



College of Arts, Media and Technology

Fish information detection software

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BACHELOR OF SCIENCE SOFTWARE ENGINEERING PROGRAM

**COLLEGE OF ARTS, MEDIA AND TECHNOLOGY
CHIANG MAI UNIVERSITY**

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**THIS REPORT HAS BEEN APPROVED TO BE A PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE SOFTWARE
ENGINEERING PROGRAM: COLLEGE OF ARTS MEDIA AND
TECHNOLOGY**

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ABSTRACT

Fish plays a very important role in human life and is also one of the important human resources. In the eyes of laymen, the fish on the earth seem to have the same shape and color, but they do not know what these fish are specifically called and how to deal with them.

First, in many seafood markets, people who do not know about fish do not know how to deal with and identify certain fish.

Another reason is that many fishermen in coastal areas will sell these fish on-site, but some people in non-coastal areas will sometimes buy them. But fishermen also use their usual nicknames to call these fish. They don't know the scientific name of the fish. In addition, when fishermen catch fish, the whole fishing net will be caught and sold, and sometimes some potentially toxic fish will be mixed in.

The proposal aims to deal with fish classification tasks in an end-to-end manner. First, we fine-tune the ResNet34 model pre-trained in the dataset to achieve the highest accuracy of the first three classifications; Secondly, we deploy the model in the web server and build web applications on the Django framework and Vue.js is used to bridge the communication between the front end and the back end.

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Chapter 1

Project Proposal



Fish information detection software
Project proposal

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Abstract

Fish plays a very important role in human life and is also one of the important human resources. In the eyes of laymen, the fish on the earth seem to have the same shape and color, but they do not know what these fish are specifically called and how to deal with them.

First, in many seafood markets, people who do not know about fish do not know how to deal with and identify certain fish.

Another reason is that many fishermen in coastal areas will sell these fish on-site, but some people in non-coastal areas will sometimes buy them. But fishermen also use their usual nicknames to call these fish. They don't know the scientific name of the fish. In addition, when fishermen catch fish, the whole fishing net will be caught and sold, and sometimes some potentially toxic fish will be mixed in.

The proposal aims to deal with fish classification tasks in an end-to-end manner. First, we fine-tune the ResNet34 model pre-trained in the dataset to achieve the highest accuracy of the first three classifications; Secondly, we deploy the model in the web server and build web applications on the Django framework and Vue.js is used to bridge the communication between the front end and the back end.

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Background

According to the statistics of researchers, a Canadian scholar, there are about 28000 species of fish known in the world, accounting for more than half of the named vertebrates, and new species of fish are constantly found. At present, there are about 32100 species of fish named in the world. Fish identification is widely used in the research, development and management of aquatic products, biology, ocean and environment. Establishing a database for various fish categories and using artificial intelligence methods to automatically identify fish can not only better develop, utilize and protect fish resources, but also play a positive role in the development of marine fishery production, which is of great significance to academic research and economic value.

The shapes of fish are various and sometimes differ greatly, but generally speaking, most fish are in a slender streamline shape, which is more complex to analyze. The classification of fish based on computer vision has been studied for more than 20 years. Over the years, many scholars have conducted in-depth research on it. In 1990, Chan et al. [1] used shape features to classify fish. Larsen et al [2]. Extracted the shape and texture features of three fish species and classified 108 image data sets using LDA method, with an accuracy of 76%. In 2013, Huang et al [3]. Proposed the balance guaranteed optimized tree (BGOT) algorithm, collected 3179 image data of 10 fish species for experiments, and obtained 95% accuracy.

Although the research on fish classification based on computer vision has made great progress after long-term development, there are still various problems. The traditional fish classification method generally adopts two-step method:

The artificially set features are calculated from the input fish image. According to the obtained features, a classifier is trained for the classification of test data. The performance of this method largely depends on whether the characteristics selected by people are reasonable, and people often rely on experience and have great

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blindness. Although the classification using artificially set features has also achieved good results, these features are designed for specific data. If the same features are used to deal with different data sets, the results may be large, so this feature is non transferable.

In recent years, deep learning has made important breakthroughs in the field of artificial intelligence. This paper mainly studies the automatic feature learning and classification directly on the image using the deep learning algorithm.

Motivation

Our software aims to solve the following two problems.

The first problem is that some customers who do not know about fish when entering the seafood market will face similar fish. They do not know the fish's names and how to deal with them. This software will provide them with some suggestions.

Another reason is that many fishermen in coastal areas will sell these fish on-site, but some people in non-coastal areas will sometimes buy them. But fishermen also use their usual nicknames to call these fish. They don't know the specific scientific name of this fish. In addition, when fishermen catch fish, the fish in the whole fishing net are caught and sold. Some potentially poisonous fish are sometimes mixed in. The software will remind the user when the user encounters poisonous fish when displaying the function just described.

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Business Review

Marine Biometrics Software

Through Baidu search, I found several animal recognition softwares that are most used in China, and chose the best one: Universal Photo Recognition



Figure 1: Software icon 1

Product description

Universal Photo Recognition



黄姑鱼(学名: *Nibea albiflora*)是石首鱼科、黄姑鱼属鱼类。体延长，侧扁，背部稍隆起。吻稍突出；口裂大，端位，倾斜，上颌长于下颌，上颌骨后缘延伸达瞳孔后缘。鼻孔2个，椭圆形后鼻孔约为前鼻孔的两倍。前鳃盖具锯齿缘，鳃盖具2扁棘；具拟鳔；鳃耙细长。除吻端、眼下部、颊部及喉前部为圆鳞外，余皆被栉鳞；臀鳍基有一列鞘鳞；尾鳍布满小圆鳞。背腹鳍起点约相对；胸鳍基上缘点在背腹鳍基起点前，鳃盖后下方；尾鳍楔形；臀鳍第二硬棘粗大，长度约为眼径的2.1倍。耳石为黄姑鱼型，腹面蝌蚪形印迹之“尾区”呈“J”字型，末端达耳石外缘。腹腔腹有细黑点，胃为卜字形，幽门垂7~9个，肠为2次回旋型，鳔为黄姑鱼型，前端为圆角之方形，附枝20~25对，第一对附枝伸入头区。体侧上半部紫褐色，下半部银白带澄黄色，体侧每一鳞片皆具褐斑，呈向前下方倾斜的条纹。背鳍基部黑褐色，软条部浅褐色，末缘深褐色，每一软条基部前缘皆有一深褐色点；尾鳍浅黄褐色；臀鳍及腹鳍黄色有褐色细斑；胸鳍浅褐色，鳍基内缘有黑斑。鳃盖青紫色。鳃腔黑色。口腔白色。黄姑鱼为近海中下层鱼类。喜栖息于水深70~80米、泥或沙泥底海域。具明显季节洄游习性，具有发声能

Figure 2: software interface

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Description

In order to enable users to identify unknown creatures, the app provides users with a place to identify different species to help users avoid poisonous creatures and learn knowledge. Its design is so simple that it will not leave children or the elderly wondering how to use it. Instead, users can take a photo or upload a photo of an animal to get information about that animal

Advantages

- Provide direct and similar animal information.
- Easy to use, simple overall page design.

Disadvantages

- Although it provides information on animals, it does not provide the prevailing price in the market, so that users cannot be sure whether the current market price is reasonable.
- This software does not provide the burning method of marine organisms, which is not very convenient for users who go to the market to buy ingredients

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Encyclopedia



Figure 3: software interface and icon

Advantages

- Provide direct and similar animal information which connect to the search engine and more information, more specific.
- Easy to use, simple overall page design.

Disadvantages

- Although it provides information on animals, it does not provide the prevailing price in the market, so that users cannot be sure whether the current market price is reasonable.
- This software does not provide the burning method of marine organisms, which is not very convenient for users who go to the market to buy ingredients

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Deep Residual Network

The proposal of deep residual network (ResNet) is a milestone in the history of CNN images, Kaiming He, the author of ResNet, won the CVPR 2016 best paper award for his contribution. From experience, the depth of the network is very important to the performance of the model. When the number of network layers is increased, the network can extract more complex feature patterns. Therefore, when the model is deeper, better results can be obtained in theory. From Figure 4, we can also see a practical evidence that the deeper the network is, the better the effect is. But will deeper networks have better performance? The experiment found that there was a degradation problem in the depth network: when the network depth increased, the network accuracy was saturated or even decreased. This phenomenon can be seen directly in Figure 3: the effect of layer 56 Network is worse than that of layer 20 network. This will not be an over fitting problem, because the training error of 56 layer network is also high. We know that there is a problem of gradient disappearance or explosion in deep network, which makes it difficult to train deep learning model. But now there are some technical means, such as batch norm, to alleviate this problem. Therefore, the degradation of deep networks is very surprising. [4]

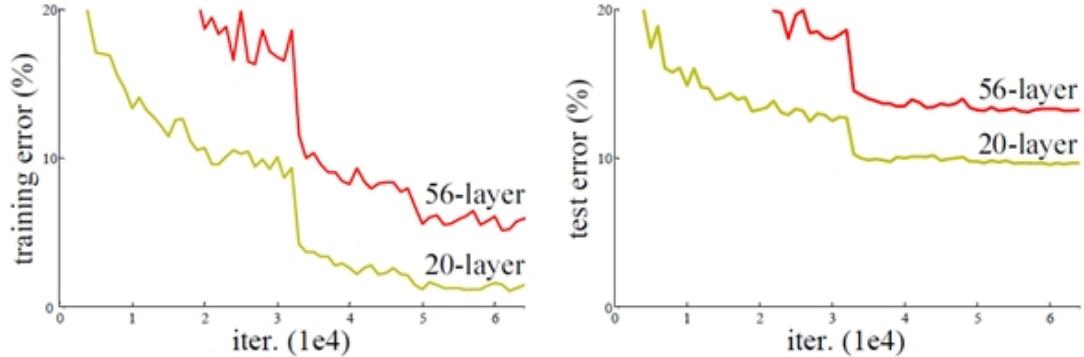


Figure 4: The effect of the depth on the training convergence

The degradation of deep networks at least shows that deep networks are not easy to train. But let's consider the fact that now you have a shallow network. You want to

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build a deep network by accumulating new layers upward. In an extreme case, these added layers learn nothing and only copy the characteristics of the shallow network, that is, the new layer is identity mapping. Figure 5 shows the mechanism of identity mapping.

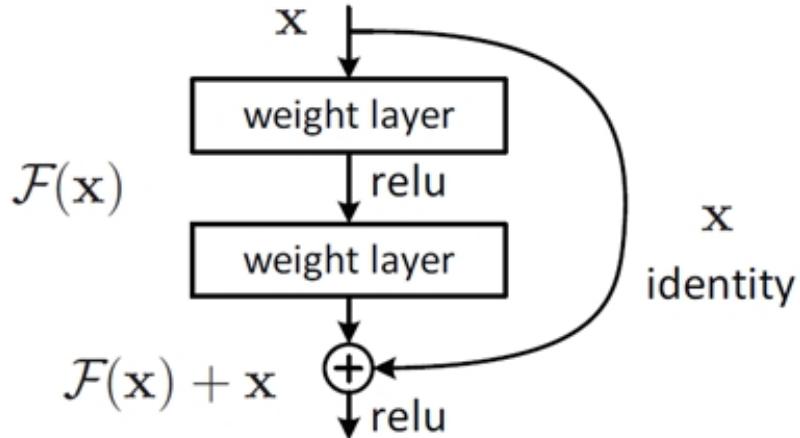


Figure 5: the mechanism of identity mapping.

ResNet refers to vgg19 network, which is modified on the basis, and the residual unit is added through the short-circuit mechanism, as shown in Figure 6. The change is mainly reflected in that ResNet directly uses the convolution of stride of 2 for down sampling, and replaces the full connection layer with the global average pool layer. An important design principle of ResNet is that when the feature map size is reduced by half, the number of feature maps is doubled, which maintains the complexity of the network layer. As can be seen from Figure 6, ResNet adds a short-circuit mechanism between each two layers compared with ordinary networks, which forms residual learning. The dotted line indicates that the number of feature maps has changed. The 34 layer ResNet shown in Figure 6 can also build a deeper network, as shown in Table 1. It can be seen from the table that for ResNet of 18 layer and 34 layer, the residual learning between two layers is carried out. When the network is deeper, the residual learning between three layers is carried out. The three-layer convolution kernels are 1x1, 3x3 and 1x1 respectively. It is worth noting that the number of feature maps in the hidden layer is relatively small, and it is 1/4 of the number of output feature maps. [5]

