INTRODUCTION

Wildlife management is the process of keeping some wildlife species at a desirable levels as determined by the wildlife managers and includes game keeping, wildlife conservation and pest control.

Wildlife management has become an integrated science using disciplines such as mathematics, chemistry, biology, ecology, climatology and geography to gain the best results.

Many animals are in trouble due to habitat loss, and some are threatened with the invasive species. Improving animal habitat is the key to success and this can be achieved with several different techniques such as reforestation, pest control, nitrification and denitrification, irrigation, hedge laying, etc.

Wildlife management is multidimensional task that needs to view things from many different perspectives before choosing the perfect technique for given wildlife habitat. This makes wildlife management very complex science, which makes things very difficult for wildlife managers.

So to keep track of each and every animal on the planet is not humanly possible. Thus this software helps in maintaining an upto date database of all the animals and reduces the workload of wildlife managers.

Storing the database on a computer, the advantages are plenty. We can easily overcome all the shortcomings we encountered doing the manual entries. With the help of automated error checking routines and constraints on input we can enforce that the data entered is at least syntactically correct. To deal with the problem of data maintenance, data can be stored in multiple locations so that the data is never lost. As far as searching the records are concerned, the best algorithms which are applied can speed up the data searching ability incredibly.

Our application’s main aim is to overcome these difficulties and make record keeping very easy.

DESIGN

Design involves separating the fundamental constituents concerning wildlife into separate entities. This is also done so as to achieve efficiency in storing data and reducing the complexity by avoiding data redundancy.

Consequently, the details of the members who use this application are stored in one relation. This involves their login information as well. All the animals in the wildlife system are stored in the animal table. The data to this table is inserted by the admin. The different habitats in which the animals live are stored separately in habitat table. Even this table data is filled by the admin. Every member has the option of entering his animal sightings into the database. These sightings are stored in the sighting table. The link to the photos of the sightings, photos of the animals and the photos of the members are stored commonly in the photo table.

The Day-to-day sightings of the animals are stored centrally in the sightings table. These sightings are uniquely identified by the ID of the sighting. The member who uploads the sighting is identified by the mid, the animal sighted is identified by the aid and the photo of the sighting is identified by the pid.

Schema:

MEMBER

MID	NAME	DOB	AGE	CITY	INTEREST	AID	PID

Primary key: MID

ANIMAL

AID	CNAME	SNAME	DESCRIPTION	PID	T COUNT	STATUS

Primary key: AID

HABITAT

HID	DESCRIPTION	NAME	AID

Primary key: HID

SIGHTING

NUM	NAME	PLACE	DESCRIPTION	DATE/TIME	AID	MID	HID	PID

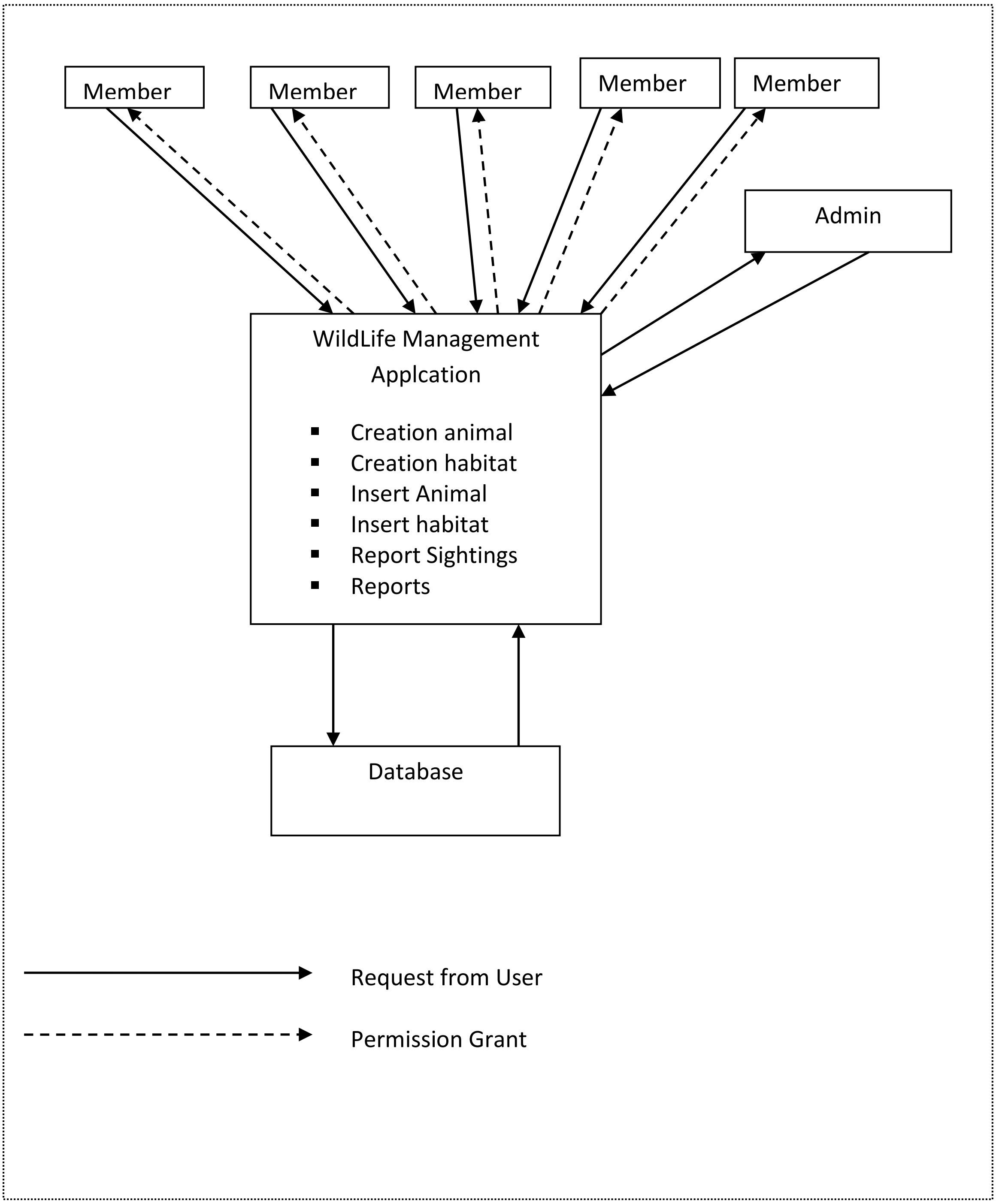
Primary key: NUM

PHOTO

PID	LINK

Primary key: PID

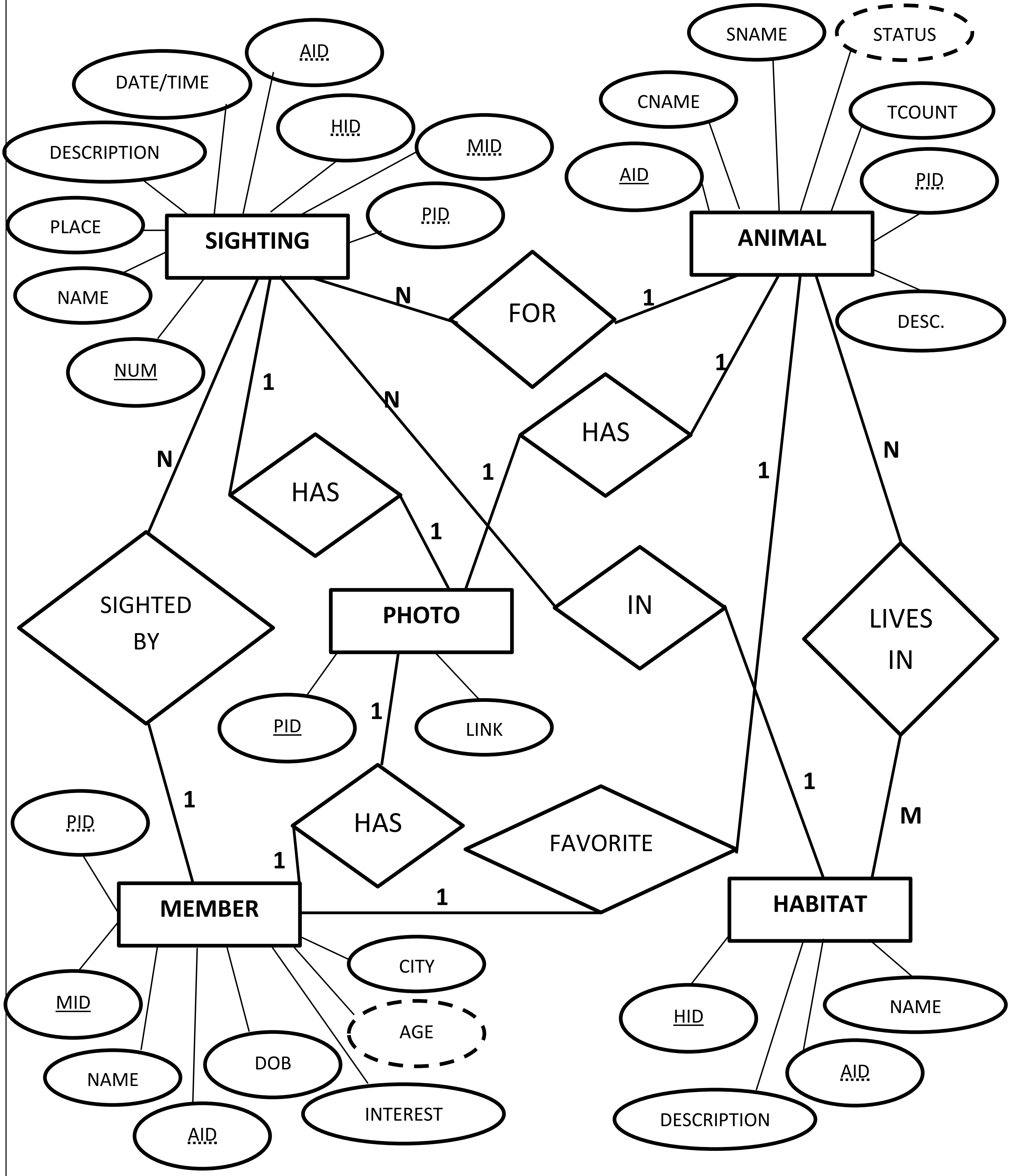
Data Flow Diagram:



- Admin approves the membership requests. This adds the members into the database. Thus admin gives the members permission to report sightings of animals and extract animal information from the database. Member details are stored in the member table in database.
- Creating of a member also adds a tuple into the login table thus giving the member an username and password to login.
- Admin has the rights to delete and modify the member details as well as animal and habitats details in the database.
- Members are granted entry into member homepage only after confirming their login credentials. This is done by comparing the login username and password given by the user with the already stored credentials from the database.
- Members can view, add, and modify their sightings. When a member sees an animal, he can capture its pic and add all the details of that sighting into the database.
- Members can also search for the animals in the database and extract the information. They can also search for their own and other member’s sightings of animals.

N

E-R MODEL


SNAME
STATUS
CNAME
TCOUNT
AID
PID
ANIMAL
DESC.
AID
DATE/TIME
HID
MID
DESCRIPTION
PID
PLACE
SIGHTING
NAME
NUM
N
FOR
1
1
HAS
1
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HAS
1
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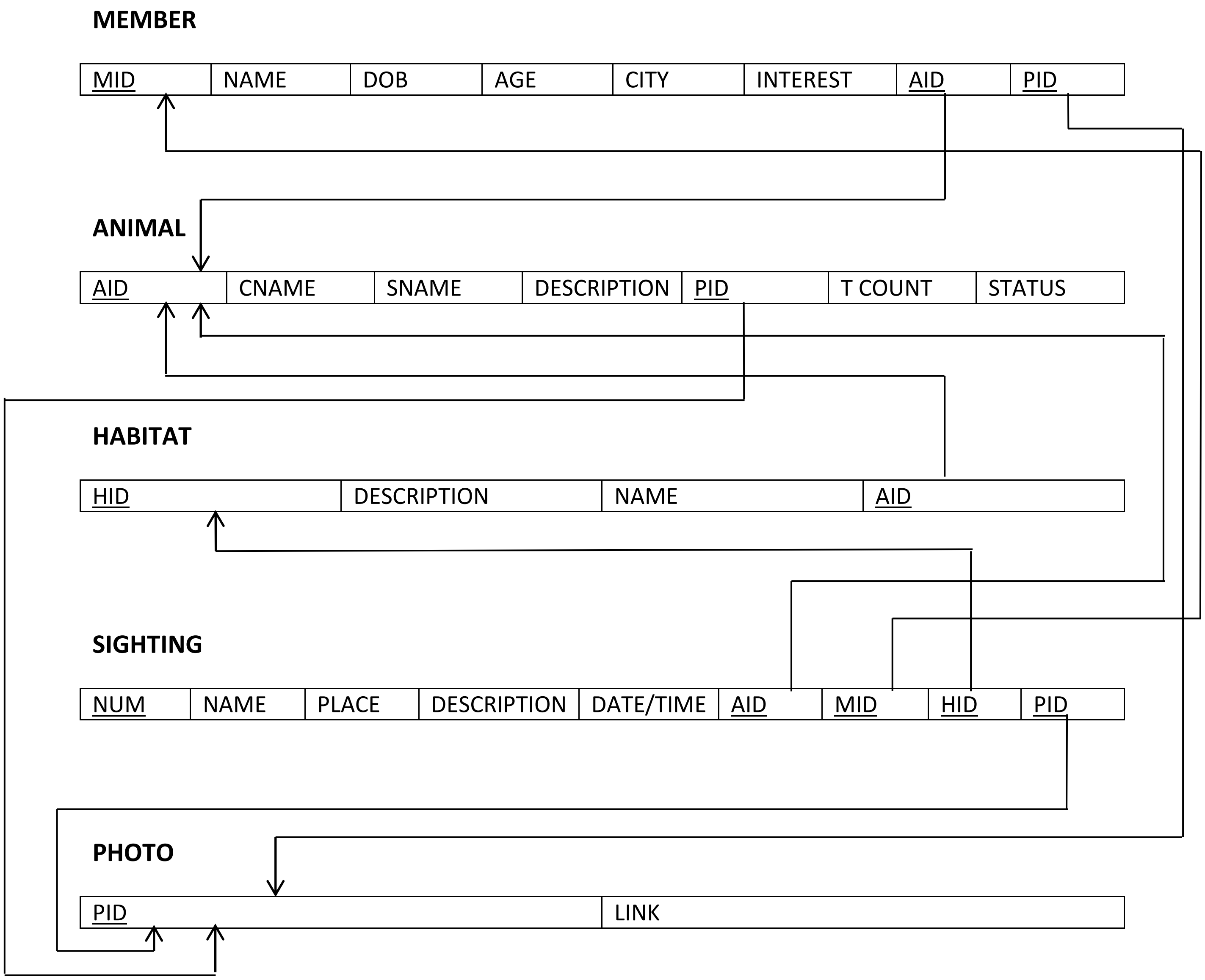
1
SIGHTED
BY
PHOTO
IN
LIVES
IN
PID
LINK
1
1
1
PID
HAS
M
FAVORITE
1
MEMBER
1
HABITAT
CITY
MID
AGE
HID
NAME
NAME
DOB
AID
AID
INTEREST
DESCRIPTION

