



AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)

**Dept. of Computer
Science Faculty of
Science and Technology**

**CSC2210: OBJECT-ORIENTED PROGRAMMING 2
Fall 2024-2025**

Section: [M] GroupNo:7

Project Report On
Project Name [Pet-Shop Management System]

Supervised by
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INTRODUCTION :

The Pet-Shop Management System is a comprehensive platform designed to simplify and enhance pet shop operations. It caters to four user roles—Admin, Customer, Employee, and Volunteer—ensuring seamless collaboration and efficient management. The system provides smooth functionality and superior service for all stakeholders with features like secure logins, notifications, and a dynamic dashboard.

Project Description:

The *Pet-Shop Management System*, named Petmate Shop, is an advanced and user-friendly solution designed to streamline operations for a pet shop. This system integrates four distinct user roles—Admin, Customer, Employee, and Volunteer—each with specific features and functionalities tailored to their needs.

Admins can manage pets, accessories, and users, track orders, and monitor the shop's overall performance through a detailed dashboard. Customers can browse and purchase pets and pet-related accessories, request help from volunteers, and manage their profiles. Employees can assist with managing pets, accessories, and orders while ensuring smooth customer interactions. Volunteers play a key role by providing requested assistance to customers, earning reward points for completing tasks, and accessing their notifications and profile management tools.

Key highlights of the system include a secure login mechanism, real-time notifications, a help and support system, search and favorite functionalities, and a dashboard for performance monitoring. With features like profile management, order tracking, and reward points for volunteers, the system ensures a seamless and efficient user experience for all stakeholders.

The *Pet-Shop Management System* is designed to enhance productivity, simplify pet shop operations, and provide excellent customer service, making it an ideal solution for modern pet shops.

Key Features

Admin Features

1. **User Management:**
 - Add, edit, or remove customers, employees, and volunteers.
 - Manage user profiles, including personal information.
 2. **Pet Management:**
 - Add, edit, or remove pets available in the shop.
 - Track and manage pets bought by customers.
 3. **Accessories Management:**
 - Add, edit, or remove pet-related accessories (medicines, food, etc.).
 - View and manage inventory.
 4. **Order Management:**
 - Accept, replace, or manage customer orders.
 - View order statuses (pending, delivered, replaced).
 5. **Dashboard:**
 - View total income, total customers, and other summarized business metrics.
-

Customer Features

1. **Profile Management:**
 - Edit personal information.
 - View their purchase history.
 2. **Shopping:**
 - Buy pets and accessories from the store.
 - Add items to the shopping cart for checkout later.
 3. **Help Requests:**
 - Request help from volunteers for various pet-related tasks.
 - View help request notifications.
 4. **Notifications:**
 - Get updates about order status, help requests, and profile activities.
 5. **Favorite & Search Options:**
 - Mark pets or accessories as favorites for easy access.
 - Use search functionality to find desired products or services.
-

Employee Features

1. **Pet and Accessories Management:**
 - Add, edit, or remove pets and accessories.
 2. **User Management:**
 - Add or edit customer and volunteer profiles.
 3. **Order Management:**
 - Replace or deliver customer orders.
 4. **Profile Management:**
 - Edit personal information.
-