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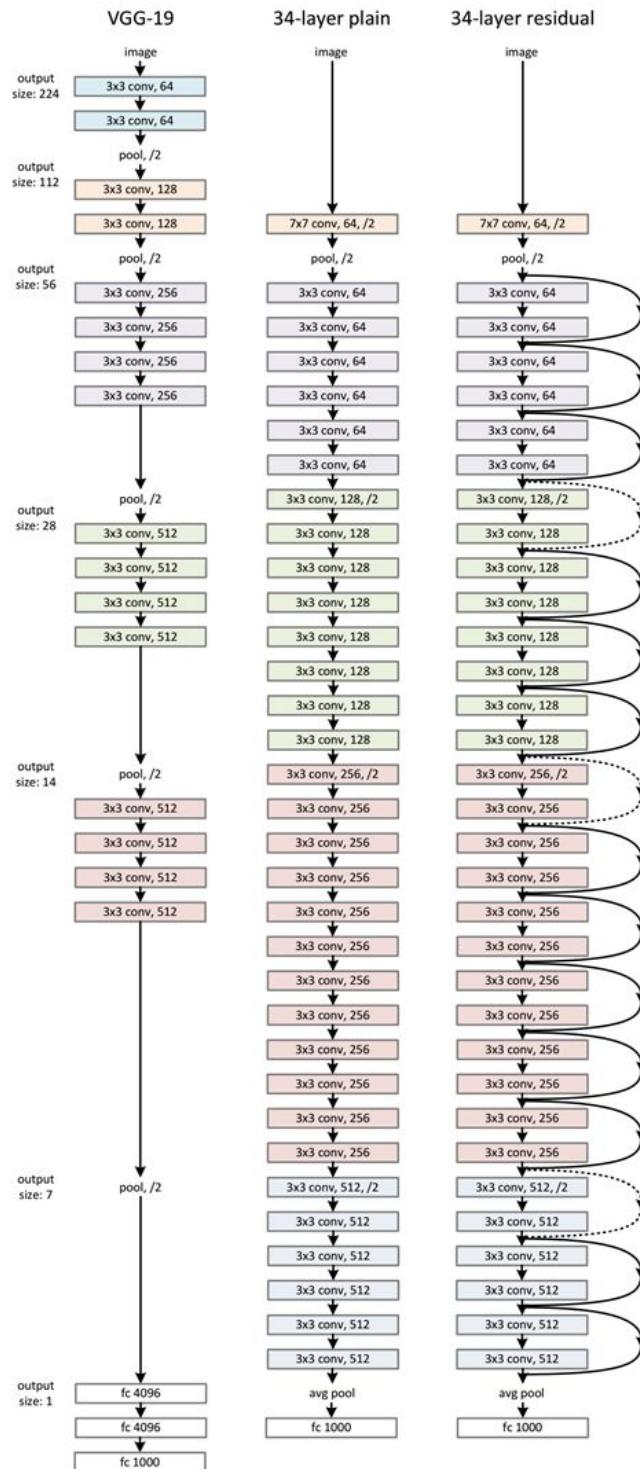


Figure 6: the structure of ResNet34

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Aim and Objectives

Aim

Develop end-to-end fish identification software based on machine learning technology and network application. In the software, users can upload fish images obtained from cameras or other places to the software from mobile phones, PCs or tablets. The software analyzes the learning data in the background and presents the search results to users. The software will provide users with detailed information, including the name of the fish, whether the fish is poisonous, and the habitat of the fish. The administrator can also manage the users of the web page.

Objectives

- Sample fish images from most used image classification datasets such as ImageNet, group them in 9 classes, each class has the same number of images.
- Finetune the pretrained ResNet34 model on the obtained dataset, achieve a top-3 accuracy as high as possible, best above 85%.
- Deploy the model in the web server and build a web application on the Django framework and Vue. JS connects the communication between the front end and the back end.
- On the client side, obtain video and introduction data from other websites through API

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Type of actor

Admin

Only administrators can log in and out of Dashboard. The administrator can manage users on Dashboard (delete users or update user passwords). There is only one administrator account and it cannot be registered

User

The user is our main audience. The user can register and then log in to our web application to upload pictures for fish identification, to obtain relevant reports (including the category of fish identified, the description of the corresponding fish, and whether it is poisonous). The user can also watch related videos to learn how to cook different fish. The user can log out.

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Deliverables and Limitations

Deliverables

Feature 1: Fish image recognition

Actor: User

Description: Users can upload images to the website that need to be identified, and post a request to the backend model API to identification

Details:

1. Users can upload pictures
2. The system will prompt that AI is processing the picture

Feature 2: Fish report generation

Actor: User

Description: The user can view the fish label and description **toxic** returned by the backend AI

Details:

1. Users can view the content returned by AI

Feature 3: Administrator dashboard

Actor: Admin

Description: The administrator can log in to Dashboard through the administrator account and delete and modify the registered user account in the dashboard

Details:

1. The admin modify the password of registered account
2. The admin deleted registered account

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Feature 4: Show fish related videos

Actor: User

Description: the user can click the videos from YouTube and play the videos about food making tutorials.

Details:

1. The user can click the videos.
2. The server receives the user's request and then jumps to YouTube and plays the video.

Feature 5: Sign up for the system

Actor: User

Description: User should first sign up on the web UI and wait for the approval from the admin, this is to control the legal access to the system and prevent data leak.

Details:

1. The user access the sign up page, input required information, and complete the sign up request.

Feature 6: Login system

Actor: User , Admin

Description: Users and administrators can log in to the web with their accounts

Details:

1. The user can use user account to login to the main page
2. The admin can use admin account to login to' the dashboard

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Prototype

Main page

The screenshot shows the main interface of a fish detection application. At the top right, there is a video player displaying a man with a beard standing behind a large pile of small fish (sprats). The video has a YouTube play button overlay. To the left of the video, there is a file upload area with a placeholder image and a "Current image" button. Below this is a results table with columns for Fish Category, Fish Description, and Poison status. A message "暂无数据" (No data available) is displayed at the bottom of the table.

Fish Category	Fish Description	Poison
暂无数据		

Figure 7: main page

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User registration page

Create an account

Please enter your Email

Please enter your Password

confirm

Figure 8: User registration page

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Manger dashboard

The screenshot shows a web-based dashboard titled "Fish detection". At the top left are icons for a star, a refresh, and "log_out". The main content area has two tabs: "UserInfo" (which is active) and "FileList". The "UserInfo" tab displays a table with three rows of user data:

	Username	Password	Action
1	444@qq.com	yyahng816	<button>Edit</button> <button>deleted</button>
2	1111@qq.com	YYhang816yy	<button>Edit</button> <button>deleted</button>
3	11121@qq.com	yyhang816	<button>Edit</button> <button>deleted</button>

Below the user list is a large, empty rectangular area. At the bottom of the page is a horizontal scrollbar.

Figure 9: Manger dashboard

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System Architecture

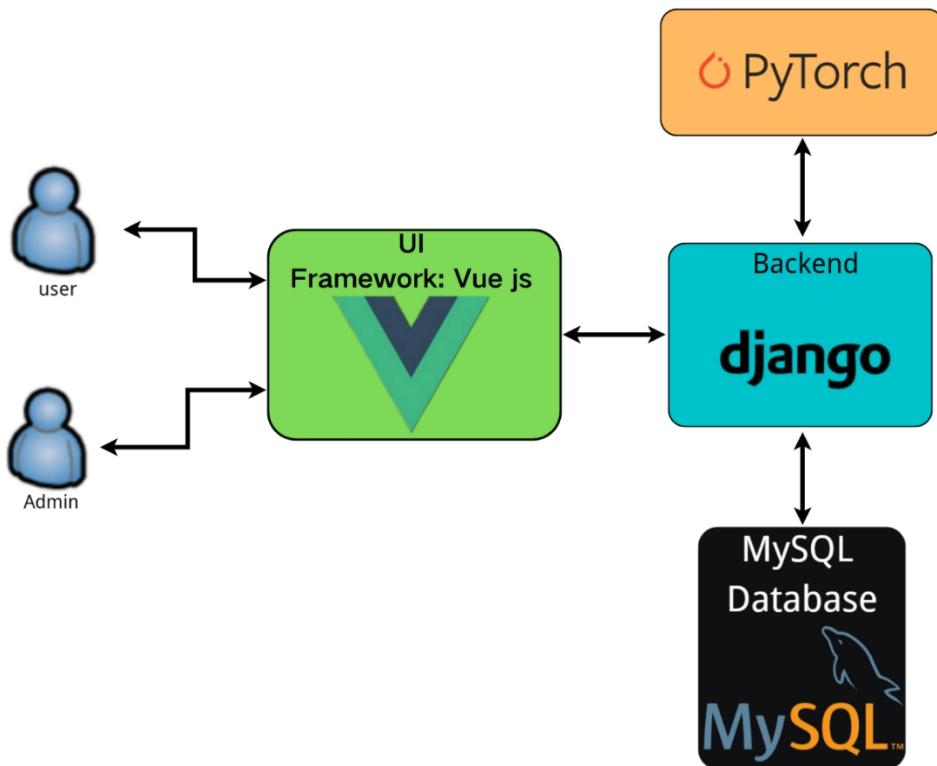


Figure 10: System Architecture

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Technology Review

Pytorch



Figure 11:PyTorch

Technology description

Pytorch is an open source Python machine learning library. It is based on torch and the bottom layer is implemented by C++. It is applied to the field of artificial intelligence, such as natural language processing. It is mainly developed by Facebook's artificial intelligence research team and is used in Uber's probabilistic programming software pyro. Pytorch has two main features: tensor calculation similar to numpy, which can be accelerated by GPU. [6]

The selection for this technology

- Provide automatic backward-propagation, the user only need to focus on the forward implementation
- Provide GPU support.
- Provide friendly API and documents

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Django



Figure 12:Django

Technology description

Django is an open source web application framework written in Python. The software design mode of MTV is adopted, that is, model, view and template. In the early stage of development, it was used to manage some news-oriented websites of Lawrence publishing group. Django was released under the BSD license in July 2005. Its name comes from Belgian gypsy jazz guitarist ginger Reinhart. [7]

The selection for this technology

- Support object relational mapping for creating models
- Convenient for designing better management interface for end users
- Encapsulated URL design
- Provide friendly template language
- Provide easy to use cache system

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Vue.js



Figure 13: Vue.js

Technology description

Vue.js is an open source Model – View – ViewModel(MVVM) front-end JavaScript framework for creating user interface, and it is also a web application framework for creating single page applications. It was created by you yuxi and maintained by him and other active core team members. [8]

The selection for this technology

- Get started quickly on the basis of HTML, CSS and JavaScript
- Vue.js API's reference to other frameworks is not only a reference, but also contains many Vue.js unique features
- The simple and compact core and progressive technology stack are enough to cope with applications of any scale.
- Ultrafast virtual DOM, the most worry-free optimization

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MySQL



Figure 14: MySQL

Technology description

MySQL is the most popular relational database management system. In terms of web application, MySQL is one of the best RDBMS (relational database management system) application software.

The selection for this technology

- Support large databases. It can handle large databases with tens of millions of records
- Use standard SQL data language form.
- Support for Python
- Easy to use

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Python



Figure 15: Python

Technology description

Python is a high-level programming language with interpretive, object-oriented and dynamic data types.

Python was invented by Guido van Rossum at the end of 1989, and the first public release was released in 1991.

Like Perl, python source code also follows the GPL (GNU General Public License) protocol. [9]

The selection for this technology

- High quality documentation, Python is extremely easy to use, because Python has extremely simple documentation
- Python is well designed, fast, robust, portable and extensible. Obviously, these are very important factors for AI applications.
- Easy to use

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Software Quality

ISO 29110 for Very Small Entity (VSE)

ISO 29110 is the Software Life Cycle Profiles and Guidelines for Very Small Entities (VSEs) standards and technical reports are targeted at Very Small Entities (VSEs). A Very Small Entity (VSE) is an enterprise, organization, department or project having up to 25 people. ISO 29110 concerns on the project management process and software implementation process. (Cheetham, 2020)[10]

Project Management Process

The purpose of the Project Management process is to establish and carry out in a systematic way the tasks of the software implementation project, which allows complying with the project's objectives in the expected quality, time and cost. There are 4 activities as following: 1. Project Planning Process 2. Project Plan Execution Process 3. Project Assessment and Control Process 4. Project Closure Process

Software Implementation Process

The purpose of the Software Implementation process is the systematic performance of the analysis, design, construction, integration and tests activities for new or modified software products according to the specified requirements. There are 6 activities as following: 1. Software Implementation Initiation Process 2. Software Requirements Analysis Process 3. Software Architectural and Detailed Design Process 4. Software Construction Process 5. Software Integration and Test Process 6. Software Delivery Process

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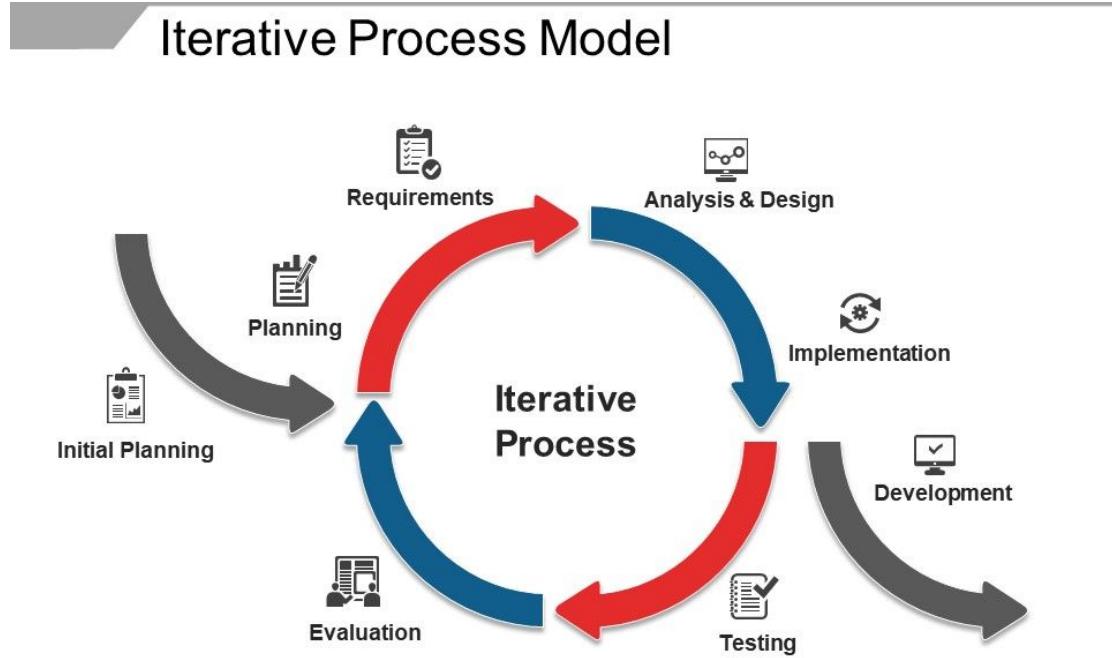
Software Development Model

Mode comparison

Factor	Waterfall	V-Shaped	Evolutionary Prototyping	Spiral	Iterative and Incremental	Agile
Unclear User Requirement	Poor	Poor	Good	Excellent	Good	Excellent
Unfamiliar Technology	Poor	Poor	Excellent	Excellent	Good	Poor
Complex System	Good	Good	Excellent	Excellent	Good	Poor
Reliable System	Good	Good	Poor	Excellent	Good	Good
Short Time Schedule	Poor	Poor	Good	Poor	Excellent	Excellent
Strong Project Management	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Cost Limitation	Poor	Poor	Poor	Poor	Excellent	Excellent
Visibility of Stakeholders	Good	Good	Excellent	Excellent	Good	Excellent
Skills Limitation	Good	Good	Poor	Poor	Good	Poor
Documentation	Excellent	Excellent	Good	Good	Excellent	Poor
Component Reusability	Excellent	Excellent	Poor	Poor	Excellent	Poor

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According to our actual situation, we pay more attention to highlight parts, and the iterative model performs well in these factors, so we choose the iterative development model



This slide is 100% editable. Adapt it to your needs and capture your audience's attention.