RELATIONAL SCHEMA DIAGRAM



MEMBER

MID	NAME	DOB	AGE	CITY	INTEREST	AID	PID

ANIMAL

AID	CNAME	SNAME	DESCRIPTION	PID	T COUNT	STATUS

HABITAT

HID	DESCRIPTION	NAME	AID

SIGHTING

NUM	NAME	PLACE	DESCRIPTION	DATE/TIME	AID	MID	HID	PID

PHOTO

PID	LINK

ALGORITHMS

1. For login Window :

```
First check if username and password textboxes are entered
       Retrieve the member record from the database
             If exactly one record exists and type=”member” then
                  goto to member homepage window
             Else If exactly one record exists and type=”admin” then
                  goto to admin homepage window
             Else
                   display “login failed”
            End if
```

2. For Displaying forms :

```
Retrieve the corresponding table from the database
Load it in the datagrid viewer
```

3. Insert forms :

```
Code for insertion:
First check whether the textboxes are entered properly
Write the corresponding sql statements and execute
```

4. Search forms :

```
Frist check whether the keyword textbox is entered
Write the corresponding sql statement an execute it
Retrieve the information and display in the correct labels
```

5. Delete forms :

```
Check whether the textbox is entered
Check whether the entry is present in the database or not
If it is present then
    Delete it from the database
Else
    Display “Entry not found”
```

6. Update forms:

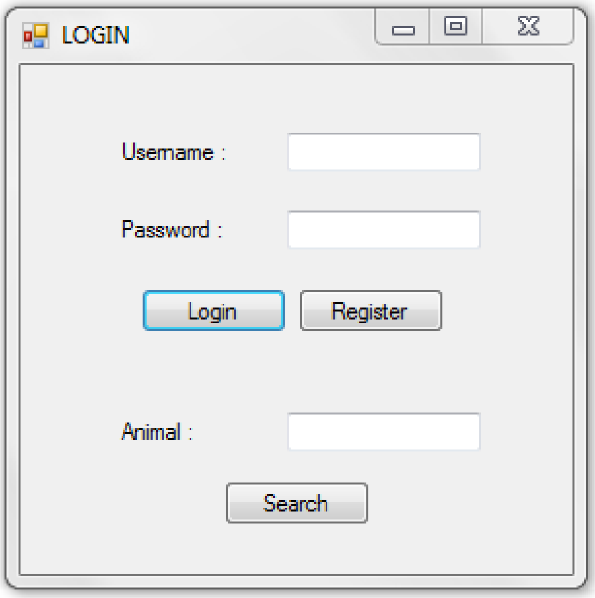
```
Check whether textbox is entered
Check whether the key entered is existing or not

If it exists then
   Update the entered values to the database
Else
   Display “Entry not found”
```

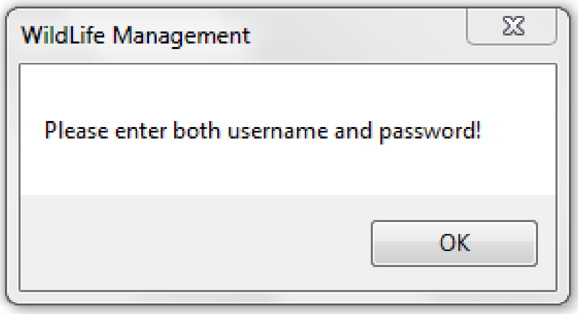
7. Account Info form:

```
Retrieve the corresponding member’s information from database
Display it in the corresponding textboxes
If click on “Save”
         Save the changes made into the database
```

TEST CASES

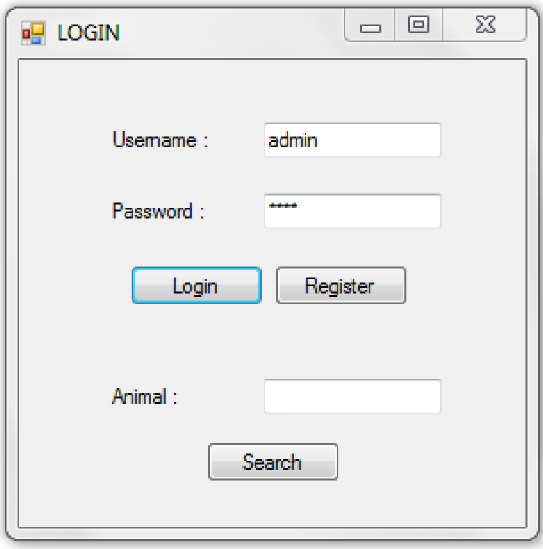
Login form will display error messages for unentered textboxes, invalid login id or passwords:




WildLife Management

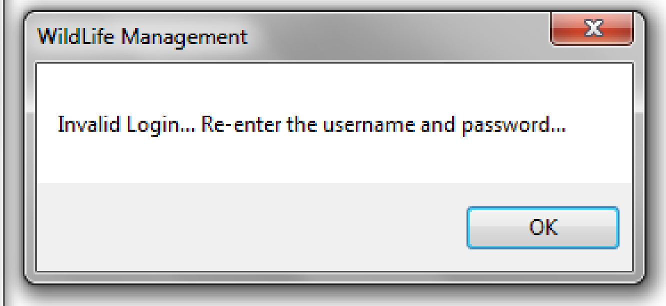
Please enter both username and password!

Login form will display error for invalid login credentials :



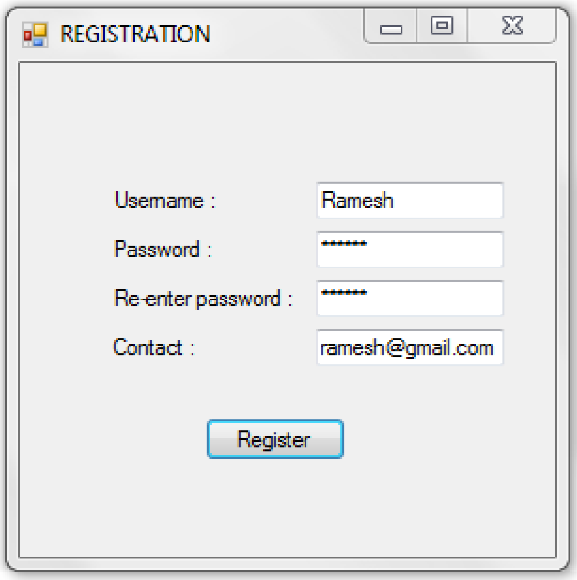
Username : admin

Password : ****


WildLife Management

Invalid Login... Re-enter the username and password...

Registration form will display error if the passwords do not match :

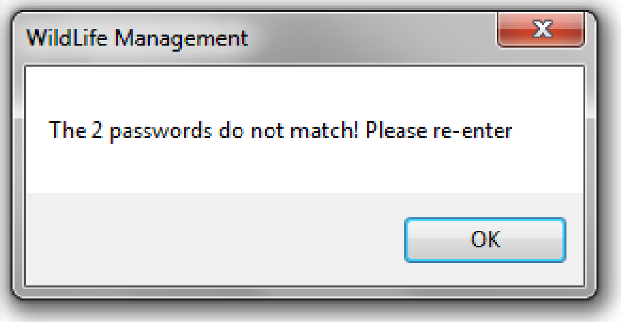


Username : Ramesh

Password : *******

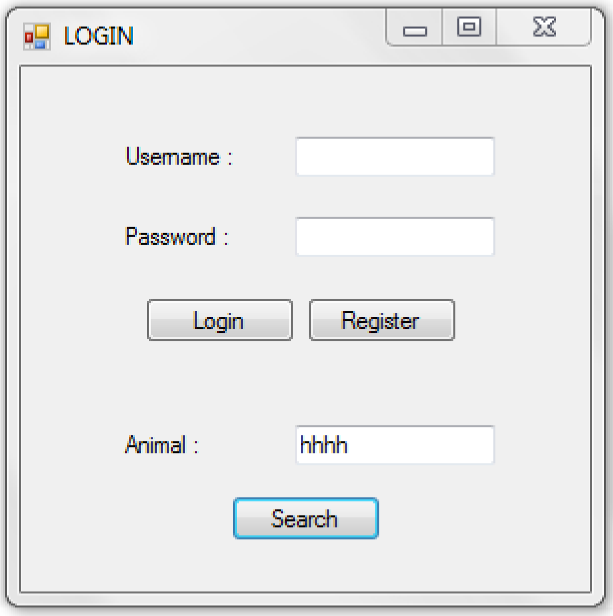
Re-enter password : *******

Contact : ramesh@gmail.com

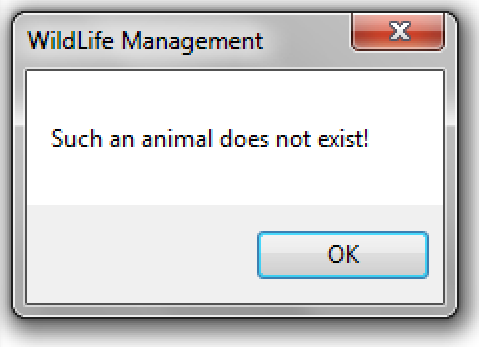


The 2 passwords do not match! Please re-enter

Login form will display error if the animal is not found :

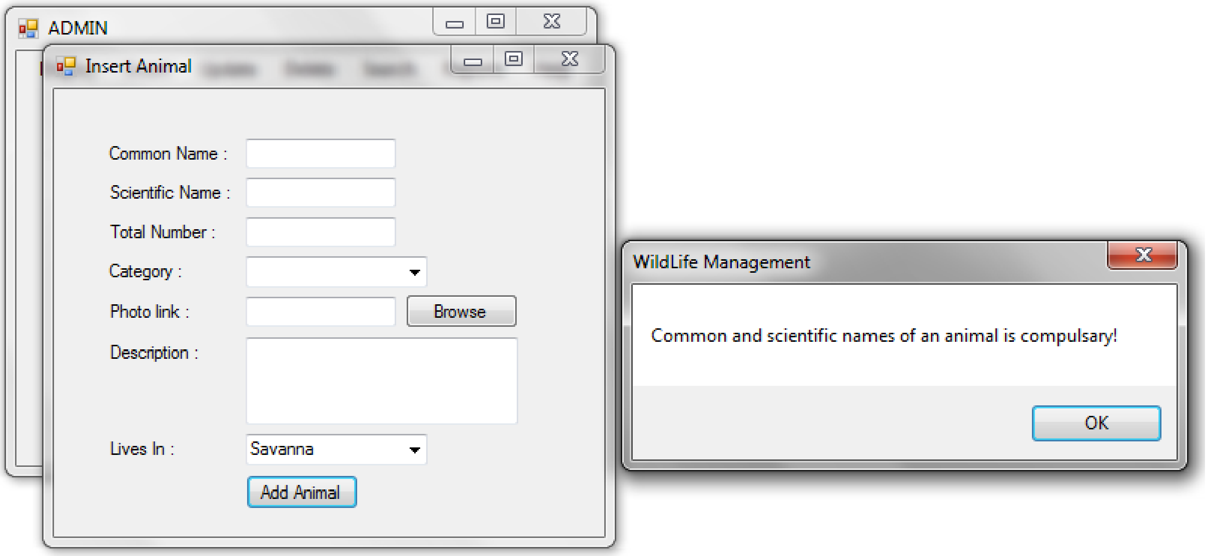


Animal : hhhh



Such an animal does not exist!

