

Dura Group of Companies



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0.1 Introduction :

0.1.1 Main aim in developing DataBase Management System(DBMS)

A database management system (DBMS) refers to the technology for creating and managing databases. Basically DBMS is a software tool to organize (create, retrieve, update and manage) data in a database. The main aim of a DBMS is to supply a way to store up and retrieve database information that is both convenient and efficient. Database systems are meant to handle large collection of information. Management of data involves both defining structures for storage of information and providing mechanisms that can do the manipulation of those stored information. Moreover, the database system must ensure the safety of the information stored, despite system crashes or attempts at unauthorized access.

0.1.2 Overview of CaseStudy :

This case study of Dura Group of Companies assigned to our group was given by Sharjeel Iftikhar (2020-CS-139).

Features of proposed system are:

- Manage Person(Vendor, Worker, Buyer)
- Manage Company's Goods
- Manage Stock Ledger
- Manage Sales
- Manage Gate Pass
- Manage Branch and its Stores

Reports of proposed system are:

- Sale Return Report
- GatePass Report
- Stock Ledger Report
- Branch To Branch Report

0.1.3 Motivation :

Main target is to fulfill the requirements of the client to develop a desktop application for Dura Group of Companies.

0.1.4 Business Case:

A system which facilitates the company of Dura Flow to manage their whole process.

0.1.5 Synopsis Project:

This company deals with production of plastic goods. This project aims to monitor all process in the company, like order receiving, purchase of raw materials, production of goods, sales, transfer from branch to branch and detail of staff. As these works are done manually at the company at present it takes a lot of time to completely manage the work. This is the software to manage the data of Dura Flow (Dura Group of Companies). The system was built to address all most all the tasks of the factory. The main goal of this project is to reduce manual work, increase the processing speed and ensure reliability of data. All process needed for plastic management is stored for better management of system. Various reports are generated based on the requirement to manage the system efficiently.

0.1.6 Objectives :

The objectives of the system are as follows:

- Enhance the current manual system.
- Make ER Diagram according to requirements.
- Make DataBase Design According to ER Diagram.
- To implement all the given requirements.
- To generate result in the form of PDFs Report.

0.2 Methodology :

0.2.1 Project Work :

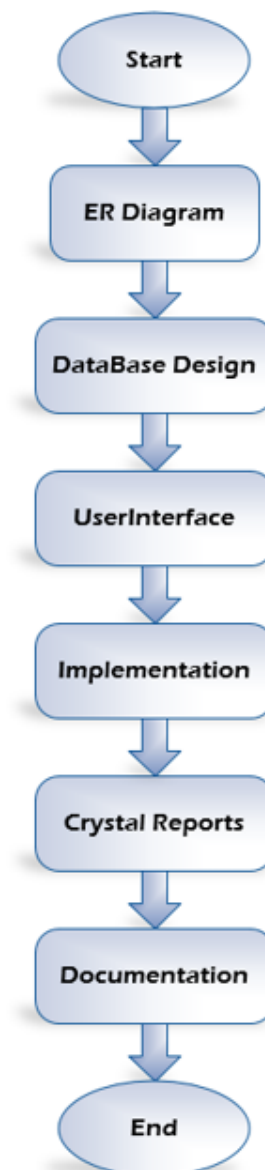


FIGURE 1: Flowchart of Project Cycle.

0.2.2 Tools :

TABLE 1: Technology Stack Table

Language	SQL server, C #
Platform	Desktop Application
IDEs	SSMS(SQL Server Management Studio), VS(Visual Studio) 2019

0.2.3 Technology Details :

C# : C is a back-end programming language, whereas SQL is a database language. Once the connection has been established between them, the next important aspect is to fetch the data from the database. C can execute 'SQL' select command against the database. The 'SQL' statement can be used to fetch data from a specific table in the database. C can also be used for inserting data, updating data and deleting data from a database.

SQL : SQL stands for Structured Query Language. SQL lets you access and manipulate databases. It is issued for the purpose of data definition and data manipulation. It can execute queries against a database, retrieve data from a database, insert records in a database, update records in a database, delete records from a database, create new databases, create new tables in a database, create stored procedures in a database, SQL can create views in a database, SQL can set permissions on tables, procedures, and views.

0.2.4 Use Case Diagram :

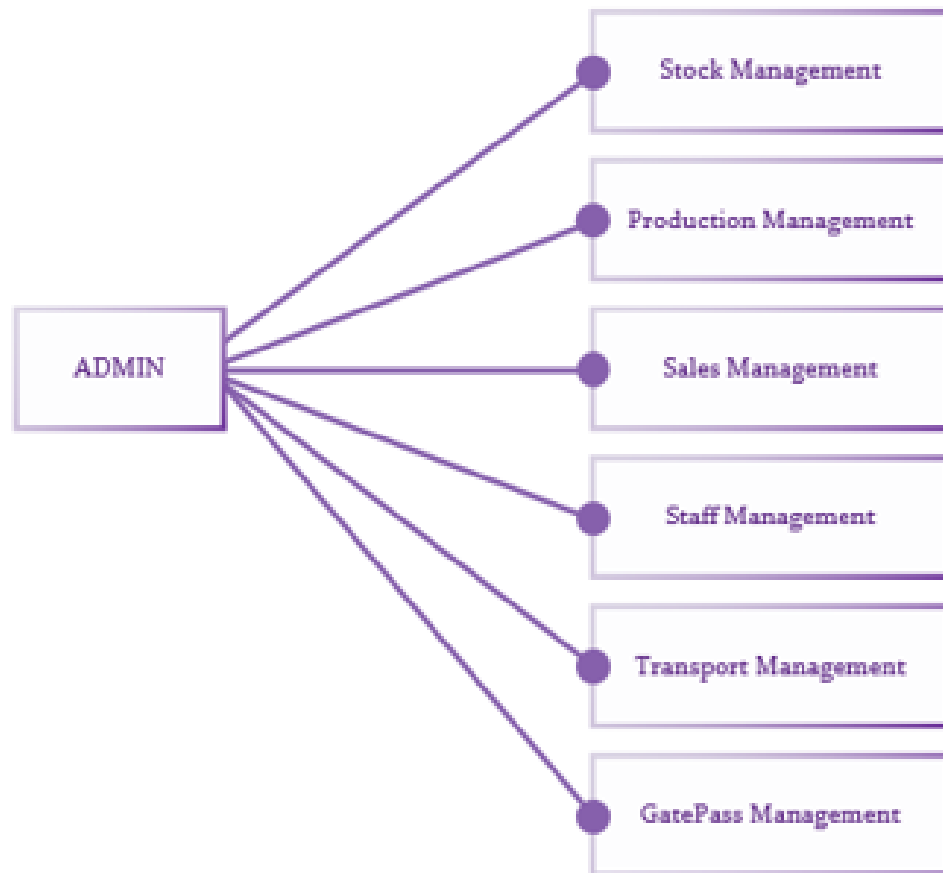


FIGURE 2: Use Case Diagram of Project.