Figure 16: Iterative Model

The iterative model gives an exact performance of the development of software as a life cycle. It primarily focuses on preliminary growth and design and then gains momentum slowly with more complexity as well as meet requirements until the final software is built entirely. So, basically, the iterative development model is an approach of segmenting any large software development process into smaller portions. This model is dedicatedly designed to start with minimum requirements specifying as well as implementing only a part of the software. The prototype is then further reviewed for additional requirements. The practice then takes an iterative form to create a new version of the application. (w3schools, 2021)

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Schedule and Milestone

Schedule Plan

The schedule and milestones of the working. During the period, there are work terminologies, and the description is shown below that:

Milestone	Task	Milestone Criteria	Planned
1	Proposal 1	Topic defined Proposal reviewed Proposal submitted Proposal presentation	April,2022
2	Proposal 2	Proposal reviewed Proposal submitted Proposal presentation	May,2022
3	Progress 1	Software requirement specification Feature designed Test planned Feature implemented Feature tested Integrate and review all document Progress report and presentation	June,2022
4	Progress 2	Software requirement specification Feature designed Test planned Feature implemented Feature tested Tests all features Test recorded Progress report 2 submitted Progress report 2 presentation	August,2022
5	Show Pro	The system progress should be nearest for 100 percentages.	September,2022
6	Final Progress	Integrate and review all documents Tests all features Reviews documents are completed Final Progress Report submitted Final Progress Report presentation	October,2022

