The design and implementation of php-based animal science website

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Abstract

This paper describes the design and development of an animal science website system designed to meet the needs of users to obtain animal science knowledge. The system is divided into three roles: visitor, registered user and administrator, and provides functions such as browsing animal information, searching animals, collecting animal information, modifying passwords, adding users and deleting users. Through detailed system requirement analysis, functional description, database design and system structure design, an easy-to-use and content-rich animal science website was realised. Teamwork, planning and design, and code writing experience were fully applied in the project, which contributed positively to raising the awareness of animal protection and environmental protection.

Keywords

PHP programming, animal science website, Navicat database.

1. Introduction

1.1. Background of system design

With the rapid development of science and technology and the popularity of the Internet, more and more people begin to obtain information and knowledge through the Internet. And as a popular field of science popularisation, animal science plays an important role in people's understanding of biodiversity, protection of the environment and cultivation of animal protection awareness. Therefore, we decided to design and build an animal science popularisation website, aiming at providing accurate, interesting and easy-to-understand animal science knowledge to the general users, and guiding people to love animals and take care of the natural environment.

1.2. Design Objectives

The system design of the animal science website aims to meet the user's demand for animal science knowledge. Through the design of an easy-to-use, content-rich, convenient access to animal knowledge website, we hope to enable more users to understand and pay attention to the biological habits of animals, ecological environment, and improve the awareness of animal protection and environmental protection.

2. System Requirements

2.1. System Functional Requirements

The frontend of the system is divided into two roles: visitor and registered user. Visitor is a non-logged-in user, who can register an account and browse the information of animals; registered user is a registered and logged-in user, who can browse the information of animals, change the login password, put the favourite animals and so on; the background administrator can modify the user information of the system or add a new user after logging in, and at the same time, the administrator also has the functions that all the registered users have.

2.1.1. Visitor Functional Requirements

(1) Visitors can browse the animal information on the homepage, and search and query the animal information by keyword search.

Visitors can log in and register as registered users.

2.1.2. Description of User Functional Requirements

(1) Users need to input user name, password and other information when registering. After successful login

Enter the home page.

(2) Browse Animals: Users can browse animals in the home page or click on the animal pictures to view the details of the animals.

(3) Search Animals: Users can find the corresponding animal by fuzzy searching the name of the animal.

(4) Change Password: Users can change their login password.

(5) Add to favourites: users can add their favourite creatures to favourites and delete the animals in the favourites list.

2.1.3. Administrator Functional Requirements Description

(1) Administrator login requires user name and password. After success, it enters the management page and performs administrator related operations.

(2) User management: Administrator can modify user information and delete users for registered users and add new users.

(3) Add to favourites: Administrator can also add your favourite creatures to favourites and delete the animals in the favourites list.

(4) Change Password: Administrator can also change his/her login password.

(5) Browse Animals: Administrator can also browse animals in the homepage or click the animal pictures to see the detailed information of the animals.

(6) Search Animals: Administrator can also find the corresponding animal by fuzzy searching the animal's name.

