**Module 2 Discussion**

After completing the reading of Chapter 2, please reflect on **ONE** of the following questions.

 You may submit your one initial post or respond to the post of your team.

1. What is the top-down approach to system architecture?

The top-down approach allows us to focus on the specific areas of interest without the distraction of details that are irrelevant for the level that we are studying. In this way, a system architect can analyze and study the IT system as a whole, encapsulating the computer system, software systems, network architecture, and Web architecture that represent components, and focusing instead on the large picture. And top approach also means that take a problem and try to solve it if not then make it pieces till reach at the solution and after getting solution make it integrated. Besides, we can say Loop statements can calls are example of top-down approach.

Reference:

1. <https://www.quora.com/What-is-the-bottom-up-and-top-down-approach>
2. The Architecture of Computer Hardware and System Software A , 5th Edition, The - Irv Englander page 48

2) What are the benefits of the top-down approach to system architecture?

3) Give a short description of peer-to-peer architecture.

4) Reread "Google: A System Architecture Example" from the text. What are Google’s three specific processing tasks that the system must fulfill?

5) Why does Google use inexpensive commodity PCs, similar to standard, medium power, non-state-of-the-art, off-the-shelf PCs in its datacenter?

6) Briefly explain how instructions in a stack-based architecture access their operands.

7) Why is it generally more convenient to use labels than actual addresses to specify the destination of branch instruction?

8) Briefly explain the difference between two-operand and three-operand instruction formats.

9) Suppose that a computer’s memory system did not have the random-access property-that is, that memory references took different amonts of time to complete depending on which address they referenced. How would this complicate the process of program development?

10) What are the trade – offs  involved in using a single I/O bus for all of the  devices connected to a given systems? There is a good article here:   
Taylor, 2003. Google's Secret: 'Cheap and Fast' Hardware. [http://www.pcworld.com/article/112891/article.html (Links to an external site.)Links to an external site.](http://www.pcworld.com/article/112891/article.html)

11) The human body is an example of object that ca be represented as a system. Consider the various  ways in which you could represent the human body as a system. Select a representation and identify the components that constitute the system. Select one component and decompose it to the next subsystem level. You may attach the picture describing your work.

12) Consider a representation of a work organization or school with which you are familiar. Identify the major components that characterize the primary operations within the organization and draw a diagram that represents the system’s organization. Show and identify the links that connect the various components. Identify the major environmental factors that impact the organization.

13) Consider the textbook. Using the detailed table of contents as a reference, we can represent this textbook as a hierarchical system. As a first pass, we can define the textbook by the five component parts that make up the body of the text. Identify by general name of the objects that constitute the next level of decomposition below the parts components. Continue to do this for at least three more levels of the hierarchy. Describe your work.

14) Thinking in terms of systems allows us to analyze situations that are too complicated for us to understand as a whole. What the specific characteristics and futures of system thinking make this possible?

15)  Figure 2.8 (5th ed. Textbook) illustrates the basic architecture for a three-tier database system. This system can be viewed as a IPO system. What is the input for this system? What environmental elements generates the input? (Hint: the Web browser computer is within the system boundary). What is the expected output from this system? What environmental element receive the output? Briefly describe the processing that takes place in this system.

16)  It is common to represent network connections in IT systems as a cloud. (See, for example, Figures 2.6, 2.7, 2.8 and 2.9). The cloud is obviously an abstraction as we defined abstraction in this chapter. What does the cloud abstraction actually represent?

17) Suppose that you have been hired to develop a web-based sales system for a lrge international retail sales firm. Discuss some environmental issues that are specific to the Web design or your system that you must consider if your system is to be successful at attracting and keeping purchasing customers.

Provide specific examples from the textbook or other sources to support your answer.  
Please make sure you have completed your one initial (original) post (OP) on discussion board or one your reply (1R) to others original posts by due each Sunday at 11: 59pm.