0.3 Design :

0.3.1 ER Diagram :

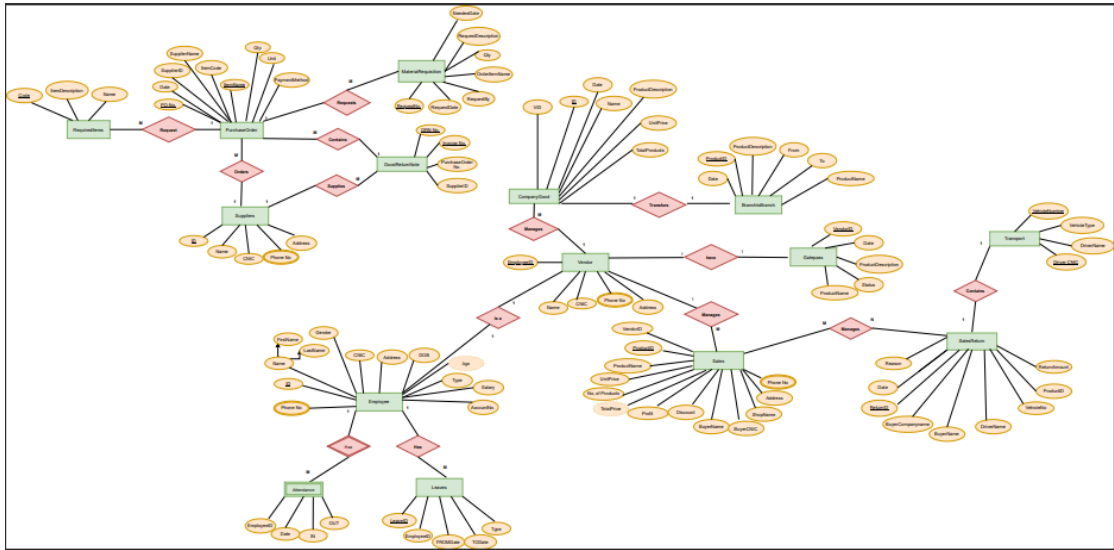


FIGURE 3: ER Diagram of Project.

0.3.2 Database Design :

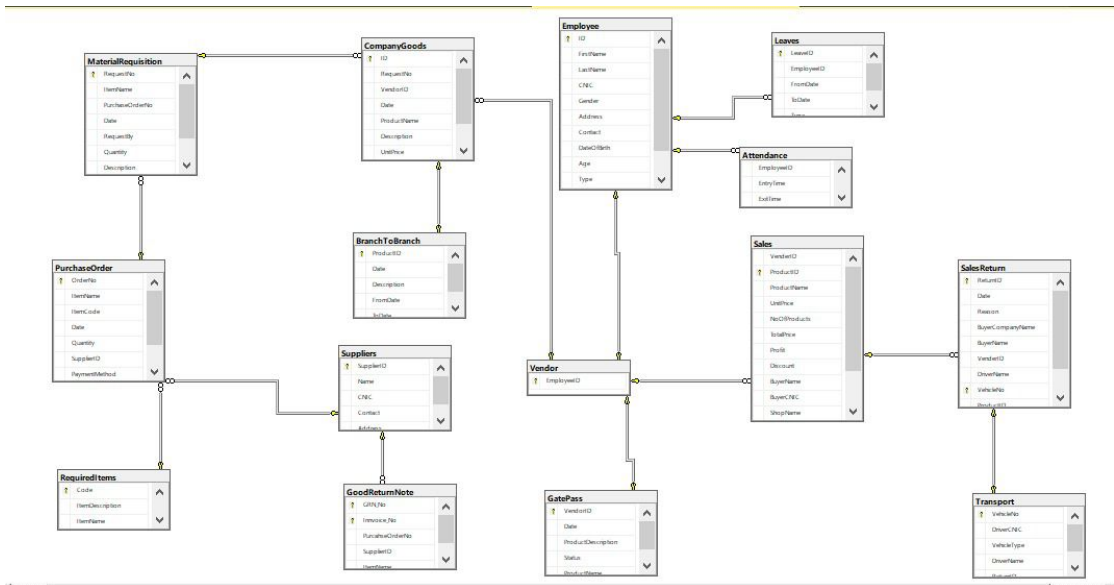


FIGURE 4: Design Diagram of Project.