2.2. System use case diagram

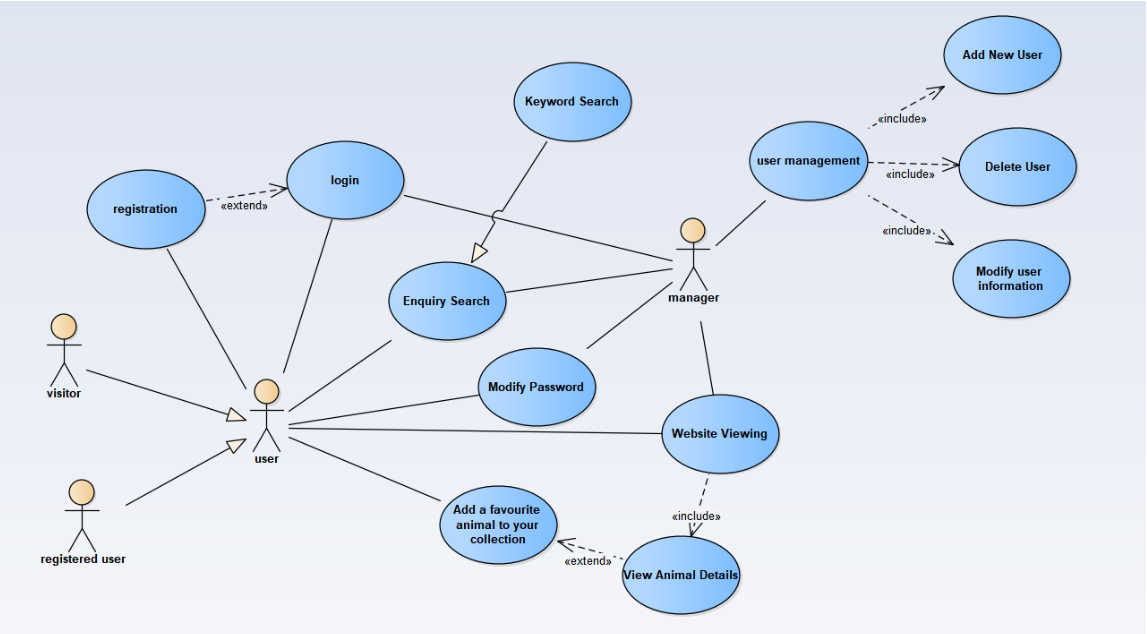

Figure 1: System use case diagram

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2.3. Key Use Case Description

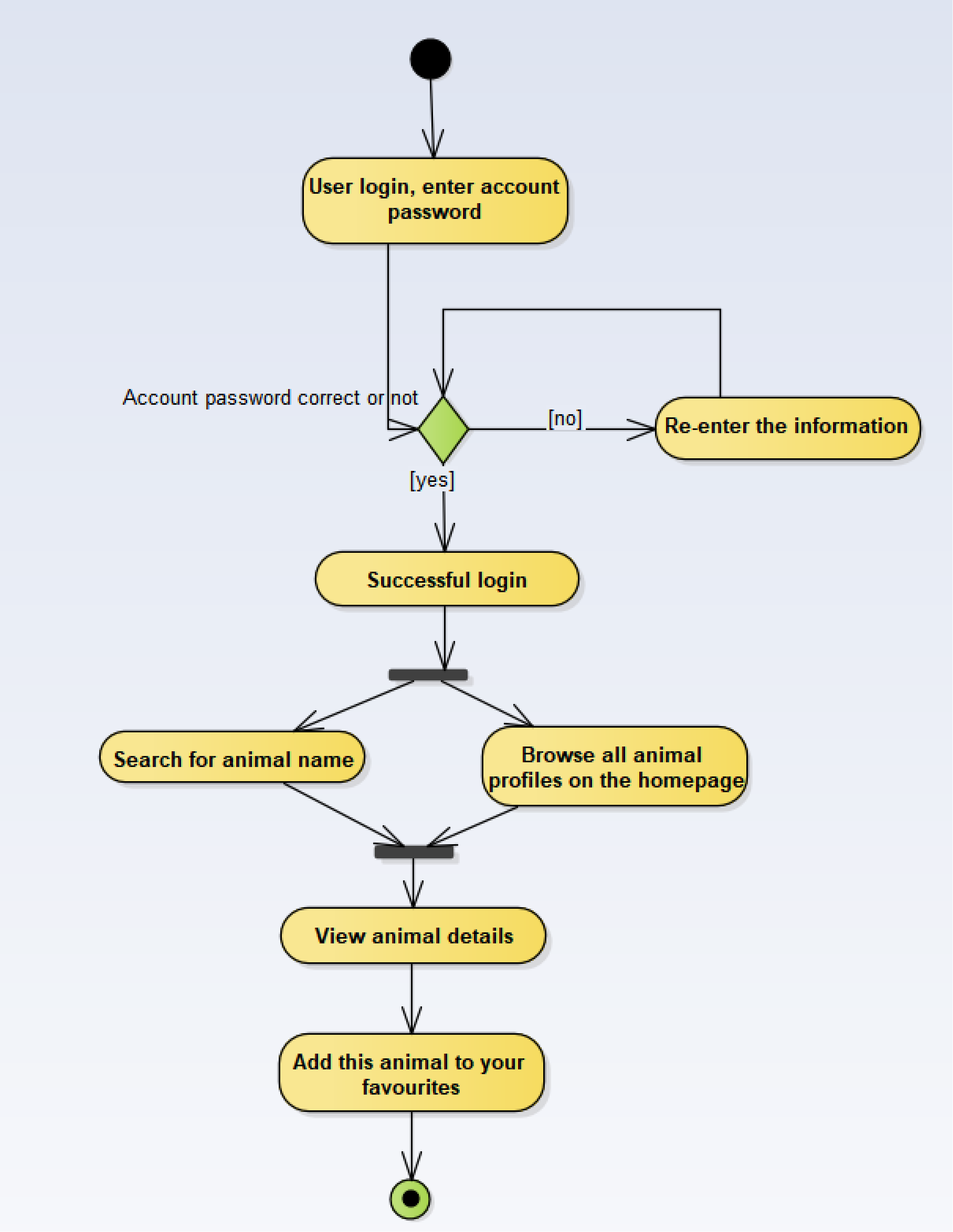
User login, enter account password
Account password correct or not
[no]
Re-enter the information
[yes]
Successful login
Search for animal name
Browse all animal profiles on the homepage
View animal details
Add this animal to your favourites

