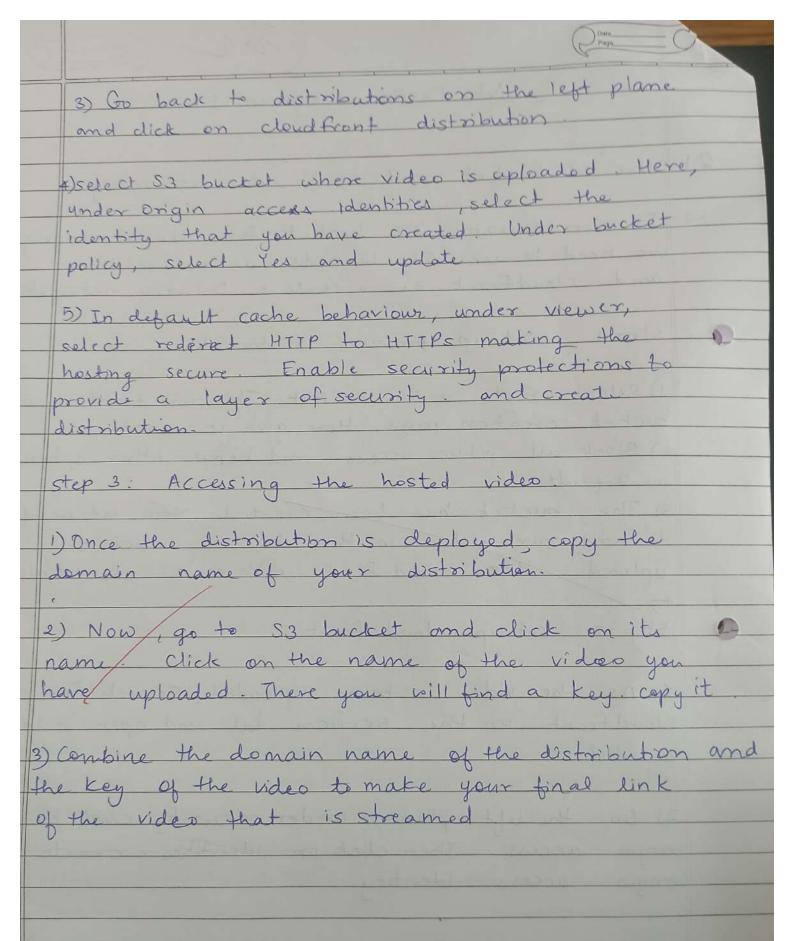
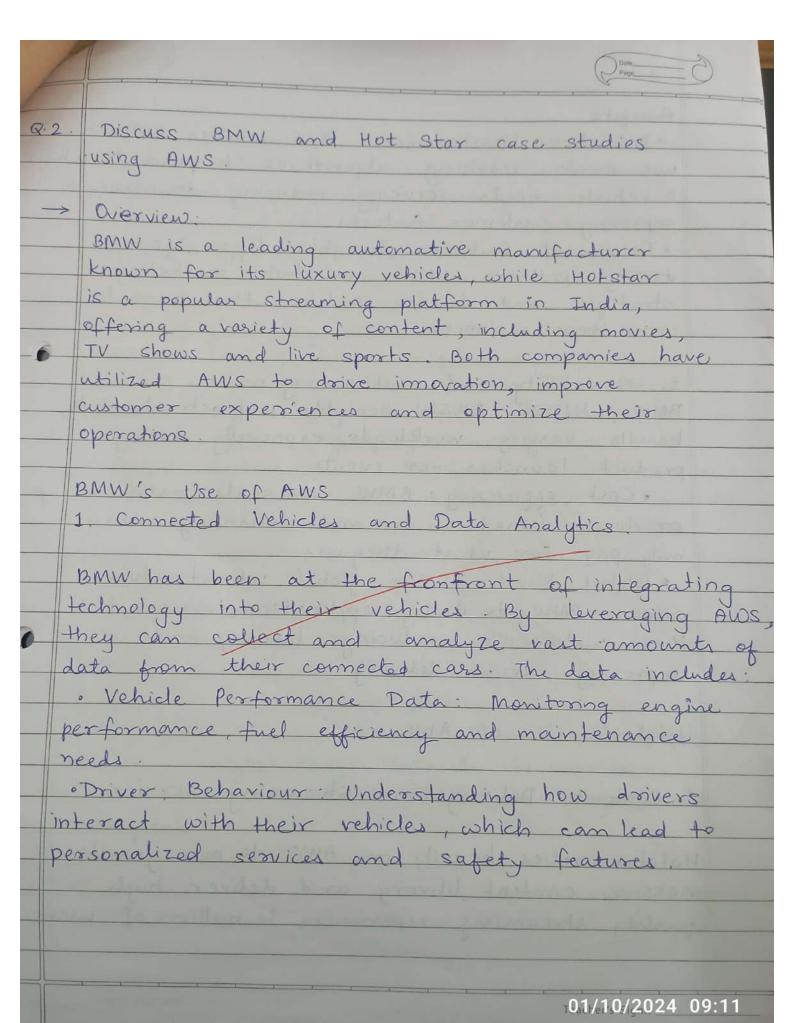