0.3.3 Relations of Database :

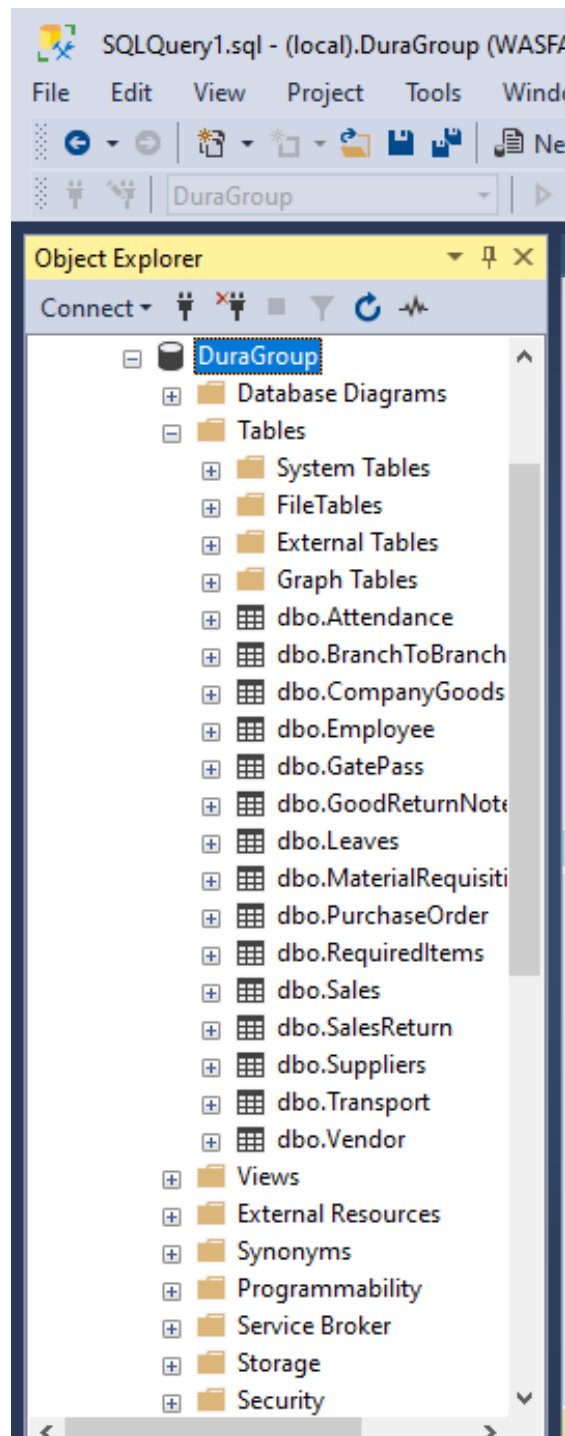


FIGURE 5: Design Diagram of Project.

0.4 Implementation:

0.4.1 Details of Schema:

TABLE 2: Employee Relation Details

VariableName	DataType
ID(PK)	int
FirstName	varchar(50)
LastName	varchar(50)
CNIC	varchar(20)
Gender	varchar(15)
Address	varchar(250)
Contact	varchhar(20)
DateOfBirth	datetime
Age	int
Type	varchar(15)
Salary	decimal(18,0)
AccountNo	varchar(16)

TABLE 3: Attendance Relation Details

VariableName	DataType
EmployeeID(FK)	int
EntryTime	datetime
ExitTime	datetime

TABLE 4: Leave Relation Details

VariableName	DataType
LeaveID(PK)	int
EmployeeID(FK)	int
From	datetime
To	datetime
Type	varchhar(20)

TABLE 5: GatePass Relation Details

VariableName	DataType
VendorID(PK,FK)	int
Date	date
ProductDescription	varchar(500)
Status	varchar(20)
ProductName	varchar(50)

TABLE 6: MaterialRequired Relation Details

VariableName	DataType
RequestNo(PK,FK)	int
ItemName(FK)	varchar(100)
Date	date
RequestBy	varchar(50)
Quantity	int
Description	varchar(500)
NeededDate	date

TABLE 7: PurchaseOrder Relation Details

VariableName	DataType
PurchaseNo(PK)	int
ItemName(PK)	varchar(100)
ItemCode(FK)	int
Date	date
SupplierID(FK)	int
SupplierName	varchar(100)
Quantity	int
Unit	decimal(18,0)
PaymentMethod	varchar(50)

TABLE 8: RequiredItems Relation Details

VariableName	DataType
Code(PK)	int
ItemDescription(PK)	varchar(500)
ItemName	varchar(50)

TABLE 9: Suppliers Relation Details

VariableName	DataType
SupplierID(PK)	int
Name	varchar(50)
CNIC	varchar(50)
Contact	varchar(20)
Address	varchar(20)
PurchaseOrderNo	nchar(10)

TABLE 10: Transport Relation Details

VariableName	DataType
VehicleNo(PK)	int
DriverCNIC	varchar(20)
VehicleType	varchar(20)
DriverName	varchar(100)
ReturnID(FK)	int

TABLE 11: Vendor Relation Details

VariableName	DataType
EmployeeID(PK,FK)	int

TABLE 12: Sales Relation Details

VariableName	DataType
VendoerID(FK)	int
ProductID(PK)	int
ProductName	varchar(50)
UnitPrice	decimal(18,0)
NoOfProducts	int
TotalPrice	decimal(18,0)
Profit	decimal(18,0))
Discount	real
BuyerName	varchar(50)
BuyerCNIC	varchar(15)
ShopName	varchar(100)
Contact	varchar(20)

TABLE 13: SalesReturn Relation Details

VariableName	DataType
ReturnID(PK)	int
Date(PK)	date
Reason	varchar(250)
BuyerCompanyName	varchar(100)
BuyerName	varchar(50)
VendorID	int
DriverName	varchar(50))
VehicleNo	varchar(10)
ProductID(FK)	int
ReturnAmount	decimal(18,0)

TABLE 14: CompanyGood Relation Details

VariableName	DataType
ID(PK)	int
RequestNo(FK)	int
VendorID(FK)	int
Date	date
ProductName	varchar(50)
Description	varchar(500)
UnitPrice	decimal(18,0))
TotalProducts	int
ProductID(FK)	int
ReturnAmount	decimal(18,0)

TABLE 15: GoodReturnNote Relation Details

VariableName	DataType
GRNNo(PK)	int
InvoiceNo(PK)	varchar(6)
PurchaseOrderNo(FK)	int
SupplierID(FK)	int
ItemName(FK)	varchar(100)

TABLE 16: BranchToBranch Relation Details

VariableName	DataType
ProductID(PK)	int
Date	date
Description	varchar(500)
From	date
To	date

0.4.2 Triggers:

```
CREATE TRIGGER dbo.totalprice
ON dbo.bill
AFTER INSERT,DELETE,UPDATE
AS
-- SET NOCOUNT ON added to prevent extra result sets from
-- interfering with SELECT statements. SET NOCOUNT ON;
-- Insert statements for trigger here
UPDATE bill SET total = Price * qty
END GO
```

0.4.3 Stored Procedure:

```
ALTER PROCEDURE [dbo].[spBill]
-- Add the parameters for the stored procedure here
@Price decimal(10,2),
@qty int
AS
BEGIN
-- SET NOCOUNT ON added to prevent extra result sets from
-- interfering with SELECT statements. SET NOCOUNT ON;
-- Insert statements for procedure here
insert into bill(Price,qty)values(@Price, @qty)
END
```

0.4.4 Crystal Reports:

The reports generated using stored procedure are as follows:

- Sale
- Sales Return .
- Gatepass.
- Attendance.
- Leave.