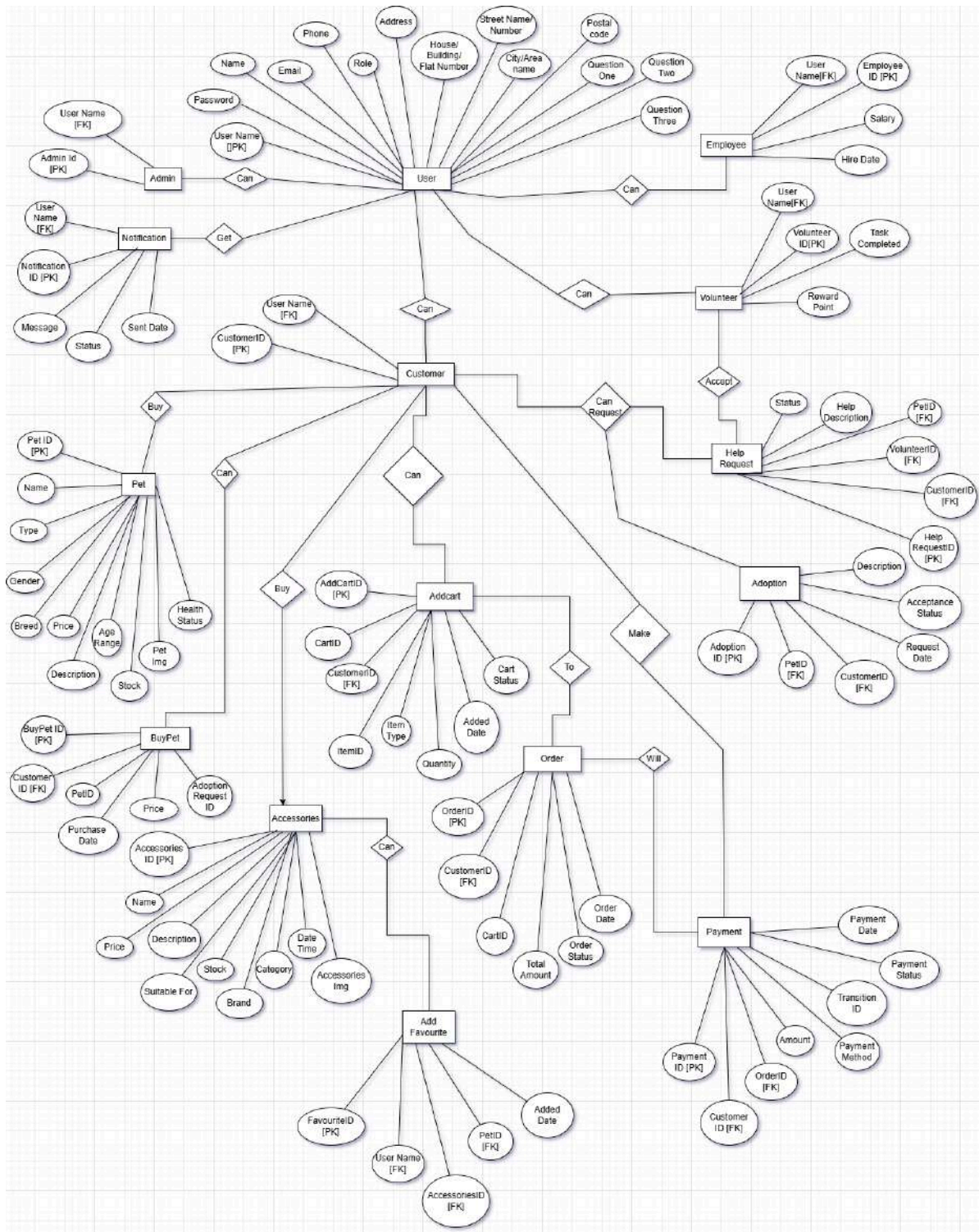
Volunteer Features

1. **Help Request Management:**
 - View incoming help requests from customers.
 - Accept or reject help requests.
 2. **Profile Management:**
 - Edit personal information.
 3. **Notifications:**
 - Get updates about help requests and task completion.
 4. **Rewards System:**
 - Earn reward points (+10 for each task) after successfully helping customers.
-

Additional Features

- **Login System:**
 - Secure login for admins, customers, employees, and volunteers using a username and password.
- **Search Functionality:**
 - Allows users to search for pets, accessories, or services efficiently.
- **Dashboard and Reports:**
 - A comprehensive dashboard for admins and employees to monitor and analyze the shop's performance.
- **Help & Support System:**
 - Dedicated system for customers to seek assistance from volunteers.
- **Notification System:**
 - Real-time notifications for updates related to orders, help requests, and profile activities.

ER Diagram



Third Normal Form (3NF)

1. Users Table

Primary Key: UserName

Attributes: Password, Name, Email, Phone, Role, HouseOrBuildingOrFlatNumber, StreetNameOrNumber, CityOrAreaName, PostalCode, QuestionOneAns, QuestionTwoAns, QuestionThreeAns, CreatedAt, UpdatedAt

Analysis: No transitive dependencies. All attributes depend directly on UserName.

Conclusion: Already in 3NF.

