# Weekly Report – Week 1

Project Title: Context-Aware Few-Shot Anomaly Detection in Time-Series Data

Student Name: A. Alim

Course Code: CSE499A

Supervisor: [Your Supervisor’s Name]

Week: 1

Duration: [Specify the week’s date range, e.g., 14–20 October 2025]

## 1. Work Completed

• Finalized the problem statement and research objectives.

• Conducted a literature review on few-shot anomaly detection methods:

- Studied models such as LSTM Autoencoder, One-Class SVM, and Siamese Network.

- Reviewed existing approaches like FADScr, FS-ADAPT, FastRecon, and FewSOME.

• Outlined the methodology framework integrating:

- Context-aware modeling

- Ensemble learning

- Transfer and meta-learning strategies

• Identified dataset sources (e.g., HVAC system data).

## 2. Work in Progress

• Preparing dataset for data collection and preprocessing.

• Designing a pipeline for contextual feature extraction using LSTM Autoencoder.

• Setting up development environment with Python, TensorFlow, and PyTorch.

## 3. Challenges Faced

• Difficulty in finding labeled time-series datasets for anomaly detection.

• Need to determine optimal feature representation for context-aware modeling.

## 4. Next Week’s Plan

• Begin data preprocessing (scaling, labeling, timestamp alignment).

• Start implementing the LSTM Autoencoder model for feature extraction.

• Evaluate basic model performance on small subsets of data.

## 5. Supervisor’s Comments

(To be filled by supervisor)