0.5 Snapshots :

This chapter consists of working screenshots of the project.

0.5.1 Logic Screen :

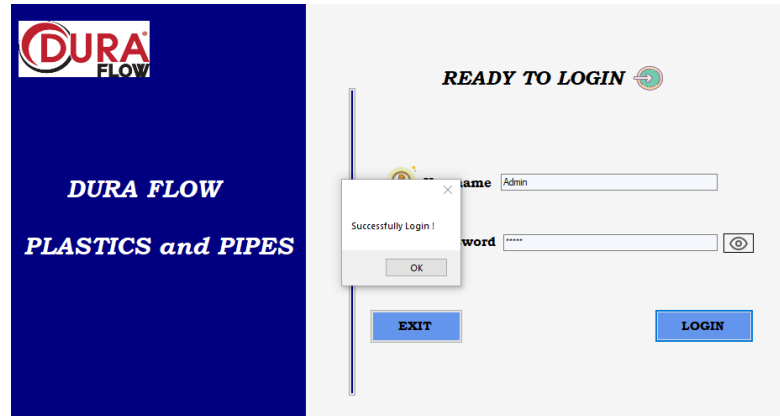


FIGURE 6: Logic Screen

0.5.2 DashBoard :

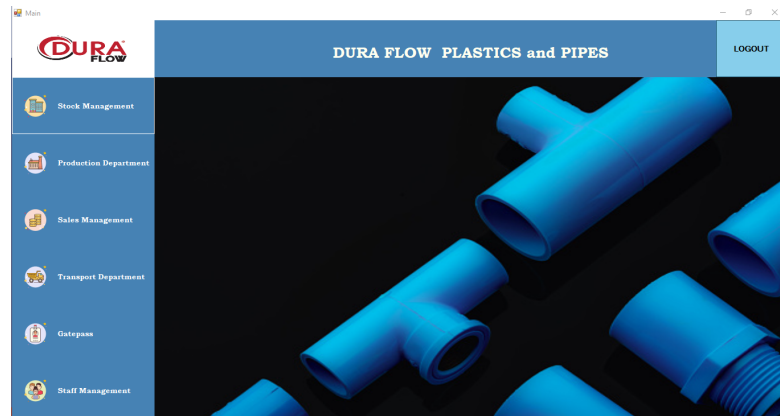


FIGURE 7: DashBoard Screen

0.5.3 Stock Management :

0.5.3.1 Required Items :

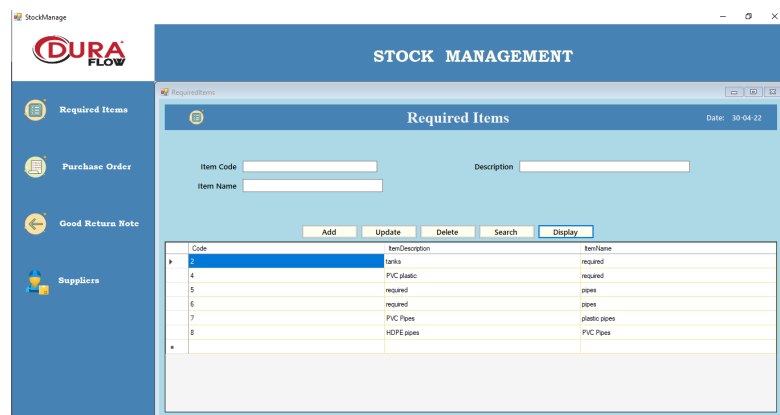


FIGURE 8: Required Items Screen

0.5.3.2 Purchase Order :

OrderNo	ItemName	ItemCode	Date	Quantity	SupplierID	PaymentMethod	Unit
5	pipes	2	4/29/2022	4	4	Credit Card	65
18	PVC Pipes	7	4/30/2022	3	4	Credit Card	9
20	pipes	4	4/30/2022	7	3	Debit Card	6
22	plastic pipes	4	4/30/2022	7	3	Debit Card	6

FIGURE 9: Purchase Order Screen

0.5.3.3 Good Return Note :

GRN_No	Invoice_No	PurchaseOrderNo	SupplierID	ItemName
15	7	2	4	yh4gu
56	2	18	3	pipes
57	8	20	4	pipes
65	3	22	4	PVC Pipes
66	9	5	4	wa

FIGURE 10: Good Return Note Screen

0.5.3.4 Suppliers :

SupplierID	Name	CNIC	Contact	Address
1	Air 18	3527289103067	03327629134	Lahore
4	Shahid Rind	3527289103090	03327629121	Peshawar
5	Shahid Khan	3527289103090	03327629121	Peshawar

FIGURE 11: Suppliers Screen

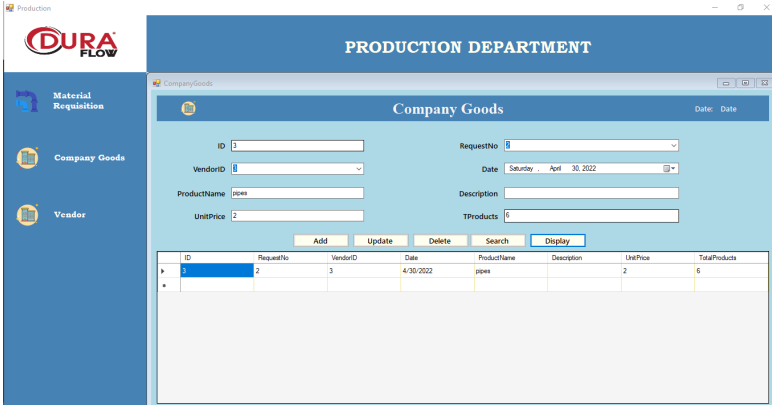
0.5.4 Production Department :