2. Customer Table

Primary Key: CustomerID

Foreign Key: UserName

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

3. Admin Table

Primary Key: AdminID

Foreign Key: UserName

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

4. Employee Table

Primary Key: EmployeeID

Foreign Key: UserName

Attributes: Salary, HireDate

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

5. Pet Table

Primary Key: PetID

Attributes: Name, Type, Gender, Breed, Price, Description, AgeRange, Stock, HealthStatus, PetImg

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

6. Accessories Table

Primary Key: AccessoryID

Attributes: Name, Price, Description, SuitableFor, Stock, Category, Brand, CreatedAt, UpdatedAt, AccessoriesImg

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

7. BuyPet Table

Primary Key: BuyPetID

Foreign Keys: CustomerID, PetID, AdoptionRequestID

Attributes: PurchaseDate, Price

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

8. AddCart Table

Primary Key: CartID

Foreign Keys: CustomerID, ItemID

Attributes: ItemType, Quantity, AddedDate, CartStatus

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

9. CustomerOrder Table

Primary Key: OrderID

Foreign Keys: CustomerID, CartID

Attributes: TotalAmount, OrderStatus, OrderDate

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

10. AddFavourite Table

Primary Key: FavouriteID

Foreign Keys: UserName, AccessoriesID, PetID

Attributes: AddedDate

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

11. Payment Table

Primary Key: PaymentID

Foreign Keys: CustomerID, OrderID

Attributes: Amount, PaymentMethod, TransactionID, PaymentStatus, PaymentDate

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

12. Adoption Table

Primary Key: AdoptionID

Foreign Keys: PetID, CustomerID

Attributes: RequestDate, AcceptanceStatus, Description

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

13. Volunteer Table

Primary Key: VolunteerID

Foreign Key: UserName

Attributes: TasksCompleted, RewardPoints, WorkActiveStatus

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

14. HelpRequest Table

Primary Key: HelpRequestID

Foreign Keys: CustomerID, PetID, VolunteerID

Attributes: HelpDescription, Status

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

15. Notification Table

Primary Key: NotificationID

Foreign Key: UserName

Attributes: Message, Status, SentDate

Analysis: No transitive dependencies.

Conclusion: Already in 3NF.

Finalized Tables in 3NF

1. Users

UserName (PK), Password, Name, Email, Phone, Role, HouseOrBuildingOrFlatNumber, StreetNameOrNumber, CityOrAreaName, PostalCode, QuestionOneAns, QuestionTwoAns, QuestionThreeAns, CreatedAt, UpdatedAt

2. Customer

CustomerID (PK), UserName (FK)

3. Admin

AdminID (PK), UserName (FK)

4. Employee

EmployeeID (PK), UserName (FK), Salary, HireDate

5. Pet

PetID (PK), Name, Type, Gender, Breed, Price, Description, AgeRange, Stock, HealthStatus, PetImg

6. Accessories

AccessoryID (PK), Name, Price, Description, SuitableFor, Stock, Category, Brand, CreatedAt, UpdatedAt, AccessoriesImg

7. BuyPet

BuyPetID (PK), CustomerID (FK), PetID (FK), AdoptionRequestID, PurchaseDate, Price

8. AddCart

CartID (PK), AddCardId, CustomerID (FK), ItemID, ItemType, Quantity, AddedDate, CartStatus

9. CustomerOrder

OrderID (PK), CustomerID (FK), CartID, TotalAmount, OrderStatus, OrderDate

10. AddFavourite

FavouriteID (PK), UserName (FK), AccessoriesID (FK), PetID (FK), AddedDate

11. Payment

PaymentID (PK), CustomerID (FK), OrderID (FK), Amount, PaymentMethod, TransactionID, PaymentStatus, PaymentDate

12. Adoption

AdoptionID (PK), PetID (FK), CustomerID (FK), RequestDate, AcceptanceStatus, Description

13. Volunteer

VolunteerID (PK), UserName (FK), TasksCompleted, RewardPoints, WorkActiveStatus

14. HelpRequest


HelpRequestID (PK), CustomerID (FK), PetID (FK), VolunteerID (FK), HelpDescription, Status

15. Notification

NotificationID (PK), UserName (FK), Message, Status, SentDate

User Interface Designs

PetMate Shop.


Login →

Sign up

User Name

Password

[Forget Password](#)

LoginClear

Login Form

Sign up as a customer

Name

Email

Phone Number

Address

House/Building/Flat Number

Street Name/Number

City/Area Name

Postal Code

Next

Sign up as a customer

User Name

Password

Re-Password

For Forget Password Information (Q?A)


What is your favorite teacher name?