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Proposal

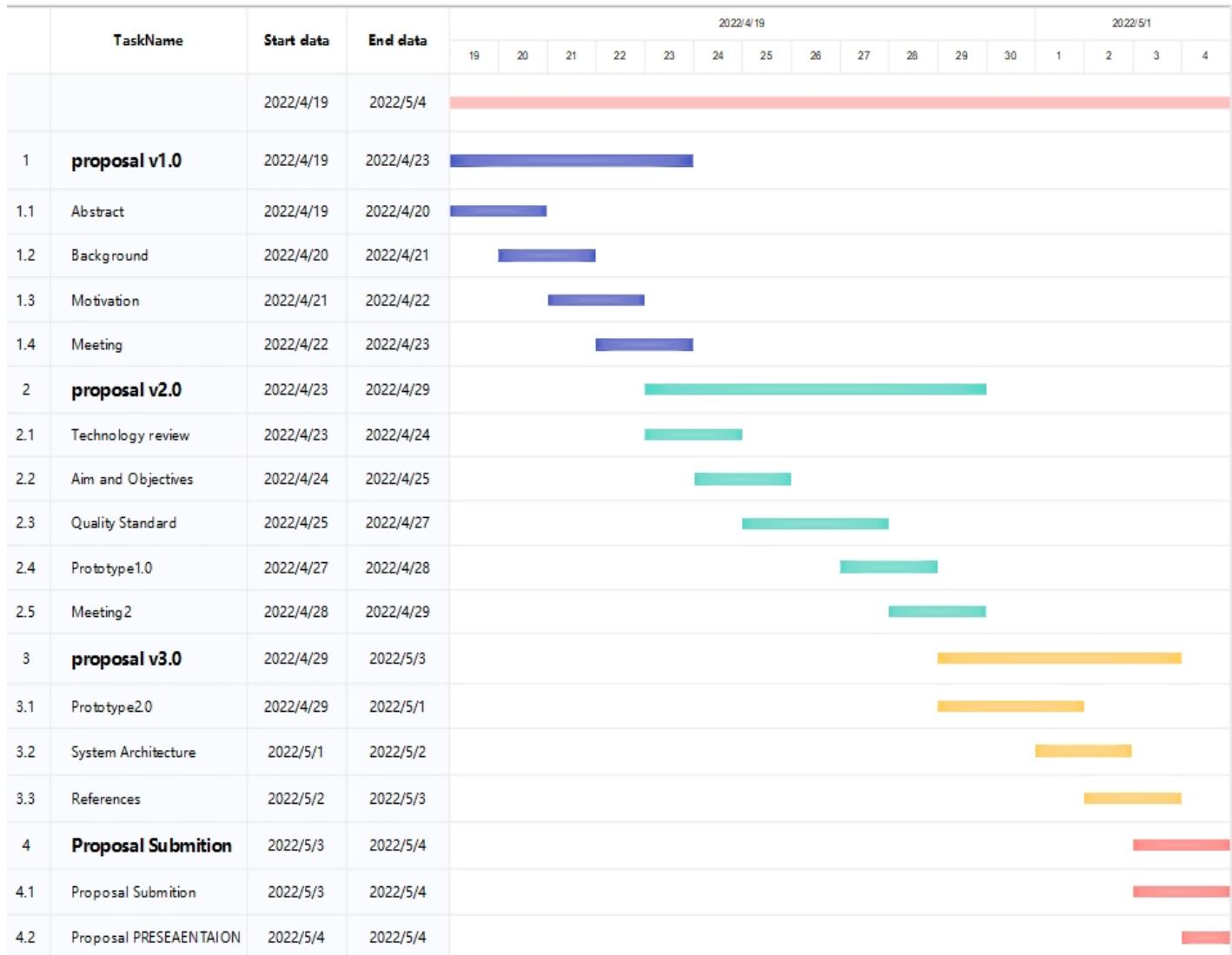


Figure 17: Proposal

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Progress1

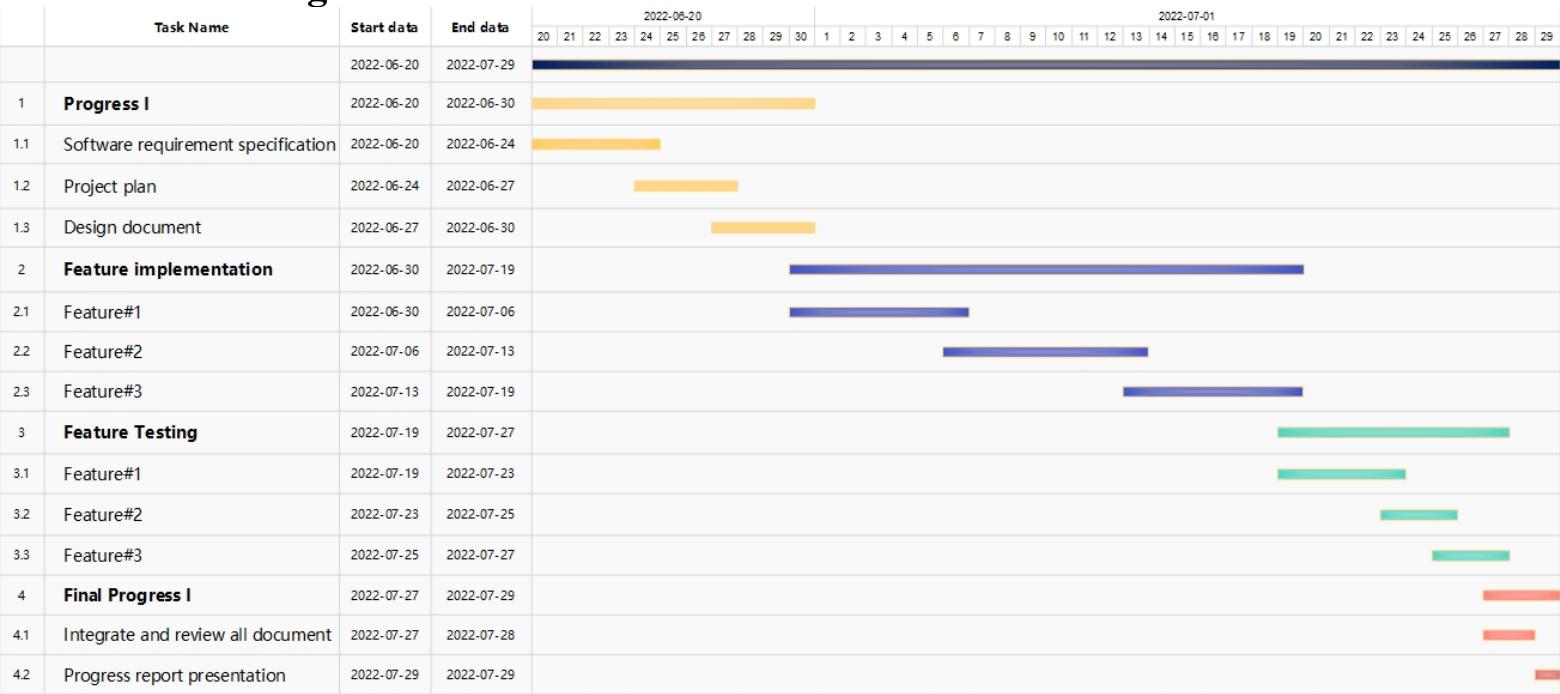


Figure 18: progress1

Progress2

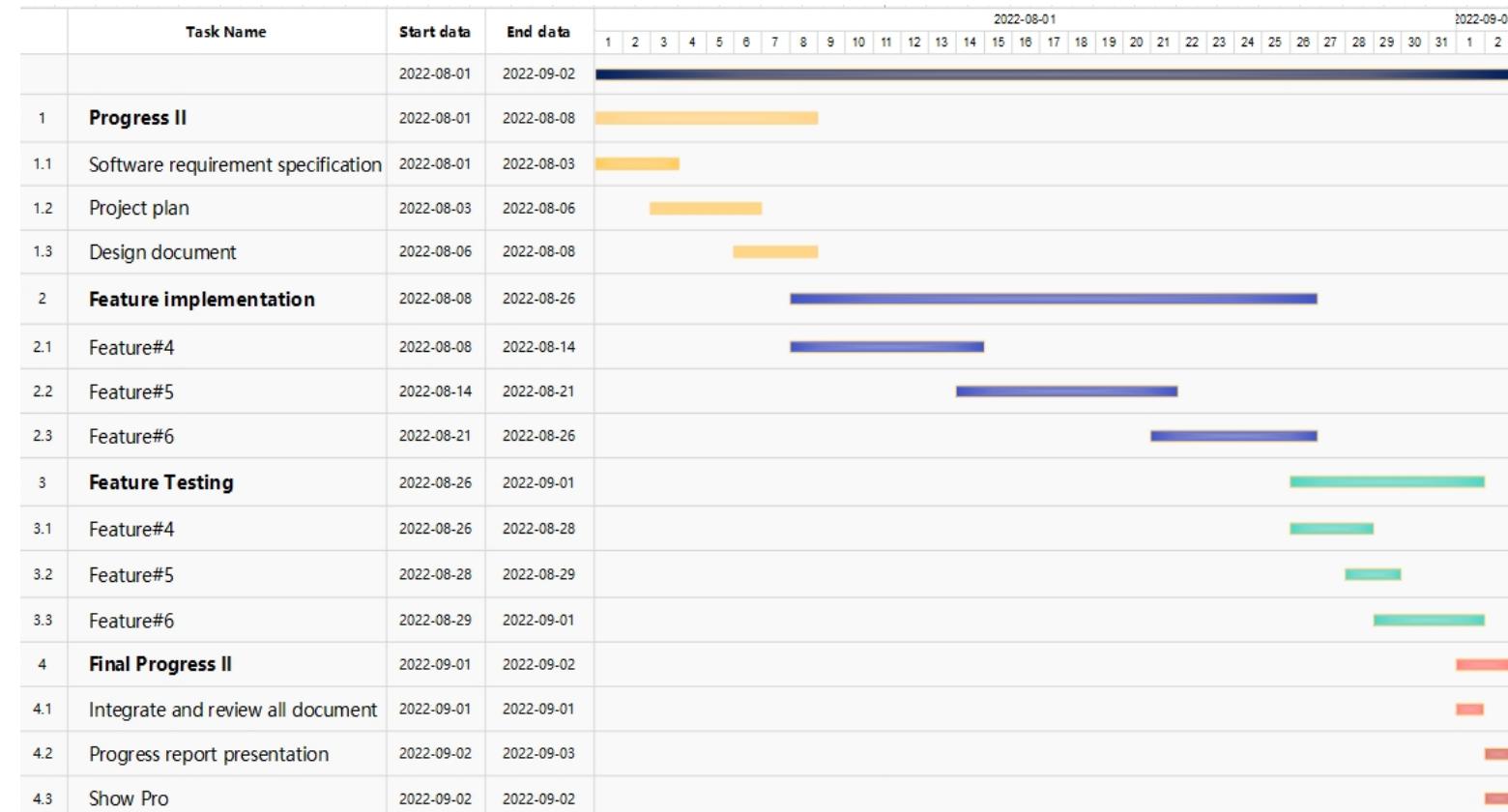


Figure 19: progress2

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Final

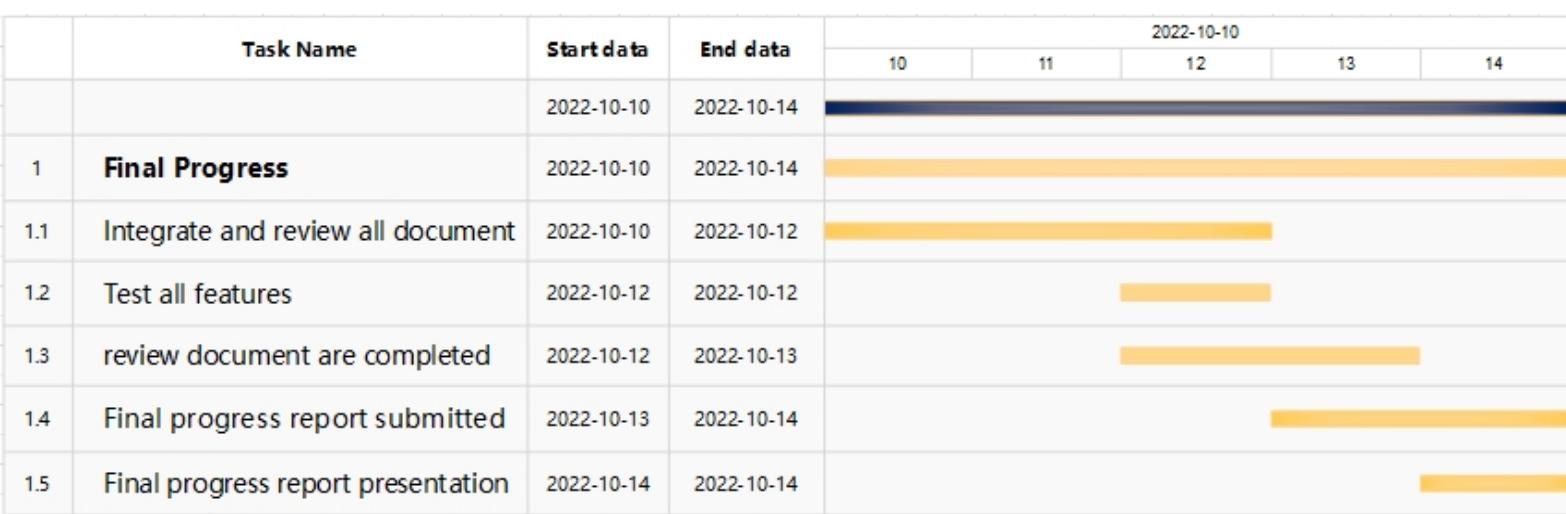


Figure 20:Final

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Reference

[1] Chen, Allen A R. Fish species recognition by shape analysis of images[J]. Pattern Recognition, 1990, 23(5): 539-544

[2] Larsen R, Olafsdottir H, et al. Shape and texture based classification of fish species[J]. Image Analysis. 2009. 5575: 745-749

[3] Huang P X, Boom B J et al. Underwater fish recognition using a balance-guaranteed optimized tree[C], Asian Conference on Computer Vision, 2012.

[4] ResNet 详解:

https://blog.csdn.net/qq_45649076/article/details/120494328

[5] Residual Networks, ResNets:

<https://blog.csdn.net/CVAIDL/article/details/105979961>

[6] Introduction to PyTorch:

<https://towardsdatascience.com/introduction-to-py-torch-13189fb30cb3>

[7] Django (web framework):

[https://en.wikipedia.org/wiki/Django_\(web_framework\)](https://en.wikipedia.org/wiki/Django_(web_framework))

[8] Introduction What is Vue.js?:

<https://v2.vuejs.org/v2/guide/>

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Chapter 2

Project Management Plan

Fish information detection software

Project Management Plan

By

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College of Arts, Media and Technology
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Project Advisor

Jayakrit Hirisajja

Document History

History	Status	Date	Viewable	Editable	Responsible
Add <ul style="list-style-type: none"> • Introduction • Infrastructure • Management Procedure • Quality Planning • Estimate Duration of Task • Software Configuration • Risk Management 	Draft	June, 25 th 2022	YYH, DJ JH	YYH, DJ	YYH, DJ
Update <ul style="list-style-type: none"> • Introduction • Infrastructure • Management Procedure • Quality Planning • Estimate Duration of Task • Software Configuration Risk Management 	Draft	August, 22 th 2022	YYH, DJ JH	YYH, DJ	YYH, DJ
Update <ul style="list-style-type: none"> • Introduction • Infrastructure • Management Procedure 	Draft	October, 14 th 2022	YYH, DJ JH	YYH, DJ	YYH, DJ

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• Quality Planning					
• Estimate Duration of Task					
• Software Configuration					

* YYH= Yanhang Yang

* DJ= Dian Jin

* JH= Jayakrit Hirisajja

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Introduction

1.Identification

The project management plan is a document for planning. This document will consist of infrastructure, software model and schedule. The project plan will give the scope of all members of the team to understand in the same way. In order to develop software with low risk and reduce confusion between team members.

2.Project Overview

Fish image recognition software based on RESNET machine learning, The software can give the corresponding fish category and detailed description of the fish through the fish pictures uploaded by the user

2.1Purpose

Develop end-to-end fish identification software based on machine learning technology and network application. In the software, users can upload fish images obtained from cameras or other places to the software from mobile phones, PCs or tablets. The software analyzes the learning data in the background and presents the search results to users. The software will provide users with detailed information, including the name of the fish, whether the fish is poisonous, and the habitat of the fish. The administrator can also manage the users of the web page.

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2.2 Scope

- Feature#01: Fish Image recognition
- Feature#02: Fish Report generation
- Feature#03: Administrator dashboard
- Feature#04: Show fish related videos
- Feature#05: Sign up for the system
- Feature#06: Login system

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3. Work Product to developed

3.1 Deliverable

No.	Deliverables/Release	Media	Copies	Date
1	Project Proposal - Proposal Version 1.0	Document	1	17/05/2022
2	Progress Report 1 - Project Plan V.1.0 - Software Requirement Specification V.1.0 - Software Design V.1.0 - Test Plan V.1.0 - Test Record V.1.0 - Traceability Record V.1.0	Document	1	23/07/2022
3	Progress Report 2 - Change request - Project Plan V.2.0 - Test Plan V.2.0 - Test Record V.2.0 - Traceability Record V.2.0	Document	1	29/08/2022
4	Progress Report Redemption progress - Project Plan V.3.0 - Software Requirement Specification V.2.0 - Software Design V.2.0 - Test Plan V.3.0 - Test Record V.3.0 - Traceability Record V.3.0 - Proposal Version V3.0	Document	1	23/10/2022

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3.2 Non-Deliverables

No.	Work Product	Media
1	PowerPoint presentation	File
2	PowerPoint presentation2	File
3	PowerPoint presentation Redemption progress	File

4. Acronyms and Definitions

4.1 Acronyms

PM: Project Management

SD: Sequence Diagram

SDD: Software Design Document

UC: Use Case

MD: Method Description

UI: User Interface

URS: User Requirement Specification

SRS: System Requirements Specification

UTC: Unit Test Case

STC: System Test Case

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5.Definitions

Name	Definitions
Feature	Transformation of input parameters to output parameters based on a specified algorithm. It describes the functionality of the product in the language of the product. Used for requirements analysis, design, coding, testing, or maintenance. [IEEE90]
IEEE	Institute for Electrical and Electronics Engineers. Biggest global interest group for engineers of different branches and computer scientists. [IEEE90]
Milestone	A significant event in the project, usually the completion of the main deliverable. [IEEE90]
Plan	A documented series of tasks requires meeting an objective, typically including the associated schedule, budget, resources, organizational description, and work breakdown structure. [IEEE90]
Project Management	The application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project. [IEEE90]
Project Plan	A formal, approved document used to guide both project execution and project control. The primary uses of the project plan are to document planning assumptions
Risk	An uncertain event or condition that, if it occurs, has a positive or negative effect on the project's objective, It is a function of the probability of occurrence of a given threat's occurrence. [IEEE90]

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Infrastructure

1. Development Tools

- Visual Studio Code 1.58.0
- Postman 8.7.0

2. Hardware and Material Resources

- Computer
 - MacBook Pro (13-inch, 2017, Two Thunderbolt 3 ports)
 - Processor: 2.3 GHz Dual-Core Intel Core i5
 - Memory: 8 GB 2133 MHz LPDDR3
 - Graphic: Intel Iris Plus Graphics 640 1536 MB
 - Operating System: macOS Big Sur Version 11.4
 - Personal Computer
 - Processor: 3.7 GHz Intel Core i7
 - Memory: 16 GB DDR4
 - Graphic: NVIDIA GeForce GTX 1060
 - Operating System: Windows 10 Home 64 Bits
 - MacBook Air (Retina, 13-inch, 2020)
 - Processor: 1.1 GHz Dual-Core Intel Core i3
 - Memory: 8 GB 3733 MHz LPDDR4X
 - Graphic: Intel Iris Plus Graphics 1536 MB
 - Operating System: macOS Big Sur Version 11.2.3

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Management Procedures

1. Project Team Structures

Participants	Activities
Yanhong yang	<ul style="list-style-type: none"> • Project Proposal • Software Requirement Specification • Project Management Plan • Software Design • Create and Review • Implementation • Testing • Test Report
Dian Jin	
Dr. Jayakrit Hirisajja	Review and approve

2. Monitoring and Controlling Mechanisms

2.1 Project Meeting

Participants	Roles
Yanhong yang	Development team member
Dian Jin	Development team member
Dr. Jayakrit Hirisajja	Project Advisor

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Quality Planning

1. Reviews / Responsibility

Stage Exit Review			
No	Stage	Review Item	Responsibility
1	Requirement Gathering	Project Proposal	YYH, DJ JH
2	Project Planning	Project Plan	YYH, DJ JH
3	Requirement Analysis and Specification	Software Requirement Specification	YYH, DJ JH
4	Architecture and Detailed Design	Software Design	YYH, DJ JH
5	Software Implementation	Source Code	YYH, DJ JH
6	Unit Testing and Software Testing	Test Plan, Test Record	YYH, DJ JH
7	Project Monitoring and Control	Traceability Record	YYH, DJ JH

No	Test	Responsibility
1	Unit Testing	YYH, DJ
2	System Testing	YYH, DJ

* YYH= Yanhang Yang

* DJ= Dian Jin

* JH= Jayakrit Hirisajja

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Estimated Duration of Tasks

Task and Estimates Duration		
No	Phase	Estimated Duration (Days)
1	Proposal	30
2	Progress 1	46
3	Progress 2	75
4	Redemption progress	25
Total		176

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Software Configuration

1. Naming Convention

For the format of the file name, we used in all documents is:

CH_[File Name]_V[Version].[File Type]

- File Name – The part of each document in the process.
- Version – The part of version of the file. The version will be in format “[Main version]_[Sub_version]”.
- File Type – The part of the type of file.

For example – CH_Proposal_V1.0.docx

2. Change Management

Change management manages all the changes in the project during Development process. All the change requests will be recorded into the change record document.

The procedures for managing changes are:

1. Discuss with the advisor about the change.
2. Record the change information to change the document.
3. Send the change request to the advisor.
 - 3.1 Request accepted: change document and software follow the change information.
 - 3.2 Request rejected: continue and find the alternative solution.

3. Project Repository

This project uses Github to store and manage version of software and uses Microsoft Word to manage the version of the document by making a copy on Microsoft OneDrive.

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4. Software Configuration Item Table

No	Item	Filename	File extension	Owner	Path	Baseline Version
1	Proposal	CH_Proposal_V.4.0.docx	.docx	YYH, DJ	CH/Proposal	4.0
2	Executive Summary	CH_ExecutiveSummary_V.4.0.docx	.docx	YYH, DJ	CH/Executive Summary	4.0
3	Project Plan	CH_ProjectPlan_V.4.0.docx	.docx	YYH, DJ	CH/ProjectPlan	4.0
4	SRS	CH_SRS_V.4.0.docx	.docx	YYH, DJ	CH/SRS	4.0
5	SDD	CH_SDD_V.4.0.docx	.docx	YYH, DJ	CH/SDD	4.0
6	Test Plan	CH_TestPlan_V.4.0.docx	.docx	YYH, DJ	CH/TestPlan	4.0
7	Test Record	CH_TestRecord_V.4.0.docx	.docx	YYH, DJ	CH/TestRecord	4.0
8	Traceability Record	CH_TraceabilityRecord_V.4.0.docx	.docx	YYH, DJ	CH/Traceability	4.0

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Risk Management

Risk Identification and Solution

No	Risk statement	Solution
1	The requirement might change.	Make a change request and discuss with the owner to prioritize the change requirement.
2	The process flow might not keep up with the project schedule.	Starts task execution before their schedule. Prioritize tasks and do more important work first.
3	The developer / lacks necessary skills for project development.	Learn from a textbook or online resources.