0.5.4.1 Material Requisition :

RequestNo	ItemName	PurchaseOrderNo	Date	RequestBy	Quantity	Description	NeededDate
2	plastic pipes	22	4/30/2022	user	5		4/30/2022

FIGURE 12: Material Requisition Screen

0.5.4.2 Company Goods :



The screenshot shows the 'Company Goods' screen within the 'PRODUCTION DEPARTMENT' application. The interface includes a sidebar with navigation options: Material Requisition, Company Goods, and Vendor. The main area contains a form with the following fields:

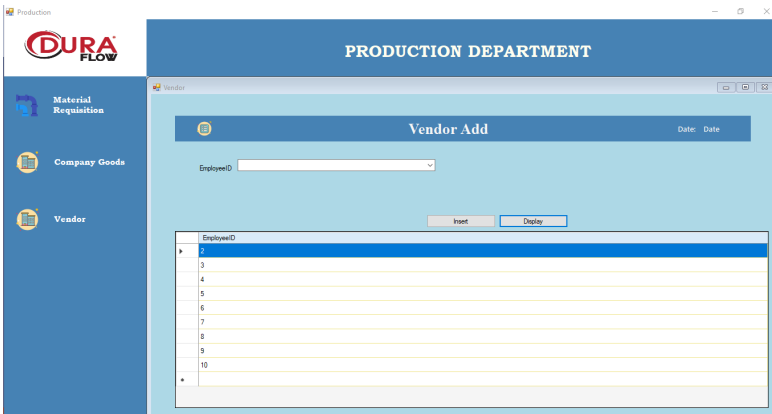
- ID: 1
- RequestNo: 1
- VendorID: 1
- Date: Saturday - April 30, 2022
- ProductName: pipes
- Description:
- UnitPrice: 2
- TProducts: 6

Below the form is a table with the following columns: ID, RequestNo, VendorID, Date, ProductName, Description, UnitPrice, and TotalProducts. The table contains one row of data:

ID	RequestNo	VendorID	Date	ProductName	Description	UnitPrice	TotalProducts
1	2	3	4/30/2022	pipes		2	6

FIGURE 13: Company Goods Screen

0.5.4.3 Vendor :



The screenshot shows the 'Vendor Add' screen within the 'PRODUCTION DEPARTMENT' application. The interface includes a sidebar with navigation options: Material Requisition, Company Goods, and Vendor. The main area contains a form with the following fields:

- EmployeeID: (dropdown menu)

Below the form is a table with the following columns: EmployeeID. The table contains a list of employees:

EmployeeID
2
3
4
5
6
7
8
9
10

FIGURE 14: Vendor Screen

0.6 Sales Management :

0.6.0.1 Sales :

SALES DEPARTMENT

Sales

Product ID: Product Name:
 UnitPrice: No. of Products:
 Total Price: Profit:
 Discount: Buyer Name:
 Buyer CHNIC: Shop Name:
 Address: Contact:
 VendorID:

Available Vendors

VendorID	ProductID	ProductName	UnitPrice	NoOfProducts	TotalPrice	Profit	Discount	BuyerName	BuyerCHNIC	ShopName	Address	Contact
1	2	Pipes	22	20	440	2	5	Muhammad Ali	3520296627	Dura Group	Township La...	03219352280
3	3	tanks	80	20	1600	0	9	Ali Agha	5620525678	Agha tanks	Lahore Paki...	0382788910
6	10	PVC pipes	90	10	900	0	0	Anwar Ali	3520527836	Anwar and S...	Lahore Paki...	03672891678
4	11	water tanks	80	20	1600	0	9	Ali Agha	5620525678	Agha tanks	Lahore Paki...	0382788910
8	12	PVC pipes	90	10	900	0	0	Anwar Ali	3520527836	Anwar and S...	Lahore Paki...	03672891678
4	15	Plastic pipes	22	10	220	3	5	Noor and So...	3902678296	Noor Traders	Lahore Paki...	03782962768
7	16	PVC pipes	90	100	9000	0	0	Anwar Ali	3520527836	Anwar and S...	Lahore Paki...	03672891678
4	18	water tanks	80	20	1600	0	9	Ali Agha	5620525678	Agha tanks	Lahore Paki...	0382788910
5	19	HDPE pipes	90	10	900	0	0	Zameer Ali	3520527836	Zameer and	Lahore Paki...	03672891678

FIGURE 15: Sales Screen

0.6.0.2 Sales Return :

SALES DEPARTMENT

Sale Return

Reason: Date: Friday, April 29, 2022
 Return ID: Buyer Company Name:
 Buyer Name: Driver Name:
 Vehicle No: Product ID:
 Return Amount: VendorID:

Available Vendors

ReturnID	Date	Reason	BuyerCompany/Name	BuyerName	VendorID	DriverName	VehicleNo	ProductID	ReturnAmount
2	4/1/2022		Agha Ali Factory	Agha Ali	2	Ali Shah	234	10	200
3	4/1/2022	not required	Agha Ali Factory	Agha Ali	6	Zameer Ali	230	3	300
3	4/1/2022	not required	Agha Ali Factory	Agha Ali	5	Ali Shah	234	11	200
4	4/1/2022	not required	Agha Ali Factory	Agha Ali	6	Zameer Ali	230	3	300
5	4/1/2022	not required	Agha Ali Factory	Agha Ali	6	Zameer Ali	230	21	400
6	4/13/2022	not required	Agha Ali Factory	Agha Ali	9	Zameer Ali	230	32	400
9	4/9/2022	not required	Agha Ali Factory	Agha Ali	5	Ali Shah	234	11	200
10	4/9/2022	not required	Agha Ali Factory	Agha Ali	7	Ali Shah	234	19	900
11	4/9/2022	not required	Agha Ali Factory	Agha Ali	2	Ghulam Ali	2232	26	2000
12	4/9/2022	not required	Agha Ali Factory	Agha Ali	8	Ghulam Ali	2232	20	3000
13	4/9/2022	not required	Agha Ali Factory	Agha Ali	2	Ghulam Ali	2232	26	2000