What was your childhood nickname?

What is the name of your best childhood friend?


BackSign In


SignUp Form



PetMate Shop.





User Name
Customer01



Pets



Accessories


Notification


Add Cart


Adoption


Help


Log Out

Personal Info. {Customer}


ID : C1-0008-25
Name : Customer
Email : customer@gmail.com
Phone : 01928473839
Account Create : 22-01-2025


Address. Edit Info.

House/Building/Flat Number : H-12
Street Name/Number : B-block/R1
City/Area Name : Bashundhora
Postal Code : 1212

Purchase history {PET}

Main Form


Add Pet.



Add Pet Img

Pet Price
6000.00

Pet Available
2

Pet Name
Kitty

Pet Type
Cat

Pet Breed
Persian

Pet Gender

☒ Male
☐ Female

Pet AgeRange


☐ Puppy
☐ Kitten
☒ Adult


Pet Health Status

☐ Fully Vaccinated
☐ Partially Vaccinated
☒ No Vaccinated

Pet Description
Quiet and affectionate

Add Pot


Add Accessories.



Add Img

Accessory Price
1200

Accessory Available
20

Accessory Name
Jinx

Accessory Brand
PetCare

Accessory Category
Food

Accessory SuitableFor
Dog

Accessory Description
High-quality dog food

Add Accessory


Others inner form

Search :

ALL Food Medicine

Add New Item

Edit info.



Accessory ID: AS1-001-25


Name : Jinx

Brand : PetCare

SuitableFor : Dog

Price : 1200.00

Edit info.



Accessory ID: AS1-002-25


Name : Pedigree

Brand : Pedigree

SuitableFor : Dog

Price : 600.00

Edit info.



Accessory ID: AS1-003-25


Name : Mito

Brand : Mito

SuitableFor : Cat

Price : 700.00

Edit info.



Accessory ID: AS1-004-25


Name : Digyton Plus

Brand : Digi

SuitableFor : Dog

Price : 800.00

Edit info.



Accessory ID: AS1-005-25

Name : Pinpil

Brand : Speed

☐ Pay with card ☐ Cash on delivery

VISA

Enter your Card Number

MM/YY

CVC/CVV

Card Holder Name


pay 8800.00 BDT

Confirm order

Search :

ALL ★ FVT¹

Add New Pet



Edit info.

Daisy


Pet Id : P1-005-25

Gender : Female

AgeRange : Kitten

Price : 7500.00 tk

☆



Edit info.

Bella

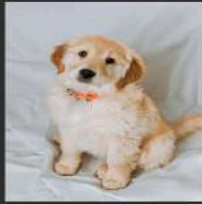
Pet Id : P1-004-25

Gender : Female

AgeRange : Puppy

Price : 8000.00 tk

★



Edit info.

Max


Pet Id : P1-003-25

Gender : Male

AgeRange : Puppy

Price : 10000.00 tk


☆



Edit info.

Leo

Pet Id : P1-002-25



Edit info.

Kitty

Pet Id : P1-001-25

Adoption Request.

Pet Id : P1-005-25

Pet Description

Cancel

Send Request

Item ID :	P1-005-25	Item Type :	pet	Item Category :	Cat	Price :	7500.00 tk	+	Quantity :	1	-	X
Item ID :	AS1-002-25	Item Type :	accessory	Item Category :	Food	Price :	600.00 tk	+	Quantity :	1	-	X
Item ID :	AS1-003-25	Item Type :	accessory	Item Category :	Food	Price :	700.00 tk	+	Quantity :	1	-	X

Total Price : 8800.00 tk

Order confirm

Help request from Rakib

Pet ID	: P1-3232-25	City/Area Name	: Dhaka 1203
Customer ID	: C1-3433-25	Contact number	: 01995959546

Description

kdjfdkajfskajfdkasfjaksd

Reject

Accept

Help Request.

