Functional Testing Document

for

Web Cattery Management System

Version 1.0 approved

Prepared by: Sherry Zhao, Ningjia Huang, Zora Li, Nora Tang, Zhaokuan Chen

Case Western Reserve University

Apr 23, 2021

1. Introduction

The functional testing document specifies the testing of the classes in the Web Cattery Management System. The objectives of this document include: 1) create detailed guidelines for the testing of the software; 2) detect the errors in the implementation and measure the quality of code; 3) verify the requirements in the SRS document have been fulfilled. Functional testing areas include logging in (as breeder, parent, and administrator), creating new accounts, viewing cattery information, editing cattery information, using genetic calculator, and generating family tree of a cat. Testings will be conducted during implementation, integration, and before the software being delivered.

2. Project Scope

2.1 Scope of Testing

The Web Cattery Management System should be able to satisfy the following functionalities:
- Breeders, potential parents, and administrators should be able to create the accounts with the corresponding accessibility and log in to the system successfully.
- Query cattery information by entering either the name or certification number of the cat.
- Edit/Add cat information through the web interface.
- Calculate the potential diseases of a cat based on the user input.
- Generate the family tree of a cat based on the consanguineous information in the database.

2.2 Testing Schedule

The usability testing will be conducted once a functionality has been implemented. Furthermore, after a whole class is implemented, we will test the class to see whether it performs ideally. If multiple classes have dependencies on each other, the class tests will be conducted after we finish all of the classes. The following table shows the expected testing dates of each class:

Web Cattery Management System	Version 1.0
Functional Test Plan	Date: April 25, 2021
Testing of Login System and Account Creation	Date: April 27, 2021
Testing of Table Access class	Date: April 28, 2021
Testing of Cat Info class	Date: April 29, 2021
Testing of Genetic Calculator class	Date: May 1, 2021
Testing of Family Tree class	Date: May 3, 2021
Testing of the Whole Software	Date: May 3, 2021

3. Test Design Specification

3.1 Specification Format

To ensure the software performs ideally under all of the conditions (including both normal cases and when there are errors in user input), each function will be tested for multiple times and with different test cases covering normal cases and edge cases. For each of the functionalities, we will list specific tests and the expected outputs. If the function conforms to our expectation specified in this documentation, we can say the program has passed for that function.

3.2 Presumption and Suspension Criteria

For a function, if any of the test results does not conform to our expectation, the function will be considered to have failed the test. Further modifications should be made in order to pass the failed test cases.

4 Test Specifications

4.1 Create New User Account in the Signup Page

I. The user clicks the "Signup" button in the upper right corner of the Main page.

II. The website then returns the Signup page, which displays the questionnaire and a "Submit" button. The questionnaire will ask for the needed information of a User account. The button is located at the end of the questionnaire.

   A. If the user clicks the "Submit" button without inputting any string in username or password text boxes, or without selecting account type, an alert will appear to the user to input the missing information.

   B. If the user chooses "Breeder" under "Account Type" without inputting any string in one of "Cattery Name", "Registration Number", "Registration Organization", "Email", "Phone", "Owner", or "Location" text boxes, an alert will appear to the user to input the missing information.

   C. If the user chooses "Potential Parent" under "Account Type" without inputting any string in one of "Name", "Phone", or "Email", an alert will appear to the user to input the missing information.

   D. If the user inputs all the needed text boxes and clicks the "Submit" button, a TableAccess object will be created and it will send the "insert" username, password, account type request to the database.

      1. If the corresponding username, password, and account type is found in the database, an error of "account already existed" will be returned. An alert will appear to alert the user that the account is already created in the database.

      2. If the corresponding username, password, and account type is not found in the database, an account is created in the database with the related information. It will then send "Successfully created the account" and then the user will be

transferred to the Main page with the top right corner of the website signed as "Logged in".

      a) If the user type is "Breeder", the Cat, Family Tree, Account tab in the Main page will change their display settings from "none" to "inline".

      b) If the user type is "Potential Parent", the Account tab in the Main page will change their display settings from "none" to "inline".

4.2 User login in the Login Page

I. The user clicks the "Login" button in the upper right corner of the Main page.

II. The website then returns the Login page, which displays two text boxes, one account type choice box with Breeder, Potential Parents and admin, along with a "Login" button. The text box will require users to input username and password.If the user clicks the "Login" button without inputting any string in any one of the username or password text boxes, and forgets to choose the account type box, an alert will appear to the user to input the missing information.

    A. If the user clicks the "Login" button with both text boxes filled and selects the account type. Then a TableAccess object will be created and it will send the "search" username, password, account type request to the database.

