



**School of Computer, Information and Mathematical
Sciences**

&

Department of Computer Science and Engineering

**One Day Workshop on
Innovative with AWS from chatbots to IoT
Mastery**

Date: 08 August 2024

Time: 9:00am-3:30pm

Venue: IoT lab , III Floor, CSE Block, B.S. Abdur Rahman Crescent Institute
of Science and Technology



**School of Computer, Information and Mathematical Sciences
&
Department of Computer Science and Engineering**

Event Report

Name of the Event: "One Day Workshop on Innovative with AWS from chatbots to IoT Mastery (Hands-on Practice)"

Date: 08 August 2024

Venue: IoT Lab, III Floor, CSE Block, B.S. Abdur Rahman Crescent Institute of Science and Technology

Total Number of Participants: 30

The *School of Computer, Information and Mathematical Sciences* and the *Department of Computer Science and Engineering* at *B.S. Abdur Rahman Crescent Institute of Science and Technology* jointly organized a one-day workshop titled "*Innovative with AWS from chatbots to IoT Mastery (Hands-on Practice)*" on **August 08, 2024**. This interactive workshop was attended by **30 participants**, including faculty members, and undergraduate students. It provided a practical, immersive learning experience aimed at equipping attendees with essential skills in IoT and cloud-based services.

The session was led by students of BSA crescent institute of science and technology (**Oviya Janathranan, Syed Ahmed, Sudharsan Vishwa, Zafeera, Sharon Devanand**) The workshop was convened by **Dr. Sharmila Sankar** (Dean, SCIMS) and **Dr. Aisha Banu W** (Head, Department of CSE), with active support from faculty coordinators **Dr . V . Muthupriya** (Assistant Professor (Sel. Gr.)), **Dr . A .Radhika** (Assistant Professor (Sel. Gr.)), **Dr. I. Karthiga** (Assistant Professor, CSE), **Mrs . A .Radhika**, **Mrs .T. Valliammai** (Assistant Professor, CSE), **Mrs .Hemalatha** (Assistant Professor, CSE)

Objectives:

The primary goals of the workshop were:

- 1. Introduce AWS Tools and Services:** Provide an overview of AWS services such as IoT Core, Lambda, and Amazon Lex, and their applications in chatbot and IoT development.
- 2. Hands-On Learning:** Enable participants to design, build, and deploy real-world IoT systems and chatbots using AWS.
- 3. Skill Development:** Equip attendees with practical skills in cloud computing, serverless architecture, and IoT data analytics.

- 4. Promote Innovation:** Encourage participants to explore creative solutions leveraging AI, IoT, and cloud technologies.
- 5. Foster Collaboration:** Create a platform for students, faculty, and professionals to network and share knowledge on cutting-edge technologies.
- 6. Bridge Theory and Practice:** Demonstrate the integration of cloud-based services with IoT devices for scalable and secure solutions.

Event Brochure



Workshop Agenda

The workshop was structured into interactive sessions and hands-on exercises, covering the following topics:

Agenda Schedule

1. 9:00 am - 9:15 am: Registration
2. 9:15 am - 9:30 am: Quirath & Welcome Address
3. 9:30 am - 11:00 am: Session 1-[Introduction to Cloud Computing & AWS, Basic AWS

Services(Rekognition,S3 Bucket)]

4. 11:00 am - 11:15 am: Break
5. 11:15 am – 12.45 am: Session 2-[Introduction into IoT and Hands-on Session on IoT Services in AWS]
6. 12:45 pm - 1:30 pm: Lunch Break
7. 1:30 pm - 3:10 pm: Session 3-[Hands-on Session on Intelligent Chatbot Creation]
8. 3:15 pm - 3:30 pm: Q/A Session, Quiz Session 3:30 pm: Closing Remarks and Vote of Thanks



Workshop Outcomes

The workshop achieved its intended objectives, and participants gained a solid understanding of:

1. Building Conversational AI: Chatbot Development on AWS

- Overview of AWS services for chatbot development (Amazon Lex, AWS Lambda).
- Designing conversational flows and integrating Natural Language Understanding (NLU).
- Deploying and testing chatbots with real-world use cases.
- Integration of chatbots into web or mobile applications.

2. IoT System Design: Harnessing AWS IoT Core and Services

- Introduction to AWS IoT Core and its role in IoT device connectivity.
- Device provisioning and secure communication with MQTT protocol.
- End-to-end IoT solution design from device to cloud.
- Use case implementation: Smart home or environmental monitoring.

3. Scalable Solutions: AWS Lambda and Serverless Architectures • Basics

- Basics of serverless architecture and benefits of AWS Lambda.
- Building

event-driven applications for IoT and chatbot integration. • Hands-on:

Writing and deploying a Lambda function.

- Cost optimization and scaling with serverless.

4. Data Streaming and Analytics with AWS IoT Analytics

- Streaming data from IoT devices to AWS IoT Analytics.
- Transforming, filtering, and enriching IoT data streams.
- Visualizing insights using Amazon QuickSight dashboards. •

Real-world use case: IoT data monitoring and predictive analytics.

5. Integrating AI with IoT: AWS Machine Learning for Intelligent Devices

- Overview of AWS SageMaker for machine learning.
- Training models to analyze IoT data (e.g., anomaly detection). • Deploying trained models on IoT edge devices using AWS IoT Greengrass. • Examples: Predictive maintenance and energy efficiency.

6. Real-Time Data Processing for IoT Applications Using AWS •

Leveraging AWS Kinesis for real-time IoT data ingestion.

- Processing data streams using AWS Lambda and AWS Glue. •
- Building applications for live tracking and alerting.
- Use case: Real-time location tracking for logistics.

7. Securing IoT Deployments: Best Practices with AWS Tools •

Implementing secure device authentication with AWS IoT Core. •

Data encryption at rest and in transit using AWS KMS.

- Monitoring IoT deployments with AWS CloudWatch.
- Best practices for compliance and risk mitigation in IoT systems. **10.**

Hands-On with Alexa Skills: Bringing Voice to IoT Systems •

Introduction to Alexa Skills Kit (ASK) and its integration with AWS. • Building custom

Alexa skills to control IoT devices.

- Connecting Alexa with AWS IoT Core for voice-enabled IoT systems. •

Hands-on: Smart home automation using Alexa and IoT.



Workshop Participants



Feedback

The **"Innovate with AWS: From Chatbots to IoT Mastery"** workshop was well-received for its hands-on approach, clear guidance, and relevant content on AWS tools like IoT Core, Lambda, and Lex. Participants appreciated the real-world applications and collaborative environment. However, some suggested better time management, pre-requisite materials for beginners, and post-workshop resources for continued learning. Overall, the workshop effectively introduced cloud and IoT concepts, inspiring participants to explore AWS further.

Faculty Coordinators

- **Dr . V . Muthupriya** (Assistant Professor (Sel. Gr.))
- **Dr . A .Radhika** (Assistant Professor (Sel. Gr.))
- **Dr . I. Karthiga** (Assistant Professor, CSE)
- **Mrs .T. Valliammai** (Assistant Professor, CSE)
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