FIGURE 16: Sales Return Screen

0.6.0.3 Branch To Branch :

SALES DEPARTMENT

Branch to Branch Date: 30-04-22

ProductID: 1 Date: Saturday, April 30, 2022

Description: From: Saturday, April 30, 2022

To: Saturday, April 30, 2022

Buttons: Add, Update, Delete, Search, Display

ProductID	Date	Description	From Date	To Date
1	4/30/2022		4/30/2022	4/30/2022

FIGURE 17: Branch To Branch Screen

0.6.1 Transport Department :

TRANSPORT

Transport Manage Date: 30-04-22

Vehicle Number: 230 Vehicle Type: Truck

Driver Name: Anan Khan Driver CNIC: 9526728917236

Return ID: 4

Buttons: Add, Update, Delete, Search, Display

VehicleNo	DriverCNIC	VehicleType	DriverName	ReturnID
230	9526728917236	Truck	Anan Khan	4
234	9526728917236	Truck	Anan Khan	3

FIGURE 18: Transport Department Screen

0.6.2 GatePass Management :

GATEPASS

Assign GatePass

Vendor ID: Date: Friday, April 29, 2022

Description: Status:

Product Name:

Buttons: Add, Update, Delete, Search, Display

VendorID	Date	ProductDescription	Status	ProductName
3	4/1/2022	-	Inactive	Pipes
4	4/1/2022	Manage Sales	Active	PVC Pipes
5	4/2/2022	-	Active	PVC Pipes
6	4/9/2022	To manage Sales	Active	PVC Pipes
7	4/16/2022	To manage Sales	Inactive	Water Tanks
8	4/15/2022	To manage Sales	Active	Water Tanks
9	4/15/2022	To manage Sales	Active	Water Tanks
10	4/17/2022	To manage Sales	Active	Water Tanks

FIGURE 19: GatePass Screen

0.6.3 Staff Management :

0.6.3.1 Employee Registration :

STAFF MANAGEMENT

Employee Registration

ID: First Name:

Last Name: CNIC:

Gender: Address:

Contact: DOB: Friday, April 29, 2022

Age: Type:

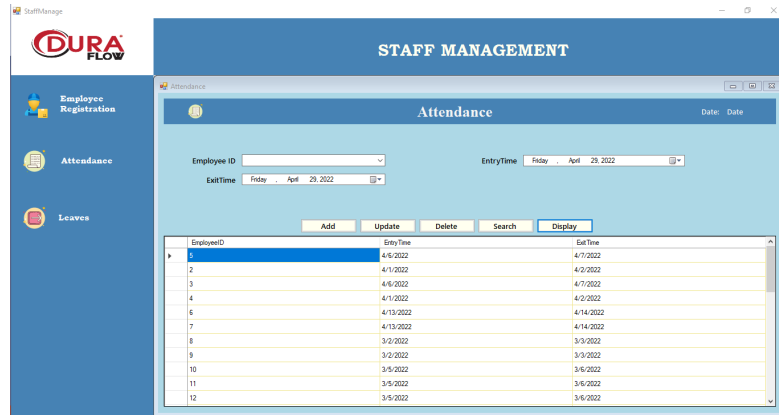
Salary: Account No.:

Buttons: Add, Update, Delete, Search, Display

ID	First Name	Last Name	CNIC	Gender	Address	Contact	Date of Birth	Age	Type	Salary	Account No.
3	Ali	Mubeen	212123	Male	Lahore	0317286278	4/1/2022	19	Vendor	20000	2229672962
4	Haleez	Hafiz	36729109278	Male	Gujranwala te...	0338129017	4/1/2022	29	Vendor	30000	2345678029
5	Ali	Mubeen	212123	Male	Lahore Pakistan	03837039278	4/1/2022	25	Vendor	25000	2893678097
6	Babar	Azam	38389278209	Male	Lahore	0317286278	4/1/2022	30	Vendor	23000	2229518729
7	Waseem	Waqar	35020826719	Male	Lahore Pakistan	03327085228	4/1/2022	28	Vendor	45000	222783671
8	Ali	Qasim	35672892782	Male	Lahore Pakistan	03897867289	4/1/2022	25	Vendor	30000	3678296267
9	Aam	Ahmar	35020967295	Male	Karachi Pakist	03228397832	4/1/2022	29	Vendor	25000	5637829816
10	Aam	Ahmar	35020967295	Male	Karachi Pakist	0321981890	4/9/2022	24	Vendor	40000	6729178367

FIGURE 20: Employee Registration Screen

0.6.3.2 Employee Attendance :



STAFF MANAGEMENT

Attendance

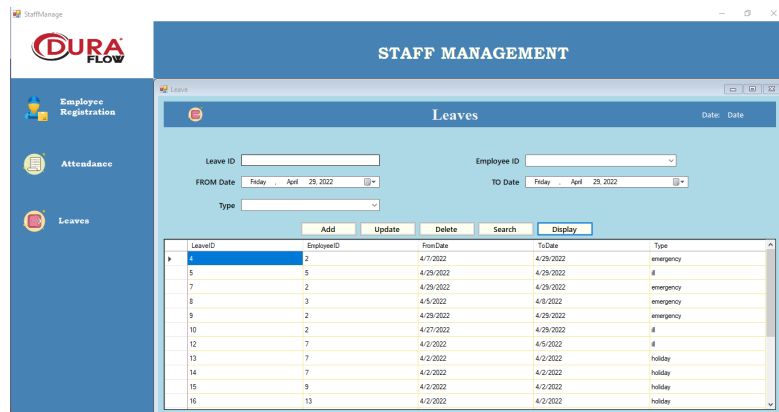
Employee ID: EntryTime: Friday, April 29, 2022
ExitTime: Friday, April 29, 2022

Add Update Delete Search Display

EmployeeID	Entry Time	Exit Time
1	4/6/2022	4/7/2022
2	4/1/2022	4/2/2022
3	4/6/2022	4/7/2022
4	4/1/2022	4/2/2022
6	4/13/2022	4/14/2022
7	4/13/2022	4/14/2022
8	3/3/2022	3/3/2022
9	3/3/2022	3/3/2022
10	3/5/2022	3/5/2022
11	3/5/2022	3/5/2022
12	3/5/2022	3/5/2022