Figure 2: Logged in users favourite animal activity charts

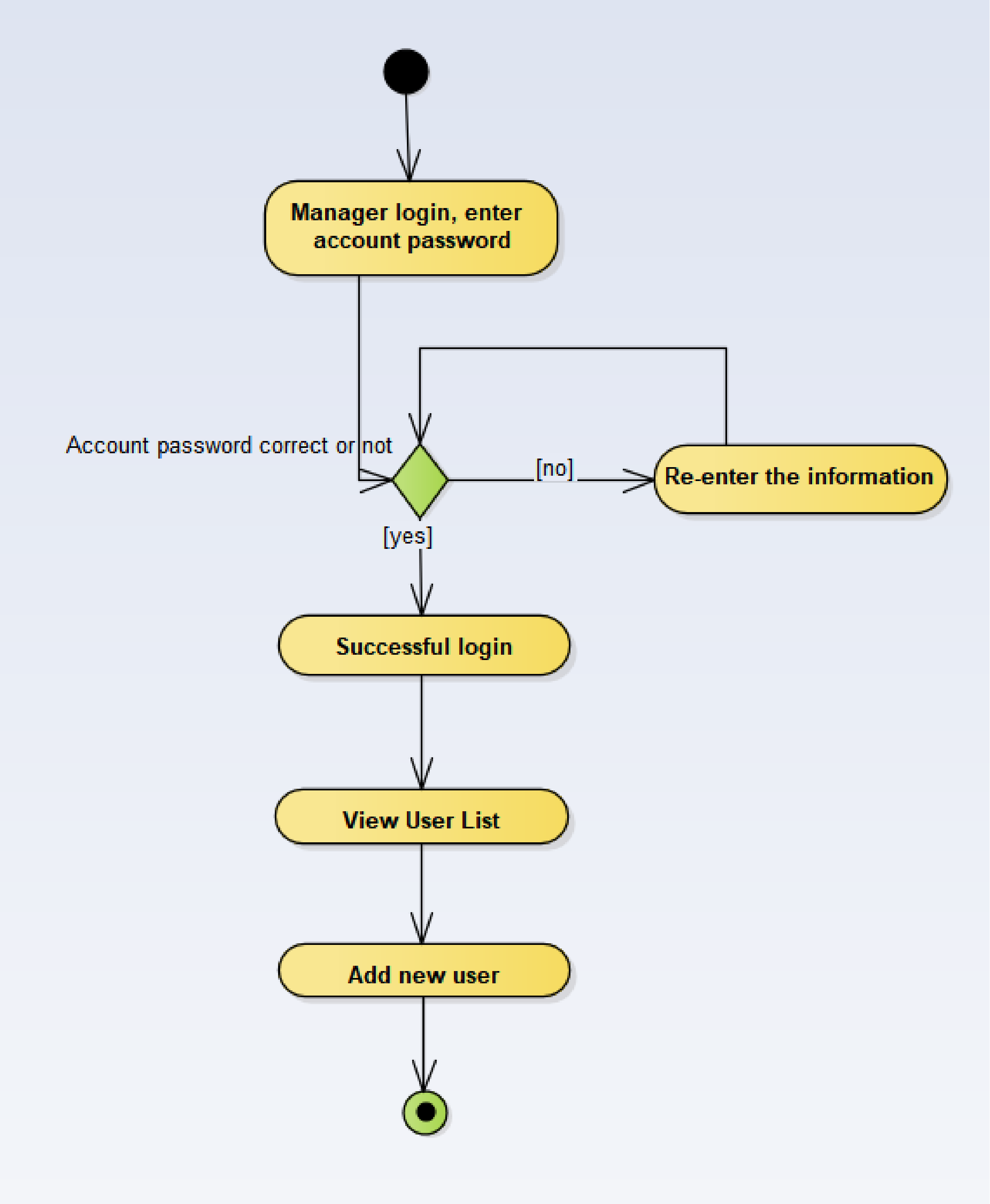

Figure 3: Administrator adds user activity charts

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3. System Structure Design

3.1. System Functional Structure Diagram

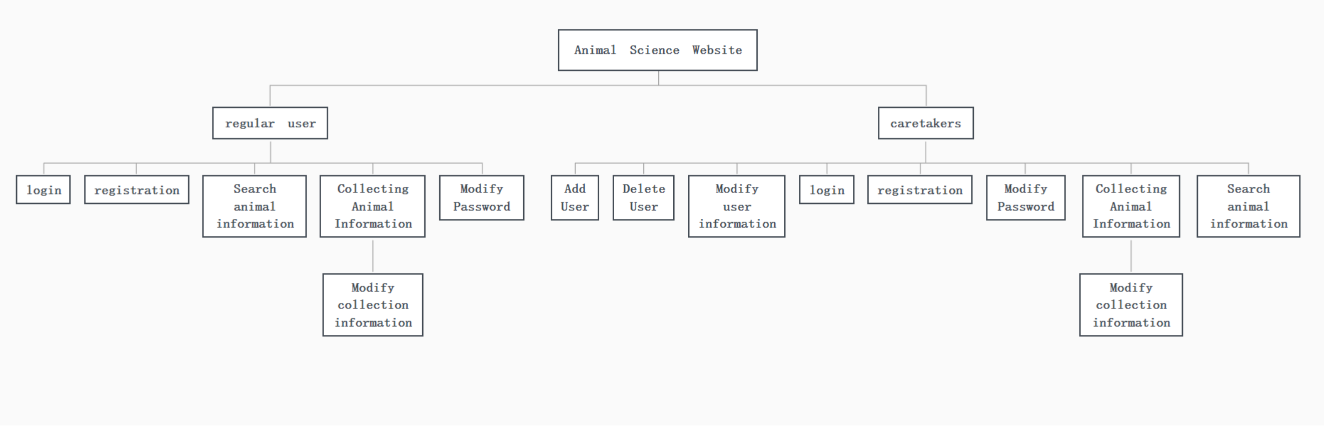

Animal Science Website
regular user
caretakers
login
registration
Search animal information
Collecting Animal Information
Modify Password
Modify collection information
Add User
Delete User
Modify user information
login
registration
Modify Password
Collecting Animal Information
Search animal information
Modify collection information

Figure 4: System Function Structure Diagram

3.2. Detailed description of system functions

3.2.1. Function Text Description

Login: Ordinary users and administrators can login by correctly entering the user name and password stored in the database.

Registration: Users can register a new user by entering a user name different from the one existing in the database.

Collection of animal information: Login users and administrators can collect their favourite animal information.

Modify favourite information: Login user and administrator can modify the information of favourite animals in the favourite page.

Change password: Login user and administrator can change their password.

Add user: Administrator can add new user in the background management page.

Delete User: Administrator can delete the registered user in the background user management page.

Modify user information: Administrator can modify user name, password and other information of registered users in the background user management interface.

