

COLLEGE CODE: 8107

COURSE: Cloud Application Development

PHASE II: Project Submission

PROJECT TITLE: Serverless IoT Data Processing

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INTRODUCTION:

In the age of IoT (Internet of Things), the integration of smart devices into our daily lives has become increasingly prevalent. The project at hand focuses on the development of a serverless smart home using IBM Cloud Functions for IoT data processing. In this phase we explain about the Data extraction, Data cleansing and Data analysis.

DATA EXTRACTION:

* The data extraction process involves collecting data from various IoT devices, such as thermostats, motion sensors, and cameras.
* Transferring it to a central repository(IBM Cloud)

DATA CLEANSING:

* This phase ensures that the data collected from your IoT devices is accurate, consistent, and ready for further analysis and automation.
* This includes checking for completeness, correctness, and integrity.
* Once the data is validated, parse it into structured formats that can be easily processed.
* We deals with missing data points or duplicates.
* We need to handle the outliers.

DATA ANALYSIS:

* Data analysis begins with ingesting the cleaned and structured data into the analysis environment.
* We perform descriptive analysis to summarize and describe the data.
* We use time series analysis to understand how variables change over time.
* Time series analysis is essential for creating automation routines.
* We implement anomaly detection algorithms to identify unusual patterns or deviations in your data.
* Finally we visualize our data to make insights more accessible.
* Leverage the insights gained from data analysis to automate routines for energy efficiency and home security.

BENEFITS:

1. Convenience and Automation:

Automation of routine tasks such as adjusting thermostat settings, turning on lights, or receiving security alerts enhances convenience, making daily life more efficient and enjoyable.

1. Energy Efficiency:

The ability to analyze and control temperature settings and lighting based on real-time data leads to significant energy savings. Energy-efficient automation routines can reduce utility costs

1. Enhanced Security:

Data from security cameras and motion sensors can be analyzed to trigger alerts and enhance home security. It provides peace of mind by enabling remote monitoring and immediate response to potential security threats.