DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAM: MASTER OF SCIENCE IN COMPUTER SCIENCE & INFORMATION TECHNOLOGY

[MSc-CS&IT]

Subject Name: Cloud Computing Web Services

Activity: 1

Subject Code: 22MCSIT4033

Semester: IV

Academic Year: 2023-2025

Submitted By : Prajapati Praveenkumar **Submitted To:**Prof. Raghavendra R

Department of Computer Science & Information Technology

Programme: **Master of Science in Computer Science & Information Technology [MSc-CS&IT]**

Certificate

This is to certify that Mr **Prajapati Praveenkumar** satisfactorily completed the course of **Activity-1** prescribed by the JAIN(Deemed-to-be-University) for the semester **IV** M.Sc-CS&IT degree course in the year 2023 - 2025 .

USN : 23MSRCI027

Date : 14/02/2025

Signature of Student Head of the Department Signature of Faculty Incharge

Name = Brajapati Praveenkumar

Course Name = Google cloud Fundamentals : Core infrastructure

Course Duration = 15 hrs.

* Introduction :

The course covers the fundamental concepts of Google cloud, including computing storage, networking and security. It provides insights into the infrastructure that supports cloud computing and how businesses can leverage GCP to build scalable and reliable applications.

* key topics covered :

1. Introduction to google cloud platform :-

- overview of GCP regions, zones, and global infrastructure.
- cloud computing advantages such as scalability, cost-efficiency and availability
- key comparison between on-premises infrastructure and cloud solutions.

2 Google Compute Services :-

- Compute Engine : virtual machines that run applications in a secure and scalable environment.
- App Engine : A platform for building and deploying web applications without managing the underlying infrastructure.
- Cloud Functions : event-driven computing that enables serverless application development.

3 Google Storage and Databases :-

- Cloud Storage : object storage for unstructured data with various storage classes.
- Cloud SQL : fully managed relational databases supporting MySQL, PostgreSQL and SQL Server.
- Cloud Firestore : A NoSQL document database for real-time and scalable applications.

4 Networking in Google cloud:

- virtual Private cloud: A customizable network environment in Google cloud.
- Load Balancing: Distributing traffic efficiently across multiple resources.
- cloud CDN: Enhancing web performance and reducing latency by caching content at the edge.

5 Security and identity Management:

- Identity and Access Management: Controlling Permissions and security policies for users and services.
- Encryption methods: Encryption at rest and in transit using Google-managed keys or Customer-managed keys.
- Security Command Center:- A Centralized security management tool for detecting and responding to threats.

6 Google Cloud Resource management

- cloud Billing and cost Managment tracking and optimizing cloud expenditures.

- Monitoring and Logging: using stackdriver for real-time monitoring and troubleshooting.
- Service Accounts: Assigning roles and permissions to applications securely.
- Cloud Scheduler: Automating roles and Permissions to applications securely.

* Case studies and real-world Applications.
  - Several real-world companies utilize Google cloud for their infrastructure needs.
    - Spotify
    - Twitter
    - Snapchat
    - Evernote

* Practical Applications.
  - This knowledge can be applied in various ways.
    - Developing Cloud Applications.
    - Big Data Processing.
    - AI and Machine Learning

- cloud Security Implementation:
- Network optimization.

* Future opportunities with GCP :

- with the rapid growth of cloud computing, Google cloud offers numerous opportunities for career and project advancements.

- Google cloud certifications : pursuing certification such as Associate cloud Engineer, Professional cloud Architect, or Professional Data Engineer.
- Industry Application : exploring cloud solution in industries like finance, healthcare, retail and gaming.

* Conclusion :

- The google cloud fundamentals : core infra. course Provided a comprehensive introduction to GCP and its Core services. The hands-on labs reinforced theoretical knowledge through Practical appliations. Additionally, the course has opened avenues for future learning and specialization in cloud computing.

LearnQuest

COURSE CERTIFICATE

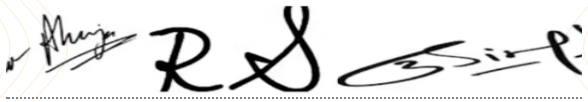
Feb 16, 2025

Prajapati Praveenkumar

has successfully completed

Fundamentals of Cloud Computing

an online non-credit course authorized by LearnQuest and offered through Coursera



Erik Herman
CompTIA CTT+ certified Trainer
Modern Classroom Certified Trainer (MCCT)

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Coursera has confirmed the identity of this individual and their participation in the course.