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Chapter 3

Software Requirement Specification

Fish information detection software

Software Requirement

By

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Project Advisor

Jayakrit Hirisajja

Document History

History	Status	Date	Viewable	Editable	Responsible
Add <ul style="list-style-type: none"> • Introduction • Overall Description • User Requirement Specification • Specific Requirement • Reference 	Draft	July, 07 th 2022	YYH,DJ	YYH,DJ	YYH,DJ
Update <ul style="list-style-type: none"> • Introduction • Overall Description • User Requirement Specification • Specific Requirement 	Draft	August, 20 th 2022	YYH,DJ	YYH,DJ	
Update <ul style="list-style-type: none"> • Introduction • Overall Description • User Requirement Specification • Specific Requirement 	Draft	October, 13 th 2022	YYH,DJ	YYH,DJ	YYH,DJ

* YYH= Yanhang Yang

* DJ= Dian Jin

* JH= Jayakrit Hirisajja

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AD-03: View Report(UC-06)	91
AD-04: View Fish Video(UC-07)	92
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Introduction

1. Purpose

This document is the Software Requirements Specification (SRS) version 2.0, which contains requirements for fish information detection that needs to be completed in progress one.

It aims to establish the basis of agreement between stakeholders and customers on how perfect interaction this system will provide. In addition, it is a guideline for developers to understand the software development details and a rigorous assessment of requirements before the more specific system design stages and reduce later redesign.

Development team

- To have the same understanding of the overall project.
- To verify and validate the product match the requirements or not.
- To develop the project more efficiently.

User

- To know the process of the software product.
- To help the user check if this product matched their requirements or not.
- Discussing with developers easier.

2. Document Convention

To make the document more effective and readable with the following attribute.

- **Header:** Font and size Times New Roman, Bold, 16 points.
- **Body:** Font and size Times New Roman, 12 points.
- **Bracket:** Supplement explanation.
- **Bullet list:** List the items.
- **Paper size:** US letter (8.5"x11").
- Line below, with 2 points separations from text.

3. Acronyms

SRS - Software Requirement Specification

URS - User Requirement Specification

UC - Use Case

AD - Activity Diagram

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4. Definition

Name	Definition
Feature	Transformation of input parameters to output parameters based on a specified algorithm. It describes the functionality of the product in the language of the product. Used for requirements analysis, design, coding, testing or maintenance. [IEEE90]
IEEE	Institute for Electrical and Electronics Engineers. Biggest global interest group for engineers of different branches and computer scientists. [IEEE90]
Requirement	(1) A condition or capability needed by the user to solve a problem or achieve an objective. (2) A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document. (3) A documented representation of a condition or capability as in definition (1) or (2). [IEEE90]
Specification	Precise description of an activity or work product that serves as the basic or input for further activities or work product. A specification can comprise requirements for a product and how they will be solved. Different parts of a specification (e.g., what is to be done, how it will be done) must not be mixed. [IEEE90]
Use case	(1) Concept to describe a system based on usage of system resources by its environment. Characterized by an objective-set of interactions within and at the borders of that system. (2) Notation from UML for describing a scenario (Usage approach, operational scenario) from the perspective of this user. [IEEE90]

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5. Intended Audience and Reading Suggestions

Intended Audience

- The mainly intended audience of this document is all significant stakeholders, which include the development team, the project owner, the user who uses the program, the senior project advisor (Dr. Jayakrit Hirisajja), and anyone evaluating the project.
- Anyone interested in development and bioinformatic analysis, especially in marine life.
- Anyone would like to make the next version of this system.

The document can be tailored for all significant stakeholders according to their suggestions.

It will be split into five sections introduction, overall description, specific requirements, activity diagram, and reference. It will have subsections corresponding to the sections within the document.

The reader should read thoroughly from first page to the last page.

6. Project Scope

Develop end-to-end fish identification software based on machine learning technology and network application. In the software, users can upload fish images obtained from cameras or other places to the software from mobile phones, PCs or tablets. The software analyzes the learning data in the background and presents the search results to users. The software will provide users with detailed information, including the name of the fish, whether the fish is poisonous, and the habitat of the fish. The administrator can also manage the users of the web page.

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Overall Description

1. Product Perspective

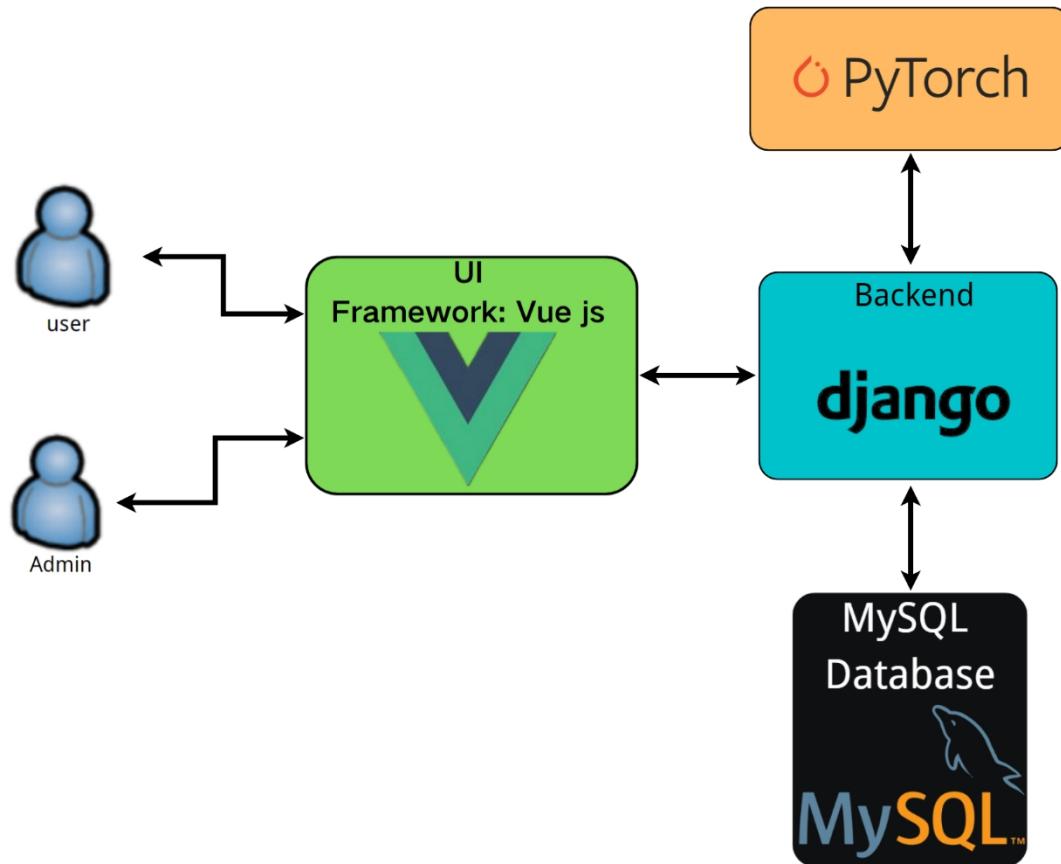


Figure 21:Product Perspective

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2. Project Feature

There are five features in this project of progress two.

Feature#01: Authentication

Both administrator and user roles can log in and log out, and the software allows new users to register.

Feature#02: Image Detection

This feature allows users to upload pictures for identification. This function can call the API to use the trained model to make predictions on the obtained images. The system can identify nine categories of fish (Which are Trout, Striped Red Mullet, Shrimp, Sea bass, Red seabream, Red mullet, Horse mackerel, Gilt-head bream, Black Sea sprat).

Feature#03: Report Generation

The system can generate reports including the predicted fish category, descriptions of the fish, and whether the fish is poisonous.

Feature#04: Show fish related video

The user can view related cooking videos for the nine identified fish species.

Feature#05: Dashboard

Only the administrator (admin) role can log in to the Dashboard, where administrators can view user mailboxes and passwords, and can delete existing users or change user passwords. In addition, administrators can also view related pictures uploaded by users.

3. User Classes and Characteristics

The system involved with two types of users, including user and administrator.

3.1 User

The user is our main audience. The user can register and then log in to our web application to upload pictures for fish identification, to obtain relevant reports (including the category of fish identified, the description of the corresponding fish, and whether it is poisonous). The user can also watch related videos to learn how to cook different fish. The user can log out.

3.2 Administrator

Only administrators can log in and out of Dashboard. And the administrator cannot register. There is only one administrator account . The administrator can manage users on Dashboard (delete users or update user passwords).

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4. Operation Environment

Client Environment

- Browser
 - Chrome Version 45.0 and above
 - Firefox Version 38.0 and above
 - Microsoft Edge Version 12.0 and above
 - Explorer Version 10.0 and above
 - Safari Version 9.0 and above
 - Opera Version 30.0 and above
- Operating system which supports the standalone Facebook Messenger application
 - Android operating system
 - Version 4.0 (Ice Cream Sandwich) and above
 - Apple operating system
 - iOS 8 and above

Developer Environment

- Computer
 - MacBook Pro (15-inch, 2017)
 - Processor: 3.1 GHz Quad-Core Intel Core i7
 - Memory: 16 GB 2133 MHz LPDDR3
 - Graphic: Intel HD Graphics 630 1536 MB
 - Operating System: macOS Monterey 12.1
 - Personal Computer
 - Processor: 3.7 GHz Intel Core i7
 - Memory: 16 GB DDR4
 - Graphic: NVIDIA GeForce RTX 2070
 - Operating System: Windows 10 PRO 64 Bits
- Software
 - Visual Studio Code Version 15.7
 - Postman Version 8.6.1