        1. If the corresponding username, password, and account type is found in the database, then the system will send "Successfully logged in." and then the user will be transferred to the Main page with the top right corner of the website signed as "Logged in".

           a) If the user type is "Breeder", the Cat, Family Tree, Account tab in the Main page will change their display settings from "none" to "inline".

           b) If the user type is "Potential Parent", the Account tab in the Main page will change their display settings from "none" to "inline".

           c) If the user type is "Admin", the Account, Users tab in the Main page will change their display settings from "none" to "inline".

        2. If the corresponding username, password, and account type is not found in the database, then the system will send an alert to the user with the message of "Wrong information. Please try again."

4.3 Edit an Account in the Users Page

I. The Administrator clicks the Users tab located on the Main page.

II. The website then returns the Users page, which displays one text box, one choice box and one "Submit" button. The text box on the left is for the Administrator to input the username, and the choice box on the right is for the Administrator to select the account type. The "Submit" button is located under the text boxes.

    A. If the Administrator clicks the "Submit" button without inputting any string or selecting account type, a TableAccess object will be created and it will send the "select" all request to the database. Then the page will display all the existing accounts inside the database.

    B. If the Administrator clicks the "Submit" button without inputting any string but with selecting account type, a TableAccess object will be created and it will send the "select"

the selected account type request to the database. Then the page will display all the existing accounts of the account type inside the database.

C. If the Administrator clicks the "Submit" button with inputting any string but without selecting account type, a TableAccess object will be created and it will send the "select" the selected username request to the database. Then the page will display all the existing accounts of the username inside the database.

D. If the Administrator clicks the "Submit" button with inputting any string and selecting account type, a TableAccess object will be created and it will send the "select" the selected username and account type request to the database. Then the page will display the corresponding account stored in the database.

III. The website then returns the Users page, which displays a list of all accounts as well as an Edit and a Delete button. Each user is labeled as Breeder, Potential Parent, Administrator user.

IV. The Administrator can select a user and click the Edit button. Then the website will display the corresponding information stored in the database with editable text boxes and one "Update" button at the end of the information.

V. The Administrator can select a user and click the Delete button. Then the website will send an alert window of "Confirm to delete the account?" with "Yes" and "No" buttons.

A. If the Administrator clicks the "Yes" button, then the selected account will be deleted from the database.

B. If the Administrator clicks the "No" button, then the window will disappear.

4.4 Edit an Account in the Account Page

I. The user clicks the Account tab located on the Main page.

II. The website then returns the Account page, which displays the corresponding information of the account stored in the database and one "Update" button at the end of the page. All the information is displayed in the form of text boxes that the user could edit.

4.5 Create New Cat in the RegisterCat Page

I. The Breeder clicks the "Register New Cat" button in the upper right corner of the Cat page.

II. The website then returns the RegisterCat page, which displays the questionnaire and a "Submit" button. The questionnaire will ask for the needed information of a cat. The button is located at the end of the questionnaire.

A. If the Breeder clicks the "Submit" button without inputting any string in any one of the required text boxes, an alert of "Please fill in the required information" will be sent to the Breeder.

B. If the Breeder inputs all the required text boxes and clicks the "Submit" button, a TableAccess object will be created and it will send the "insert" all the information requested to the database.

1. If the corresponding cat name, breed, and registration number is found in the database, an error of "cat already existed" will be returned. An alert will appear to alert the Breeder that the cat is already created in the database.

2. If the corresponding cat name, breed, and registration number is not found in the database, a cat is created in the database with the related information. It will then send "Cat information is successfully stored." and then the Breeder will be transferred to the Cat page.

4.6 View/Edit Cat Information in the Cats Page and CatInfo Page

I. The user clicks the Cats tab located on the Main page.
II. The website then returns the Cats page, which displays one text box and one "Submit" button. The text box on the left is for the Breeder to input the cat name, or the registration number. The "Submit" button is located under the text box.
    A. If the user clicks the "Submit" button without inputting any string in the text box, an error alert of "No input information, please fill the text box." will be sent to the Breeder to fill in the text box.
    B. If the user clicks the "Submit" button with inputting string in the text box, a TableAccess object will be created and it will send the "select" the cat name or registration number request to the database.
    C. The website then returns the Cats page, which displays a list of all selected cats. If the user's account type is Breeder, then the display setting of Edit and Delete buttons will change from "None" to "On".
        1. The user can click on the name of the cat, The website will create a TableAccess object. The TableAccess object will send the request of "select" cat name to the database and the data required is returned.
        2. The website then returns the CatInfo page with the information about the selected cat.
        3. The Breeder can click the Edit button beside the cat name. Then the website will direct to the CatInfo page (which will be discussed in the following section) and display the corresponding information stored in the database with editable text boxes and one "Update" button at the end of the information.
        4. The Breeder can click the Delete button beside the cat name. Then the website will send an alert window of "Confirm to delete the cat?" with "Yes" and "No" buttons.
            a) If the Breeder clicks the "Yes" button, then the selected cat will be deleted from the database.
            b) If the Breeder clicks the "No" button, then the window will disappear.