FIGURE 21: Employee Attendance Screen

0.6.3.3 Employee Leaves :



STAFF MANAGEMENT

Leaves

Leave ID: Employee ID:
FROM Date: Friday, April 29, 2022 TO Date: Friday, April 29, 2022
Type:

Add Update Delete Search Display

LeaveID	EmployeeID	FromDate	ToDate	Type
5	5	4/29/2022	4/29/2022	emergency
7	2	4/29/2022	4/29/2022	emergency
8	3	4/5/2022	4/5/2022	emergency
9	2	4/29/2022	4/29/2022	emergency
10	2	4/27/2022	4/29/2022	emergency
12	7	4/2/2022	4/5/2022	emergency
13	7	4/2/2022	4/2/2022	holiday
14	7	4/2/2022	4/2/2022	holiday
15	9	4/2/2022	4/2/2022	holiday
16	13	4/2/2022	4/2/2022	holiday

FIGURE 22: Employee Leaves Screen

0.7 UserGuide :

0.7.1 Login Screen :

This is the login page for existing user. Admin will always be login with the following credentials:

- Username : Admin
- Password :GID43

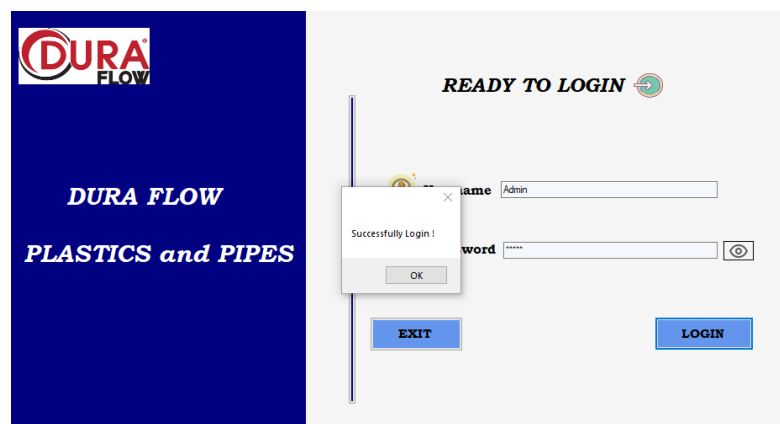


FIGURE 23: Login Screen

Demonstration with Attendance.