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Specific Requirement

Use case Overall

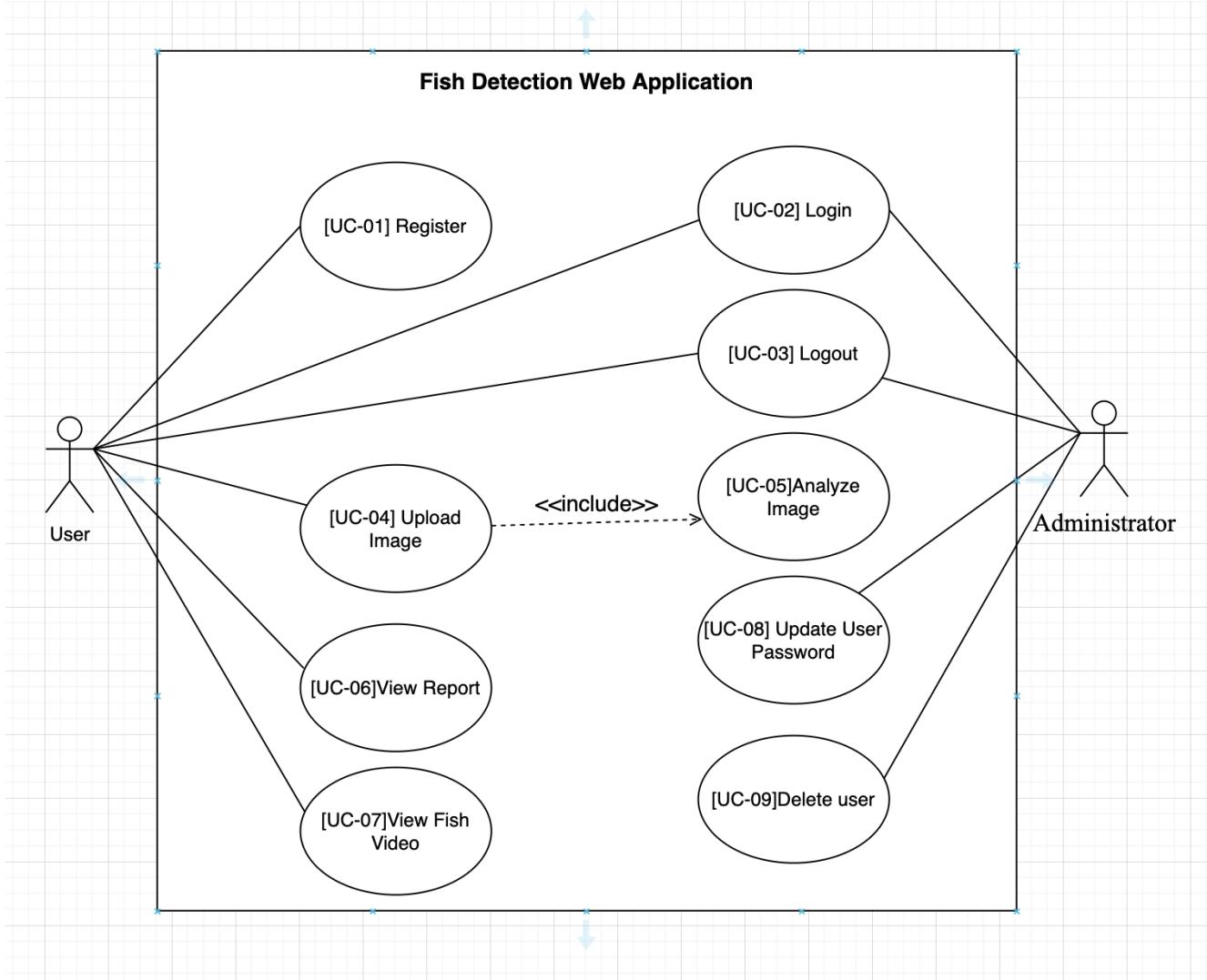


Figure 22: Use case Overall

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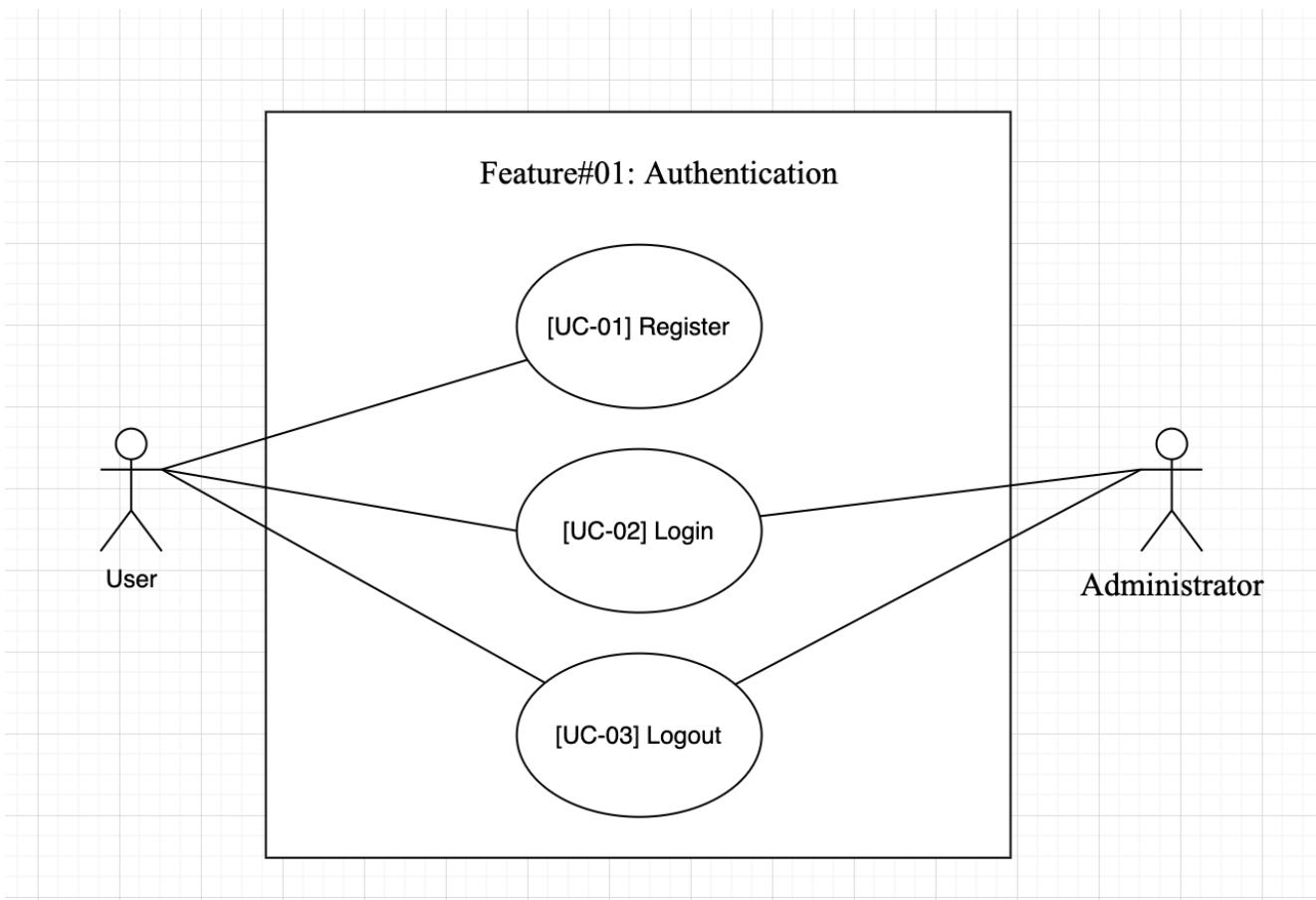
Feature#01: Authentication

Figure 23: Authentication

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Use Case ID	UC-01		
User Case Name	Register		
Created by	Dian Jin	Last Update By	Yanhang Yang
Date Created	23/08/2022	Last Revision Date	23/08/2022
Actors	User		
Description	The actor can register accounts to the system.		
Trigger	-		
Preconditions	The actor already opens the Login page.		
Use Case Input Specification			
Input	Type	Constraint	Example
Email	String	- The email cannot be empty. - The email must be a valid format.	Dsgdkwg1@qq.com
Password	String	- The password cannot be empty.	Yanhang123
Post conditions	The system pops up a prompt box showing "Account created successfully!" and the actor can log in to the system with this account.		
Normal Flow	Actor	System	
	1. The actor clicks on the “Create an account” link at the top right of Login page (UI-01).		
		2. The system shall redirect to the Registration page (UI-01).	
	3. The actor enters the email account and password that needs to be registered.		
	4. The actor clicks the “Confirm” button.		
		5. The system shall validate that the correct mailbox and password format are entered.	

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		[A1: If the entered email address is empty] [A2: If the email address is entered in an incorrect format] [A3: If the entered password is empty]
		6. The system shall verify that the entered email address is registered or not. [A4: If the email account has already been registered]
Alternative Flow		<p>[A1: If the entered email address is empty]</p> <ol style="list-style-type: none"> 1. The system shall pop up a red prompt box showing “Please enter the email!”. 2. Go back to normal flow 3. <p>[A2: If the email address is entered in an incorrect format]</p> <ol style="list-style-type: none"> 1. The system shall pop up a red prompt box showing “Invalid username format! Please enter the correct format!”. 2. Go back to normal flow 3. <p>[A3: If the entered password is empty]</p> <ol style="list-style-type: none"> 1. The system shall pop up a red prompt box showing “Please enter the Password!”. 2. Go back to normal flow 3. <p>[A4: If the email account has already been registered]</p> <ol style="list-style-type: none"> 1. The system shall pop up a prompt showing “Registration failed. This email has been registered”. 2. The actor clicks “OK” button. 3. Go back to normal flow 3.
Exception Flow	-	

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URS-01: The actor can register an account to use the Fish detection web application.

SRS-01: The system shall display a Registration page (UI-02).which include:

- The “Create an account” text
- Email and password input boxes
- “Confirm” button

SRS-02: The system shall pop up a red prompt box showing “Please enter the email!”, if the entered email address is empty.

SRS-03: The system shall Compare the username entered by the user with the set format.

SRS-04: The system shall pop up a red prompt box showing “Invalid username format! Please enter the correct format!” if the email address is entered in an incorrect format.

SRS-05: The system shall pop up a red prompt box showing “Please enter the Password!”, if the entered password is empty.

SRS-06: The system shall record the information entered by the user and match it with the existing account in the database to find out whether the username has been registered.

SRS-07: The system shall pop up a prompt showing “Registration failed. This email has been registered” if the email account has already been registered.

SRS-08: The system shall pop up a prompt box showing "Account created successfully!" if the account is successfully registered.

SRS-09: The system shall redirect to the “Login” page when the new account is successfully registered

SRS-10: The system shall store the user Registered data(username, password) to backend database. If register success

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Use Case ID	UC-02		
User Case Name	Login		
Created by	Dian Jin	Last Update By	Yanhang Yang
Date Created	23/08/2022	Last Revision Date	23/08/2022
Actors	User and Administrator		
Description	<p>The actor can use their account to login to the system.</p> <ul style="list-style-type: none"> • Login with the administrator role, the system shall redirect to the Dashboard page (UI-04). • Login with the user role, the system shall redirect to the Fish Detection page (UI-03). 		
Trigger	-		
Preconditions	<p>The actor must have an account that is already registered. The actor already at the Login page (UI-03).</p>		
Use Case Input Specification			
Input	Type	Constraint	Example
Email	String	<ul style="list-style-type: none"> - The email cannot be empty. - The email must be in email format 	admin@admin.com
Password	String	<ul style="list-style-type: none"> - The password cannot be empty. 	admin
Post conditions	<ul style="list-style-type: none"> • The administrator role: The system redirects to the Dashboard page (UI-04). • The user role: The system redirects to the Fish Detection page (UI-03). 		
Normal Flow	Actor	System	
	1. The actor input email, password the Login page (UI-01).		
	2. The actor clicks “Login” button in the Login page (UI-01).		

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		<p>3. The system shall validate input data.</p> <p>[A1: The email is empty]</p> <p>[A2: The Email does not conform to email format]</p> <p>[A3: The password is empty]</p> <p>[A4: The email is not registered]</p>
		<p>4. The system shall verify the actor account, password, and actor role.</p> <p>[A5: If the account and password do not match]</p>
		<p>5. The system shall redirect to the Fish Detection page (UI-03).</p> <p>[A6: If it is the administrator role]</p>
Alternative Flow	<p>[A1: The email is empty]</p> <ol style="list-style-type: none"> 1. The system shall pop up a red prompt box that displays “Please enter a username”. 2. Go back to normal flow 1. <p>[A2: The Email does not conform to email format]</p> <ol style="list-style-type: none"> 1. The system shall pop up a red prompt box that displays “Invalid username format. Please enter the correct format!”. 2. Go back to normal flow 1. <p>[A3: The password is empty]</p> <ol style="list-style-type: none"> 1. The system shall pop up a red prompt box that displays “Please enter a password”. 2. Go back to normal flow 1. <p>[A4: The email is not registered]</p> <ol style="list-style-type: none"> 1. The system shall pop up a prompt box, showing “Account password error”. 	

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	<p>2.The actor click “OK”.</p> <p>3. Go back to normal flow 1.</p> <p>[A5: If the account and password do not match]</p> <p>1. The system shall pop up a prompt box, showing “Account password error”.</p> <p>2.The actor click “OK”.</p> <p>3. Go back to normal flow 1.</p> <p>[A6: If it is the administrator role, the system redirects to the Dashboard page. (UI-03)]</p> <p>1. The system shall redirect to the Dashboard page. (UI-03)]</p>
Exception Flow	-
Assumption	<ul style="list-style-type: none"> - The actor must understand English. - The actor must connect to the internet.

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URS-02: The actor can login to the system by using email and password that has already register in the system.

SRS-11: The system shall display a Login page (UI-01) which include:

- The “Login” text and the jump link of the registration page
- Email and password input boxes
- Login button

SRS-12: The system shall pop up a red prompt box that displays “Please enter a username”, if the email account entered by the actor is empty.

SRS-13: The system shall pop up a red prompt box that displays “Please enter a password”, if the actor has not entered a password.

SRS-14: The system shall Compare the Registered data(username, password) in data base with user input .

SRS-15: The system shall pop up a prompt box, showing “Account password error”, if the entered email account is not registered or the entered email account does not match the password.

SRS-16: The system must have verification function for verify user role with username input, if the role is user redirect the user to the Fish Detection page (UI-03), if the role is Admin, redirect to Dashboard (UI-04)

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Use Case ID	UC-03				
User Case Name	Logout				
Created by	Dian Jin	Last Update By	Yanhang Yang		
Date Created	23/08/2022	Last Revision Date	23/08/2022		
Actors	User and Administrator				
Description	The actor can logout from the system.				
Trigger	-				
Preconditions	The actor already login to the system (UI-01).				
Use Case Input Specification					
Input	Type	Constraint	Example		
-	-	-	-		
Post conditions	The actor can logout of the system and redirect to the Login page.				
Normal Flow	Actor		System		
	1. The actor clicks the logout link in the upper left corner.				
		2. The system redirect to Login page (UI-01).			
Alternative Flow	-				
Exception Flow	-				
Assumption	<ul style="list-style-type: none"> - The actor must understand English. - The actor must connect to the internet. 				

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URS-03: The actor can logout from the system.

SRS-17: The system shall have logout links in Fish Detection page (UI-03) and Dashboard (UI-04), which appear in the upper left corner of the page, and the logout links of the two pages are in the same location.

SRS-18: The system must redirect user to the login page(UI-01) .If role is user after clicks the logout link redirect to the login page from the Fish Detection page (UI-03), if role is admin redirect to the login page from the Dashboard (UI-04).

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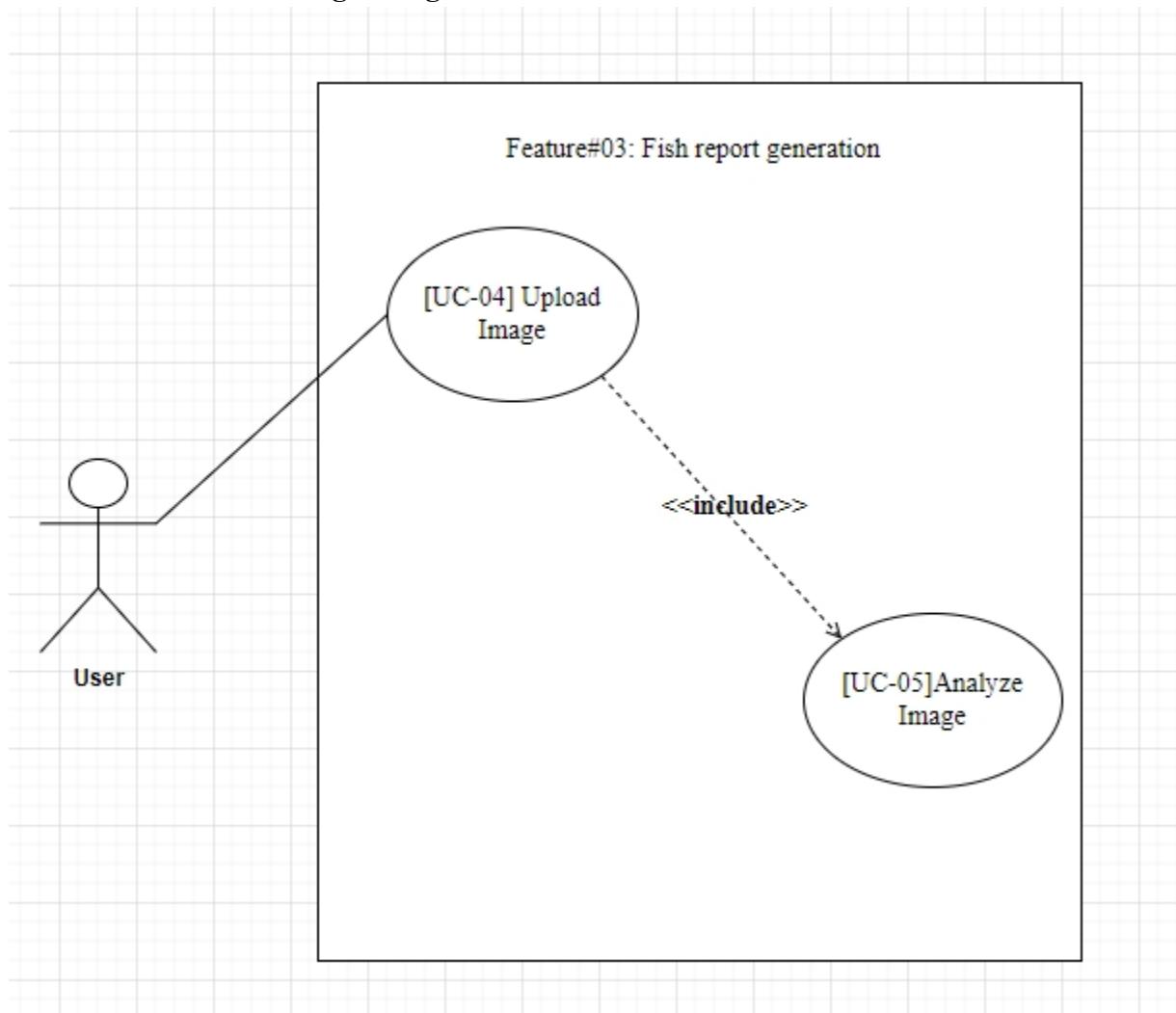
Feature#02: Fish image recognition