3.3. Database Design

3.3.1. System Entity Class Diagram

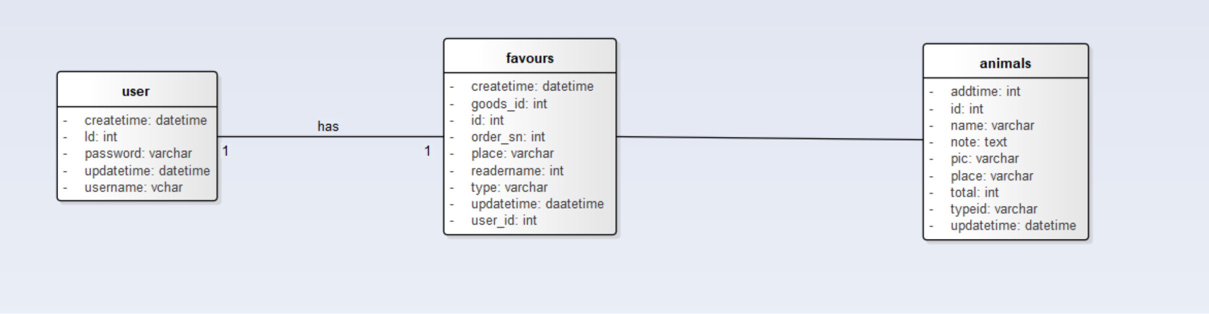


Figure 5. System Class Diagram

4. System Detailed Design

4.1. System Functional Requirements

Visitors and logged-in users can access the main page normally, and can click on the animal pictures to enter the animal details interface. After entering the main page, the main page will call the sql statement to search all the contents of the animal table, and use the mysql_query function in the dbconfig.php file to perform the execution of the sql statement, and import the results into the array through the mysql_fetch_array and mysql_fetch_assoc functions. Finally, the while loop will display the picture of each data, the name of the animal and the main distribution area of the animal on the main page. Users can search for the animals they want to find on the main page. When searching, the text entered in the search box will be stored in the searchword variable, and then added to the sql statement, and then the search will be carried out by calling the function in dbconfig.php, and the while loop will display the found animals after getting the result.

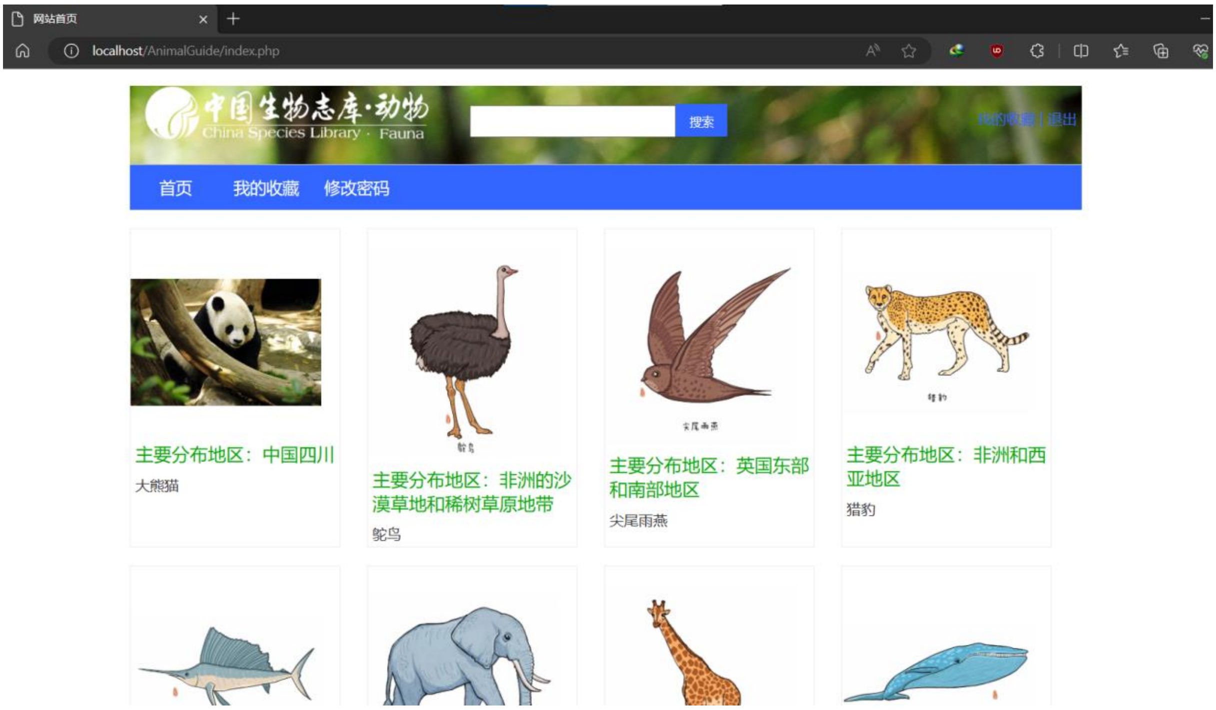

网站首页
localhost/AnimalGuide/index.php
中国生物志库·动物
China Species Library · Fauna
搜索
我的收藏 | 退出
首页
我的收藏
修改密码
主要分布地区：中国四川
大熊猫
鸵鸟
主要分布地区：非洲的沙漠草地和稀树草原地带
鸵鸟
尖尾雨燕
主要分布地区：英国东部和南部地区
尖尾雨燕
猎豹
主要分布地区：非洲和西亚地区
猎豹