4.7 Edit Cat Family Tree in the CatFamilyTree Page

I. The Breeder clicks the Edit tab located on the CatFamilyTree page.
II. The website then returns the CatFamilyTree page, which displays a family tree and a button "Edit". The button is at the end of the family tree.

A. If the Breeder clicks on the "Edit" button, a questionnaire is returned, which includes "Sire Name", "Sire registration number", "Dam", "Dam registration number" textboxes for the Breeder to edit. There is a "Update" button at the end of the questionnaire.
1. If any one of the text boxes is left empty, and the Breeder clicks on the "Submit" button, an alert of "Please fill in the required information" will be sent to Breeder.
2. If all text boxes are filled in, and the Breeder clicks on the "Submit" button, a TableAccess object will be created and send the update request to the database to update the family tree information of the cat.

4.8 View the Cattery Page

I. The user inputs cattery name in the search text box located at the top middle of the main page.
II. The system will then create a TableAccess object. The TableAccess object will send the request to the database with "select" cattery name and the catteries matching the string will be returned and displayed as lists on the page.
III. Then the user clicks on the cattery name which will direct the user to the Cattery page with cattery information displayed.

4.9 View the CatInfo Page

I. The user clicks the cat name displayed on the Cats page.
II. The website will create a TableAccess object. The TableAccess object will send the request of "select" cat name to the database and the data required is returned.
III. The website then returns the CatInfo page with the information about the selected cat.

4.10 View the CatFamilyTree Page

I. The user clicks the CatFamilyTree tab on the top right corner of the CatInfo page.
II. The website then returns the CatFamilyTree page with the family tree of the selected cat.

4.11 Use the GeneCalculator Page

I. The user clicks the GeneCalculator tab on the top right corner of the Main page.
II. The website then returns the GeneCalculator page with multiple rows of choosable boxes including but not limited to fur length, dilution, and short legs. It also contains two columns which are Father and Mother. There is a "Calculate" button at the bottom of the page.
III. The user can select the corresponding gene information of father and mother. Then the system will calculate the potential combinations of the genetic information. It will display a text box with the result at the end of the page.

5. Functional Tests

5.1 Create User Account Class Test

Test	Description	Setup	Expected Result
CUACT-1	Show the questionnaire on the Signup page	Create and display the questions needed to create a new user account	No error should occur when clicking on the "Signup" button on the Main page
CUACT-2	Fail to submit signup request without any Strings for username and password or without choosing account type	Pass no information to the Signup system	Return an alert of missing username, password, or account type
CUACT-3	Fail to submit signup request without necessary input for the Breeder account type	Pass no information about the new Breeder account to the Signup system	Return an alert of missing information of a new Breeder account
CUACT-4	Fail to submit signup request without necessary input for the Potential Parent account type	Pass no information about the new Potential Parent account to the Signup system	Return an alert of missing information of a new Potential Parent account
CUACT-5	Fail to sign up with an existing account	Pass corresponding information of this new account to the backend database but find an account with same information exists	Return an alert about the already existing account
CUACT-6	Sign up successfully as Breeder	Pass the information of the new user to the backend database and save as a Breeder	The Cat, FamilyTree, and Account tab in the Main page will change their display settings from "none" to "inline"
CUACT-7	Sign up successfully as Potential Parent	Pass the information of the new user to the backend database and save as a Potential	The Account tab in the Main page will change their display settings from "none" to "inline"

		Parent	

5.2 Edit Users Page Class Test

Test	Description	Setup	Expected Result
EUPCT-1	Show the search functionality on the Users page	The Administrator clicks on the Users tab on the Main page	A textbox and a choice box are shown for the Administrator to input username and select account type
EUPCT-2	Show the list of accounts on the Users page	Create a TableAccess object and pass the request to get all existing accounts in the database	The Administrator doesn't input username or choose account type, and all existing accounts are displayed
EUPCT-3	Show the list of accounts with the selected account type	Create a TableAccess object and pass the request to get all accounts with the selected account type	The Administrator doesn't input username but chooses account type, and all accounts with that type are displayed
EUPCT-4	Show the list of accounts with the inputted username	Create a TableAccess object and pass the request to get all accounts with the corresponding username	The Administrator inputs username but doesn't choose account type, and all accounts with that username are displayed
EUPCT-5	Show the account with the inputted username and selected type	Create a TableAccess object and pass the request to get the account with the corresponding username and account type	The Administrator inputs username and chooses account type, and the corresponding account is displayed
EUPCT-6	Edit an account	The Administrator clicks on an user account, edits some information, and clicks on the "Update" button	The information of the selected account is updated in the database
EUPCT-7	Delete an account	The Administrator	The selected account