Figure 24: Fish image recognition

Document Name	Software Requirement	Owner	YYH,DJ	Page	73
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Use Case ID	UC-04		
User Case Name	Upload Image		
Created by	Dian Jin	Last Update By	Yanhang Yang
Date Created	23/08/2022	Last Revision Date	23/08/2022
Actors	User		
Description	The actor can upload JPG or PNG images.		
Trigger	-		
Preconditions	The actor is logged in and has opened the Fish Detection page (UI-04).		
Use Case Input Specification			
Input	Type	Constraint	Example
Image	Image	<ul style="list-style-type: none"> - The image format only supports JPG or PNG. - The image size need lower than 10MB. - Image resolution need lower than 2832x2182 	 <small>05/04/2019</small>
Post conditions	-		
Normal Flow	Actor	System	
	1. The actor clicks the “Upload” button.		
	2. The actor selects the image to be recognized.		
		3. The system shall display the uploaded image in the part of the current image.	
Alternative Flow	-		
Exception Flow	-		
Assumption	<ul style="list-style-type: none"> - The actor must understand English. - The actor must connect to the internet. 		

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URS-04: The actor can select an image to upload to the application.

SRS-19: The system shall display a Fish Detection page(UI-03) which include:

- Title of the page “Fish Detection”
- Upload image button
- The area where the uploaded image is displayed
- Report display area (which includes the predicted fish, a description of the fish, whether it is poisonous)
- Related cooking videos of nine category of fish

SRS-20: The system shall pop up a window to let the user select the pictures stored on the device. When the user clicks the Upload image button on the Fish Detection page(UI-03).

SRS-22: The system shall replace the original upload image UI to current image UI and display the uploaded image at current image UI, after the image is uploaded successfully.

SRS-23: The system shall save the picture uploaded to the back-end folder(back-end\uploads) at the same time, after the user uploads the picture successfully

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Use Case ID	UC-05				
User Case Name	Analyze Image				
Created by	Dian Jin	Last Update By	Yanhang Yang		
Date Created	23/08/2022	Last Revision Date	23/08/2022		
Actors	System				
Description	<p>The system shall call the trained model through the API to make predictions on the obtained images. The system shall identify nine categories of fish (Trout, Striped Red Mullet, Shrimp, Sea bass, Red seabream, Red mullet, Horse mackerel, Gilt-head bream, Black Sea sprat). If the obtained image is not a fish, the system will predict the category of the fish that most closely resembles the item.</p> <p>The system shall display a progress bar to inform the user of the progress of the analysis.</p>				
Trigger	-				
Preconditions	The system has obtained the images uploaded by the user.				
Use Case Input Specification					
Input	Type	Constraint	Example		
-	-	-	-		
Post conditions	-				
Normal Flow	Actor	System			
		<ol style="list-style-type: none"> 1. The system shall call the trained model through the API to make predictions on the obtained images. At the same time, the system shall display a progress bar to show the progress of the analysis. 2. The system shall pop up a prompt box showing “Prediction success” to remind the user that the prediction is complete. At the same time, the progress bar disappears. 			
Alternative Flow	-				
Exception Flow	-				

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URS-05: The system can call the trained model to analyze the images through the API.

SRS-24: The system shall call the trained model through the API to make predictions on the obtained images.

SRS-25: The system shall display a progress bar (percentage) to show the progress of the analysis, while the image is being analyzed.

SRS-26: The system shall pop up a prompt box showing "Prediction success" to remind the user that the prediction is complete.

SRS-27: The progress bar shall disappear when the system pops up the prediction completion prompt.

SRS-28: The system shall obtain the label value of the returned prediction image from the model's API

SRS-29: The system shall match the obtained label value with the fish_description(back-end\fish_description) stored in the back end

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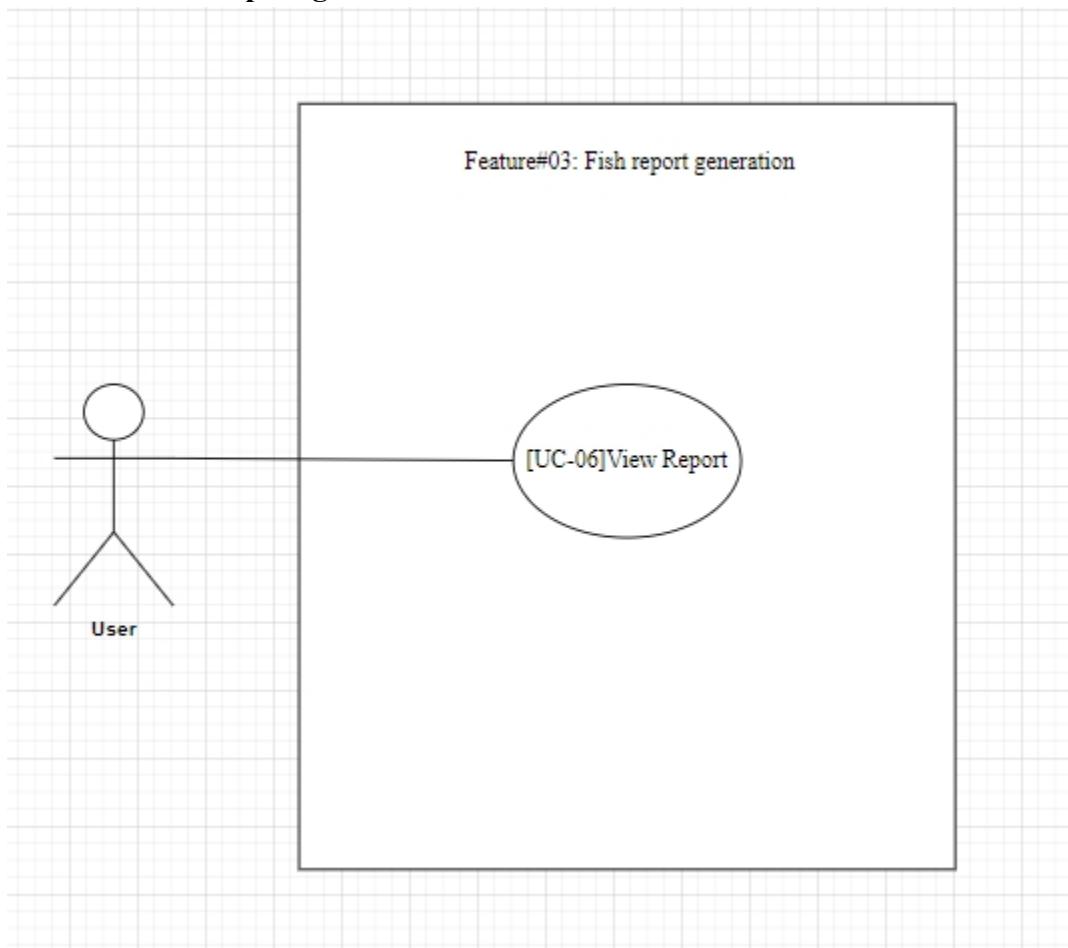
Feature#03: Fish report generation

Figure 25: Fish report generation

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Use Case ID	UC-06				
User Case Name	View Report				
Created by	Dian Jin	Last Update By	Yanhang Yang		
Date Created	23/08/2022	Last Revision Date	23/08/2022		
Actors	User				
Description	The actor can view the analysis results of the uploaded images, including the predicted fish category, descriptions of the fish, and whether the fish is poisonous.				
Trigger	-				
Preconditions	The system has obtained the predicted label after the image was analyzed.				
Use Case Input Specification					
Input	Type	Constraint	Example		
-	-	-	-		
Post conditions	-				
Normal Flow	Actor	System			
		1. The system generates a report based on the predicted label obtained. This includes the category of fish predicted, the description of the fish, and whether the fish is poisonous or not.			
Alternative Flow	-				
Exception Flow	-				
Assumption	<ul style="list-style-type: none"> - The actor must understand English. - The actor must connect to the internet. 				

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URS-06: The actor could view the generated fish report.

SRS-30: The system shall return report include label value obtained and the corresponding description file matched.

SRS-31: The system shall display fish reports. This includes the category of fish predicted, the description of the fish, and whether the fish is poisonous or not. And present the results in a 3*1 table

SRS-32: The reports shall be scrolled up and down and left and right.

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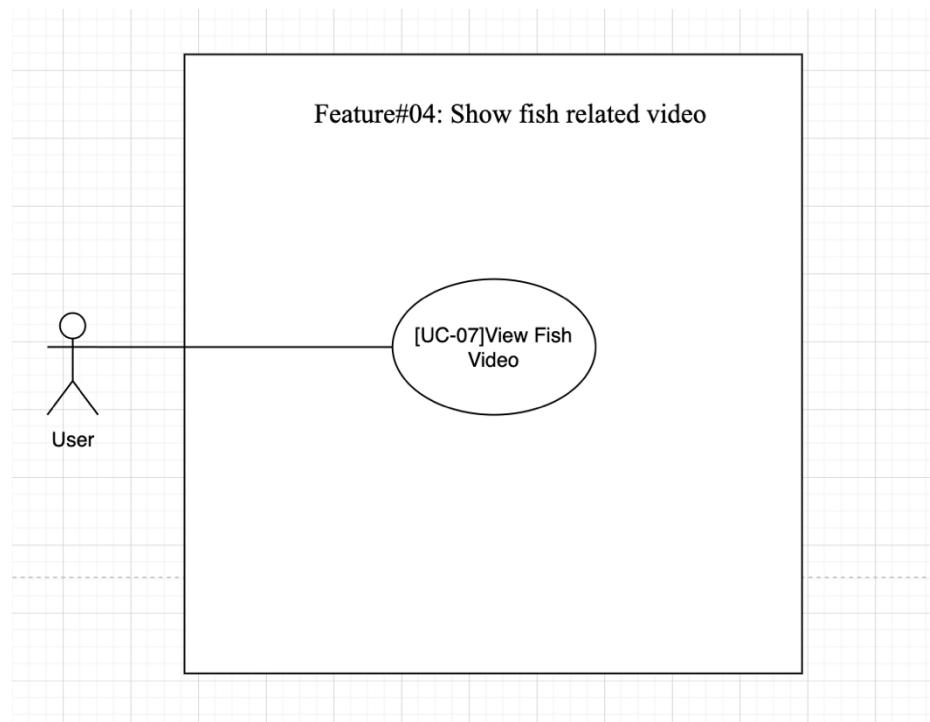
Feature#04: Show fish related video

Figure 26: Show fish related video

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Use Case ID	UC-07		
User Case Name	View Fish Video		
Created by	Dian Jin	Last Update By	Yanhang Yang
Date Created	23/08/2022	Last Revision Date	23/08/2022
Actors	User		
Description	The system shall display cooking videos of 9 kinds of fish (Trout, Striped Red Mullet, Shrimp, Sea bass, Red seabream, Red mullet, Horse mackerel, Gilt-head bream, Black Sea sprat)		
Trigger	-		
Preconditions	The actor is logged in and has opened the Fish Detection page (UI-03).		
Use Case Input Specification			
Input	Type	Constraint	Example
-	-	-	-
Post conditions	-		
Normal Flow	Actor		System
			1. The system shall display cooking videos of 9 kinds of fish on the Fish Detection page (UI-03).
Alternative Flow	-		
Exception Flow	-		
Assumption	<ul style="list-style-type: none"> - The actor must understand English. - The actor must connect to the internet. 		

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URS-07: The actor shall view cooking videos for 9 types of fish, which are Trout, Striped Red Mullet, Shrimp, Sea bass, Red seabream, Red mullet, Horse mackerel, Gilt-head bream, Black Sea sprat.

SRS-33: The system shall get the video list from youtube's API

SRS-34: The system shall display cooking videos of 9 kinds of fish on the Fish Detection page (UI-03).

