Project Two Presentation Scirpt

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https://youtu.be/AvrKghU84zo

- **Purpose of Presentation**
    - Introduce yourself.
        - Hello. My name is Allison Novak from Southern New Hampshire University.
    - What is cloud computing?
        - Cloud computing refers to multiple computer services that can be accessed over the internet on-demand, giving instant access to services without setup.
    - Why would we choose to use cloud development?
        - Many businesses choose to use cloud development as it allows for more computing power without the need to buy the physical servers that would require. It also allows for more scalability, cost benefits, reliability, and security.
- **Containerization**
    - Containerization is the packaging of the code and everything it takes to run it into a single object called a container that allows the code to run consistently on any infrastructure.
    - The different models used to deploy cloud migration are Saas, Paas, and Iaas.
        - Saas stands for “Software as a Service”. This is software provided over the internet which means no one is needed to manage things like patches or updates. These are systems like Microsoft 365, Dropbox, or Salesforce.
        - Paas stands for “Platform as a Service”. This provides a place for developers to bring the applications and data without having to worry about infrastructure, operating systems, or storage. This are things like OpenShift or the Google App Engine.
        - Iaas stands for “Infrastructure as a Service”. This is like renting a server but in the cloud. Here the managing and maintenance will all be done by the cloud provider. This is like Google Cloud Platform or AWS.

- What tools are necessary for containerization?
    - While there are many options for containerization, Docker is one of the more popular tools used. It is one of the largest container content libraries and is open source making it very valuable for developers.

- **Orchestration**
    - Orchestration is the automate configuration, management, and coordination of computer systems, applications, and services.
    - Docker Compose
        - Docker Compose is a tool used to define and run multi-container Docker applications. You are able to use a YAML file to configure you application's services and then create and start all services in the configuration with a single command.
- **The Serverless Cloud**
    - Serverless
        - Serverless computing is a cloud-native model that allows developers to build and run application without the need to manage the servers. The cloud provider handles routine maintenance and necessary scaling while the developers are to focus on packing code into containers for deployment.
        - S3, or Simple Storage Service, offers scalable and secure storage. This allows users to configure, optimize, and organize access to data to meet business requirements. S3 is able to backup your data across regions meaning that even if the server goes down momentarily, your data will not be lost like it could be with local storage.
    - API & Lambda
        - Lambda is the backend logic engine utilized by AWS. This allows the API to pass functions to the database to alter the data.
        - This is typically seen as the call from the web client's API to the lambda function. This communicates to the database where to send the data from the lambda to the Restful APIs.
        - Suggested images: You may create UML diagrams or cite diagrams found online using APA 7.

- Database
    - There are two different data-models: MongoDB and DynamoDB.
        - MongoDB has its own query language which allows developers to analyze data in a wide variety of ways. It also had a more extensive det of data types such as int, long, date, floating-point, and decimal128.
        - DynamoDB offers minimal query functions, but you can leverage other AWS services to achieve more sophisticated queries. It only offers three data types: number, string, and binary.

- **Cloud-Based Development Principles**
    - There are a few aspects of cloud computing that are important to understand before you chose this development model.
    - Elasticity is used to match the resources allotted with the actual number of resources needed at any given time. This is especially useful if you have peak times where you need more resources than others.
    - Pay-for-Use Model is used for such elasticity. This allows IT managers pay only for resources they are consuming rather than paying the same amount regardless of how many resources are being consumed at different times.
- **Securing Your Cloud Application**
    - To prevent unauthorized access, it is important to utilize a system such as AWS's Identity Management System to create access roles that can be given specific permissions through the creation of different policies.
    - Policies can be assigned to roles which give them different permissions and responsibilities. Roles are able to have multiple policies attached to them.
    - We were able to create policies that allowed for the lambda to access the question-and-answer table. The permissions granted allowed the lambda to put, delete, and get different data from one table and adapt it to the other table.
- **Conclusion**
    - Being able to containerize our process and shift it to the cloud will ensure our system is secure, cost effective, and scalable. We will be able to easily see the expansion take place through AWS. The security that our lambda system provides will keep the data protected. And by utilizing a serverless system, we will only need to pay for the resources we are utilizing, saving the company many and giving us the ability to focus on the future.