**IoT and Analytics**

Workshop Details:

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| Duration: | 3 Hours |
| Description: | Real-time analytics dictates that data is processed and measured as it is ingested. This means that the components of your data architecture must also operate in real-time- including data processing, data streaming, and any computation, logic, and visualization that are part of your defined analysis. Adopting real-time analytics can be challenging at times. In this webinar, we will try to build a pipeline to perform real-time streaming, processing and analytics using various Microsoft Azure tools and services in the domain of IoT, Big Data and Visualization. |
| Participants’ Entry Profile/Target Audience: | Participants attending this course must have experience on:   * Python Programming Language * Azure Fundamentals (AZ-900) * Brief idea about real-time stream processing and analytics * Azure IoT, Databricks and Apache Spark * Basics of Devices like Raspberry Pi * Basics of Power BI |
| Training Methodology: | The workshop will follow Synergetics methodology of   * Concept Visualization * Active Experimentation * Active Demonstration |

Setup Requirements for Presenter Machine:

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| Hardware and Software Requirements: | Trainer’s Machine are required to have:  Hardware   * Intel Core i5 or better * 8 GB RAM * 100 GB HDD space * LAN connectivity * Good Internet connectivity and bandwidth * Devices like Raspberry Pi, sensors, jumper wires, resistors and capacitors.   Software   * Windows 10 or later * Active Azure account * Visual Studio Code |

Agenda:

1. What is Real-time stream processing and analytics?
2. Use cases of Real-time stream processing and analytics.
3. Batch v/s Stream processing
4. What is Internet of Things (IoT)? What are Azure IoT services?
5. What is Azure IoT Hub?
6. Demo- Connect devices to Azure IoT Hub
7. What is Big Data? Brief introduction to Apache Spark and Spark streaming.
8. What is Azure Databricks? Why use Databricks?
9. Demo- Ingest Data from Azure IoT Hub into Azure Databricks
10. What is Delta Lake? How to use Delta Lake for real-time stream processing
11. Demo- Ingest real-time data into Delta Lake layers (Bronze and Gold) using Azure Databricks.
12. What is visualization? Why use visualization? What is Power BI?
13. Demo- Visualize your Data using Databricks visualization tool and Power BI

Key Take away:

Participants will be able to create a pipeline for real-time streaming, processing and visualizing using Azure services.