



# University of Frontier Technology, Bangladesh

Faculty of Software and Machine Intelligence Engineering

Department of Software Engineering

**Course Name: System Analysis and Design Sessional**

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## **Lab Report 04: Data Flow Diagram Design of Plumbing Service Management System**

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# Data Flow Diagrams (DFD) – Plumbing Service Management System

## Introduction

A **Data Flow Diagram (DFD)** represents the logical flow of data within a system. It visually shows how input data moves through processes, data stores, and outputs. In the **Plumbing Service Management System**, DFDs illustrate how information passes between the **Customer**, **Plumber**, and **Admin** — from service request to completion.

- **Level 0 (Context Diagram)** – Overall system interaction with external entities.
- **Level 1** – Breakdown of core system processes.
- **Level 2** – Detailed representation of booking and plumber assignment.

## DFD Level 0: Context Diagram

This diagram shows how the overall system interacts with its external entities: the **Customer**, **Plumber**, and **Admin**. It identifies the main data flows such as booking requests, plumber status updates, and invoice generation. The system acts as a single unit handling all these communications.

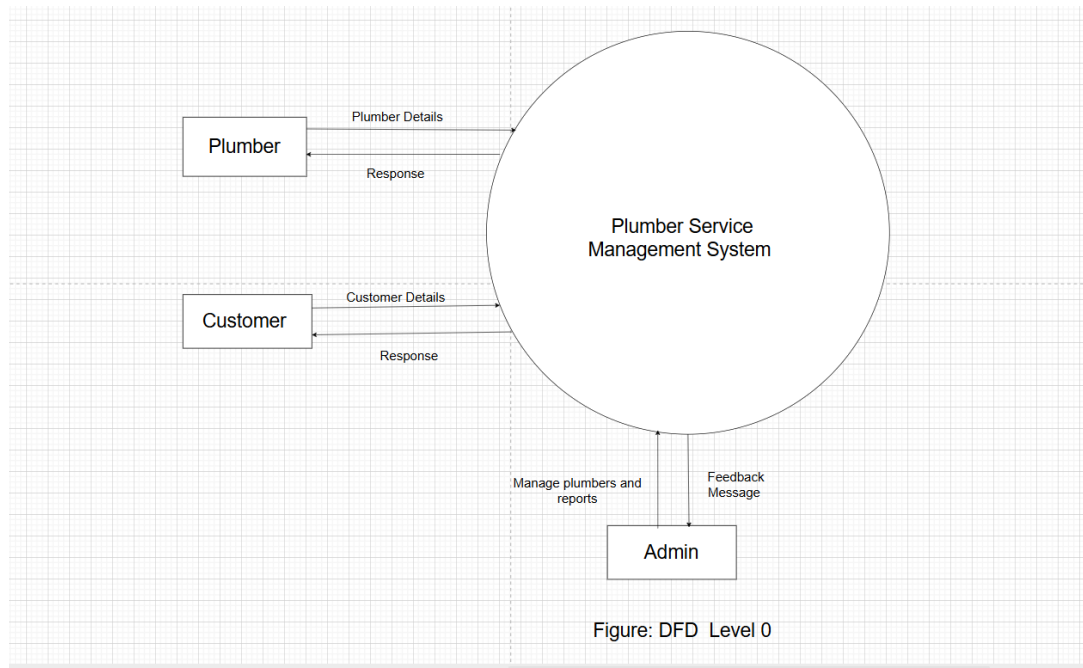


Figure 1: DFD Level 0 – Context Diagram of Plumbing Service Management System

### Purpose of Level 0:

- Define system boundaries and external interactions.
- Identify major entities like customer, plumber, and admin.
- Show key data exchange between the system and its environment.

## DFD Level 1: Main System Processes

Level 1 divides the single process from Level 0 into several key modules — such as **Customer Registration**, **Login**, **Booking Service**, **Assign Plumber**, and **Generate Invoice**. It shows how these processes interact with internal data stores like Customer DB, Service DB, and Job DB.

