KSHITIJ GUPTA

Question 1: Applying CIA Triad to Secure a Customer Database

To secure your company’s customer database, we need to apply the CIA Triad: Confidentiality, Integrity, and Availability.

1. Confidentiality

Definition: Ensuring that sensitive information is accessible only to authorized users.

Measures:

- Strong Authentication: Use multi-factor authentication (MFA) to allow access to only the right people.

- Encryption: Encrypt the customer data to protect it from unauthorized access.

- Access Control: Implement role-based access control (RBAC) to make sure only people with proper roles can view or edit the data.

2. Integrity

Definition: Ensuring that the data is accurate and has not been tampered with.

Measures:

- Checksums & Hashing: Use hashing to detect any changes in the data.

- Version Control: Keep a record of data changes with versioning.

- Data Validation: Ensure any updates to the data come from trusted and verified sources.

3. Availability

Definition: Ensuring that authorized users can access the data when needed.

Measures:

- Backups: Regularly back up the data to prevent loss in case of hardware failure.

- Redundancy: Have multiple copies of the data in different locations (cloud regions).

- Monitoring & Response: Use monitoring tools to track any issues and respond quickly to prevent downtime.

Question 2: Creating a Secure IBM Cloud Object Storage Bucket

To create and configure a secure IBM Cloud Object Storage bucket, follow these steps:

1. Create the Bucket

Log in to the IBM Cloud console, go to the Object Storage section, and click "Create Bucket." Name your bucket and choose a region.

2. Security Configuration

Measures:

- Access Control: Set the bucket permissions so only authorized users can access it. Use IAM (Identity and Access Management) to define who can view or modify the data.

- Encryption: Enable server-side encryption to protect data at rest. Use HTTPS to ensure that data is encrypted during transit.

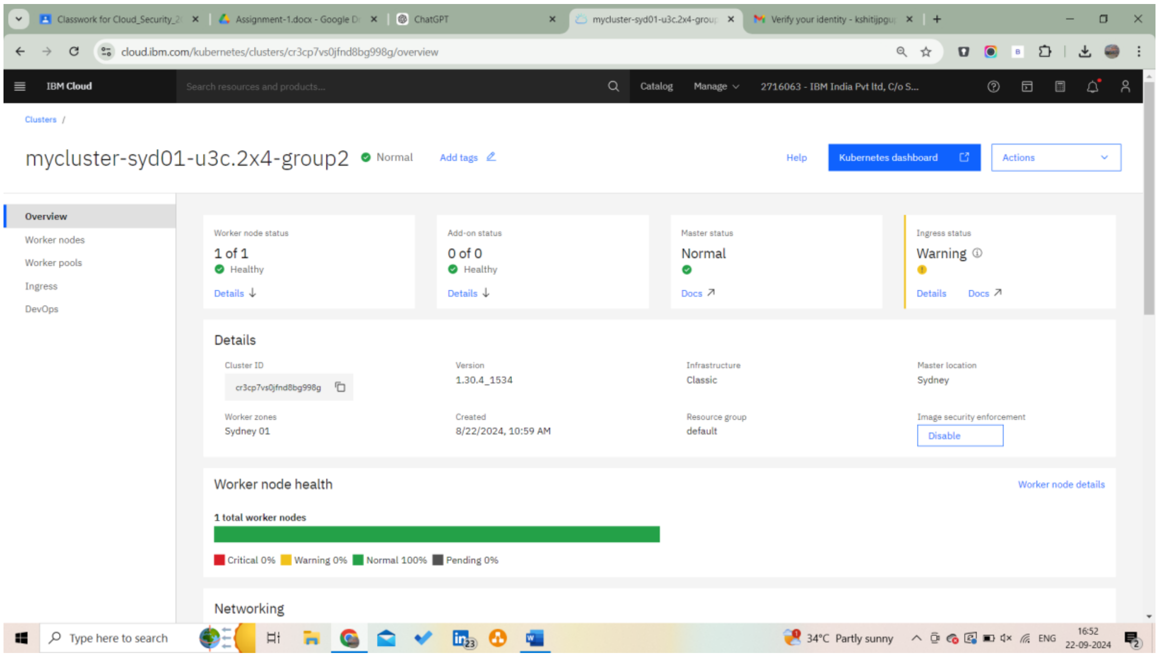
- Access Logs: Enable access logging to track who is accessing the data.