Figure 6. System Main Page Figure 1

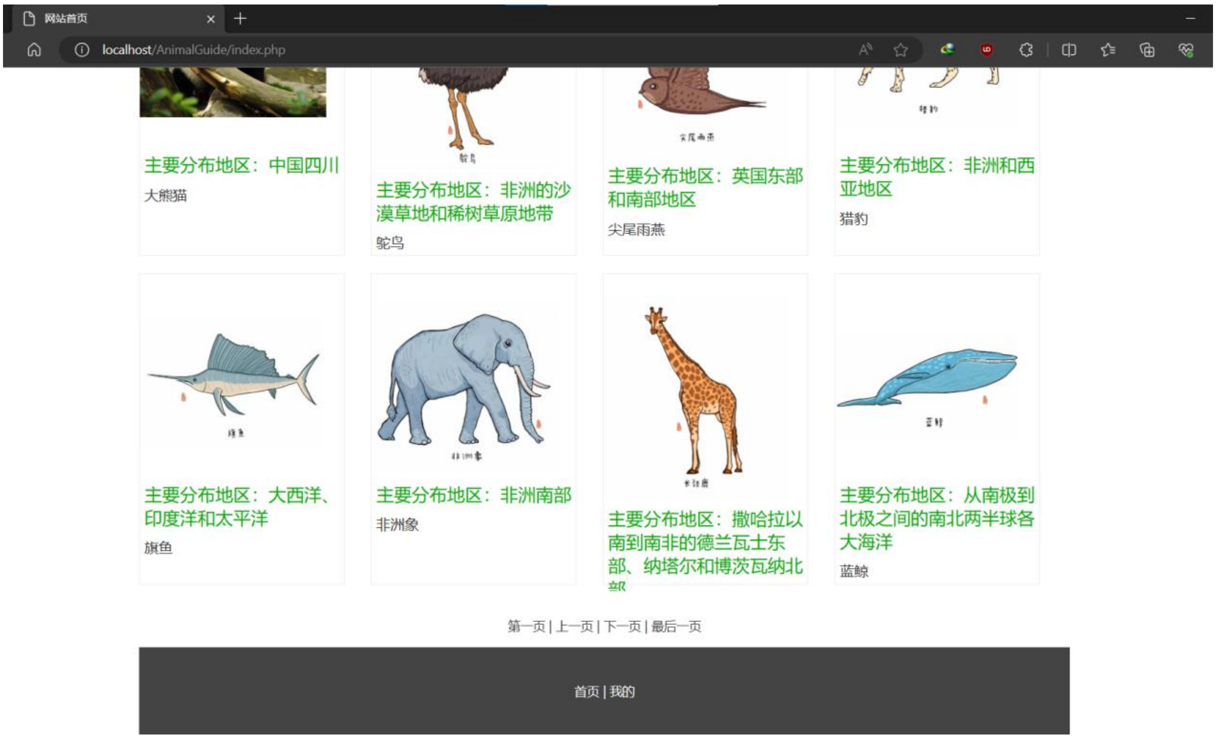
The main code for the search operation is described below:

First, check to see if a GET request parameter named searchword exists. If not, initialise the searchword $searchword to an empty string. If the searchword parameter exists, the trim function removes the leading and trailing spaces and stores it in the $searchword variable for future use.

Then, define the SQL query statement $sql to retrieve data from the database table named animals. If $searchword is not empty, will add the query condition name like '%{$searchword}%' to the query statement. Next, the restriction limit {$temp},{$front_list_num} is appended to $sql, which is typically used for paging, controlling the number of results returned and the offset.