Volunteer Id : D1-001-24	Pet ID
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Help Description

Cancel

Send Request

Item ID: P1-005-25	Quantity: 1	Total Amount : 2000 tk	Customer ID : C1-0008-25	Cancel
Item ID: AS1-002-25	Quantity: 1	Customer Address		
Item ID: AS1-003-25	Quantity: 1	House/Building/Flat Number : H-12	City/Area Name : Bashundhora	Delivery
		Street Name/Number : B-block/R1	Postal Code : 1212	
Payment : Cash on Delivery		Phone number : 01928473839		

Total Income : 34432.00 TK

Total Sell : 23

Total Customer : 6

Total Volunteer : 0

Total Employee : 2

Total Pets : 5

Total Accessories : 134



01/22/2025

C1-0008-25 your order has been delivered

Details

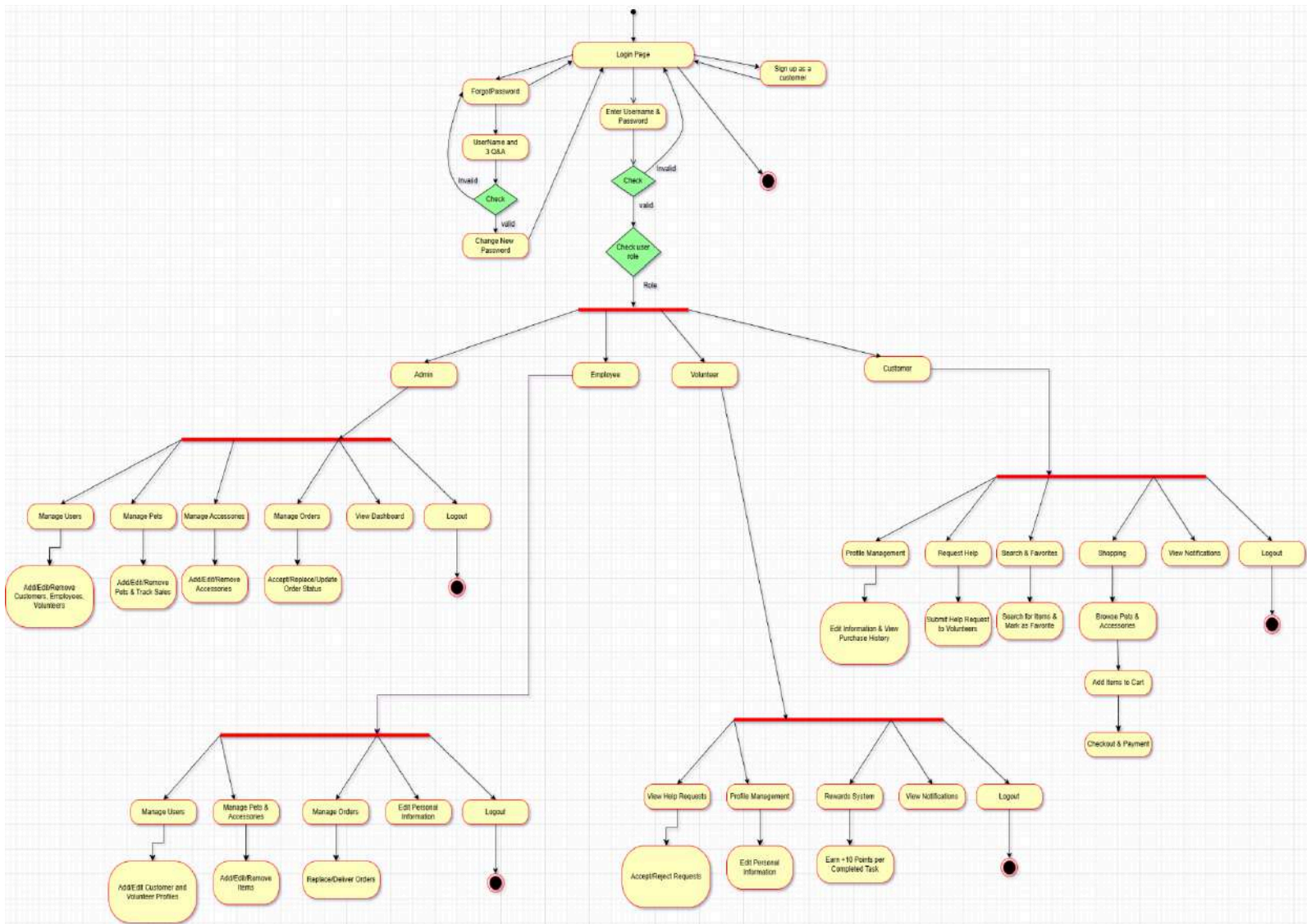
An adoption request allows us to ensure every pet finds a safe, loving, and suitable forever home. Please provide your details, including your living environment, experience with pets, and daily routine. Share why you wish to adopt and the type of pet you prefer (e.g., dog, cat, breed, age). Describe your care plan, including where the pet will stay and how you'll manage their needs, such as food, medical care, and attention. Adoption is a lifelong commitment to love and responsibility. We

