Practical Objective for Course(s) BSCS-511, CSSE-503; Computer Architecture

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Lab Objective – 3: Logic Design of Arithmetic Circuits

Type or Write List-wise that what's new thing you have learned from this Assignment?

Caution:

Use the given Assignment Template only, and follow the Submission Procedure given in Syllabus Document strictly.
Be aware of Assignment Submission Ethics. Submit All Typed work.
Must write List-wise that what's new thing you have learned from this Assignment?
Do not attach this Objective Document along with your work submission.

Please refer the Lecture session conducted over "Logic Design of Arithmetic Circuits".

1. Read Article 6-3 (FLOYD): Ripple Carry and Look Ahead Carry Adders.
   a. Follow the pattern and do the derivations to obtain Logic Equations over each node, input(s), and output(s).
   b. Draw Block diagram as well as its internal Logic Maps using Microsoft Visio neat, clean, accurate, and one Diagram on one Tab/Sheet. Copy and Paste that drawing on given MSWord Template as Assignment objective one Diagram on one Page.
   c. Apply at-least 03 binary number streams for $A_i = A_3A_2A_1A_0$ and $B_i = B_3B_2B_1B_0$, (e.g. 1101_2, 1001_2,...) to determine output stream.

2. Download the document from the link "Arithmetic Circuits".
   Consider the following diagrams:
   - 3-Bit Parallel Adder (Page: 1, One Diagram)
   - 4-Bit Parallel Subtractor (Page: 2, Two Diagrams)
   - Subtractor (1's Compliment Method) (Page: 3, One Diagram)
   - Bi-Functional 4-Bit Adder / Subtractor using 1s Complement Method (Page: 4, One Diagram)
   - 2s Complement Addition and Subtraction (Page: 8, One Diagram)
   - 2 x 2 Bit Binary Multiplication (Page:10, One Diagram)
   - N x N Bit Binary Multiplication (Page:10, One Diagram)

   a. Use the pattern followed above and do the derivations to obtain Logic Equations over each node, input(s), and output(s).
   b. Draw Block diagram as well as its internal Logic Maps using Microsoft Visio neat, clean, accurate, and one Diagram on one Tab/Sheet. Copy and Paste that drawing on given MSWord Template as Assignment objective one Diagram on one Page.
   c. Apply at-least 03 binary number streams for $A_i = A_3A_2A_1A_0$ and $B_i = B_3B_2B_1B_0$, (e.g. 1101_2, 1001_2,...) to determine output stream.