C or D. The program keeps a score of the questions answered correctly at the top left of the screen, so that the user can know how well he/she is performing. There is also a hint button that can be clicked that will navigate the user to correct tutorial, so that the user can revise the notes for the questions that he/she is struggling with.
- **Tutorials:** The tutorial section has all the notes for the fundamentals topics. There is a drop-down menu that the user can use to navigate through different tutorials.

Synchronous counters: This option will teach the user how to develop synchronous counters and will also test the user's knowledge on developing synchronous counters.

- **Quizzes:** Each flip flop synchronous counter has 5 multiple choice questions and 1 structured question.
- **Tutorials:** The tutorials are separated based on the flip flop counter type(JK, D, T).

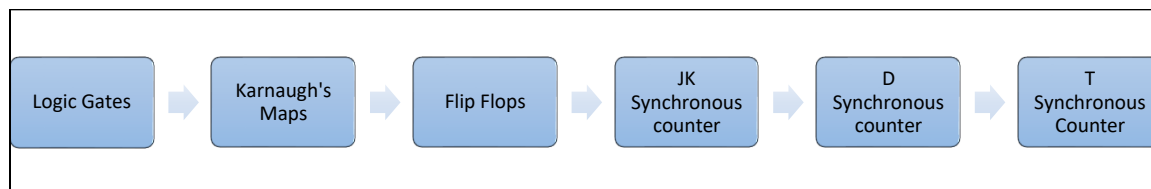


Figure 1- Suggested Learning Path

Software Used:

JavaSE 1.8, JavaFX, Logism, LiceCap, Microsoft Word

Developers:

Dennis Guye, Chad Thomas, Kevin Johnson, Ryvon Gittens & Kervel Marcelle

References:

GIF Header: Matthew Butler on giphy.com

Digital Design with an introduction to the Verilog HDL 5th edition By M. Morris Mano & Michael D. Ciletti

<http://www.indiabix.com/digital-electronics/flip-flops/>

<http://en.mcqslearn.com/cs/dld/synchronous-counters.php>

<https://www.cs.umd.edu/class/sum2003/cmsc311/Notes/Seq/excite.html>

<https://www.cs.umd.edu/class/sum2003/cmsc311/Notes/Seq/flip.html>

<http://hyperphysics.phy-astr.gsu.edu/hbase/Electronic/Tflipflop.html>

<https://www.youtube.com/playlist?list=PL6gx4Cwl9DGBzfXLWLSYVy8EbTdpGbUIG>