- Data Transition: Set up an automatic rule to transition data to a lower-cost, more secure storage class after 90 days of inactivity.

- Internal Access: Restrict access so the bucket is only reachable from your company's internal network by setting up a firewall or VPC (Virtual Private Cloud) peering.

Exercise 1: Create Kubernetes Cluster with Security Benchmark on IBM Cloud

1. Create Kubernetes Cluster: Go to the IBM Cloud console, navigate to the Kubernetes section, and click "Create Cluster." Select a region and configuration, then deploy the cluster.



cloud.ibm.com/kubernetes/clusters/cr3cp7vs0jfnd8bg998g/overview

mycluster-syd01-u3c.2x4-group2 ● Normal

Worker node status: 1 of 1 ✓ Healthy

Add-on status: 0 of 0 ✓ Healthy

Master status: Normal ✓

Ingress status: Warning ⓘ

Details

Cluster ID: cr3cp7vs0jfnd8bg998g

Version: 1.30.4_1534

Infrastructure: Classic

Master location: Sydney

Worker zones: Sydney 01

Created: 8/22/2024, 10:59 AM

Resource group: default

Image security enforcement: Disable

Worker node health

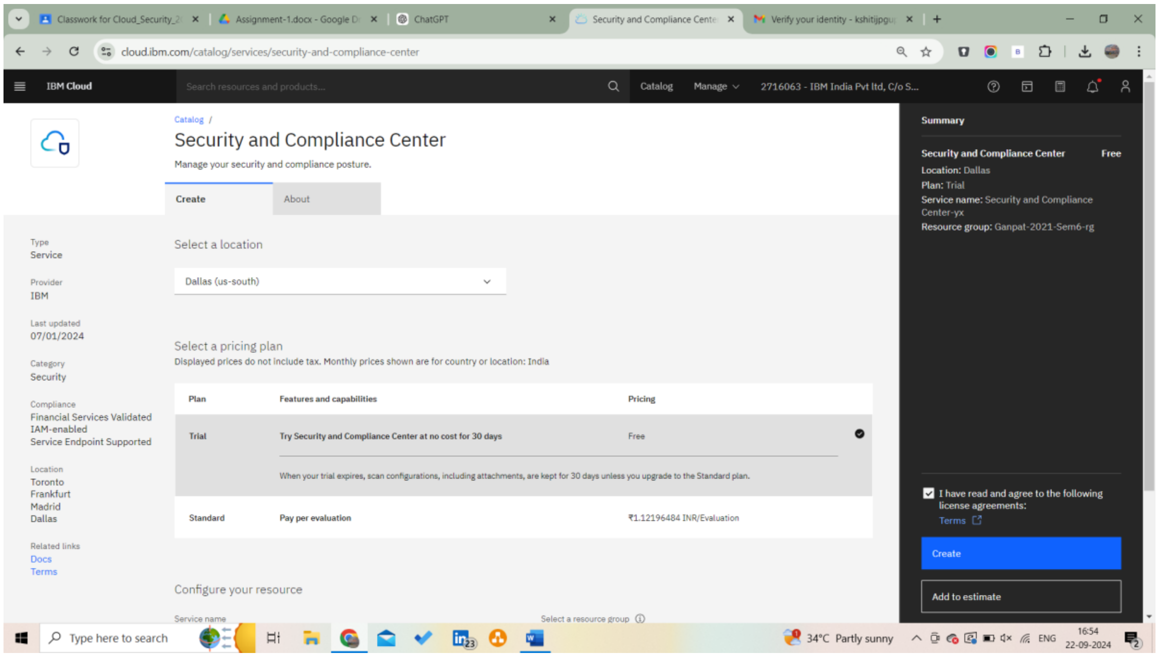
1 total worker nodes

🟥 Critical 0% 🟨 Warning 0% 🟩 Normal 100% ■ Pending 0%

Networking

2. Apply Security Benchmark Profile