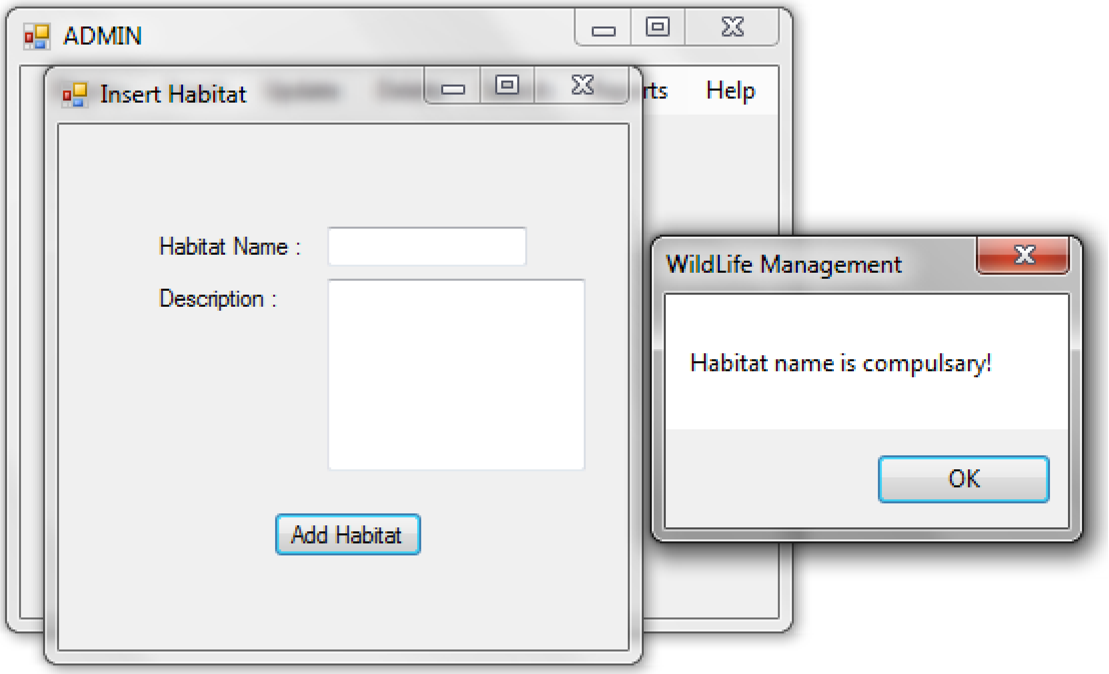
Insert Animal form will display error messages for blank entries :



Lives In : Savanna

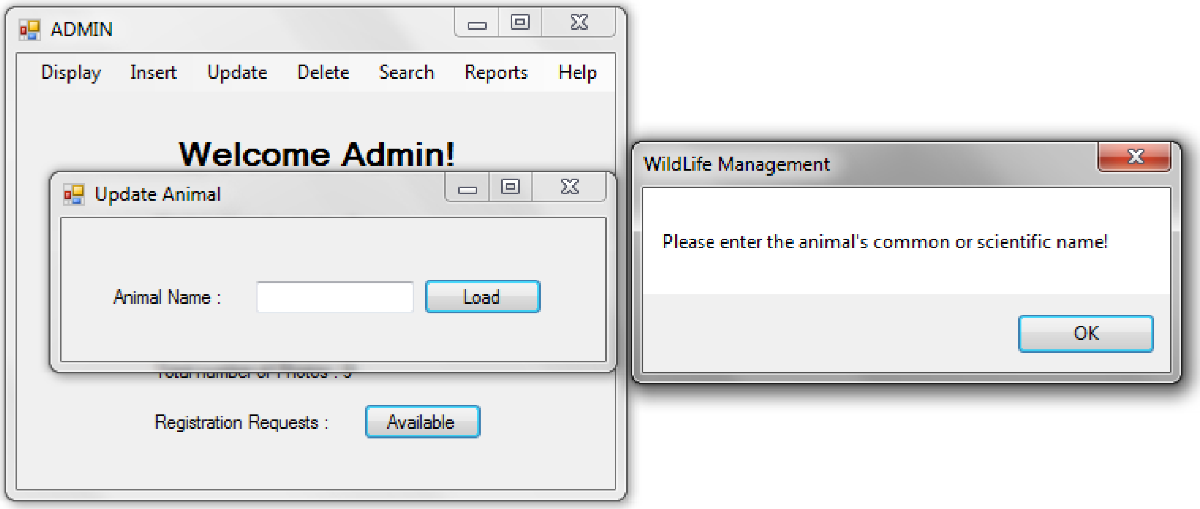
Common and scientific names of an animal is compulsary!

Insert habitat form will display error messages for blank entries :



Habitat name is compulsary!

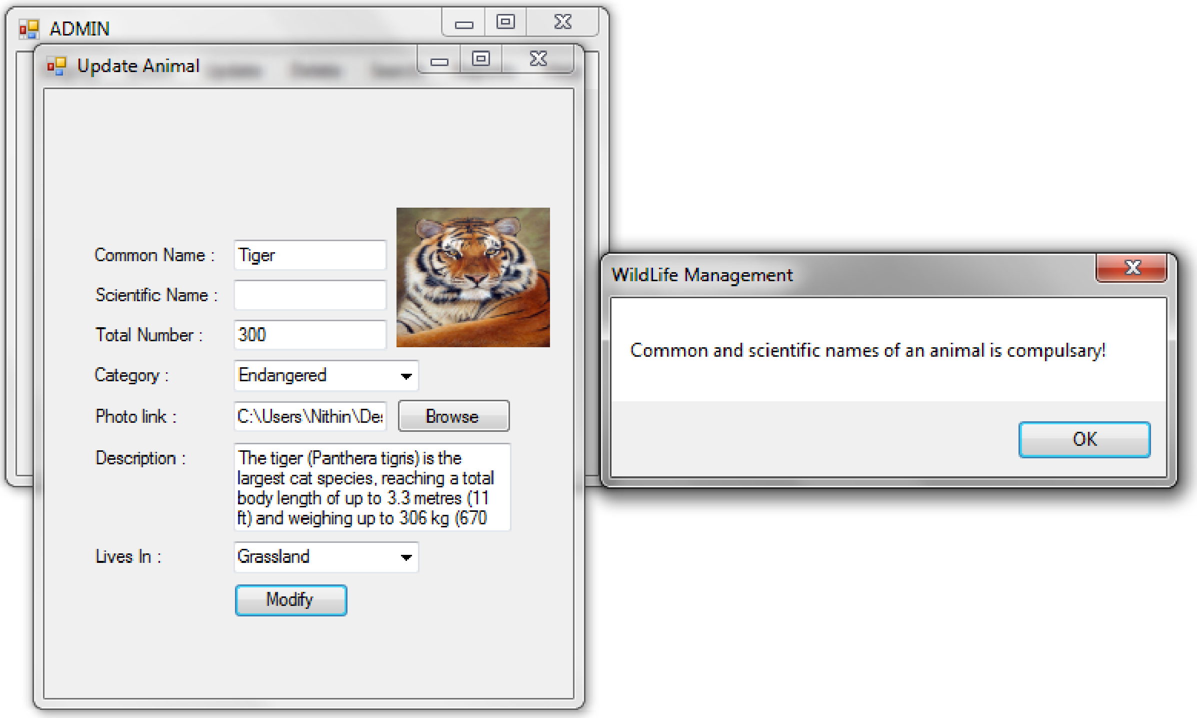
Update animal form will display error for blank entries :



Animal Name :

Please enter the animal's common or scientific name!

Update animal will display error messages :



Common Name : Tiger

Scientific Name :

Total Number : 300

Category : Endangered

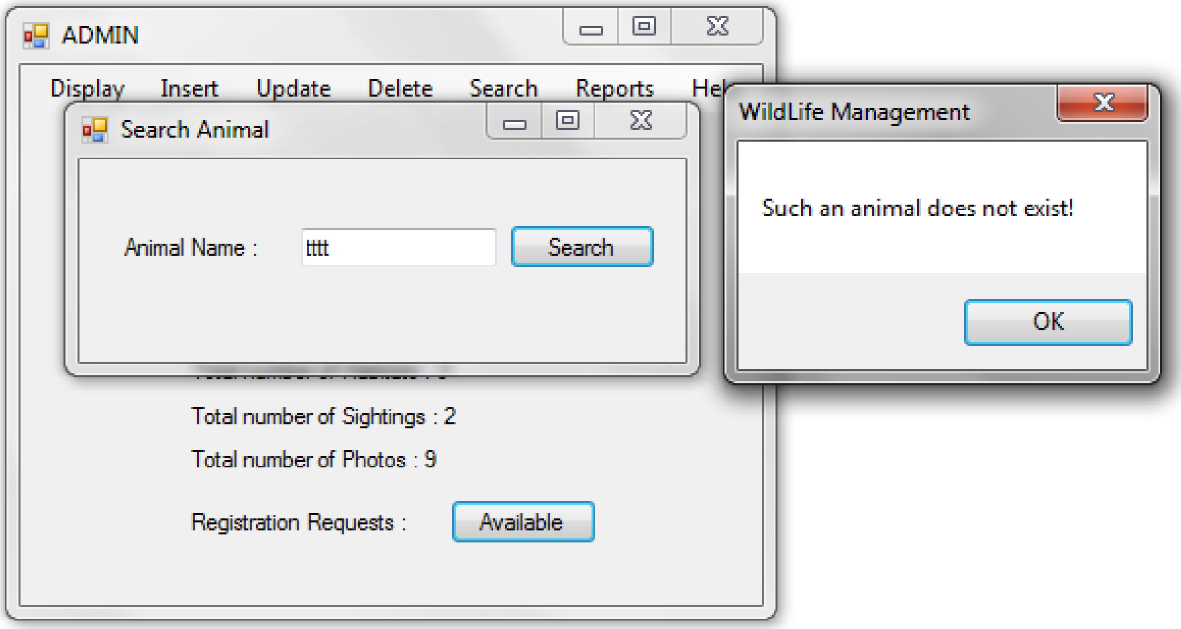
Photo link : C:\Users\Nithin\De

Description : The tiger (Panthera tigris) is the largest cat species, reaching a total body length of up to 3.3 metres (11 ft) and weighing up to 306 kg (670

Lives In : Grassland

Common and scientific names of an animal is compulsary!

Search animal form will display errors if search not found :



Animal Name : tttt

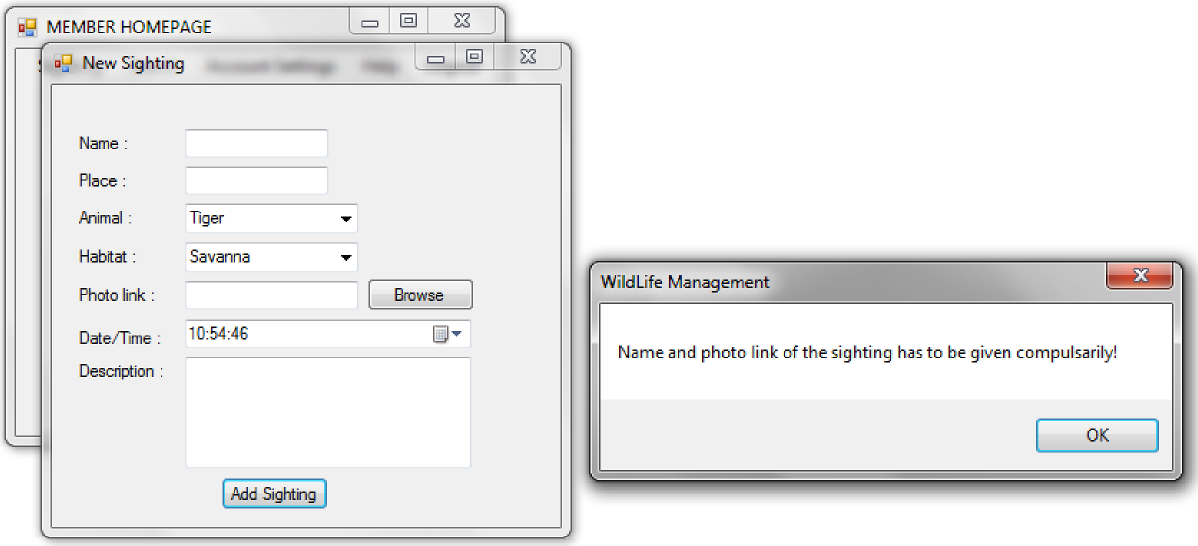
Total number of Sightings : 2

Total number of Photos : 9

Registration Requests :

Such an animal does not exist!

New sightings form will display errors like :



Name :

Place :

Animal : Tiger

Habitat : Savanna

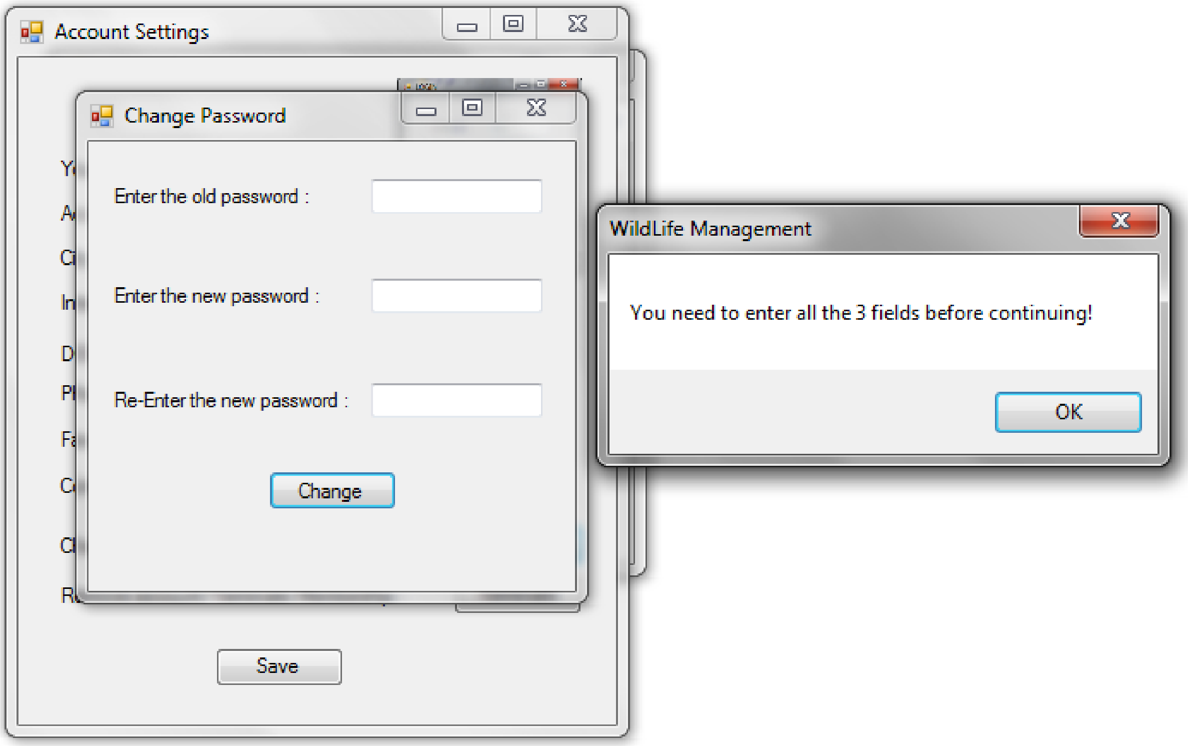
Photo link :

Date/Time : 10:54:46

Description :

Name and photo link of the sighting has to be given compulsarily!