Pet Id : P1-005-25 Customer Id : C1-0008-25

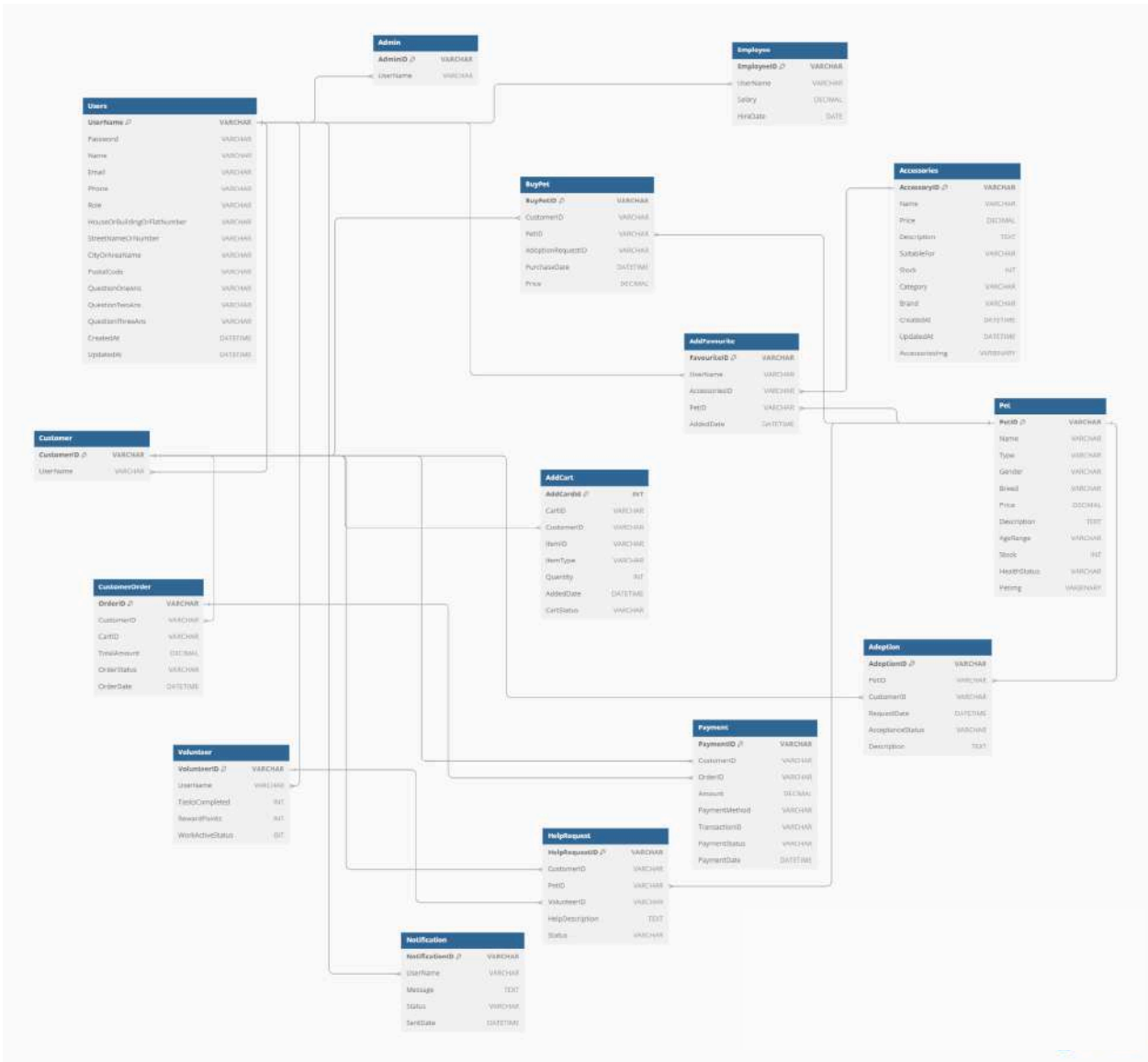
Email : customer@gmail.com
Phone Number : 01928473839
City/Area Name : Bashundhora
Request date : 22-01-2025

