Final Project Summary
Azure Storage Service Encryption

Problem Statement:
According to breachlevelindex.com, as of 10-Feb 2018 over 9.2 billion data records have been lost or stolen since 2013 - a frequency today of 57 records per second[1]. Only 4% of those records were encrypted. Microsoft Azure demonstrates commitment to safeguarding all data by offering a multitude of data protection services. Azure Storage Service Encryption is one such solution. This problem set seeks to unpack how storage service encryption is enabled, how to verify that it is enabled, and demonstrate that data passing through storage service encryption interacts seamlessly with practical applications. In a publication from August 2017 Microsoft implied that blob, file, queue and table services would all be encrypted by SSE[2].

Overview of the Technology:
Azure Storage Service Encryption is a server-side "toggle" impacting the suite of existing services that leverage Azure storage. Once activated, all subsequent storage devices instantiated within the service domain are encrypted. Data written prior to activating the toggle are encrypted after a new read/write operation.

High Level Steps:
1) Instantiate a new storage service and visualize the toggle
2) Query the storage devices to visualize the encryption state
3) Toggle the encryption state (hahahaha… not)
4) Inspect data within a storage device
5) Re-create the messaging service used in Azure Deep Dive homework 8 within a secure storage service and visualize the seamless interoperation

Code Source:
https://github.com/blumu/azure-content/blob/master/articles/event-hubs/event-hubs-archive-python.md

Hardware Used:
Windows 7 64b 16Gb RAM HP Zbook laptop

Software Used:
Azure Cloud Shell (Azure CLI 2.0 (bash))
Python 2.7.5 (https://www.python.org/downloads/)
VS Code 1.18.1 (https://code.visualstudio.com/download)

YouTube Links:
2 Min: https://youtu.be/f_FUk-OmsGE
15 Min: https://youtu.be/l2DjdfS3t9g

[1] http://breachlevelindex.com/

[2] https://azure.microsoft.com/en-us/blog/announcing-default-encryption-for-azure-blobs-files-table-and-queue-storage/