Change password form will display errors like :



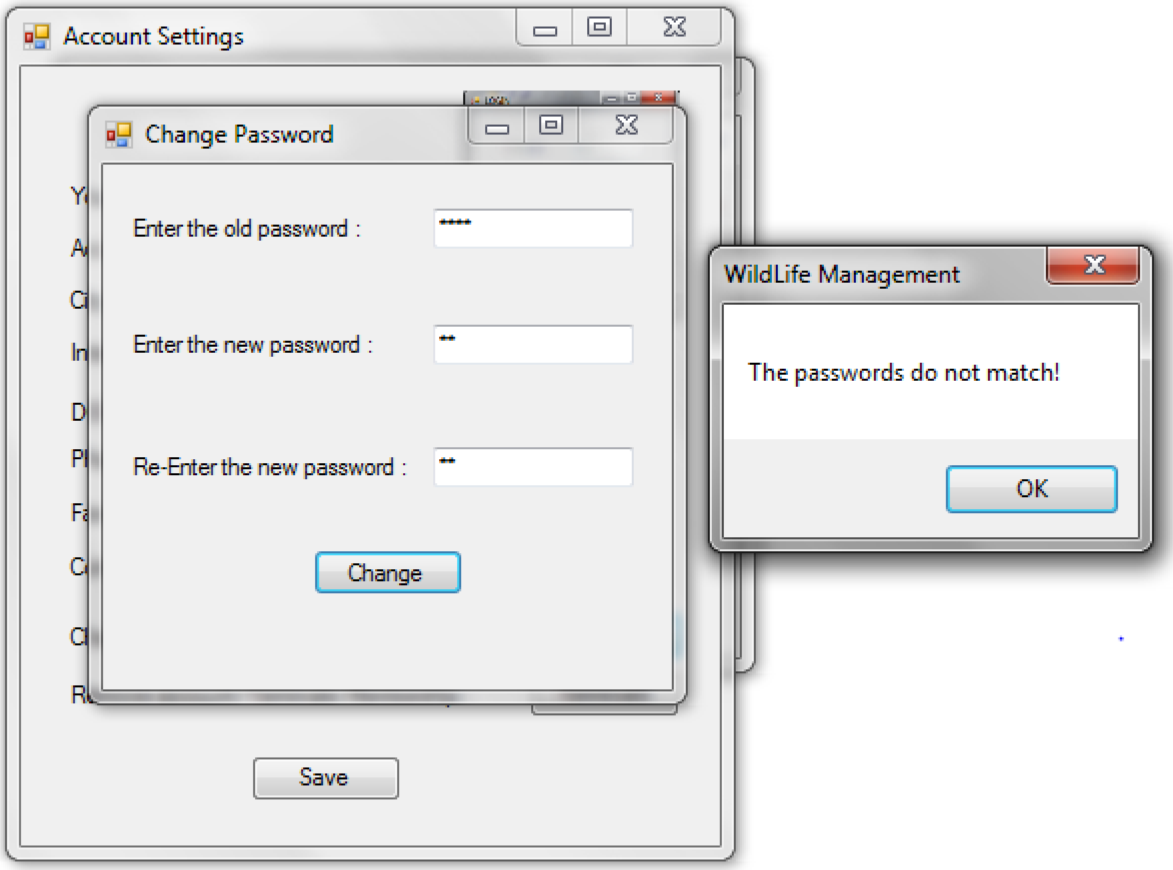
Enter the old password :

Enter the new password :

Re-Enter the new password :

You need to enter all the 3 fields before continuing!

Change password form will display errors like :



Enter the old password : ****

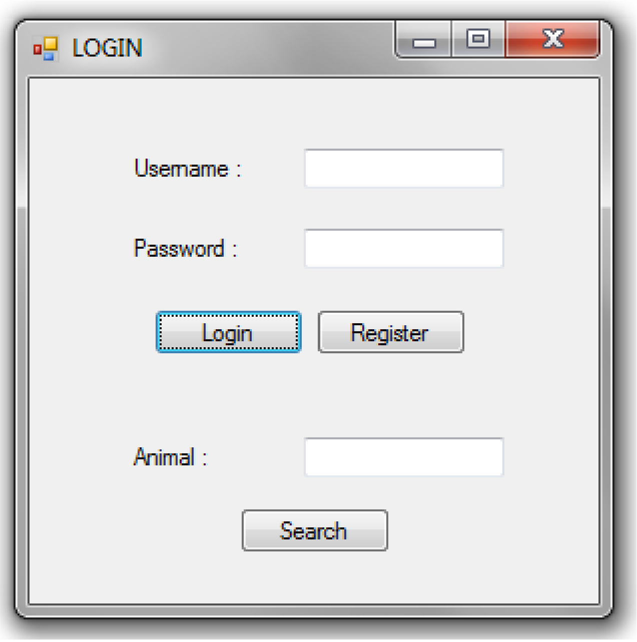
Enter the new password : **

Re-Enter the new password : **

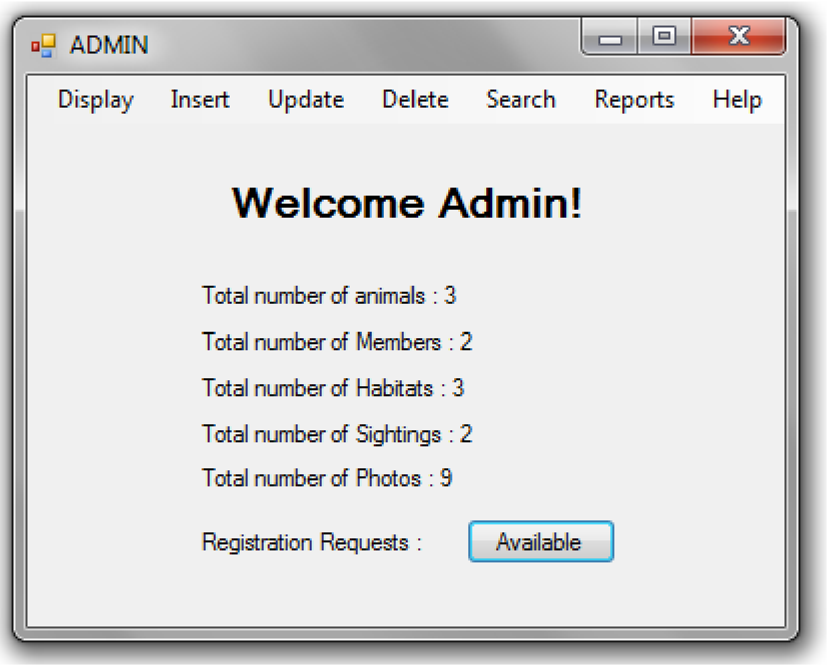
The passwords do not match!

OUTPUT

The login window :



Admin homepage window :



Welcome Admin!

Total number of animals : 3

Total number of Members : 2

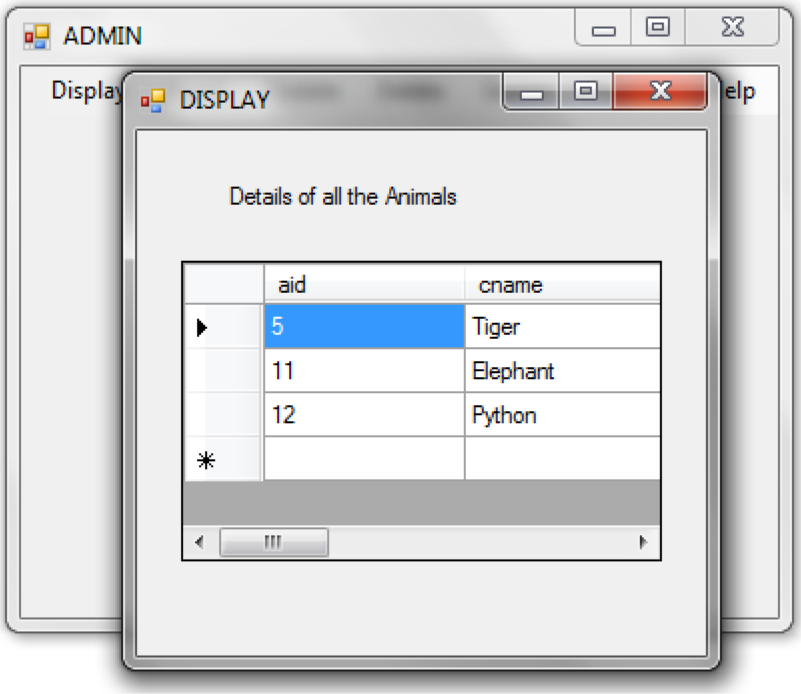
Total number of Habitats : 3

Total number of Sightings : 2

Total number of Photos : 9

Registration Requests :

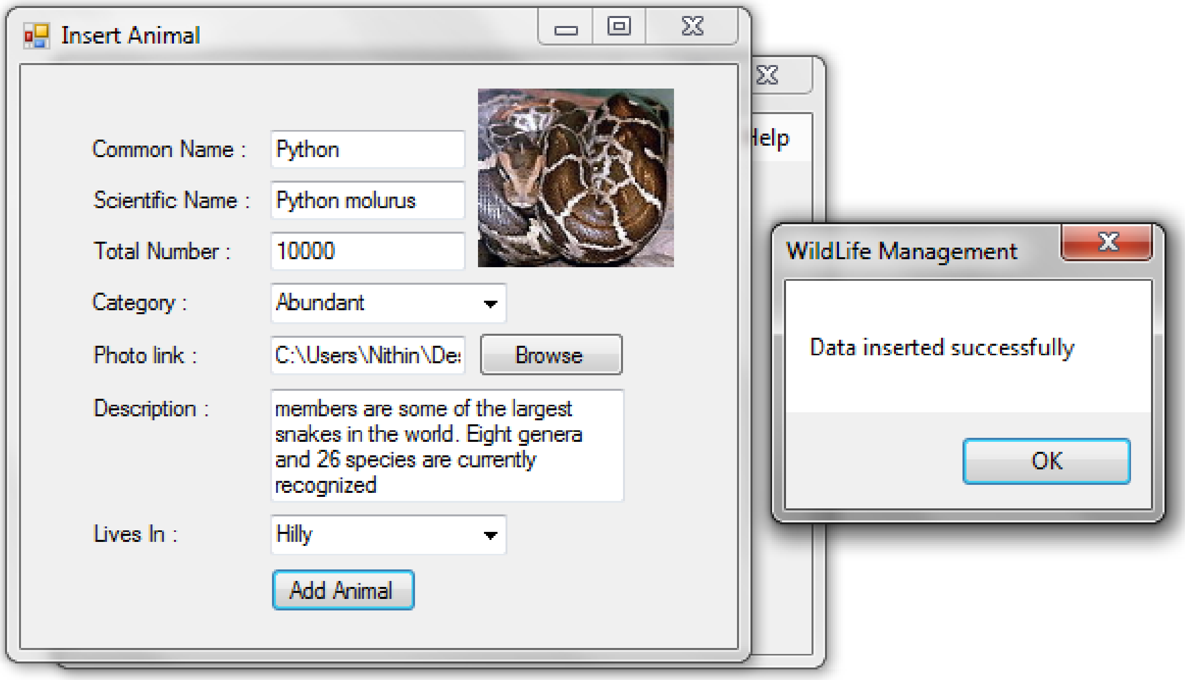
Display window :



Details of all the Animals

aid	cname
5	Tiger
11	Elephant
12	Python

Insert animal window :



Common Name : Python

Scientific Name : Python molurus

Total Number : 10000

Category : Abundant

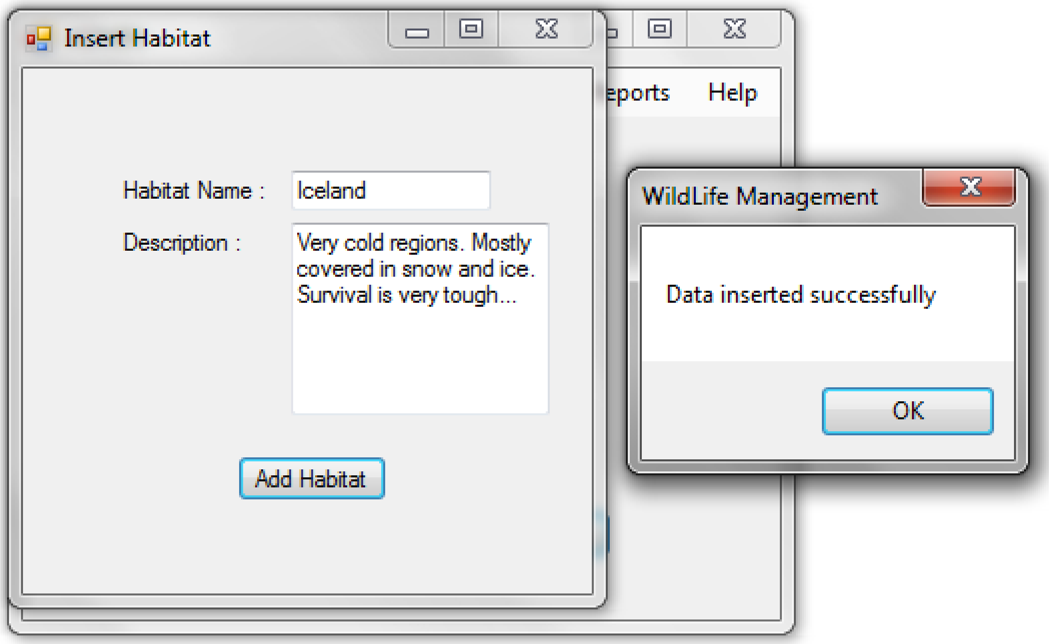
Photo link : C:\Users\Nithin\De:

Description : members are some of the largest snakes in the world. Eight genera and 26 species are currently recognized

