REPORT ON IBM CLOUD COMPUTING WORKSHOP



23 AUGUST 2023

Location: MOUNT CARMEL COLLEGE, MCA LAB

Presenter: TEAM IBM

A Cloud Computing Workshop was conducted by IBM at Mount Carmel College on 23 August 2023. The workshop aimed to provide students with insights into the world of cloud computing, its applications, and its significance in the modern technological landscape.

The workshop started with a word of God, setting a positive tone for the event and welcoming IBM cloud team with warm greetings and goodies.

Workshop Highlights:

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|-----------------------------|------------------------|---------------|
| Topic | Presenter | Timings |
| Introduction to Cloud | Vani | 11:30 - 11:50 |
| Computing | IBM Cloud | |
| | | |
| Hands-on Labs | Pradeep S Gopal Gowda | 11:50-1:40 |
| | DevOps Lead, IBM Cloud | |
| | LUNCH BREAK | |
| Journey to Virtual Private | Sushmitha | 2:35 - 3:10 |
| Cloud | IBM Cloud | |
| | | |
| Virtualization & Kubernetes | Anand & Gaurav | 3:10-3:30 |
| Clusters | IBM Cloud | |
| | | |
| DevOps & Toolchain | Piyush Mudra | 3:30-3:50 |
| _ | DevOps Lead, IBM Cloud | |
| IBM Cloud Secrets | Rajesh Kumar | 3:50-4:10 |
| | Senior IT Manager, IBM | |
| | Cloud | |
| IBM Watson | Brijesh | 4:10-4:30 |
| | IBM Cloud | |

The workshop began with an overview of cloud computing, explaining its fundamental concepts, benefits, and the different service models - Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). In October 2016, IBM rolled the SoftLayer brand under its Bluemix brand of PaaS offerings, giving users access to both IaaS and PaaS resources from a single console. In October 2017, IBM then rebranded its entire cloud portfolio as IBM Cloud. Also overviewed about Cloud Native Development (CND) by IBM that contains a set of practices, tools, and methodologies that IBM offers to help developers build and deploy applications using cloud-native principles. CND offers tools like tools, frameworks, and services that enable developers to build applications, compute on "Serverless Computing" and to scale and maintain "Microservices Architecture". Briefed about factor approach for Cloud Native Development: 12 Codebase, Dependencies, Configuration, Backing-up services, Build, release, run Processes, Port binding, Concurrency, Disposability, Dev/prod parity, Logs, Admin processes

Participants were engaged in hands-on labs that demonstrated the practical aspects of cloud computing. They were given the opportunity to interact with cloud platforms and services, gaining experience in provisioning virtual machines, managing resources, and deploying applications. IBM representative introduced the participants to IBM's cloud services and solutions.

A brief overview of how an IBM representative taught students to use IBM App ID in the IBM Cloud:

- Accessing IBM Cloud Dashboard: Students logged in to IBM Cloud account and accessed the IBM Cloud Dashboard with their IBM ID.
- **Creating an App ID Service:** From the dashboard, students created a new App ID service instance. Then they set up the necessary infrastructure for managing authentication and user identity.
- **Configuring Identity Providers:** Configured the identity providers that they wanted to use, such as social media logins (like Google, Facebook) or signed-up using sign-in option.
- **Customizing Authentication Flow:** Customized the authentication flow to match the application's needs.
- Adding Redirect URLs: Specified the URLs to which users are redirected after successful authentication or if authentication fails.
- Adding Roles and Permissions: Defined roles and permissions for different user groups. This helps control access to different parts of their application.

Then the workshop addressed the crucial aspect of cloud security. Participants were educated about the various security challenges and best practices to ensure data protection and compliance in a cloud environment and studied the "Journey to Virtual Private Cloud". And learnt insights into the current trends and future prospects of cloud computing in the industry with an example of e-commerce deployment and provided students with a comprehensive understanding of cloud technology, its practical implementation, and its significance in the business world in a basic level.

The key components of a Virtual Private Cloud were discussed, along with a focus on REST services offered by IBM Cloud. Topics like subnets, security groups, transit gateways and direct links within the Virtual Private Cloud were discussed.

Discussed about both virtualization and containerization and their use cases on the IBM Cloud platform. Saw how to create Kubernetes clusters on the IBM Cloud, using the IBM Kubernetes Service (IKS). Steps involved: Create a Cluster> Cluster Configuration> Authentication and Authorization> Access the Cluster. Studied how Kubernetes also allows users to define Network Policies to control traffic flow between Pods. Which can help enhance security by restricting communication between specific Pods. In summary, Kubernetes itself doesn't dictate the communication between frontend and backend; it provides a networking infrastructure that enables the communication between frontend and backend.

A comprehensive session that delved into various aspects of cloud technology, with a focus on DevOps practices and Continuous Integration/Continuous Deployment (CI/CD) pipelines. Participants gained a deep understanding of DevOps as a collaborative approach that integrates development and IT operations. The principles of automation and continuous testing. The workshop also explained the significance of CI/CD pipelines in achieving faster and more reliable software releases. Participants learned about the different stages of a pipeline, including code integration, automated testing, and deployment and the concept of a toolchain, which consists of a set of tools interconnected to facilitate software development, was explained.

Then the workshop aimed to provide participants with a comprehensive understanding of secrets management, focusing on concepts such as secrets, their expiration, creation of locks, deletion of locks, and the utilization of secret groups within the IBM Cloud environment. Participants were introduced to the concept of expiring secrets. The session explained the benefits of setting expiration periods for secrets, minimizing the window of vulnerability in case of unauthorized access, and ensuring regular updates of sensitive information.

The workshop covered various aspects, including understanding Watson as an AI tool, launching Watson Assistant, and exploring how customer interactions are managed and saved from their perspective in the IBM Cloud environment. This session delved into the capabilities of IBM Watson AI. Participants gained an understanding of how Watson's natural language processing (NLP) and machine learning algorithms can be harnessed to develop AI-driven solutions for business challenges. Participants were guided through the process of building and deploying a Watson Assistant, including defining intents, entities, and dialog flows. Hands-on exercises allowed attendees to interactively create their own chatbot.

The workshop concluded with an interactive Q&A session, allowing participants to clarify their doubts and seek guidance on cloud computing concepts.

Concluding the Cloud Computing Workshop provided attendees with valuable knowledge and practical skills related to leveraging IBM Cloud. IBM Cloud, empowered participants to explore innovative ways of enhancing customer engagement and improving business processes through AI-driven solutions. Also enhanced participants' proficiency in utilizing secrets management tools within the IBM Cloud environment. Thus, participants gained hands-on experience and exposure to industry-leading cloud solutions, enhancing their technical skills and career prospects.

Positive feedback was given by students.

The workshop concluded with a vote of thanks, appreciating all involved for their active participation. Certificates were presented to each presenter from the IBM cloud team from college.















