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**Group Project**  
**Subject: Basic Cross-Platform**  
**Application Programming With .NET**  
**Animal Management**

**Prepared by Group 3**

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## Table of Contents

Table of Contents	ii
Revision History	ii
1. Case Study	1
2. Database Design	2
3. System Architecture	4
4. Implementation	5

## Revision History

Name	Date	Reason For Changes	Version
Nguyen Le Hoang An	14 October 2021	Initial draft	1.0 draft 1

## 1. Case Study

The program shall create a better opportunity for officers in zoos to manage animals, foods and employees more conveniently and reduce time needed to check up everything periodically.

### Use Case List

Primary Actor	Use Cases
Manager Employee	<ol style="list-style-type: none"> <li>1. Add new animals</li> <li>2. Edit animals information</li> <li>3. Delete animals</li> <li>4. View animals list</li> <li>5. Import new foods</li> <li>6. Delete foods</li> <li>7. View foods list</li> <li>8. Add new employees</li> <li>9. Edit an employees</li> <li>10. Delete an employees</li> <li>11. View employees list</li> <li>12. Create shift area</li> <li>13. Edit shift area</li> <li>14. Delete shift area</li> <li>15. View shift area</li> </ol>

### Use Case Template

UC ID and Name:	<b>UC-2 Edit animals information</b>		
