Manage Internet Cloud Resources

(Note: This project can be completed in AWS or Azure using free tier resources on either platform. Delete all objects immediately upon completing the project.)

Now that you have explored possible database and source control options, you will be migrating to using cloud resources with your development team. You will need virtual machines, object storage and a database. Create them using either an AWS or Azure account. They can be created using a browser-based GUI (e.g., Azure Portal or AWS Console) or a command-line tool such as Cloud Shell. You will also need to ensure that you have good version control procedures in place.

1. Create a cloud-based virtual machine. Connect to it and install a web server. The web service should be accessible over the Internet.

2. Create a cloud-based BLOB storage unit that can be used to host a static website. Configure it to host a website that is accessible over the Internet. Use the same BLOB to store a folder containing CSV or TXT files securely. They should not be accessible over the Internet.

3. Create a cloud-based, free tier, managed or serverless SQL Server instance. Create a database and table on the instance. Using a CSV file on your storage BLOB, upload records into the table. You may use sample customers or orders records in CSV files provided with the course or create your own (e.g., RandomizedCustomerTable.py). Use SQL Server Management Studio to connect to the SQL Server database and query the new table.

4. **Optional:** Create a Content Delivery Network (CDN) for the website on your BLOB.

5. **Optional:** Configure the virtual machine running your website to scale automatically across 4 servers.

6. As a group, discuss and write down your answers to these questions:
    - When would a virtual machine be preferable to a BLOB for hosting a website and visa-versa?
    - What advantages are gained by configuring auto scaling for a virtual machine hosting an application?
    - What advantages are gained by converting virtual machine applications to a docker configuration?
    - What options are available for converting virtual machine auto scaling to a serverless solution?