		clicks on an user account, clicks on the "Delete" button, and chooses "Yes"	gets deleted from the database
EUPCT-8	Cancel to delete an account	The Administrator clicks on an user account, clicks on the "Delete" button, and chooses "No"	The selected account gets kept in the database

5.3 Edit Account Page Class Test

Test	Description	Setup	Expected Result
EAPCT-1	Display the Account page	The user clicks on the Account tab on the Main page	The corresponding information of the account stored in the database is displayed
EAPCT-2	Update account information	The user edits the inputs to some textboxes and clicks on the "Update" button	The corresponding information of the user account gets updated in the database

5.4 Create New Cat Class Test

Test	Description	Setup	Expected Result
CNCCT-1	Create a new cat page	The breeder clicks the new cat tab.	A survey is returned to collect information on the new cat.
CNCCT-2	Check necessary information in survey	Submit tab is clicked and the necessary information in survey is black	A message asking for the necessary is returned
CNCCT-3	Submit survey	Submit tab is clicked and the necessary information in survey are all filled	A submitted message is shown.
CNCCT-4	Search the new cat	Search the new cat by	The information page

		name or certification NO.	of the cat is shown.

5.5 Edit Cats Page Class Test

Test	Description	Setup	Expected Result
ECPCT-1	Show the search function of cats page	The user input the name or certification NO. of the cat.	The information page of the searched cat is returned.
ECPCT-2	Delete the cat	The breeder clicks the delete button besides the cat name.	A confirmation window will be sent to ask whether to delete the cat.
ECPCT-3	Edit information	The breeder clicks on the edit button besides the cat name.	A survey on the CatInfo page for breeders to update information shows.

5.6 Edit CatInfo Class Test

Test	Description	Setup	Expected Result
ECICT-1	Submit survey	The breeder clicks submit.	The survey is submitted.
ECPCT-5	Update information	The breeder goto the information page of the cat after submitting the edit survey.	The information page shows the latest information of the cat.

5.7 Edit Family Tree Class Test

Test	Description	Setup	Expected Result
EFTCT-1	Show the family tree of a cat	The user click family tree tab	Display the cat and its patents on a page.
EFTCT-2	Check family tree of parents	The user click on one of the parents	Display the parent and the parents of the

Test	Description	Setup	Expected Result
			parent.
EFTCT-3	Edit information	The breeder clicks on the edit tab.	A survey for breeders to update information shows.
EFTCT-4	Submit survey	The breeder clicks submit.	The survey is submitted.
EFTCT-5	Update information	The breeder goes to the family tree page of the cat after submitting the edit survey.	The family tree page shows the latest information of the cat.

5.8 Gene Calculator Class Test

Test	Description	Setup	Expected Result
GCCT-1	Calculate potential genetic disease	The user selects the genetic information for father and mother cats within the choice boxes.	The calculator returns the probabilities of potential genetic information.

5.9 View Cattery Class Test

Test	Description	Setup	Expected Result
VCTCT-1	Display search result of cattery names.	The user inputs a string of a cattery name.	Display the catteries matching the string on a page.

5.10 View CatInfo Class Test

Test	Description	Setup	Expected Result
VCICT-1	Display information of the selected cat.	The user clicks the cat name.	The corresponding information of the cat stored in the database is displayed

6. Defect Resolution

6.1 Issue Tracking

We will keep track of the issues during the testing by recording the problems that we cannot resolve immediately in a shared testing document. We will also notify other group members of the problems through a group chat. A group discussion will be scheduled in order to analyze what the problem is about and discuss a proper way to resolve the problem.

6.2 Issue Resolution

During the group discussion, the group members will select the most appropriate person (the one who is the most familiar with that part of the code) to resolve the problem. After the problem has been resolved, the whole test cases of that functionality will be conducted again in order to ensure the performance. If the function entails multiple classes, the class test that involves those classes should be conducted in order to ensure the modification of one class does not cause the problems of others.

7. Exit Criteria

In order to say this project is complete, all the functionalities specified in the SRS document should be satisfied and all of the test cases specified in the Functional Test Documentation should be passed.