Lives In : Hilly

Data inserted successfully

Insert habitat window :

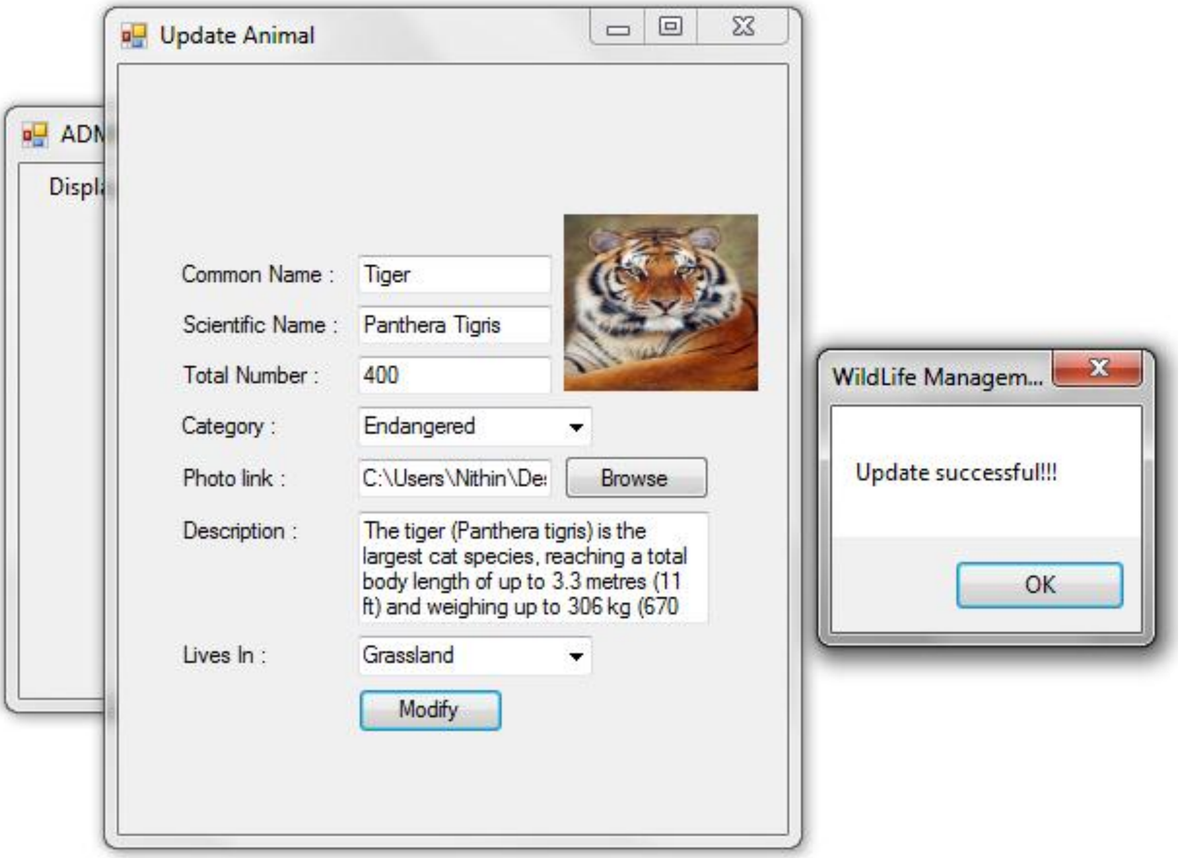


Habitat Name : Iceland

Description : Very cold regions. Mostly covered in snow and ice. Survival is very tough...

Data inserted successfully

Update animal window :



Common Name : Tiger

Scientific Name : Panthera Tigris

Total Number : 400

Category : Endangered

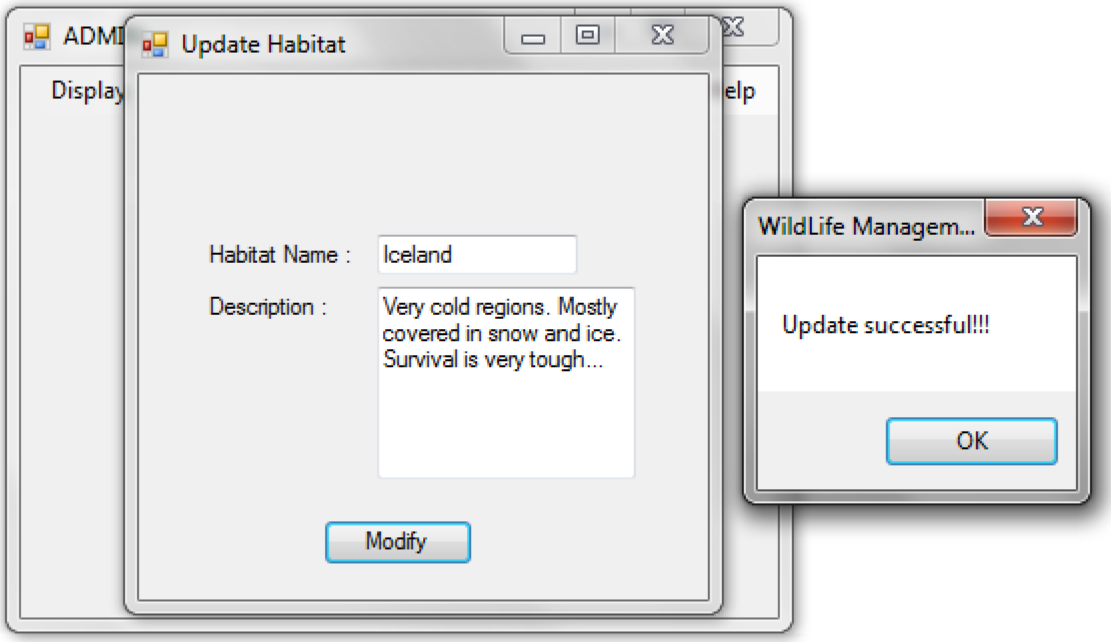
Photo link : C:\Users\Nithin\De:

Description : The tiger (Panthera tigris) is the largest cat species, reaching a total body length of up to 3.3 metres (11 ft) and weighing up to 306 kg (670

Lives In : Grassland

Update successful!!!

Update habitat window :



Update Habitat

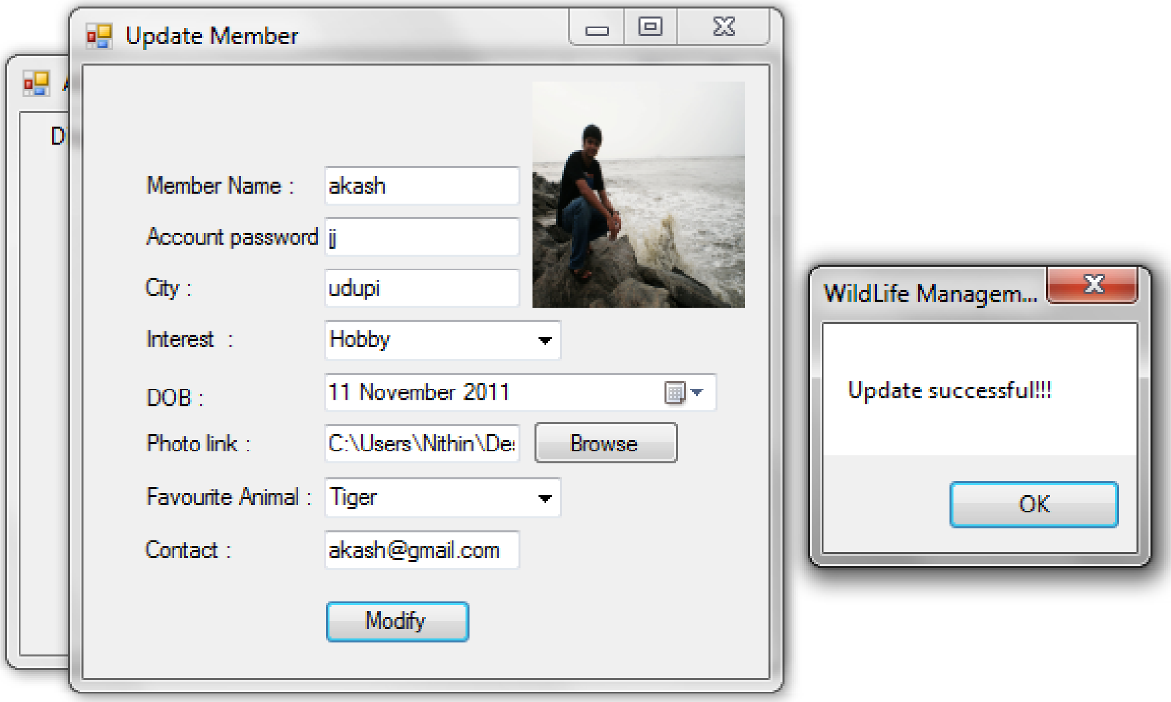
Habitat Name : Iceland

Description : Very cold regions. Mostly covered in snow and ice. Survival is very tough...

WildLife Managem...

Update successful!!!

Update member window :



Update Member

Member Name : akash

Account password jj

City : udupi

Interest : Hobby

DOB : 11 November 2011

Photo link : C:\Users\Nithin\De:

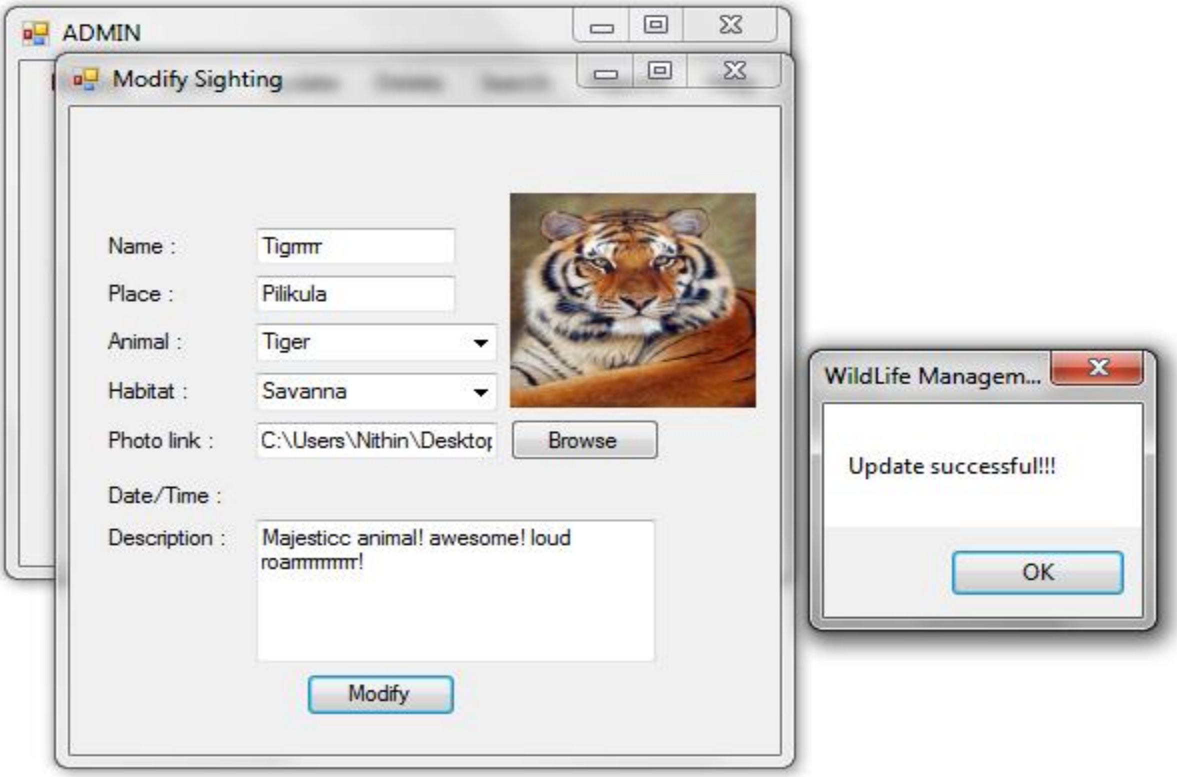
Favourite Animal : Tiger

Contact : akash@gmail.com

WildLife Managem...

Update successful!!!

Modify sighting window :



ADMIN

Modify Sighting

Name : Tigrrrr

Place : Pilikula

Animal : Tiger

Habitat : Savanna

Photo link : C:\Users\Nithin\Desktop

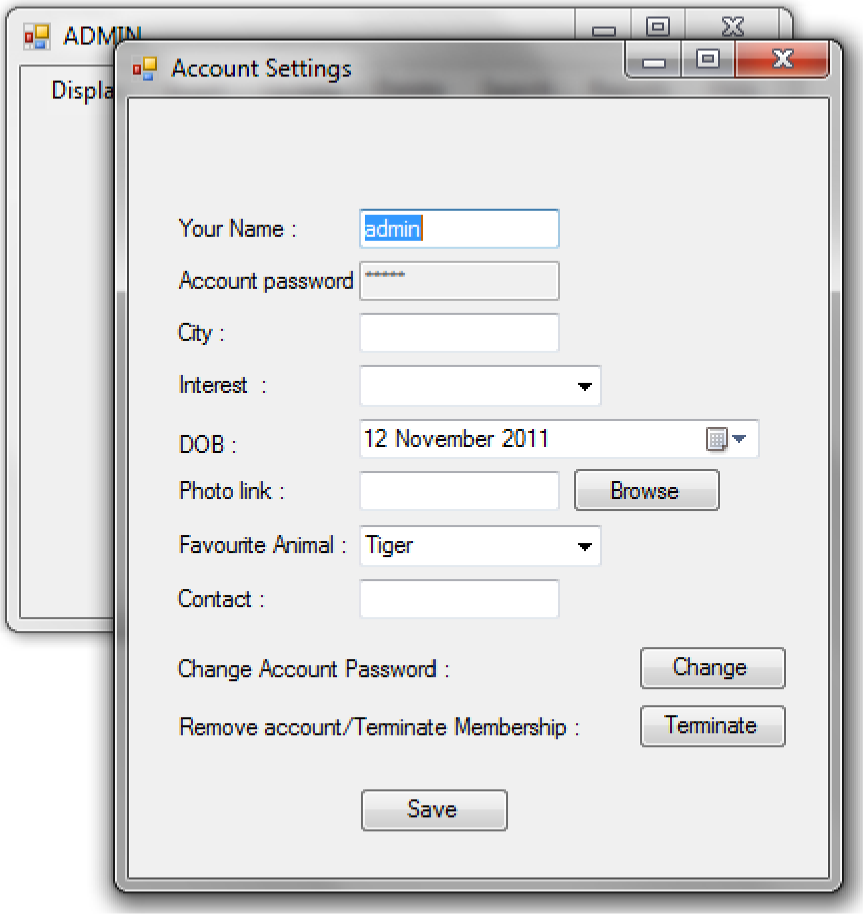
Date/Time :

Description : Majesticc animal! awesome! loud roarrrrrrrr!

