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Quiz #2

Question 1:

A. Schmidt, "Cloud-Based AI for Pervasive Applications," IEEE Pervasive Computing, vol. 15, no. 1, pp. 14–18, Jan. 2016.

- This article discusses how far AI has come in the last 10 years, with the focus of how cloud has made AI easier for the average developer to create using many of the predeveloped AI libraries.

D.-K. Hwang, C.-C. Hsu, K.-J. Change, D. Chao, C.-H. Sun, Y.-C. Jheng, A. A. Yarmishyn, J.-C. Wu, C.-Y. Tsai, M.-L. Wang, C.-H. Peng, K.-H. Chien, C.-L. Kao, T.-C. Lin, L.-C. Woung, S.-J. Chen, and S.-H. Chiou, "Artificial intelligence-based decision-making for age-related macular degeneration ," Theranostics, vol. 9, no. 1, pp. 232–245, 2019.

- This article explores how AI was able to be used in a medical field for diagnostics and how with the introduction of cloud resources it allows for this AI to be used by people all over to help patients without them needed to be seen in person.

M. Li, Z. Sun, Z. Jiang, Z. Tan, and J. Chen, "A Virtual Reality Platform for Safety Training in Coal Mines with AI and Cloud Computing," Discrete Dynamics in Nature and Society, vol. 2020, pp. 7–14, 2020.

- This article shows the user how cloud-based AI can be used in a real situation, safety training in coal mines, to improve user experience by improving interaction and increasing rendering power.

Question 2:

https://www.mcafee.com/enterprise/en-ca/security-awareness/cloud/security-issues-in-cloud-computing.html

- This article presents what they believe are the top security issues with IaaS, and private cloud; they then share their top tips in mitigating the top security issues which include DevSecOps process, automation, and unified security.

https://www.sciencedirect.com/science/article/pii/S0167739X10002554

- This paper discusses major security threats that are possible due to the nature of cloud computing, such as confidentiality of a person's information, and then proposes a solution of a trusted third-party company that handles all cloud security.

https://blog.avast.com/data-security-issues-in-cloud-computing

- This article examines data security issues in the cloud such as the vulnerability of data in motion or having data that could be viewed by someone who should not see it; later it discusses protection of data in the cloud such as scans, real-time updates, and backups.

Question 3:

Edge Computing is running calculations or data manipulation of any kind on the "edges" of your network. There are advantages and disadvantages to handling data in this way. It can reduce latency since you take out the process sending to and from the cloud. Some aspects of your cloud computing that can be affected are security, cost of data intact, and simplicity.

The local processing that is done with edge computing can reduce the risk of data being stolen in transit, but it also can introduce other problems. Now you are sending much bigger messages to the cloud that risk being changed in transit. When you then catch the error, you must send these large messages again versus previously where you would just resend the smaller message. As well, those edge devices must be secure in terms of access to the cloud. If these edge devices are less secure and they get hacked, then your cloud is put at risk. Thus, there are many more security concerns to watch when there are edge devices that store and process sensitive data.

These large chunks of data being sent to the cloud less often instead of small chunks being sent constantly can have a big impact on the cost of your cloud. When setting up the cloud you must keep in mind how often you are sending the data and how often it is accessed. If you have a mix of edge computing and tradition cloud computing it may result in a mixed data store or a more expensive data store that costs you every time you send those large clunks of data.

Edge computing if done correctly can help with the simplicity of the cloud. Since all the processing is done locally and the cloud just saves the data it makes the cloud simpler. It also allows for easier updating of a local system. You can just change it locally or send what needs to be done from the cloud to the system. This stops the cloud from having to update or change the code that could potentially affect other systems that are not ready to be updated.

Overall edge computing can help cloud computing in many ways especially when latency and efficiency are considered. If the developer properly sets it up and considers cost and security, it can benefit how smoothly a cloud can run.

K. Gyarmathy, "Edge Computing vs. Cloud Computing: What You Need to Know," *VXChnge*, 08-Mar-2019.