Then, the SQL query is executed via the mysql_query function and the results are stored in the $result variable. Afterwards, a while loop is entered to iterate through the query result set. At each loop iteration, a row of data is fetched from the result set using the mysql_fetch_assoc function and stored in the associative array $row. Inside the loop, a list item <li> is constructed in HTML format, displaying information about each animal, including the animal name, primary location, and a picture, all of which are extracted from the $row array.

Finally, the loop is terminated by the PHP end tag <?php ? > ends the loop so that each iteration generates a list item, thus presenting a list of search results on the web page. This approach allows for search terms entered by the user to be accepted and used to query the database to retrieve matching animal records, which are ultimately presented to the user as a list.


网站首页
localhost/AnimalGuide/index.php
第一页 | 上一页 | 下一页 | 最后一页
首页 | 我的

主要分布地区：中国四川
大熊猫

主要分布地区：非洲的沙漠草地和稀树草原地带
鸵鸟

主要分布地区：英国东部和南部地区
尖尾雨燕

主要分布地区：非洲和西亚地区
猎豹

主要分布地区：大西洋、印度洋和太平洋
旗鱼

主要分布地区：非洲南部
非洲象

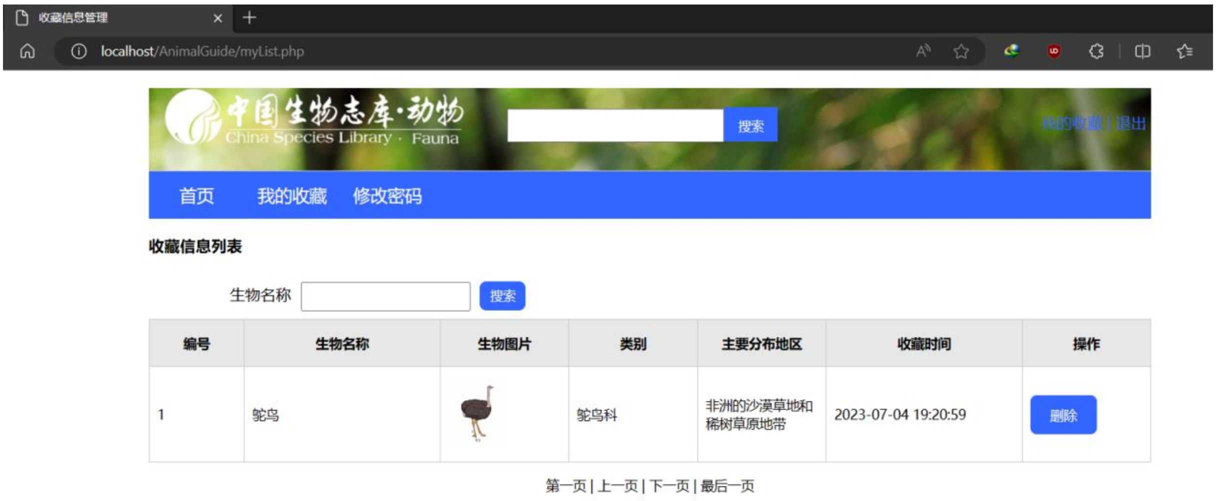
主要分布地区：撒哈拉以南到南非的德兰瓦士东部、纳塔尔和博茨瓦纳北部

主要分布地区：从南极到北极之间的南北两半球各大海洋
蓝鲸

Figure 7. System Main Page Figure 2

4.2. Collection Page

Logged in users can click on the home page next to the "My Collection" button, you can enter the collection information list, such as Figure 4.3. by executing the sql statement, in which will display the user's collection of animals, in the animal details page you can click on the "Add to my favourite" button to add the current animal to the animal. In the animal details page, you can click on the "Add to my favourite" button to add the current animal to the collection list, when you click on the button, the system will call the myadd.php file will be the user collection of the current animal information into the favours table, into the collection list will display the name of the animal to join the picture, the category, the main distribution area and the collection time. At the same time, you can use the Delete button to delete the animal collection. When you click the "Delete" button, the system will call the del operation in myAction.php to delete the row of data from the favours table. In the collection information list, you can also search the animals added to the collection information list through the search box, the specific method is similar to the method in the home page, first get the search text stored in the keyword variable, and then search through the sql statement, and then output the search results through the while statement.