WildLife Managem...

Update successful!!!

Account Settings window :



ADMIN

Displa

Account Settings

Your Name : admin

Account password *****

City :

Interest :

DOB : 12 November 2011

Photo link :

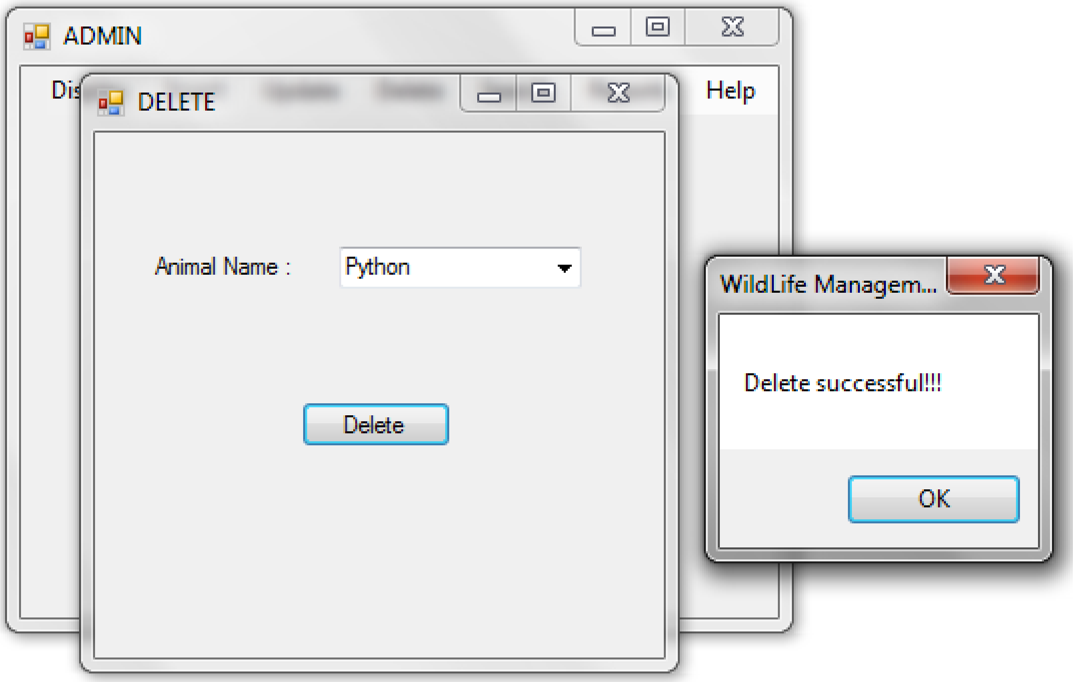
Favourite Animal : Tiger

Contact :

Change Account Password :

Remove account/Terminate Membership :

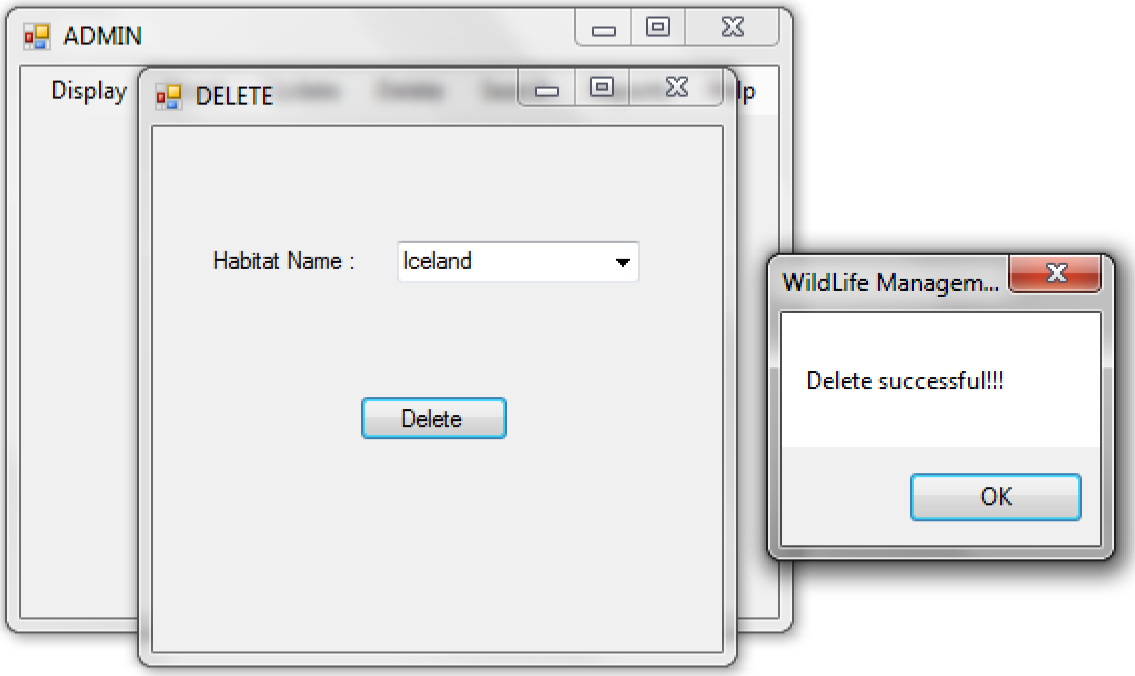
Delete animal window :



Animal Name : Python

Delete successful!!!

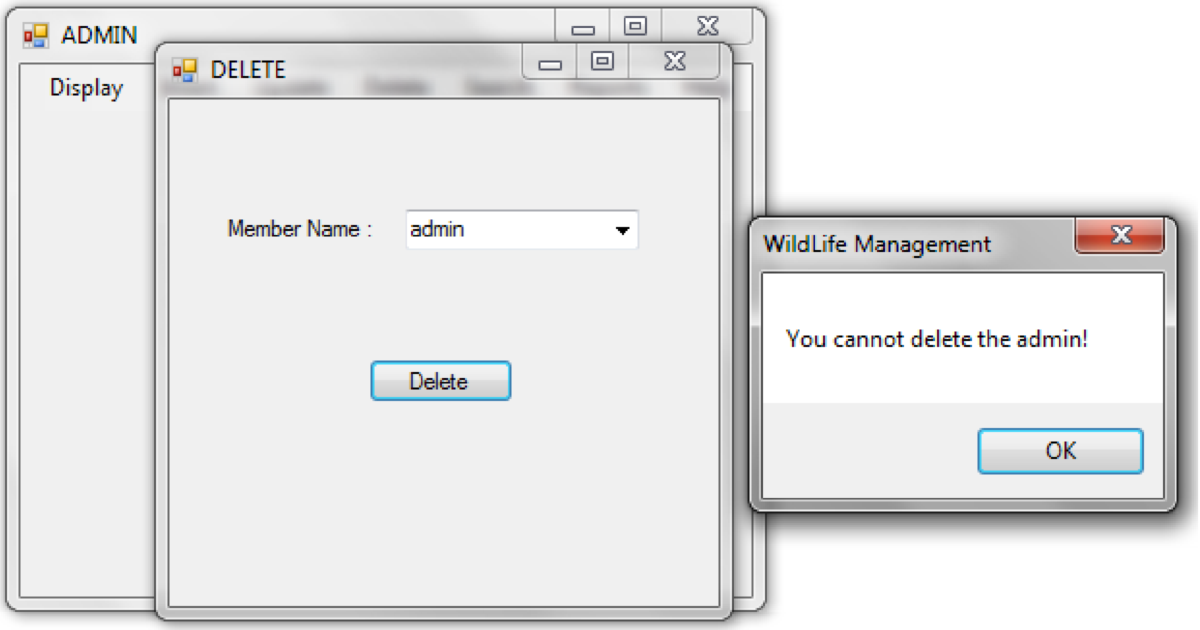
Delete Habitat window :



Habitat Name : Iceland

Delete successful!!!

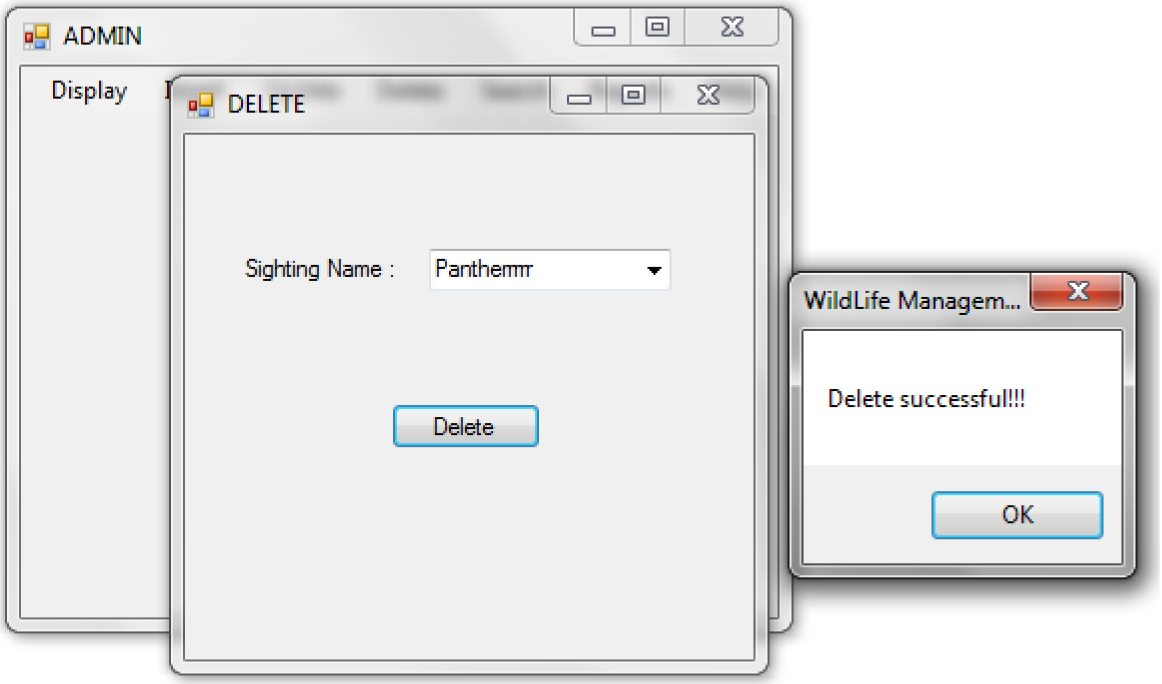
Delete member window :



Member Name : admin

You cannot delete the admin!

Delete sighting window :



Sighting Name : Panthermr

Delete successful!!!

Delete photo window :