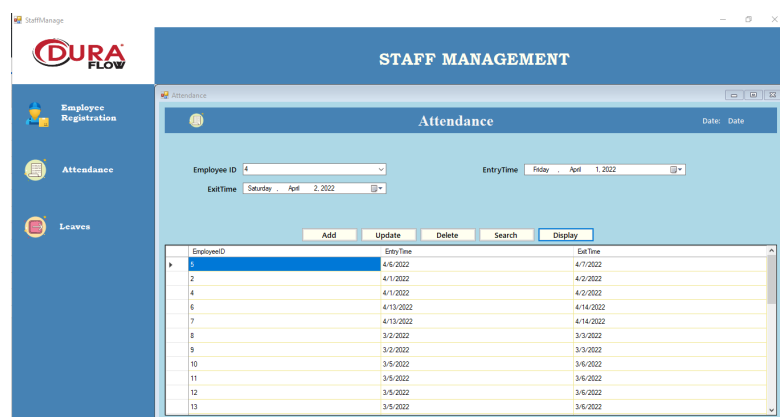


FIGURE 24: Attendance Management Screen

0.7.2 Add Button :

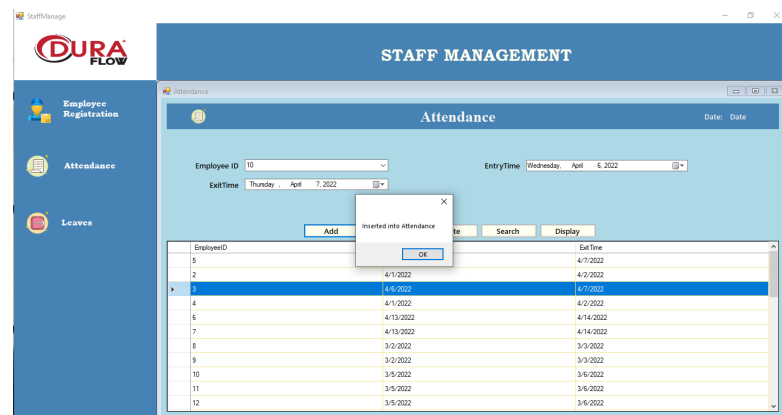


FIGURE 25: Attendance Management Screen

0.7.3 AutoFill Data from Table :

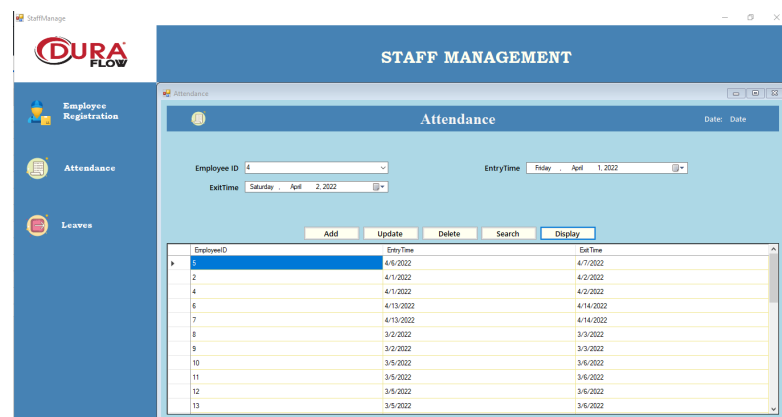


FIGURE 26: Attendance Management Screen

0.7.4 Update Button :

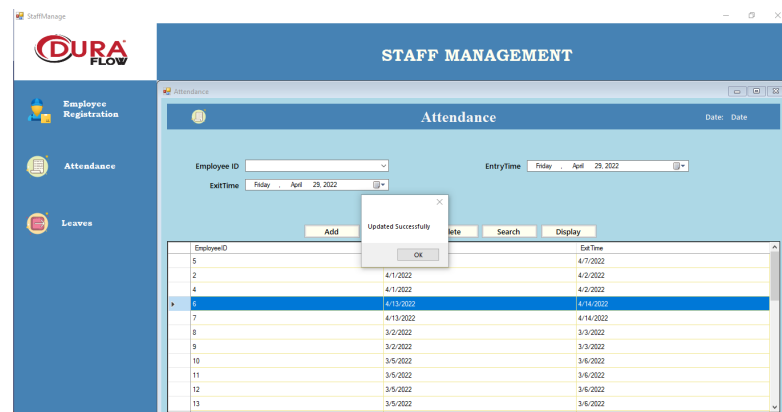


FIGURE 27: Attendance Management Screen

0.7.5 Delete Button :

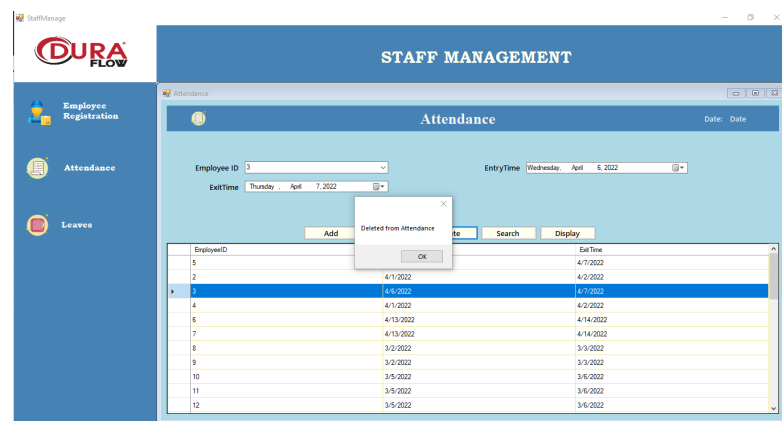


FIGURE 28: Attendance Management Screen

0.7.6 Display Button :

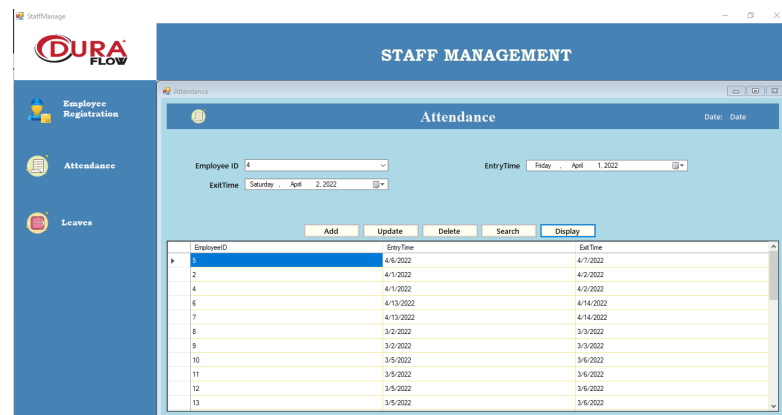


FIGURE 29: Attendance Management Screen

0.7.7 Search Button :

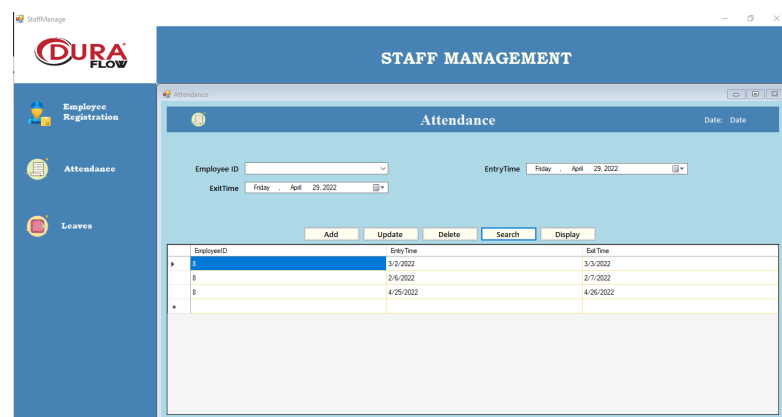


FIGURE 30: Attendance Management Screen

0.8 Logout :

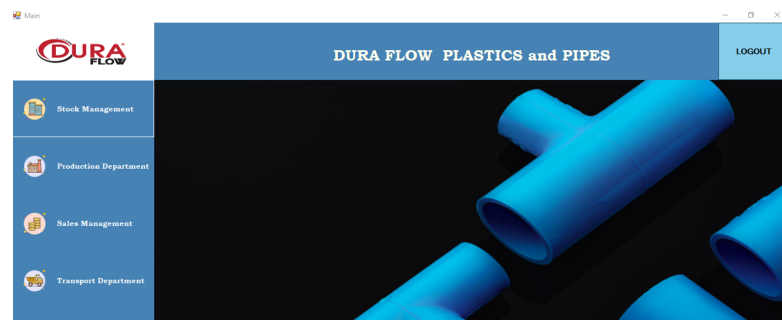


FIGURE 31: Attendance Management Screen

0.9 Conclusion :

In this project we have created desktop application which is easy to access and user friendly. The application keeps a record of the company management data which includes their details. User can view all data and analyse them for better management of system. It provides all necessary information of the system. The user can simply sit in front of the system and login using name and password to monitor each and every query related to company without any physical movement. Database can service the factory faculty requests best in time. The system provides quickly and valuable information of the system.

0.10 Future Enhancement :

The new system has been designed to meet almost all of the requirements but there has certain limitations that which can be enhanced in the future enhancements or updates. Enhancements are the advantage for improvement of a system. Every existing system has future enhancements which make it better system, easier to use and more protected.

0.10.1 Limitations :

- Single User.
- No section for upload files.
- Database cannot import spreadsheets.

0.10.2 Future Work :

- Multi User.
- Back-up information record.
- Some additional features to make it more efficient.

ER Diagram[\[2\]](#)

DataBase Diagram[\[1\]](#)

DataBase Design[\[5\]](#)

Factory Managemnt System[\[3\]](#)

SSMS [\[4\]](#)

References

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- [2] Muhammad Fahad. Er2owl: Generating owl ontology from er diagram. In *International Conference on Intelligent Information Processing*, pages 28–37. Springer, 2008.
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