Accept Request

ACTIVITY DIAGRAM



SCHEMA DIAGRAM



Users:

DESKTOP-DKECOGM....tMate - dbo.Users			
Column Name	Data Type	Allow Nulls	
UserName	varchar(50)	<input type="checkbox"/>	
Password	varchar(50)	<input checked="" type="checkbox"/>	
Name	varchar(100)	<input checked="" type="checkbox"/>	
Email	varchar(100)	<input checked="" type="checkbox"/>	
Phone	varchar(15)	<input checked="" type="checkbox"/>	
Role	varchar(20)	<input checked="" type="checkbox"/>	
HouseOrBuildingOrFlatN...	varchar(50)	<input checked="" type="checkbox"/>	
StreetNameOrNumber	varchar(100)	<input checked="" type="checkbox"/>	
CityOrAreaName	varchar(50)	<input checked="" type="checkbox"/>	
PostalCode	varchar(10)	<input checked="" type="checkbox"/>	
QuestionOneAns	varchar(50)	<input checked="" type="checkbox"/>	
QuestionTwoAns	varchar(50)	<input checked="" type="checkbox"/>	
QuestionThreeAns	varchar(50)	<input checked="" type="checkbox"/>	
CreatedAt	datetime	<input checked="" type="checkbox"/>	
UpdatedAt	datetime	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Admin:

DESKTOP-DKECOGM...Mate - dbo.Admin			
Column Name	Data Type	Allow Nulls	
AdminID	varchar(50)	<input type="checkbox"/>	
UserName	varchar(50)	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Customer:

DESKTOP-DKECOGM....e - dbo.Customer			
Column Name	Data Type	Allow Nulls	
CustomedID	varchar(50)	<input type="checkbox"/>	
UserName	varchar(50)	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Employee:

DESKTOP-DKECOGM....e - dbo.Employee			
Column Name	Data Type	Allow Nulls	
EmployeeID	varchar(50)	<input type="checkbox"/>	
UserName	varchar(50)	<input checked="" type="checkbox"/>	
Salary	decimal(10, 2)	<input checked="" type="checkbox"/>	
HireDate	date	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Volunteer:

DESKTOP-DKECOGM...e - dbo.Volunteer			
Column Name	Data Type	Allow Nulls	
VolunteerID	varchar(50)	<input type="checkbox"/>	
UserName	varchar(50)	<input checked="" type="checkbox"/>	
TasksCompleted	int	<input checked="" type="checkbox"/>	
RewardPoints	int	<input checked="" type="checkbox"/>	
WorkActiveStatus	bit	<input type="checkbox"/>	
		<input type="checkbox"/>	

HelpRequest:

DESKTOP-DKECOGM....dbo.HelpRequest			
Column Name	Data Type	Allow Nulls	
HelpRequestID	varchar(50)	<input type="checkbox"/>	
CustomerID	varchar(50)	<input checked="" type="checkbox"/>	
PetID	varchar(50)	<input checked="" type="checkbox"/>	
VolunteerID	varchar(50)	<input checked="" type="checkbox"/>	
HelpDescription	text	<input checked="" type="checkbox"/>	
Status	varchar(50)	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Notification:

DESKTOP-DKECOGM.P...dbo.Notification			
Column Name	Data Type	Allow Nulls	
NotificationID	varchar(50)	<input type="checkbox"/>	
UserName	varchar(50)	<input checked="" type="checkbox"/>	
Message	text	<input checked="" type="checkbox"/>	
Status	varchar(50)	<input checked="" type="checkbox"/>	
SentDate	datetime	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Pet:

Column Name	Data Type	Allow Nulls
PetID	varchar(50)	<input type="checkbox"/>
Name	varchar(50)	<input checked="" type="checkbox"/>
Type	varchar(50)	<input checked="" type="checkbox"/>
Gender	varchar(10)	<input checked="" type="checkbox"/>
Breed	varchar(50)	<input checked="" type="checkbox"/>
Price	decimal(10, 2)	<input checked="" type="checkbox"/>
Description	text	<input checked="" type="checkbox"/>
AgeRange	varchar(20)	<input checked="" type="checkbox"/>
Stock	int	<input checked="" type="checkbox"/>
HealthStatus	varchar(50)	<input checked="" type="checkbox"/>
PetImg	varbinary(MAX)	<input checked="" type="checkbox"/>