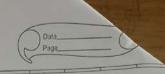
## Adv DevOps Assignment 1

- Q1. Use 53- bucket and host video streaming.
- To use Amazon S3 bucket for video streaming, we need to use S3 buckets as a container and cloud Front as a content Delivery network.
- 1 Step 1: Set up Amazon S3 bucket
  - 1) Select create a 53 bucket. This will direct you to bucket creation page Here, give it a name
  - 2) Block all public access and kepp other options as default.
  - 3) The bucket has been created. Now we need to add our video in this bucket click on upload there add files with mp4 ctension.
  - Step 2: set up cloud front.
    - 1) As the video is being uploaded. Search for cloud front on the services tab and open it in new tab.
    - 2) On the left plane, under security, click on origin access. Then click on identities create new origin access identity.

Teacher's Sign .: \_







Benefits:
Predictive Maintenance: AWS enables BMW to use machine learning algorithms to predict when a vehicle needs servicing, reducing downtime & improving austomer features.

• Enhanced Customer Insights: By analyzing driving patterns, BMW can tailor marketing strategies and develop features that resonate with their customers

2. Scalability and cost management.

BMW utilizes AWS's scalable infrastructure to handle varying workloads, especially during product launches or events.

or down based on demand, ensuring they only pay for what they use.

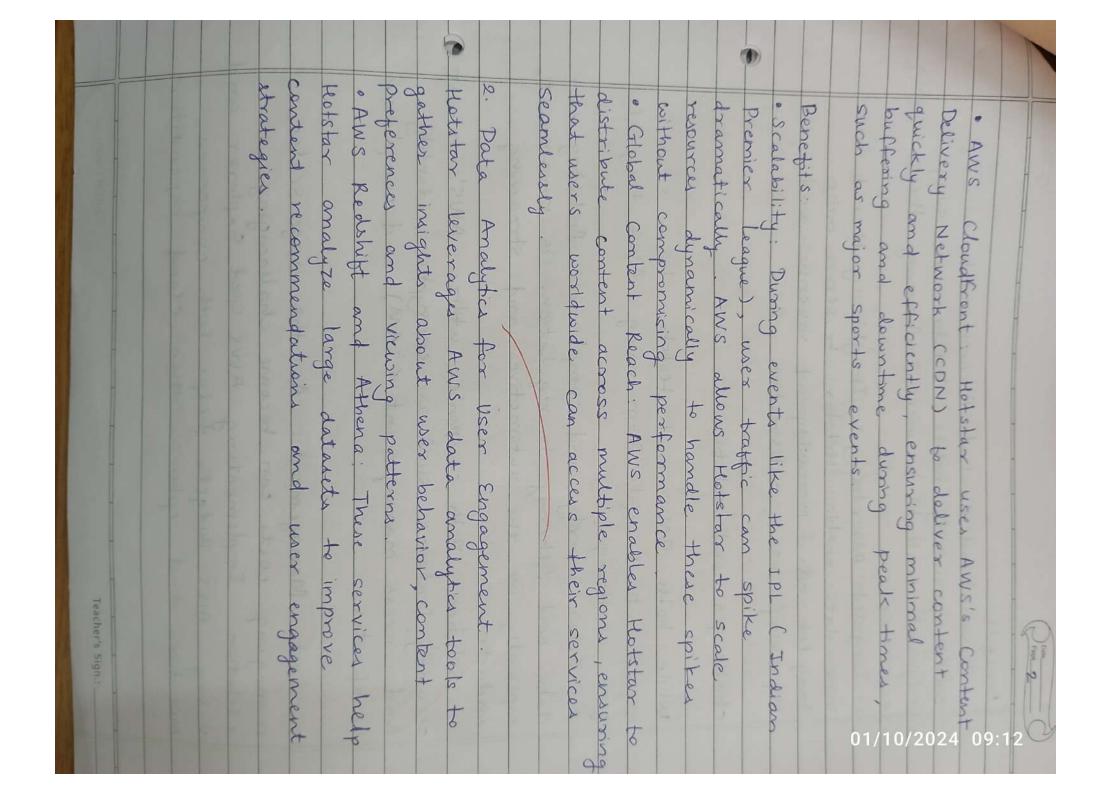
· Global Reach: AWS's global infrastructure allows BMW to deploy applications closer to their austomer's reducing latency and improving service delivery

Hotstar's Use of AWS

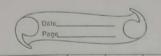
1. Content Delivery and streaming services

Motstar relies heavily on AWS to manage its massive content library and deliver high quality streaming experiences to million of users