Created By:	Hoàng An	Date Created:	18/10/2021
Primary Actor:	Manager	Secondary Actors:	Animal Management
Trigger:	Manager wants to update new information about an animal to the database.		

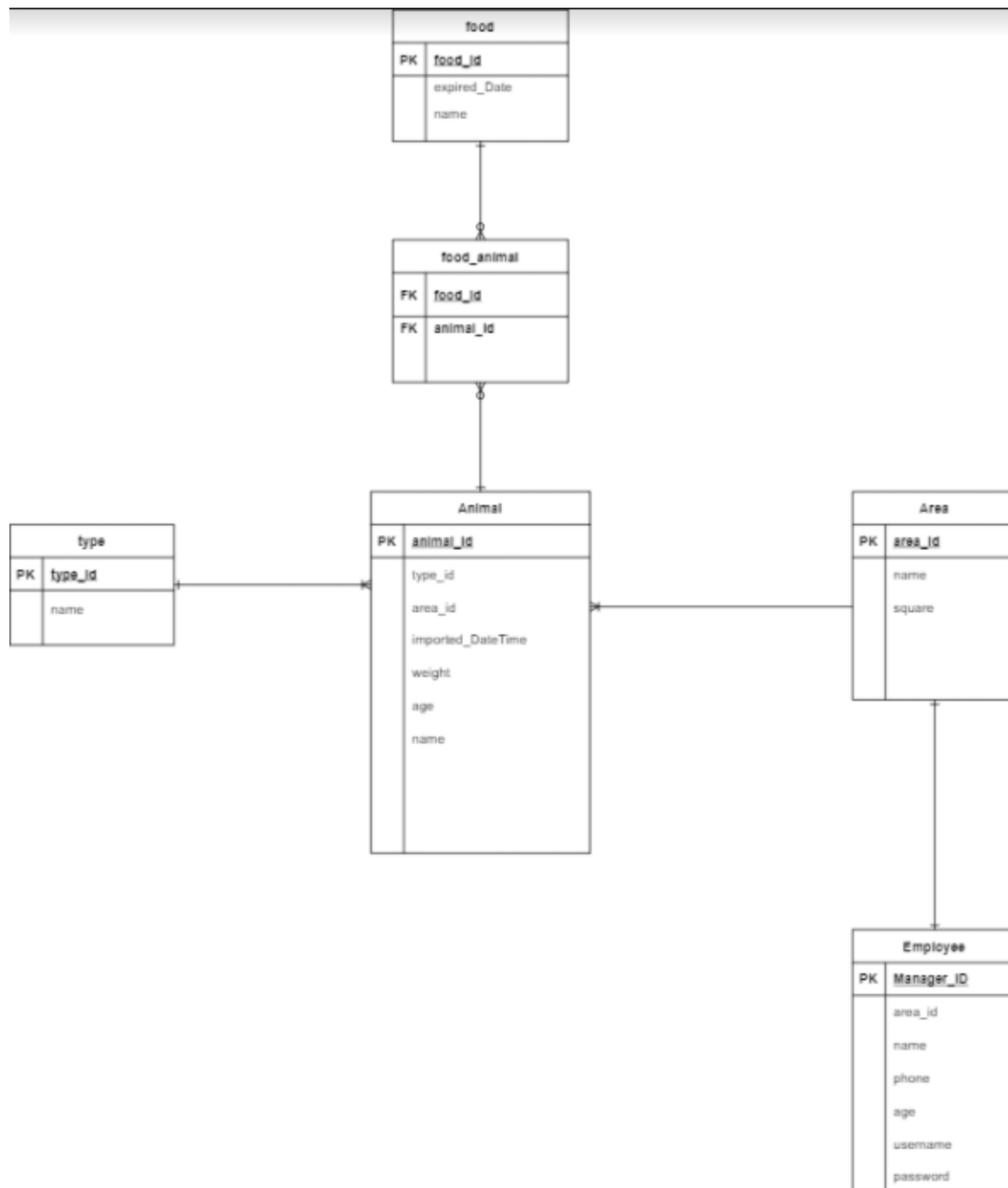
Description:	Manager edits new information about an existing animal to the zoo's database.
Preconditions:	PRE - 1. Manager must be logged in earlier.  PRE - 2. Targeted animals must be available for updating.
Postconditions :	POST - 1. The system announced that new edits were written down to the history log.
Normal Flow:	<b>2.0 Edit animals information</b> <ol style="list-style-type: none"> <li>1. Manager double clicks the animal on the Data Grid View.</li> <li>2. System redirect to "Edit animals" form (See 1.0.E1).</li> <li>3. Manager edits the animal's information and clicks "Save".</li> <li>4. System will update the animal's information.</li> <li>5. System notify that the animal is updated.</li> <li>6. System returns the user to "View animals" form.</li> </ol>
Alternative Flows:	None.
Exceptions:	2.0.E1 Manager deletes an animal's information and click "Save" <ol style="list-style-type: none"> <li>1. System will notify the manager about missing information.</li> <li>2. Manager will refill that missing textbox.</li> </ol>
Priority	High
Frequency of Use:	Approximately 15 animal information will be edited monthly.