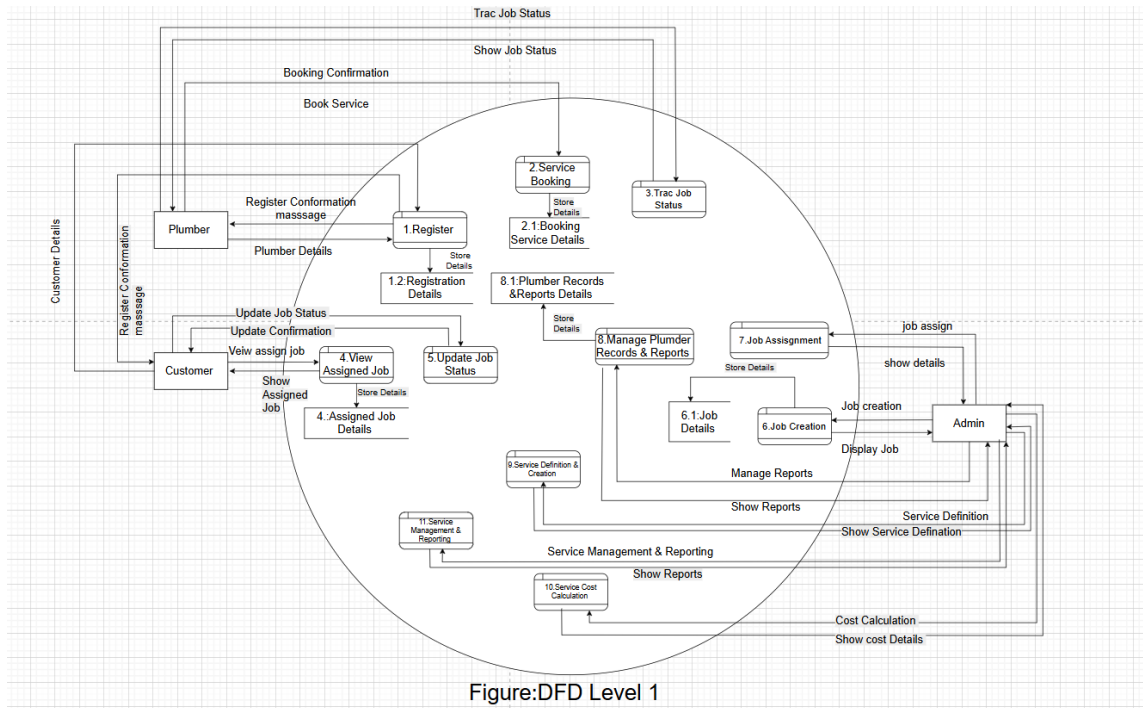


Figure 2: DFD Level 1 – Main Functional Processes of the System

### Key Functional Highlights:

- Customers register, log in, and book plumbing services.
- Admin monitors requests and assigns plumbers.
- System updates service status and generates invoices automatically.

## DFD Level 2: Detailed Service Booking and Job Assignment

Level 2 focuses on the internal working of the **Booking and Assignment** process. It explains how customer inputs generate a job record, which is then matched with available plumbers based on specialization and schedule. Once completed, the cost is calculated, and an invoice is produced.

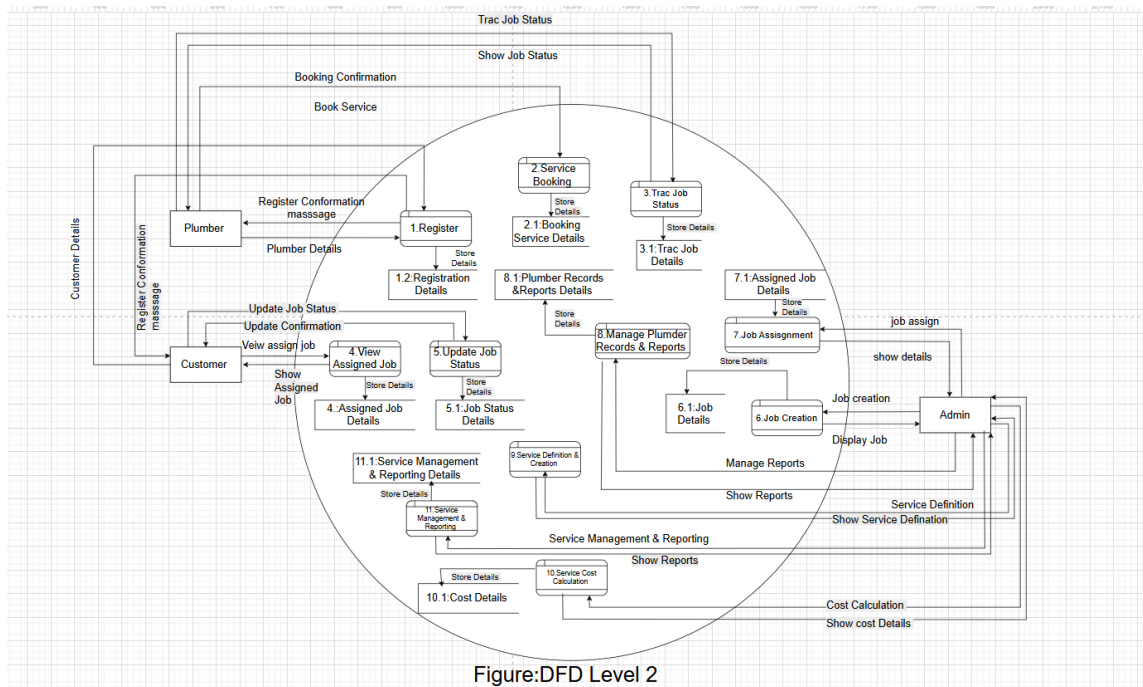


Figure 3: DFD Level 2 – Detailed Data Flow for Service Booking and Job Assignment

### Detailed Process Flow:

- Job is created after a customer books a service.
- Plumber assignment depends on specialization and availability.
- Status updates from “Pending” → “In Progress” → “Completed”.
- Invoice and cost calculation performed at the end.

## Conclusion

These Data Flow Diagrams clearly depict how the Plumbing Service Management System operates step-by-step. Each level provides a better understanding — from the system overview to its detailed booking and plumber assignment process — ensuring transparency and efficiency in the service workflow.

**Thank You**