This is individual assignment.

**Task A: Video Cases**

*Case 3.4 Amazon Echo (30 Points)*

Watch the video on the above case (refer to the pdf document on case 3.4) and answer all the five video case questions. Be detailed.

1. What functionality does the first-generation Amazon Echo display during the video

that introduced it?

**Deliver information like playing music, broadcasting weather and time; Provide service to user’s command like shopping, and answering questions**

2. What kind of technology does Amazon Echo use?

**Intelligent Voice Recognition, AI, wireless network communication, Cloud-based technology**

3. What might be some privacy concerns involving Echo? Are these well founded? Why or

why not?

**Eavesdropping like maybe it will listen and record without people’s aware when they are talking about some confidential things.**

**Camera-equipped Echo has Drop-In, by which user initiates a call without the other’s confirmation. This may be invasive.**

**They can get your preference and all other data, analyze them and introduce content to you when you ask them. Thus you may not be aware.**

**It may be hacked.**

**No. Amazon didn’t violate any law or regulation. But still they cannot prevent privacy invasion from happening. Not only should the law be complete enough, but also there are technology difficulties to defend and address problems. And customers may not be able to be aware the privacy concerns and not report.**

4. Why was releasing a developers’ kit for Echo important for Amazon to keep pace with

services offered by Apple, Google, and Microsoft?

**It makes the device more functional, useful and customized, increases the users by large amount, helps update of technology. Other giants as well as are developing the intelligent device, offering the similar service, and they already have billions of users. By releasing the kit is a good way to introduce the product and share the market. It makes Amazon more competitive.**

5. What are some of the smart home devices that Echo Plus can control?

**It has a built-in smart home hub that seamlessly connects and controls Zigbee smart devices, such as light bulbs, door locks, in-wall switches, and plugs, without the need for separate hubs or a smart home skill. Or the devices that just have Alexa compatibility built in.**

*Case 4.1*  *W.L. Gore Expands Using Demandware (30 Points)*

Watch the video on the above case (refer to the pdf document on case 4.1) and answer all the five video case questions. Be detailed.

**Task B**

1. Why is system testing important? Name the types of testing and their relation to each other. (20 Points)

**It is the first time end to end testing of application on the complete and fully integrated software product before it is launch to the market.  The main focus of this testing is to evaluate Business / Functional / End-user requirements.**

**Testing:**

**Unit testing**

**System testing**

**Acceptance testing**

**A/B testing (split testing)**

**Multivariate testing**

**Unit testing  is done in the development process while developer completes the unit development.  The object of this testing is to verify correctness of the module. The purpose of unit testing is to check that as individual parts are functioning as expected. Basically Unit testing is typically carried out by the developer.**

**System Testing should be done after Unit Testing is finished.**

Acceptance Testing is done after System Testing. User acceptance is a type of testing performed by the **Client** to certify the system with respect to the requirements that was agreed upon.  This is beta testing of the product & evaluated by the actual end users. The main purpose of this testing is to validate the end to end business flow.

**A/B testing is used when people want to redesign their product or change a service, plugin or feature (**<https://www.crazyegg.com/blog/when-must-test/>**). It is commonly for testing two very different design directions against one another. It is also a good way to introduce the concept of optimization through testing to a skeptical team, as it can quickly demonstrate the quantifiable impact of a simple design change.**

**Multivariate testing uses the same core mechanism as A/B testing, but compares a higher number of variables, and reveals more information about how these variables interact with one another.**

**(**[**https://www.optimizely.com/optimization-glossary/multivariate-test-vs-ab-test/**](https://www.optimizely.com/optimization-glossary/multivariate-test-vs-ab-test/)**)**

1. What are the main differences between single-tier and multi-tier site architectures? (20 Points)

**Single-tier architecture implies putting all of the required components for a software application on just one server. It is cost-effective. But having all the resources on the same machine can create an availability and security risk. If the server is down, the application will be down, and it will not communicate with the database. If the server is externally attacked, you are at greater risk of data loss if you do not have a replica of your database.**

**Multi-tier architecture solves these problems by splitting data access across several server. Having all the resources spread into different servers boosts your deployment performance. In addition to this, having different layers for different resources implies adding an extra security layer by separating data from code. It often has data center networks and geographies.**

**In those applications that include replication, the database can be replicated across more than one server which prevents the loss of data in case of cluster failure.**

**This architecture also provides high scalability and failover: you can add as many nodes as you need to increase the capacity of your cluster. This way, the workload is also decentralized ensuring that when a node is down, the rest of the deployment is working.**

**(**[**https://docs.bitnami.com/google-templates/singletier-vs-multitier/**](https://docs.bitnami.com/google-templates/singletier-vs-multitier/)**)**