Business Rules:	BR-1
Other Information:	Manager can cancel the edits at any time prior to clicking the “Save” button.
Assumption	Assume that 20% of managers will update new information about the existing animal weekly.

### Business Rules

<i><b>ID</b></i>	<i><b>Rule Definition</b></i>	<i><b>Type of Rule</b></i>	<i><b>Static or Dynamic</b></i>	<i><b>Source</b></i>
BR-1	Animal names must be unique.	Fact	Static	Administrator
BR-2	Existing foods that were imported recently must be input as new data.	Constraint	Dynamic	Administrator
BR-3	Username must be unique.	Fact	Static	Administrator

## 2. Database Design



Animal Management entity relationship diagram

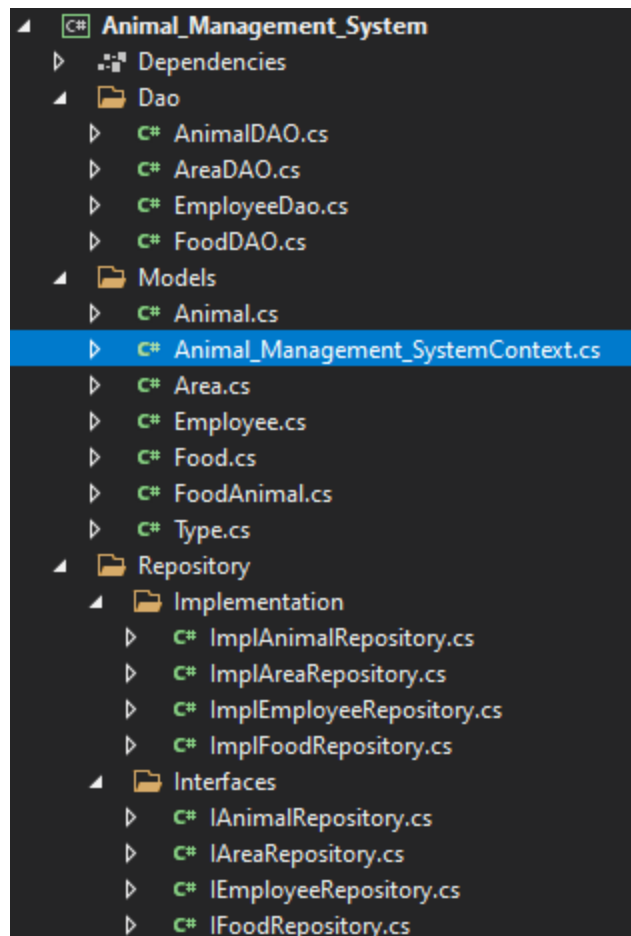
### 3. System Architecture

The application applies 3 layer architecture : Presentation , Repository , Business Object .

Using .NET5 with Entity Framework Core

### 4. Implementation

The main classes, DAOs, Models and Repositories:



1. User Profile: A list that has every manager information and managing areas.

Search  Load Add Update Delete

Id	Username	Password	Name	Phone	Age	Areald
2	xuandattttt	123456	dang xuan dat	0975489255	188	1
3	PhuocThanh	123456	Phan Phuoc Tha...	1234541121	18	2
4	LoanChau	12345	Hoàng Các Loa...		20	2
5	user	123456	user 1	3232155	33	2
6	qbc	123	qwe	21321312	12	2
7	ca	123	abc	12345	33	2

Logout

2. Animal Profile: A list that lists every available animal comes with the update, add and delete functions for managers.

Information

Animal ID

Name

Age

Weight

Imported Date

Area

Type

Action

LOAD DELETE ADD

Name  Search

Id	Name	Weight	Age	ImportedDate
1	a	2	2	10/20/2015
2	Lạc Đà	900	2	5/11/2019
3	Hà Mã	80	2	12/3/2019 2:
4	cat	3	2	11/5/2021
5	q	3	3	11/4/2021
6	a	4	3	11/4/2021
7	Sư tử	100	11	10/20/2015
8	Sư tử	100	11	10/20/2015
9	Sư tử	100	51	10/20/2015
10	qqq	3333	222	11/4/2021
11	abc	12	12	11/4/2021
13	a	12	12	11/4/2021
14		1	1	11/5/2021
15		1	1	11/5/2021
16	a	12	12	11/6/2021

Logout



3. Food Form: A form that is lists every available food comes with the update, add and delete functions for managers.

The screenshot displays a web application interface for Food Management. On the left is a dark sidebar with navigation links: Home, Employee Profile, Animal Management, Food Management (highlighted with a bone icon), and Area Management. The main content area has a top header 'Food Management' with a bone icon. Below this, there are two sections: 'Add new food' and 'Action'. The 'Add new food' section contains a text input for 'Food Name', a date picker for 'Expired Date' (set to Saturday, November 6, 2021), and an 'Add' button. The 'Action' section contains three buttons: 'Load', 'Update', and 'Delete'. To the right of these sections is a table with the following data:

	Id	Name	ExpiredDate
▶	1	Thit Heo	10/20/2010 11:3...
	2	Cá	10/28/2021 2:37...
	3	fish	11/20/2021 4:23...
	4	abc	11/13/2021 10:2...

At the bottom left of the sidebar is a 'Logout' button with a door icon.

4. Area Form: A form that is lists every available Area comes with the update, add and delete functions for managers.

	Areald	Name	Square
▶	1	Mùa Xuân	80
	2	Mùa Đông	90
	3	Mùa Hạ	100
	4	Spring	122

5. Profile Form: Profile of employees only access by employee.

6. Animal Management: access by employee to Manage their Area and animal.

Home

Employee Profile

Animal Management

Animal Management

Information

Animal ID

2

Name

Lạc Đà

Age

2

Weight

900

Imported Date

5/11/2019 12:00:00 AM

Area

2

Type

1

Action

LOAD

DELETE

ADD

Name

Search

	Id	Name	Weight	Age	ImportedDate
▶	2	Lạc Đà	900	2	5/11/2019
	5	q	3	3	11/4/2021
	10	qqq	3333	222	11/4/2021

Logout