Information Systems and Data Modeling – IT1090

Assignment 1

Title: Online Dry-Cleaning and Laundry Services	
Batch Number: Y1S2/23/MTR/Gr02	Group Number: 02

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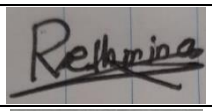
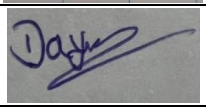
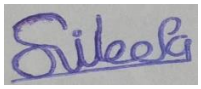
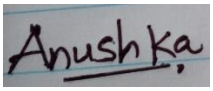
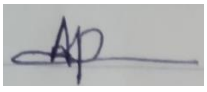
1	IT22253958	W.P.R. Nethmina	
2	IT22296078	Sarithmal K.D	
3	IT22226532	D.V.D Hashan	
4	IT22635952	Abeywickrama A.S.	
5	IT22244352	Hewahalpage	
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1. Introduction

"Our Dry-Cleaning System database is the backbone of our modern laundry and cleaning services. In a world increasingly driven by technology, this digital platform plays a pivotal role in streamlining our operations and delivering impeccable service to our valued customers.

At its core, our database is a virtual repository that securely stores and manages essential information. It acts as a central hub, enabling us to efficiently oversee and coordinate every aspect of our dry cleaning and laundry services.

Within this database, we meticulously record and organize customer data, ensuring that we have up-to-date contact information, preferences, and special instructions readily available. This empowers us to provide personalized and convenient services tailored to individual needs.

Furthermore, our database tracks every customer order from inception to completion. It records order details, item specifications, delivery preferences, and payment information. This meticulous documentation guarantees accuracy and timeliness in our service delivery.

Our employee management system is also an integral part of this database. It maintains comprehensive employee profiles, roles, and contact details, allowing us to optimize workforce deployment and ensure smooth daily operations across our outlets.

Financial transactions, including payments and invoices, are securely processed through the database. It integrates seamlessly with our banking partner, offering customers a hassle-free and secure payment experience.

In essence, our Dry-Cleaning System database is the cornerstone of our commitment to efficiency, convenience, and customer satisfaction. It empowers us to provide top-notch dry cleaning and laundry services while embracing the digital age.

2. Hypothetical Scenario.

Scenario: Online Dry Cleaning and Laundry Services.

In our online dry cleaning and laundry service system, we have various entities that interact with each other:

Customer: Customers can register with their Customer ID, name, phone number, email, date of birth, age. They can place orders for laundry and dry-cleaning services through an outlet as well as they can place online orders.

Manager: Each outlet has a manager responsible for overseeing operations, employees, payments, Marketing, supplies at that location. Manager has manger ID, name, phone number, date of birth, email, address.

Employees: Employees work in different outlets. Employees have Employee Id, name, phone number, email, Dob, age, address.

Outlet: Outlets are where the cleaning and laundry services take place. Each outlet has a unique ID, location, and contact details.

Dependent: Employees can have dependents linked to their accounts, such as family members sharing the same address. If an employee resigns, the company does not keep track of their dependents. Dependents have dependent ID, name, address, dob.

Supplier: Suppliers provide cleaning materials. They have Supplier ID, name, phone number, email.

Marketer: Marketers work on advertising and promotions. They have Marketer ID, name, phone, email, DOB.

Payment: Payments are made by customers for their orders. Each payment is associated with a customer and includes transaction details. Payment has Payment ID, type, amount, payment method, invoice number, date as attributes.

Item: Items include clothes, which are part of customer orders. Each item is linked to a specific order. Item has Item number, item name, item type, quantity, description.

Service: Services offered include "Laundry" and "Dry Cleaning," each with their pricing and delivery options. Services have Service ID, service name, description, price, duration.

3. Requirement Analysis.

3.1.Main Requirements.

3.1.1. Functional Requirements.

Main function of the system and events that take place between the users and the system is described by the Functional Requirements. Seven Users are using Online dry Cleaning and Laundry Services system. Namely: Guest, Registered User, Administrator, Manager, Bank. They Access this system in different ways where it is related to them.

1. **Guest and Registered User (They can access front-end of the system).**

User Requirements

- The services and other details of the system can be checked without accessing the system.
- Guest users can register to the system by providing required details for the registration.
- Guest views the available feedback.
- The outlet can be checked as per the requirement of a guest.
- The guest can check the rules and regulations in the system.
- Registered user login to the system by providing required user login credentials.
- Registered users can update their user profile information.
- Registered users can check all the services available in the system.
- Registered users can access convenient payment methods to make payment for required services.
- Registered users can check their order details and order history.

System Requirements

- The system should have easy navigation and a good user interface for unregistered users.
- For unregistered users the services available in the system should be shown.
- For unregistered users the system should display clear information about available packages.
- The system requires you to approve the registration details and create a user account.
- The system should allow unregistered users to register to the system.
- The username and password provided by the registered customer must be validated in the system.

- The system shall update and show registered users when their user profile information is updated.
- The system should demonstrate convenient payment methods for registered users to make payments for the services they require.
- All services available in the system should be displayed and registered users should be able to access the services.
- The system shall allow the registered user to change the services or cancel the services, when necessary, after placing an order.

2. **Administrator (can access the back end of the system).**

User Requirements

- Administrator signs into the website by providing required login credentials.
- Administrator can approve the reservations.
- Administrator can add and remove staff accounts.
- Administrator can activate and deactivate user accounts.
- Administrator can update drycleaning and laundry details.
- Administrator checks member feedbacks, reviews, and contacts.