Use IBM's Security and Compliance Center. Select the Kubernetes cluster and apply the security benchmark profile. Run a compliance check to ensure the cluster meets security standards.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Security and Compliance Center

Manage your security and compliance posture.

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Service

Provider
IBM

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Category
Security

Compliance
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Location
Toronto
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Dallas

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Dallas (us-south)

Select a pricing plan

Displayed prices do not include tax. Monthly prices shown are for country or location: India

Plan	Features and capabilities	Pricing
Trial	Try Security and Compliance Center at no cost for 30 days When your trial expires, scan configurations, including attachments, are kept for 30 days unless you upgrade to the Standard plan.	Free
Standard	Pay per evaluation	₹1.12196484 INR/Evaluation

Configure your resource

Service name

Select a resource group

Summary

Security and Compliance Center Free
Location: Dallas
Plan: Trial
Service name: Security and Compliance Center-yx
Resource group: Ganpat-2021-Sem6-rg

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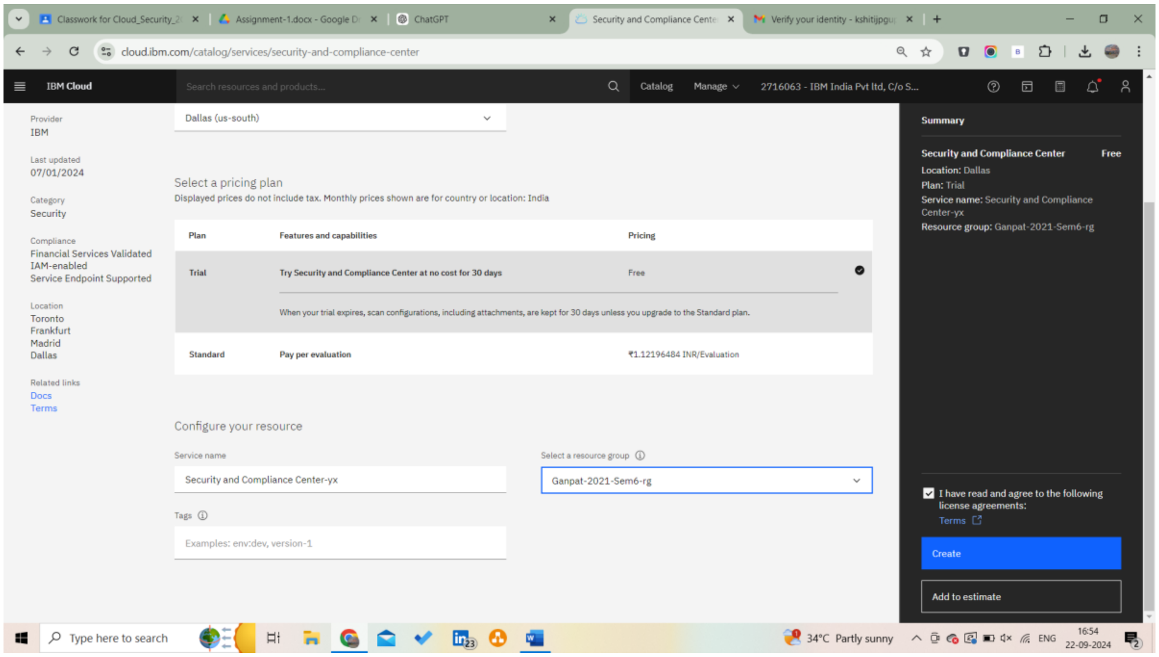
Terms