收藏信息管理
localhost/AnimalGuide/myList.php
中国生物志库·动物
China Species Library · Fauna
搜索
我的收藏 | 退出
首页
我的收藏
修改密码
生物名称
搜索
删除
第一页 | 上一页 | 下一页 | 最后一页

收藏信息列表

编号	生物名称	生物图片	类别	主要分布地区	收藏时间	操作
1	鸵鸟		鸵鸟科	非洲的沙漠草地和稀树草原地带	2023-07-04 19:20:59	删除

Figure 8. System Collection Pag

The main code for adding animal information to the favourites list is elaborated below:

Get the animal information identifier $id passed from the front-end via $_GET['id'], which is used to identify the specific animal the user wishes to collect. Get the unique identifier $uId of the logged in user from the session, typically used to identify the current user. Construct a SQL query statement $sql to check if the collection record associated with the current user $uId and animal information $id already exists to avoid duplicating the same animal collection. Execute the SQL query and store the result in the $result variable. Use a conditional statement to check if the relevant collection record already exists. If $result is valid and there are rows in the query result (mysql_num_rows($result) > 0), then the same collection record already exists. In this case, the alertMes function is called to display the message "already exists" and redirect the user to the "index.php" page. If no related collection record is found, the next step is to look up the most recent collection record. This step is to determine the sort order of the new collection records. Extract the order_sn field value of the most recent record from the query result and increase it by 1 to determine the sort order of the new collection records. Set the time zone to "Asia/Shanghai" and get the current time and store it in the $mtime variable to indicate when the new collection record was created. Construct a SQL insert statement, $sql, to insert the user ID ($uId), the animal ID ($id), the sort number ($sn), the animal type ($info[typeid]), the primary place ($info[place]), and the creation time ($mtime) into the "favours" table to indicate that the user has a collection of that animal. Execute the SQL insert statement again with the mysql_query function to add the new collection record to the database. If the insertion is successful, call the alertMes function to display the message "Added successfully!" and redirects the user to the "myList.php" page. If the insertion fails, it displays the error message "Add Failed!" and outputs a MySQL error message (mysql_error()) for debugging and troubleshooting purposes. Finally, if the user is not logged in (no user ID exists in the session), a JavaScript popup is displayed prompting the user to log in and redirecting them to the "login.php" page to ensure that only logged in users can perform collection actions.

5. Conclusion

In summary, we designed and implemented an animal science website, aiming to provide accurate, interesting and easy-to-understand animal science knowledge to a wide range of users. By analysing the design background, objectives and functional requirements of the system, as well as the detailed system structure design and database design, we have successfully implemented a feature-rich system that meets the needs of users with different roles, including visitors, registered users and administrators.

Users can browse the rich animal information on the website and easily find the animals they are interested in through the search function. Registered users can also bookmark their favourite animal information and manage their bookmarks when needed. The administrator, on the other hand, has the authority to manage user information and can add new users, modify user information and other functions.

Through the design and implementation of this system, we hope to guide more people to understand and pay attention to the ecological habits and living environment of animals, so as to improve the awareness of animal protection and environmental protection. With the continuous development of science and technology and the progress of society, this animal science website will provide a useful platform for users and promote the realisation of the goals of ecological protection and sustainable development.

In conclusion, the establishment of the Animal Science Website is our contribution to the cause of science popularisation, and we believe that in the future, it will continue to make greater contributions to the acquisition of scientific knowledge and the cultivation of environmental awareness. We hope that more people will participate in animal protection and environmental protection to create a better future together.

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References

[1] Miao Wei-Wei,Zhang Tao.Research on the application of PHP technology in enterprise website development[J]. Modern Industrial Economy and Informatisation,2022,12(05):158-159+234.DOI: 10.16525/j.cnki.14-1362/n.2022.05.065.

[2] Zhou Shaoqing. Design of "Wishing Wall" based on PHP+MySQL[J]. Wireless Internet Technology, 2022, 19(11):73-75.

[3] Wang Ce. The design of digital publishing system based on PHP[J]. Information and Computer (Theoretical Edition),2022,34(11):72-74.

[4] J. Zhang.Dynamic application of MySQL database in PHP web pages[J]. Integrated Circuit Applications,2022,39(06):112-113.DOI:10.19339/j.issn.1674-2583.2022.06.043.