**Chapter –** Building a PC

**Assignment 11.0**: Building a PC with a $700 budget | Building a PC with an Unlimited Budget

**Estimated Time of Completion – N/A**

**Location of Assignment: School / Home**

**OBJECTIVE**

This assignment aims to familiarize the student with how to put together a computer within a budget. Students will also learn how to research computer parts and be able to determine whether their parts are compatible with each other.

**OVERVIEW**

A technician should be able to design a computer desktop for their client’s needs and cost-justify the parts of the computer. More often than not, a technician will be tasked with a project to purchase new equipment and explain how it fits the needs of their employer and why their purchase is cost-justifiable.

**TASK OR STEPS**

**Building a PC with a $700 budget**

A client has requested for you to build them a computer. They would like a computer that they can use for surfing the web, word processing, streaming videos(Youtube, Netflix, etc), some light gaming. They would like Window 10 pro as their OS. Below are the minimum hardware requirements:

* **CPU - 2.5 GHz dual core processor**
* **Motherboard**
* **Computer Case**
* **Graphics Card**
* **RAM - 4 GB**
* **Hard Drive – 250 GB**
* **Power Supply**
* **Optical Drive – DVD-RW**

**Part 1: Building a PC with an Unlimited Budget**

A client has requested for you to build them a computer. They would like a computer that has all the bells and whistles. They stated, “Money is not a concern”. They would like this PC to be the first thing that you see when you enter their living room. Their requirements are below:

* **System Unit needs to have lights.**
* **System Unit needs to have the lowest possible sound coming from it.**
* **High-end Graphics Cards**
* **Minimum (4) 80” 4k Displays**

You may use any sites you like (ex: Newegg, TigerDirect). You are not allowed to buy any bundles (ex: CPU + Motherboard), nor should you select a pre-built computer.

After the student has saved their shopping cart as a .pdf they should be able to explain to their instructor why they decided to choose the parts that they did. Students should also type a brief summary in Microsoft Word explaining the purpose of their computer and why they decided on the parts that they selected. Include the questions below in the word document.

**Questions:**

*Please answer the following questions in complete sentences and in your own words.*

1. What are the different types of ATX motherboards? What are the different types of ITX motherboards?
2. What is the difference between a thick client and a thin client? In what situation would you likely use a thin client?
3. What is scalability? Why is it important when you’re designing a computer?
4. What type of technology are the NVidia SLI and AMD Crossfire? How does it work?
5. What is G-DDR and what is it used for? What is the size of the buses that it commonly uses? What can G-DDR do in a clock cycle that DDR cannot?
6. What is the difference between an SSD and a HDD? What are the pros and cons of each of them? Is one better than the other?
7. What is a Raspberry Pi ?
8. What are some of the Benefits of a Raspberry Pi ?
9. Where are Raspberry Pi’s used ?
10. Does your PC use BIOS or UEFI ? which one is better why ?
11. What CPU did you select ? why ?
12. What are the benefits of the MOBO that you selected ? what is the chipset included with the MOBO?
13. Does your MOBO use Dual Channel Architecture for the RAM ? what are the benefits of a MOBO that supports Dual or Triple Channel RAM Banks ?
14. What are the benefits of USB 3.0 ? why would USB 2.0 still be included on a MOBO ?
15. How many PCIe slots does your MOBO come with ? what are the different PCIe slots your MOBO comes with ?

**Part 2: Building a Server with a $1000 budget**

Your employer has requested you to select components for their server computers. They would like a computer that they can use to support Directory services, File services, and Database services. Below are the minimum hardware requirements. You may use any sites you like (ex: Newegg, TigerDirect). You are not allowed to buy any bundles (ex: CPU + Motherboard), nor should you select a pre-built computer. After you have saved your shopping cart as a.pdf you should be able to explain to your instructor why you decided to choose the parts you did. You should also type a brief summary below explaining why they decided on the parts that they selected.

* **Either Tower or Blade Form Factor (You decide which is best)**
* **CPU - At least 2 Quad-core processors or 8 Core processors if available in the budget**
* **Motherboard that supports the other components**
* **Video Card - Find one that fits in the budget**
* **Network Card - At least 2 LAN ports**
* **RAM - 32 GB DDR3**
* **Hard Drive – 2 TB**
* **At least 2 Power Supplies**
* **Optical Drive – DVD-RW=**

**Part 3: Questions:**

*Please answer the following questions in complete sentences and in your own words.*

* + 1. What is form factor and why is it important to a server computer?

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* + 1. What makes a server computer different from a desktop computer?

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* + 1. As a systems administrator why should you understand and know how select server hardware?

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**SUBMISSION PROCESS**

* Upload the shopping cart as a .pdf using file upload