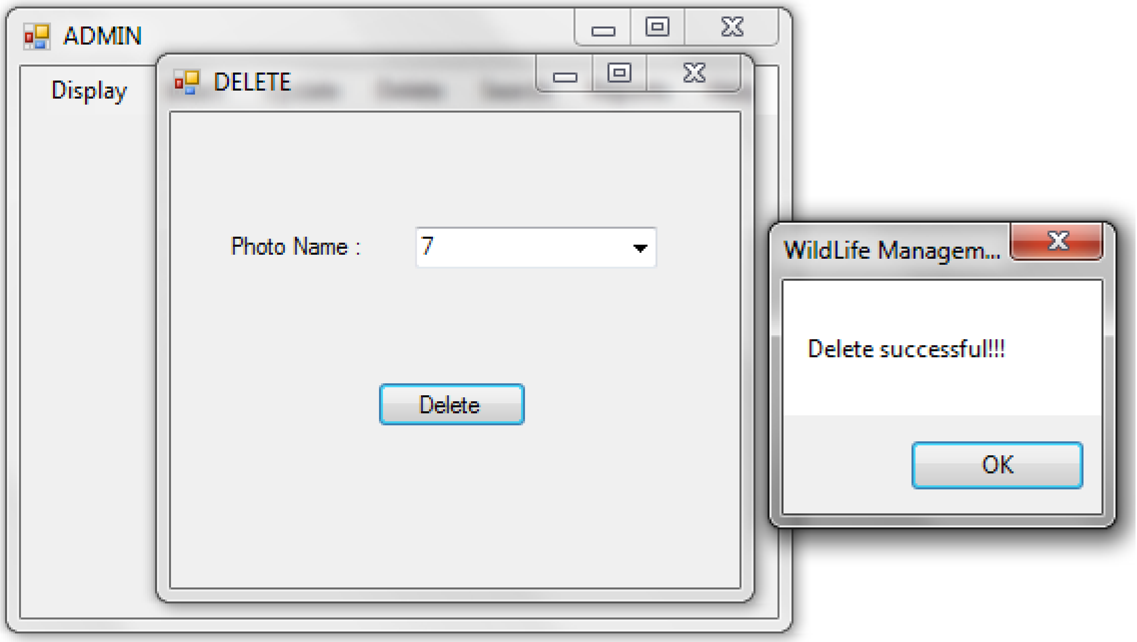
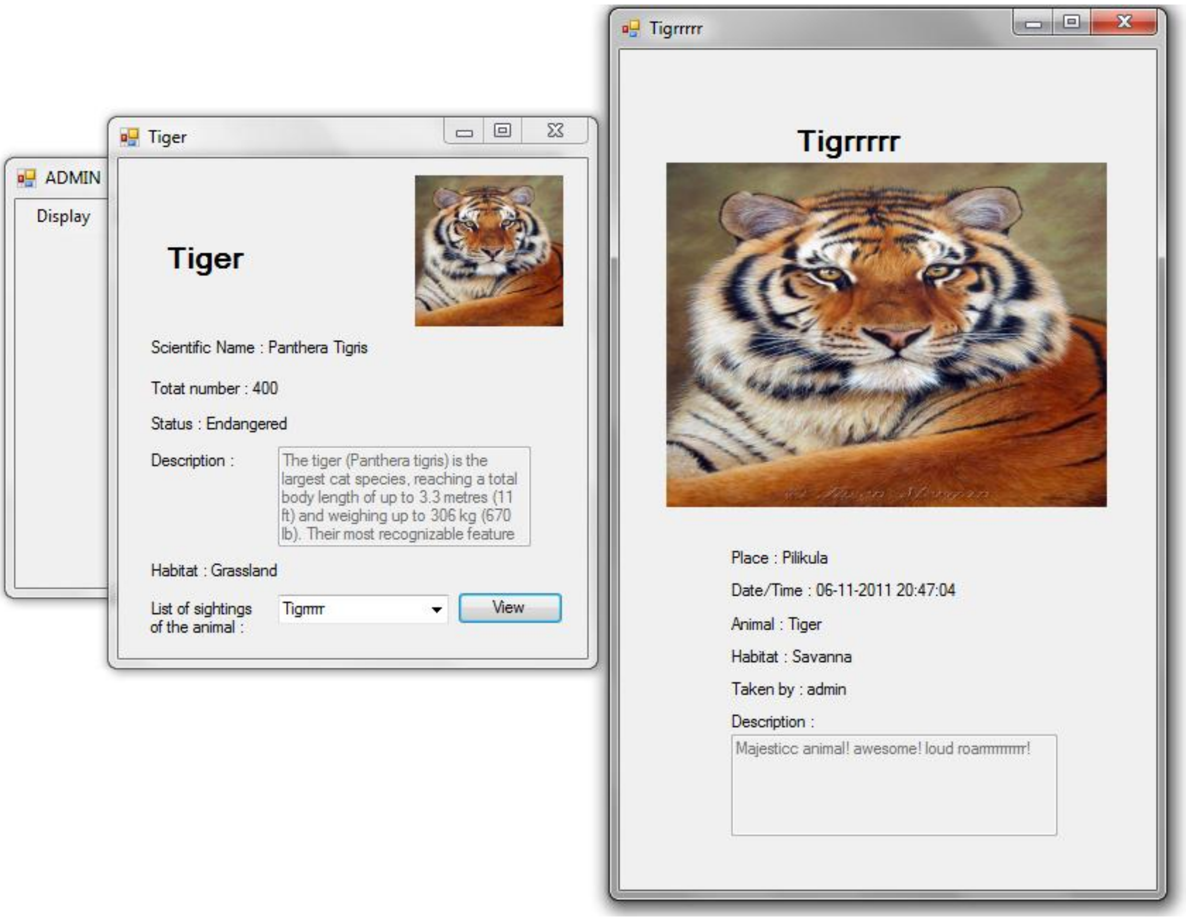


Photo Name : 7

Delete successful!!!

Search animal window :



Tiger

Scientific Name : Panthera Tigris

Totat number : 400

Status : Endangered

Description : The tiger (Panthera tigris) is the largest cat species, reaching a total body length of up to 3.3 metres (11 ft) and weighing up to 306 kg (670 lb). Their most recognizable feature

Habitat : Grassland

List of sightings of the animal : Tigrrrr

Tigrrrr

Place : Pilikula

Date/Time : 06-11-2011 20:47:04

Animal : Tiger

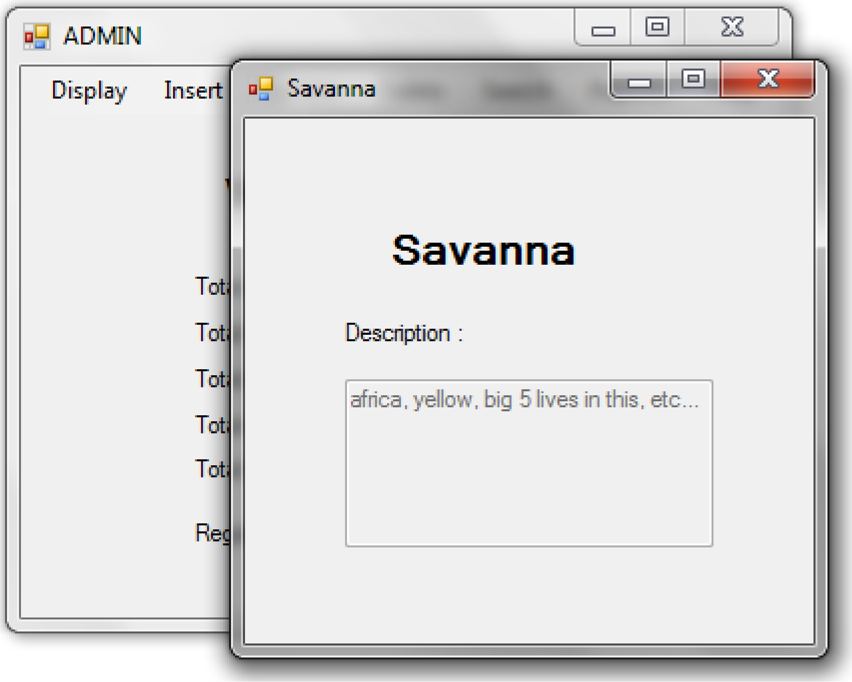
Habitat : Savanna

Taken by : admin

Description :

Majesticc animal! awesome! loud roarrrrrrrr!

Search habitat window :

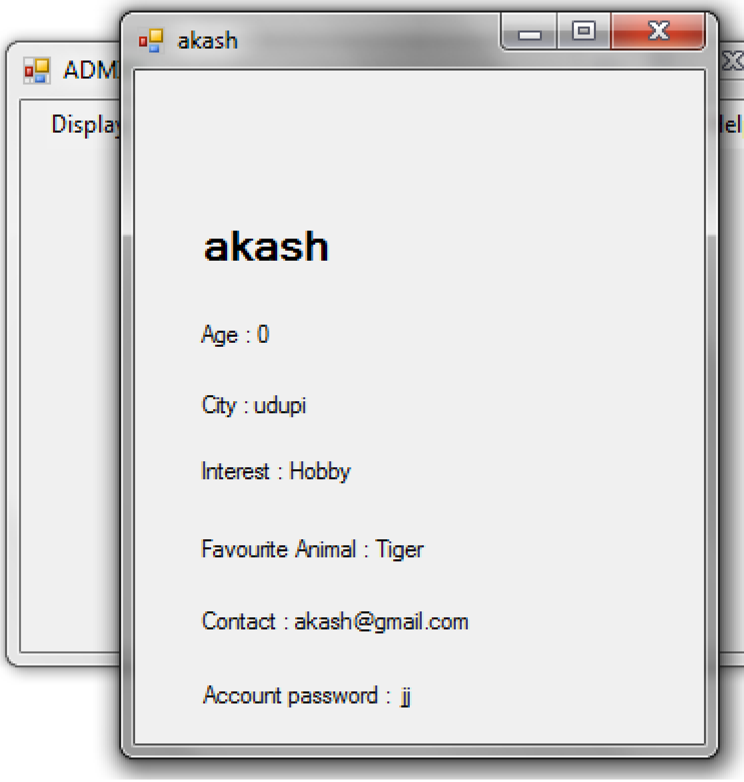


Savanna

Description :

africa, yellow, big 5 lives in this, etc...

Search member window :



akash

Age : 0

City : udupi

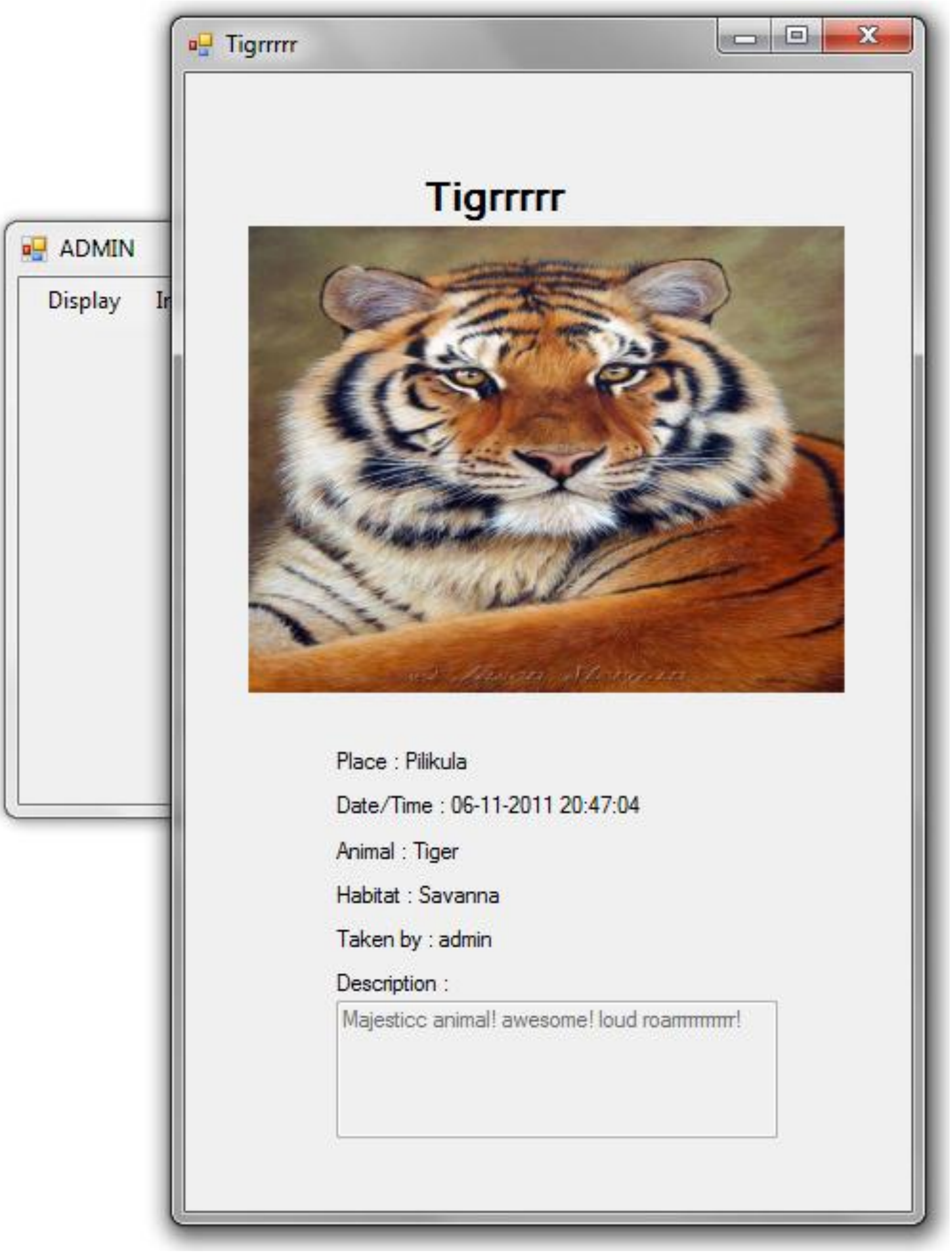
Interest : Hobby

Favourite Animal : Tiger

Contact : akash@gmail.com

Account password : jj

Search sighting window :



Tigrrrrr

Place : Pilikula

Date/Time : 06-11-2011 20:47:04

Animal : Tiger

Habitat : Savanna

Taken by : admin

Description :

Majesticc animal! awesome! loud roarrrrrrrr!