Accessories:

Column Name	Data Type	Allow Nulls
AccessoryID	varchar(50)	<input type="checkbox"/>
Name	varchar(50)	<input checked="" type="checkbox"/>
Price	decimal(10, 2)	<input checked="" type="checkbox"/>
Description	text	<input checked="" type="checkbox"/>
SuitableFor	varchar(30)	<input checked="" type="checkbox"/>
Stock	int	<input checked="" type="checkbox"/>
Category	varchar(50)	<input checked="" type="checkbox"/>
Brand	varchar(50)	<input checked="" type="checkbox"/>
CreatedAt	datetime	<input checked="" type="checkbox"/>
UpdatedAt	datetime	<input checked="" type="checkbox"/>
AccessoriesImg	varbinary(MAX)	<input checked="" type="checkbox"/>

AddCart:

Column Name	Data Type	Allow Nulls
AddCartID	int	<input type="checkbox"/>
CartID	varchar(50)	<input checked="" type="checkbox"/>
CustomerID	varchar(50)	<input checked="" type="checkbox"/>
ItemID	varchar(50)	<input checked="" type="checkbox"/>
ItemType	varchar(20)	<input checked="" type="checkbox"/>
Quantity	int	<input checked="" type="checkbox"/>
AddedDate	datetime	<input checked="" type="checkbox"/>
CartStatus	varchar(20)	<input checked="" type="checkbox"/>

Buypet:

Column Name	Data Type	Allow Nulls
BuyPetID	varchar(50)	<input type="checkbox"/>
CustomerID	varchar(50)	<input checked="" type="checkbox"/>
PetID	varchar(50)	<input checked="" type="checkbox"/>
AdoptionRequestID	varchar(50)	<input checked="" type="checkbox"/>
PurchaseDate	datetime	<input checked="" type="checkbox"/>
Price	decimal(10, 2)	<input checked="" type="checkbox"/>

CustomerOrder:

Column Name	Data Type	Allow Nulls
OrderID	varchar(50)	<input type="checkbox"/>
CustomerID	varchar(50)	<input checked="" type="checkbox"/>
CartID	varchar(50)	<input checked="" type="checkbox"/>
TotalAmount	decimal(10, 2)	<input checked="" type="checkbox"/>
OrderStatus	varchar(50)	<input checked="" type="checkbox"/>
OrderDate	datetime	<input checked="" type="checkbox"/>

Payment:

Column Name	Data Type	Allow Nulls
PaymentID	varchar(50)	<input type="checkbox"/>
CustomerID	varchar(50)	<input checked="" type="checkbox"/>
OrderID	varchar(50)	<input checked="" type="checkbox"/>
Amount	decimal(10, 2)	<input checked="" type="checkbox"/>
PaymentMethod	varchar(50)	<input checked="" type="checkbox"/>
TransactionID	varchar(100)	<input checked="" type="checkbox"/>
PaymentStatus	varchar(50)	<input checked="" type="checkbox"/>
PaymentDate	datetime	<input checked="" type="checkbox"/>

Adoption:

DESKTOP-DKEC0GM.....te - dbo.Adoption			
Column Name	Data Type	Allow Nulls	
AdoptionID	varchar(50)	<input type="checkbox"/>	
PetID	varchar(50)	<input checked="" type="checkbox"/>	
CustomerID	varchar(50)	<input checked="" type="checkbox"/>	
RequestDate	datetime	<input checked="" type="checkbox"/>	
AcceptanceStatus	varchar(50)	<input checked="" type="checkbox"/>	
Description	text	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

AddFavourite:

DESKTOP-DKEC0GM.....dbo.AddFavourite			
Column Name	Data Type	Allow Nulls	
FavouriteID	varchar(50)	<input type="checkbox"/>	
UserName	varchar(50)	<input checked="" type="checkbox"/>	
AccessoriesID	varchar(50)	<input checked="" type="checkbox"/>	
PetID	varchar(50)	<input checked="" type="checkbox"/>	
AddedDate	datetime	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Project Git Repository link:

<https://github.com/MJJoy49/PetShopManagementSystem>