System Requirements

- System should validate the user login credentials.
- System should delete details of the deleted by the user.
- System should update the details of the downgraded users and modified accounts in the database.
- System stores the member feedback, reviews and contacts and display them.
- The system should validate login credentials entered by the administrator.
- The system should generate reports for the administrator.

3. **Manager (can access the back end of the system).**

User Requirements

- Accept customer payments and manage refunds.
- Manager financial transactions can be initiated and monitored.
- The manager can assign orders to specific employees or departments.
- The manager can monitor all the orders and arrange for them to be fulfilled.
- A manager can assign specific roles and responsibilities to employees.
- Manager can manage salaries of employees.
- The manager can get notifications for low stock inventory items.

- The manager can process reorder orders and manage inventory replenishments.
- Manager can access customer payment information.
- Manager can generate reports or statements related to customer payments.

System Requirements

- The manager should implement a secure login system with unique passwords.
- Acceptance of customer payments or refunds must be enabled in the system.
- The system must ensure compliance with the necessary security protocols for secure data transmission and storage.
- A user-friendly interface should be set up in the system for the manager customer orders.
- The status of the orders should be updated in the system.
- The system should allow employees to place orders and track the progress of the orders.
- If the user removes or adds an inventory item, the system should remove or add it.
- Customer transaction processing shall be done by the system.
- System generation of customer payment related reports and statements.
- For completed customer payments, the manager should monitor the payments and the system should send an email or message to the customer to confirm the payment.

4. **Bank (can access payment processes).**

User Requirements

- Bank can ensure secure processing and storage of customer payment information and transactions.
- Bank can receive real-time updates on successful and failed payment transactions.
- bank can Implement fraud detection mechanisms to identify and prevent suspicious or unauthorized transactions.
- bank allow Integrate with payment gateways for seamless electronic fund transfers and card payments.
- bank allow facilitate easy reconciliation of funds with laundry service providers on a regular basis.

- Bank maintain detailed records of all laundry and dry cleaning-related financial transactions.
- The bank allows enable account creation, modification, and closure for laundry service providers' banking needs.
- Bank generates invoices or bills for laundry and dry-cleaning services on behalf of providers.
- Bank allow receive instant notifications for high-value transactions, chargebacks, and critical system events.
- bank allow access to payment history and transaction reports for auditing and analysis.

System Requirements

- The system must provide secure user authentication to ensure that only authorized bank personnel can access financial transactions and data.
- It should maintain a detailed transaction log, recording all financial interactions between the bank and the laundry system for auditing and dispute resolution.
- The system should support real-time integration with the bank's core banking system to ensure accurate balance updates and fund transfers.
- It must integrate a secure payment gateway for processing transactions, supporting multiple payment methods such as credit cards, wire transfers, and ACH.
- Define and enforce transaction limits to prevent unauthorized or excessive financial transfers between the bank and laundry service.
- Implement robust security measures to safeguard sensitive financial data, including encryption, firewalls, and intrusion detection systems.
- Require confirmation of each financial transaction, ensuring accuracy and minimizing errors in fund transfers
- The system should have effective error handling mechanisms to address issues promptly and prevent financial discrepancies.
- Maintain a comprehensive audit trail of all financial interactions, allowing for easy tracking and resolution of any discrepancies.
- Ensure compliance with relevant financial regulations and provide reporting capabilities for the bank to monitor its financial activities with the laundry and dry-cleaning system.

3.1.2. Non-Functional Requirements

Non-Functional Requirements simply known as quality attributes. It describes the characteristics of the system that are not directly concerned with specific functionality. Non-functional requirements may be more critical than functional requirements. If these are not achieved, the system may be useless.

Speed

- The system must have good speed.
- The system can access more users at the same time without any failures.

Availability

- The system should be available 24/7.

User-friendliness

- The system should be accessible to users with low IT literacy.

Reliability

- The system must have the ability to detect invalid user credentials.

Security

- The system should have the ability to prevent unauthorized access, misuse, forgery, and secure user data.
- Also, by providing unique user ID and password, no one can access the system by using any other's user ID and password.

Scalability

- The system should be able to handle a higher workload on-demand.

3.2 Data Requirements.

- Customer
  - C_id
  - First_Name
  - Last_Name
  - C_Type
  - C_Phone
  - Email
  - DOB

- Employee
  - Emp_id
  - First_name
  - Last_name
  - Address
  - Email
  - Age
  - DOB
  - Emp_Phone

- Manager
  - M_id
  - Sur_name
  - First_Name
  - Last_Name
  - DOB
  - Phone
  - Email
  - Address

- Dependent
  - D_ID
  - D_Name
  - Address
  - DOB

- Item
  - Item_No
  - I_Name
  - I_Type
  - I_Qty
  - I_Description

- Outlet
  - O_id
  - O_Name
  - Street
  - City
  - Postal_Code
  - O_Phone
  - O_Email

- Service
  - S_Id
  - S_name
  - S_Description
  - Price
  - Duration

- Marketer
  - Marketer_id
  - M_name
  - DOB
  - Phone_No
  - Email

- Supplier
  - S_Id
  - S_Name
  - S_Phone
  - S_Email

- Payment
  - P_id
  - P_Type
  - Date
  - Invoice_No
  - P_Method
  - Amount

4. Entity Relationship (ER Diagram).