Mini Project - Deliverable 01

EEX5362 - Performance Modelling

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Introduction

The Advance Cleaning System is designed to manage the daily operations of a cleaning service company named Advance Cleaners in Negombo.

The system supports the Human Resources (HR) department, which is responsible for:

- Registering employees.
- Assigning employees to projects. (long-term contracts with clients)
- Assigning employees to jobs. (one-day cleaning tasks)
- Managing the attendance of employees.
- Calculating and generating employee salaries based on attendance and assigned work.

Currently, the company faces several performance challenges:

- Delays in assigning employees to projects and jobs during peak hours.
- Uneven workload distribution among employees.
- Difficulty in tracking real-time attendance.
- Inefficiency in salary calculation due to inconsistent attendance data.

These issues result in lower productivity, resource underutilization, and salary processing delays.

Therefore, this system needs performance modelling to analyze bottlenecks, optimize workflows, and enhance overall efficiency.

Performance Objectives

1. **Minimize Job Assignment Delay**
    This focuses on reducing the time it takes from a client request coming in for HR to assign employees to a job or project.

2. **Maximize Employee Utilization**
    Some employees are overworked, while others have fewer jobs. This objective ensures that all employees are assigned fairly and efficiently.

3. **Minimize Salary Processing, Generate Payslips Time**
    To reduce the total time required for generating salaries by automating calculations and improving data accuracy.

4. **Identify Bottlenecks of Attendance Marking**
    It has a bearing on salary and performance reports when attendance records are missing, late, or incorrect. Therefore, identifying the occurrence of issues with attendance data and resolving them as soon as possible is important. It ensures more accurate attendance data for payroll operations.

5. **Optimize System Scalability**
    As the company grows and the number of employees and jobs increases, the system should still perform well without slowing down. Therefore, to test how well the system handles more data, users, and jobs simultaneously is a major challenge. By this, system performance is maintained even during high workload or company expansion.