Search photo window :

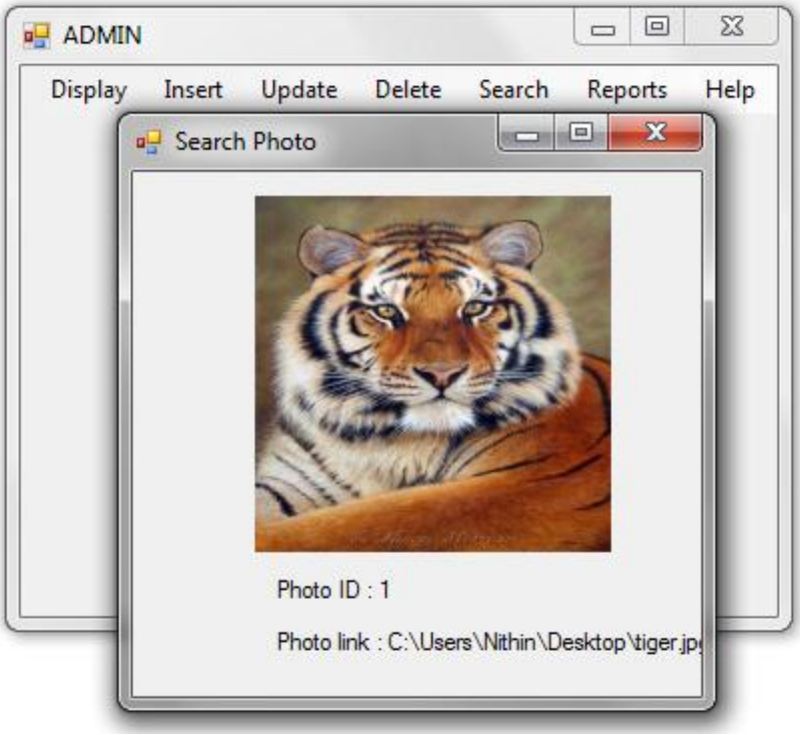
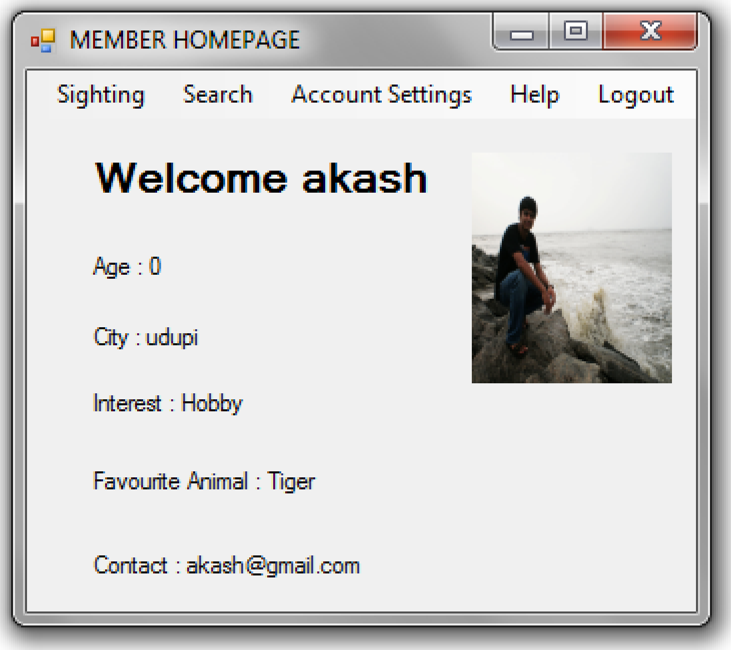


Photo ID : 1

Photo link : C:\Users\Nithin\Desktop\tiger.jp

Member homepage window :



Welcome akash

Age : 0

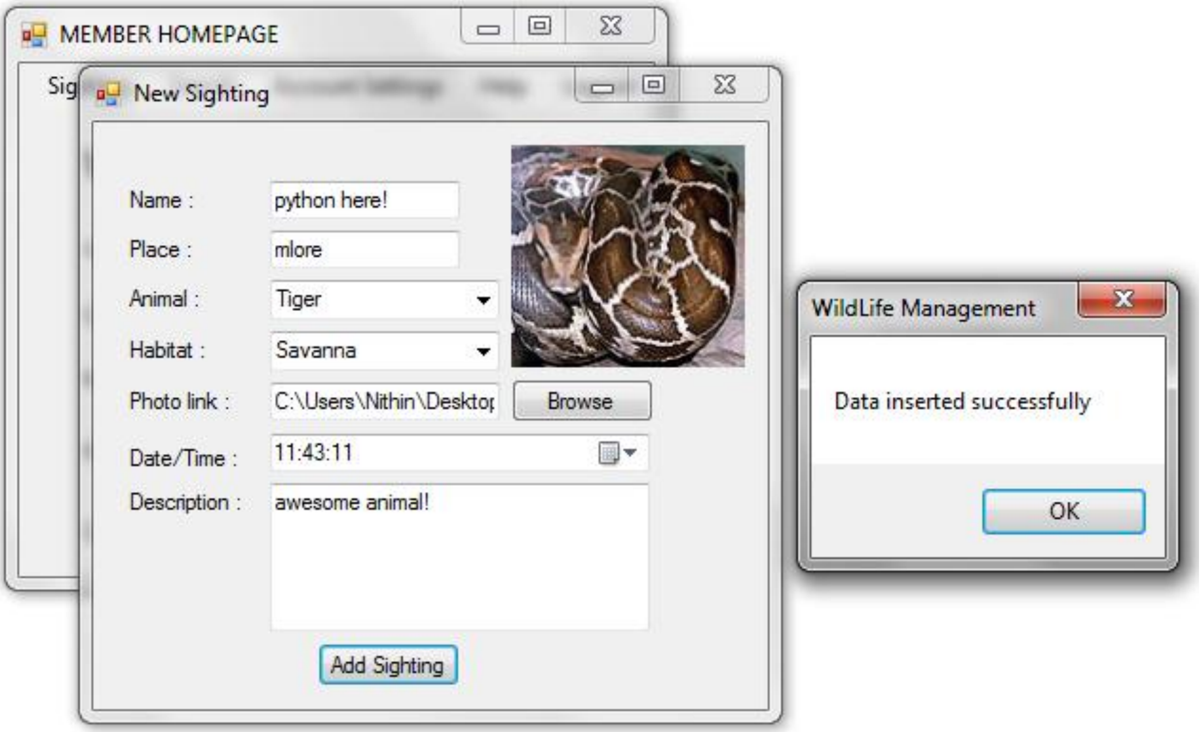
City : udupi

Interest : Hobby

Favourite Animal : Tiger

Contact : akash@gmail.com

New sighting window :


MEMBER HOMEPAGE

New Sighting

Name : python here!

Place : mlore

Animal : Tiger

Habitat : Savanna

Photo link : C:\Users\Nithin\Desktop

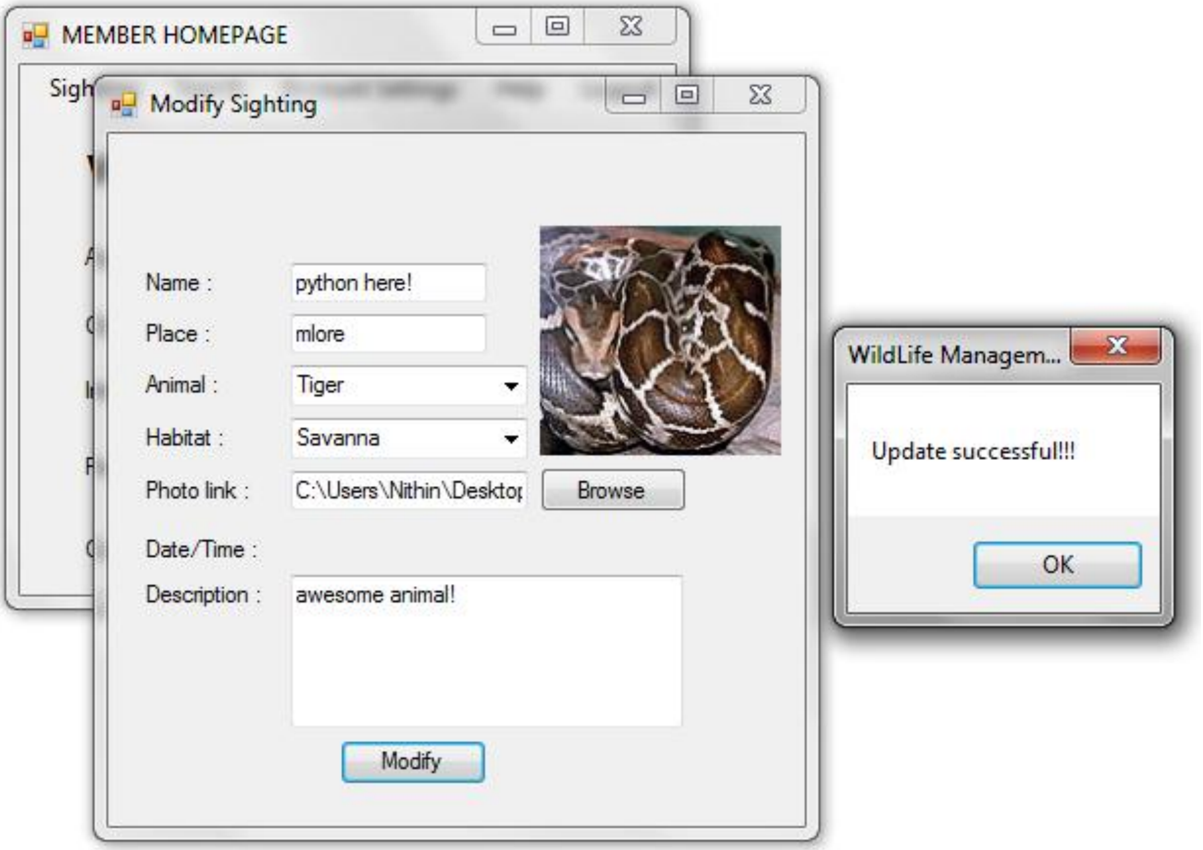
Date/Time : 11:43:11

Description : awesome animal!

WildLife Management

Data inserted successfully

Modify sighting window :


MEMBER HOMEPAGE

Modify Sighting

Name : python here!

Place : mlore

Animal : Tiger

Habitat : Savanna

Photo link : C:\Users\Nithin\Desktop

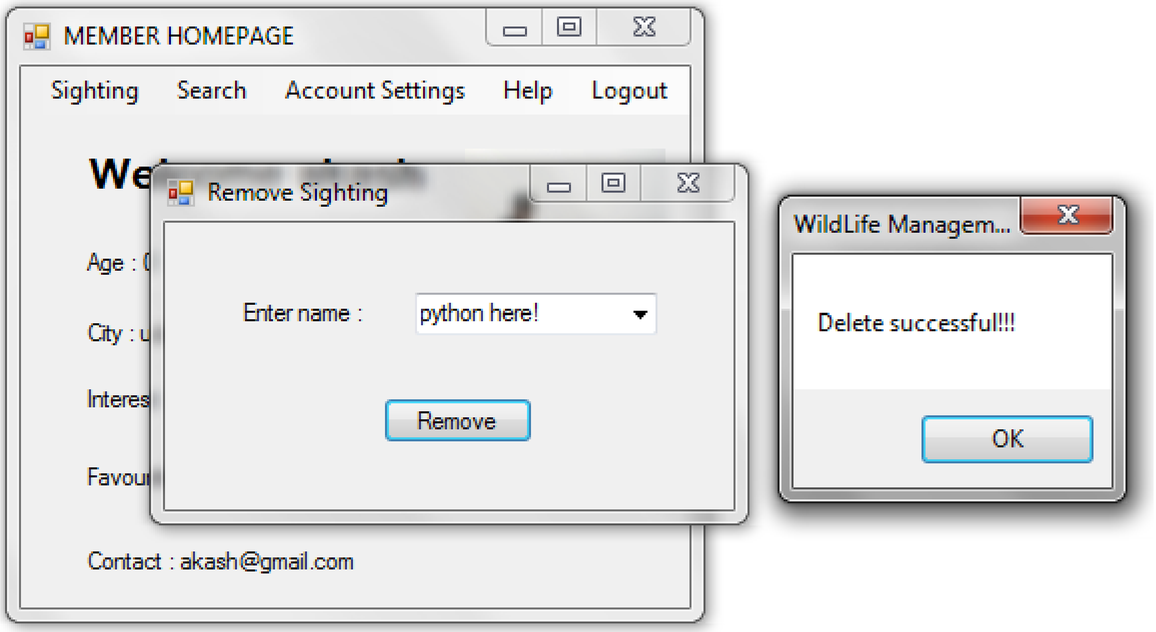
Date/Time :

Description : awesome animal!

WildLife Managem...

Update successful!!!

Remove Sighting window :



We

Age : 0

City : u

Interes

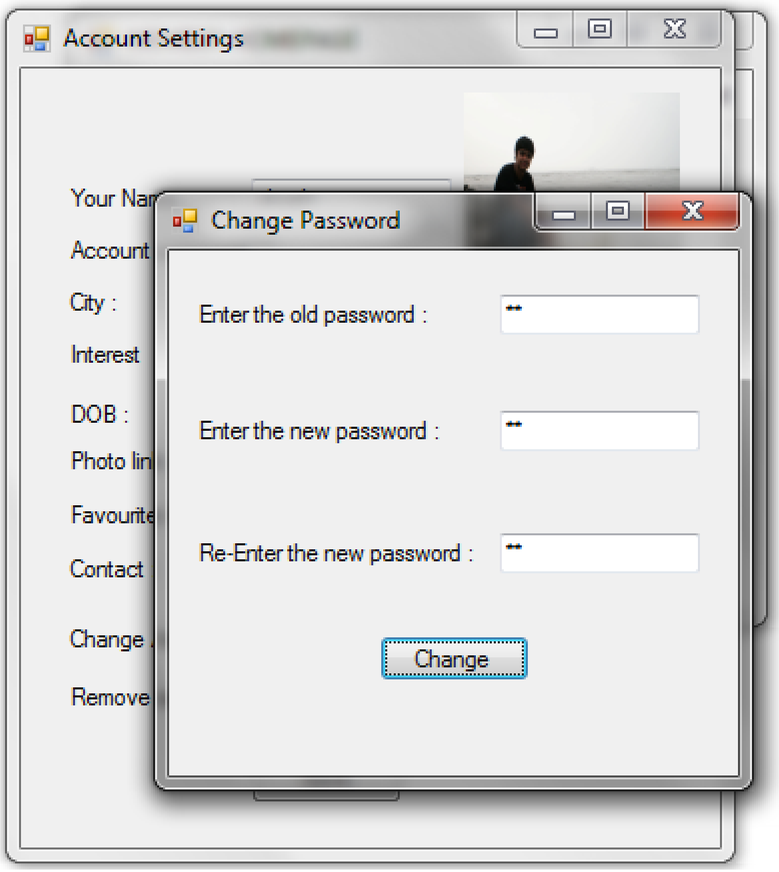
Favour

Contact : akash@gmail.com

Enter name : python here!

Delete successful!!!

Chage password window :



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Change .

Remove

Enter the old password : **

Enter the new password : **

Re-Enter the new password : **

CONCLUSION AND FUTURE WORK

As a whole, the application simplifies the process of data entry and helps in keeping track of the huge amount of wildlife. Also, since efficient care is taken to make the application user friendly, it can be used by a person who can be given few hours of training acquainting him/her with the set of features available in the application.

The application can be easily modified to add more entry to accommodate a larger set of data. This can be effective in scaling the application to be accessed by hundreds of machine in remote locations, if the application is made to run on a web server.

This application can be further extended to include a way to keep track of each and every animal and not just the animal species. That way the application will be more effective in keeping track of our precious wildlife.

REFERENCES

- Fundamentals of Database Systems 4th Edition – Ramez Elmasri and Shamkant Navathe
- Database Management Systems 2nd Edition –Raghu Ramakrishnan and Johannes Gehrke

THANKYOU