Create

Add to estimate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Assignment-1.docx - Google D
ChatGPT
Security and Compliance Cente
Verify your identity - kshitijpgu
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Configure your resource

Service name: Security and Compliance Center-yx

Select a resource group: Ganpat-2021-Sem6-rg

Tags

Examples: env:dev, version-1

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Security and Compliance Center Free
Location: Dallas
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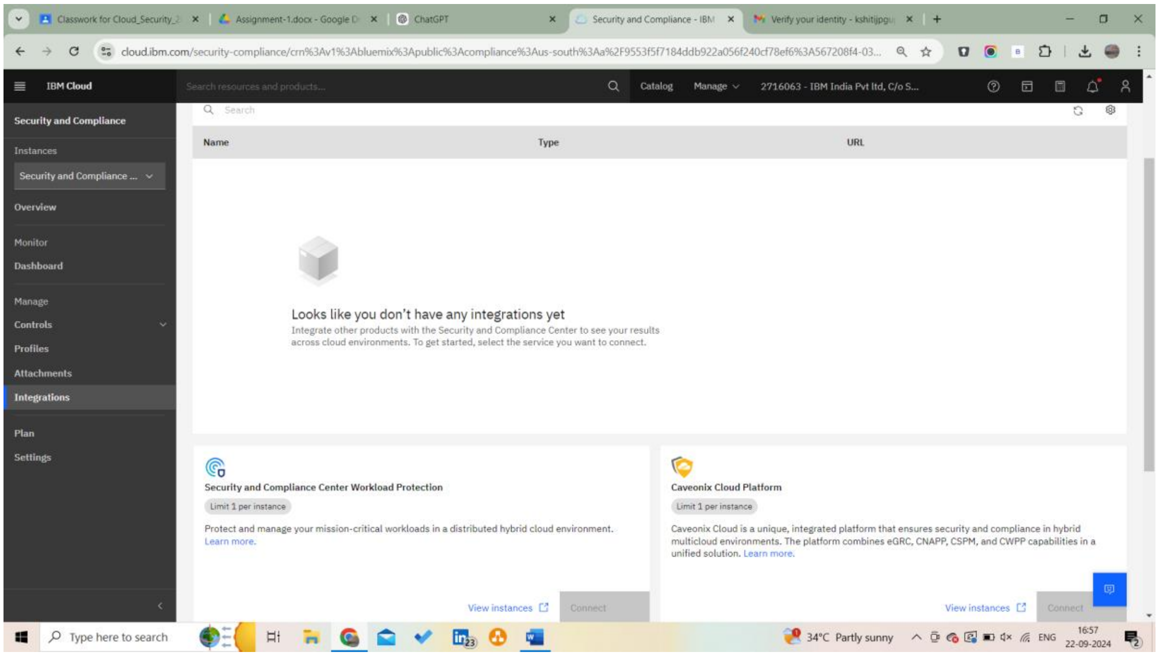

Classwork for Cloud_Security_2
Assignment-1.docx - Google D
ChatGPT
Security and Compliance - IBM
Verify your identity - kshitijpgu
cloud.ibm.com/security-compliance/crn%3Av1%3Abluemix%3Apublic%3Acompliance%3Aus-south%3Aa%2F9553f5f7184ddb922a056f240cf78ef6%3A567208f4-03...
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Looks like you don't have any integrations yet

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Security and Compliance Center Workload Protection

Limit 1 per instance

Protect and manage your mission-critical workloads in a distributed hybrid cloud environment. Learn more.

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Caveonix Cloud Platform

Limit 1 per instance

Caveonix Cloud is a unique, integrated platform that ensures security and compliance in hybrid multicloud environments. The platform combines eGRC, CNAPP, CSPM, and CWPP capabilities in a unified solution. Learn more.

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