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· Personalized Content Recommendations: Bry analyzing viewing habits, Hotstar can suggest relevant content to users, enhancing their viewing experience · Targeted Advertising: Insights gathered from user data enable Hotstar to serve more targeted ade, increasing ad revenue and improving uses satisfaction challanger and solutions While both BMW and teotstar have seen significant benefits from using AWS, they also face challanges: 1. Data security and compliance: Protecting user data and adhering to regulations is paramount, especially in the automotive and streaming · Solution: Both companies utilize AWS's robust security features such as encryption, identity and acress management (IAM) and compliance certificates. 2. Cost Management: As the usage scales, managing costs can become challanging o solution: Implementing AWS cost Explorer and using AWS Budgets helps both companies monitor and optimize their cloud expenditure



Conclusion

The integration of AWS into BMW and Hotstar's operations demonstrates how cloud computing can drive innovation, improve customer experiences and enhance operational efficiency BMW's focus on connected vehicles and predictive maintenance aligns with their commitment to luxury and performance, while Hotstar's use of AWS for Streaming and data analytics exemplifies the future of entertainment in a highly competitive landscape.

By leveraging AWS's scalability, data analytics and global infrastructure, both companies are well structured to meet the evolving need of their austomers and stay ahead of the competition.

·3. Why Kubernetes and advantages and disadvantages
of Kubernetes. Explain how adidas uses
Kubernetes > What is Kubernetes? Kubernetes is an open source container orchestration platform designed to automate the deployment, scaling and management containerized applications Originally developed Google, it has become a standard for managing cloud-native applications & micro services architecture. Advantages: 1) Automated Deployment & scaling: facilitates easy deployment and scaling of applications based on demand 2 Self- Healing: Automatically restarts or replaces failed containers, ensuring high availability 3) Load Balancing: Distributes traffic across containers for optimal resource use. (4) Declarative Configuration: Allows users to define application states using YAML/ JSON fil 3) Multi-cloud support: Can run on various cloud platforms and on premises 01/10/2024 09:15

Disadvantages: 1) Complexity: Steep learning curve and operational challanges, especially for beginners @ Resource overhead: Can require significant computational resources 3 Network challanges: configuring networking can be complex Ofrequent updates: Rapid evolution can lead to compatibility issues. How Adidas uses Kuberneties. 1 Microservices Architecture Adidas has adopted a microservices architecture to enable agility and faster delivery of features Kubernetes allows Adidas to manage these microservices effectively. Each microservice can be developed, deployed and scaled independently, leading to quicker iterations and improved responsiveness to market demands 2) Scalability and Performance During high traffic events, Adidas can use Kubernettes to scale its applications automatically based on user demand For example, during Black Friday sales, Kubernetus can help ensure that the e-commerce platform remains responsive, handling large volumes of simultaneous transactions without downtime

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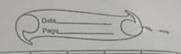
3 Continuous Deployment & continuous Integration Adidas employs CIICO pipelines and Kubernetes plays a crucial role in this process

By integrating Kubernetes with their CI/CD

tools, Adidas can automate testing and

deployment deployment. @ devOps Collaboration Kubernetes supports a DevOps culture at Adidas, allowing development and operational tasks to work closely together. The platform's ability to automate many operational tasks reduces the burden on the operations team, enabling them to focus on more strategic Kuperneter is a powerful tool for organizations looking to streamline their applications deplogment, and management processes Adidas's implementation of kubernetes exemplifies how companies can leverage this technology to enhance agility, improve scalability and fosler collaboration between development and operations teams.

04 What is Nagios and explain how Nagios are used in E-services -> Nagios is an open source monitoring system that enables organizations to monitor their IT infrastructure, including servers, networks, and applications. It provides real-time insights into the status of various components. Key features of Nagios 1 Host and service monitoring, Nagios monitors the availability and performance of hosts (Servers, devices) and services (applications, processes) 2) Alerto and notifications: sends alerts via email or SMS when issues arise, ensuring prompt attention. 3 Customizable Dashboards: Offers vixtual dashboards to represent the health of IT resources at a glance. 1 Extensibility: Supports plugins that can extend its functionality, allowing monitoring of custom applications or services (5) Historic Data: Records historical data for performance trends and analysis. How Nagios is Used in E-Services 1 Infrastructure Monitoring: E-services provider use Nagios to monitor servers and network devices, ensuring uptime and reliability. This is critical for maintaining service availability for 01/10/2024 09:15 users.



- Deplications Performance Monitoring:

  Nagios can monitor servers and network

  Nagios can monitor servers and network

  devices, ensuring uptime and reliability. This
  is critical for maintaining service availability

  for users. It can track response times,

  database querics, and application errors,

  ensuring that services remain efficient.
- 3 proactive Issue Resolution: By setting
  thresholds for various metrics, Nagios can
  alert administers before issues become
  critical For instance, if CPU usage exceeds
  a certain percentage, Nagios can trigger
  alerts to prevent server overload.
- Departy Planning: Historical data collected by Nagios helps e-service providers understand wage patterns and plan for future growth. This is essential for scaling resources effectively as user demand increases.
- © Compliance and Reporting: Many e-service organizations must adhere to compliance standards Nagios provides logs and reports that can assist in demonstrating compliance with operational standards and regulations.