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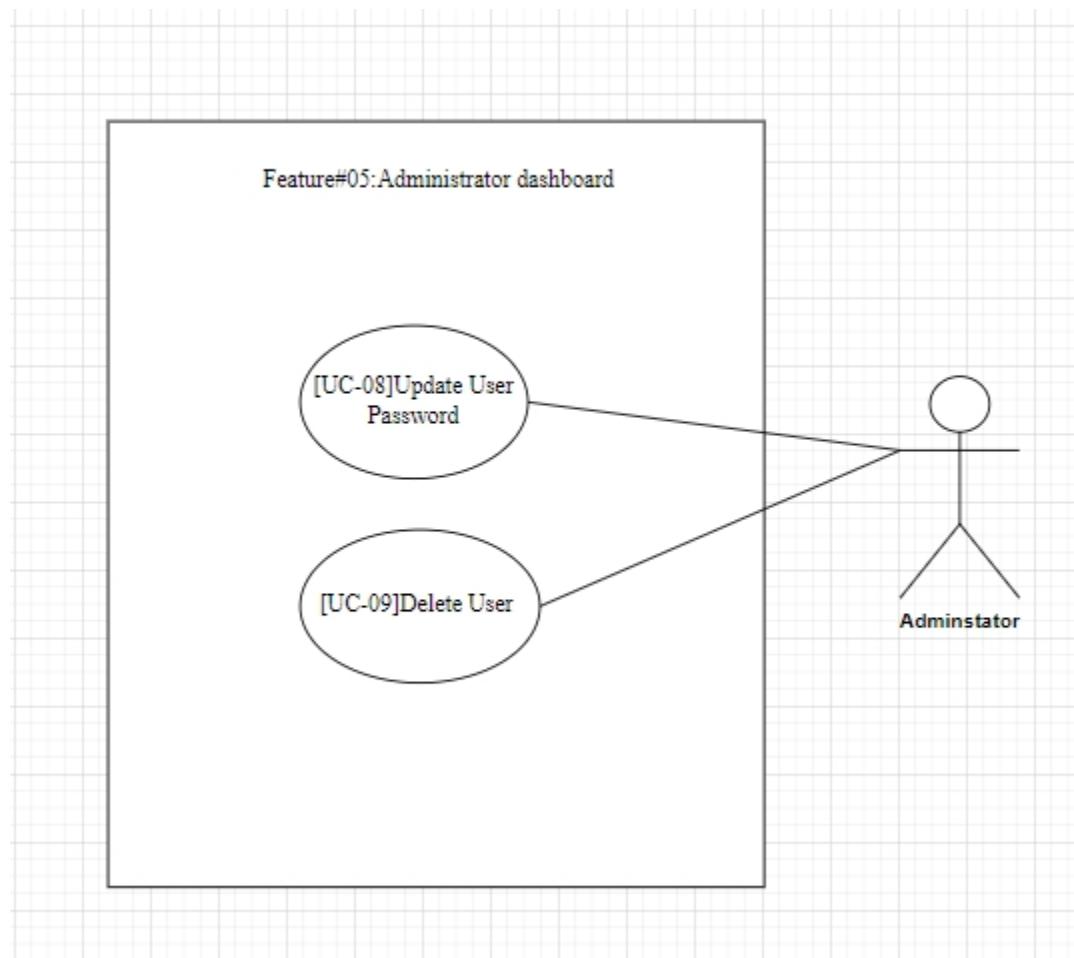
Feature#05: Administrator dashboard

Figure 27: Administrator dashboard

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Use Case ID	UC-08		
User Case Name	Update user password		
Created by	Dian Jin	Last Update By	Yanhang Yang
Date Created	23/08/2022	Last Revision Date	23/08/2022
Actors	Administrator		
Description	The actor can update the user's password.		
Trigger	-		
Preconditions	The actor has logged into the Dashboard page (UI-04).		
Use Case Input Specification			
Input	Type	Constraint	Example
Password	String	- The password cannot be empty.	Yyhang816
Post conditions	The system pops up a prompt showing "Modified Successfully".		
Normal Flow	Actor		System
			1. The system displays the user information page (UI-04).
	2. The actor selects the user whose password needs to be updated based on the username and clicks the "Edit" button in the Action column of this user's row.		
			3. The system pops up the "User information modification" box (UI-05).
	4. The actor enters a new password.		
	5. The actor clicks the "Determine" button.		
Alternative Flow	-		
Exception Flow	-		
Assumption	<ul style="list-style-type: none"> - The actor must understand English. - The actor must connect to the internet. 		

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URS-08: The actor can update the user's password.

SRS-35: The system shall display the user information page (UI-04), which include:

- User serial number
- Username, Password, Action (Edit, Deleted) for each user

SRS-36: The system shall get the registration data from the database and display it in the listview

SRS-37: The system shall be scrolled left and right to view user information.

SRS-28: The system shall pop up the “User information modification” box (UI-05) when the actors click the "Edit" button in the Action column of this user's row.

SRS-39: The system pops up a prompt showing “Modified Successfully” when the user clicks “Determine” and the password is successfully changed.

SRS-40: The system will modify the Registered data(only password) stored in the database When actor clicks “Determine”.

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Use Case ID	UC-09				
User Case Name	Delete user				
Created by	Dian Jin	Last Update By	Yanhang Yang		
Date Created	23/08/2022	Last Revision Date	23/08/2022		
Actors	Administrator				
Description	The actor can delete user.				
Trigger	-				
Preconditions	The actor has logged into the Dashboard page (UI-04).				
Use Case Input Specification					
Input	Type	Constraint	Example		
-	-	-	-		
Post conditions	The system prompts “Delete Succussed”, indicating that user has been successfully deleted.				
Normal Flow	Actor	System			
		1. The system displays the user information page (UI-04).			
	2. The actor selects the user to be deleted and clicks the “Deleted” button in the Action column of the user's row.				
		3. The system pops up a prompt box showing "This operation will be permanently deleted. Do you want to continue?"			
	4. The actor clicks “sure” button. [A1: The actor clicks “cancel” button.]				
Alternative Flow	[A1: The actor clicks “cancel” button] 1. The system shall pop up a prompt box showing "already canceled"				
Exception Flow	-				
Assumption	- The actor must understand English. - The actor must connect to the internet.				

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URS-09: The actor can delete the user.

SRS-41: The system pops up a prompt box showing "This operation will be permanently deleted. Do you want to continue?" when the actor clicks the "Deleted" button on the user information page (UI-04).

SRS-42: The system shall pop up a prompt box showing "already canceled" when the actor clicks "cancel" button on the prompt box.

SRS-43: The system will delete the Registered data(username, password) stored in the database When actor clicks the "Deleted" button

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Activity Diagram

AD-01: Authentication(UC-01,UC-02,UC-03)

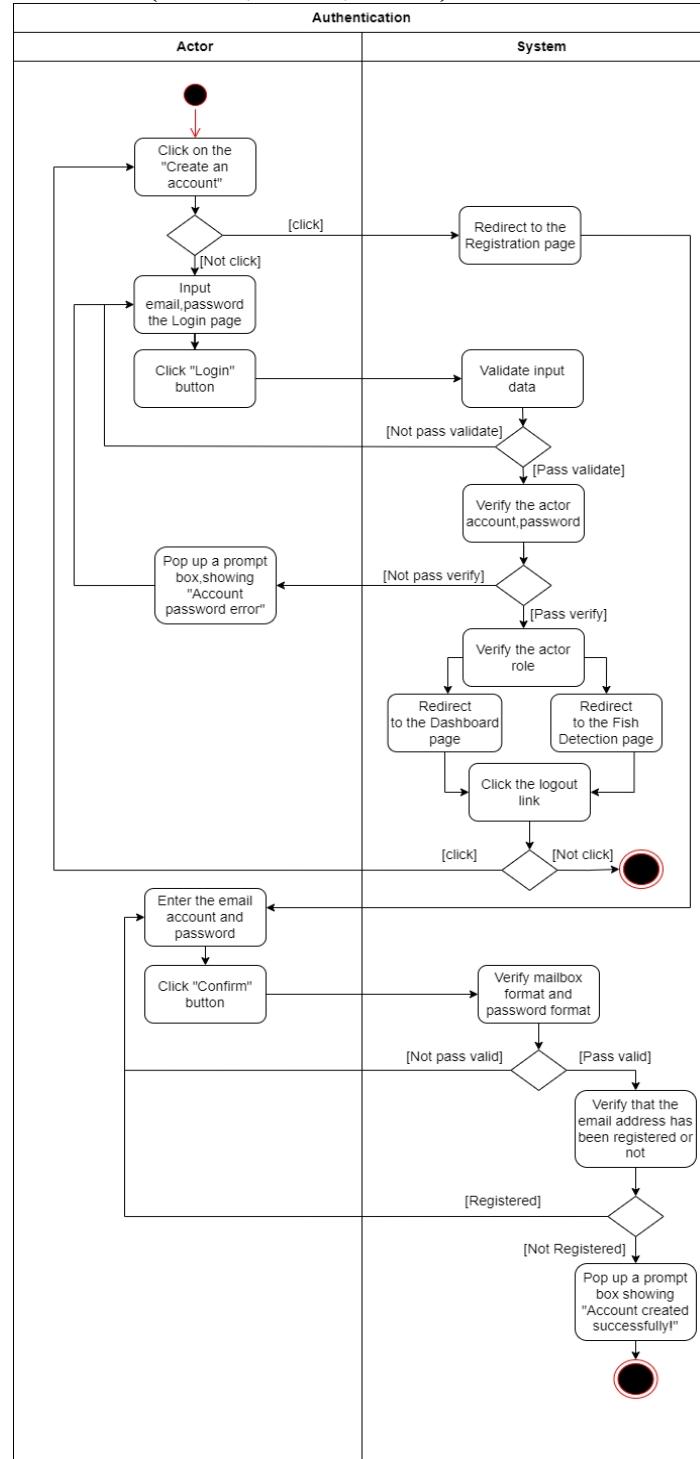


Figure 28: Authentication(UC-01,UC-02,UC-03)

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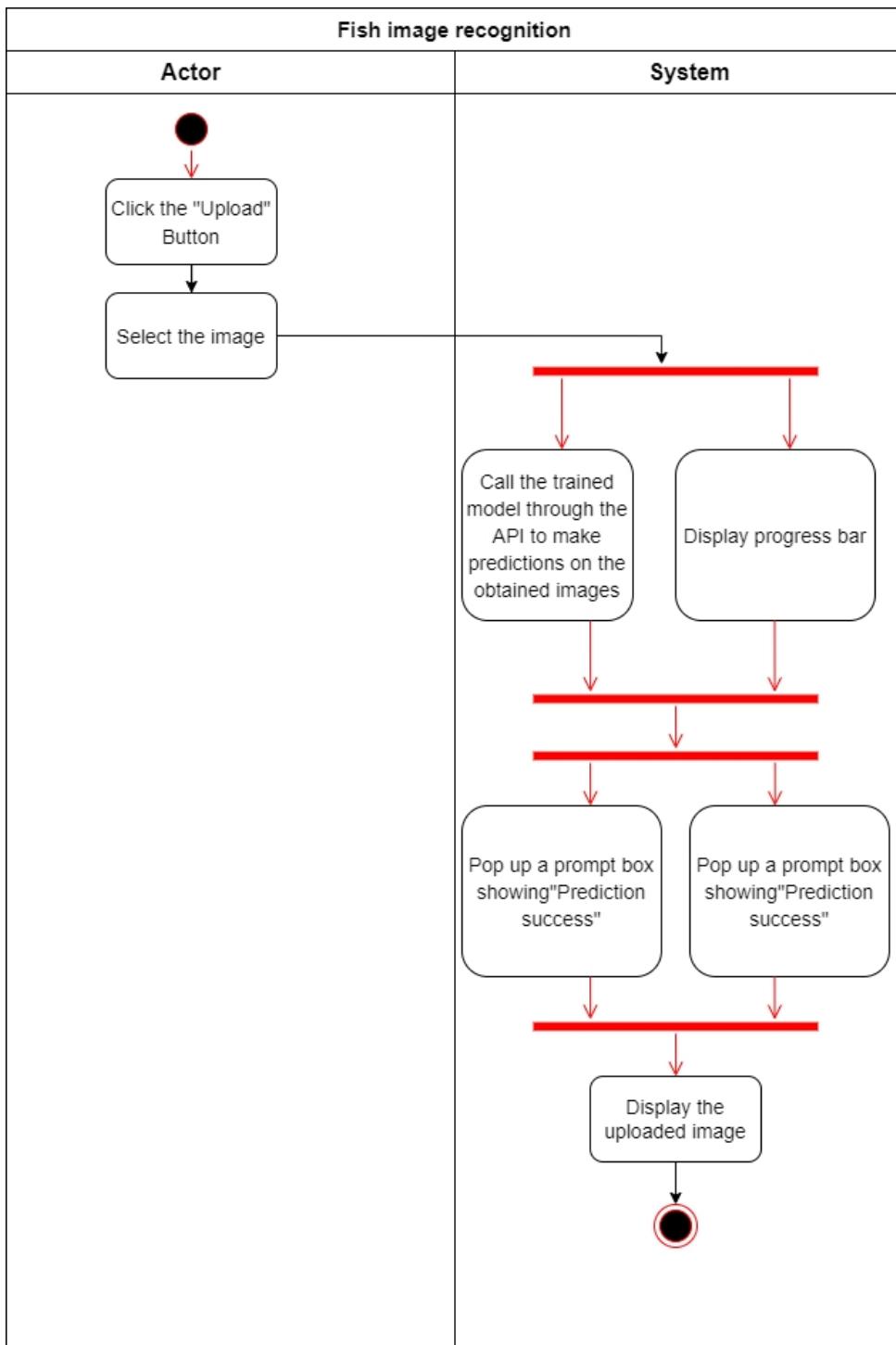
AD-02: Fish image recognition (UC-04,UC-05)


Figure 29: Fish image recognition (UC-04,UC-05)

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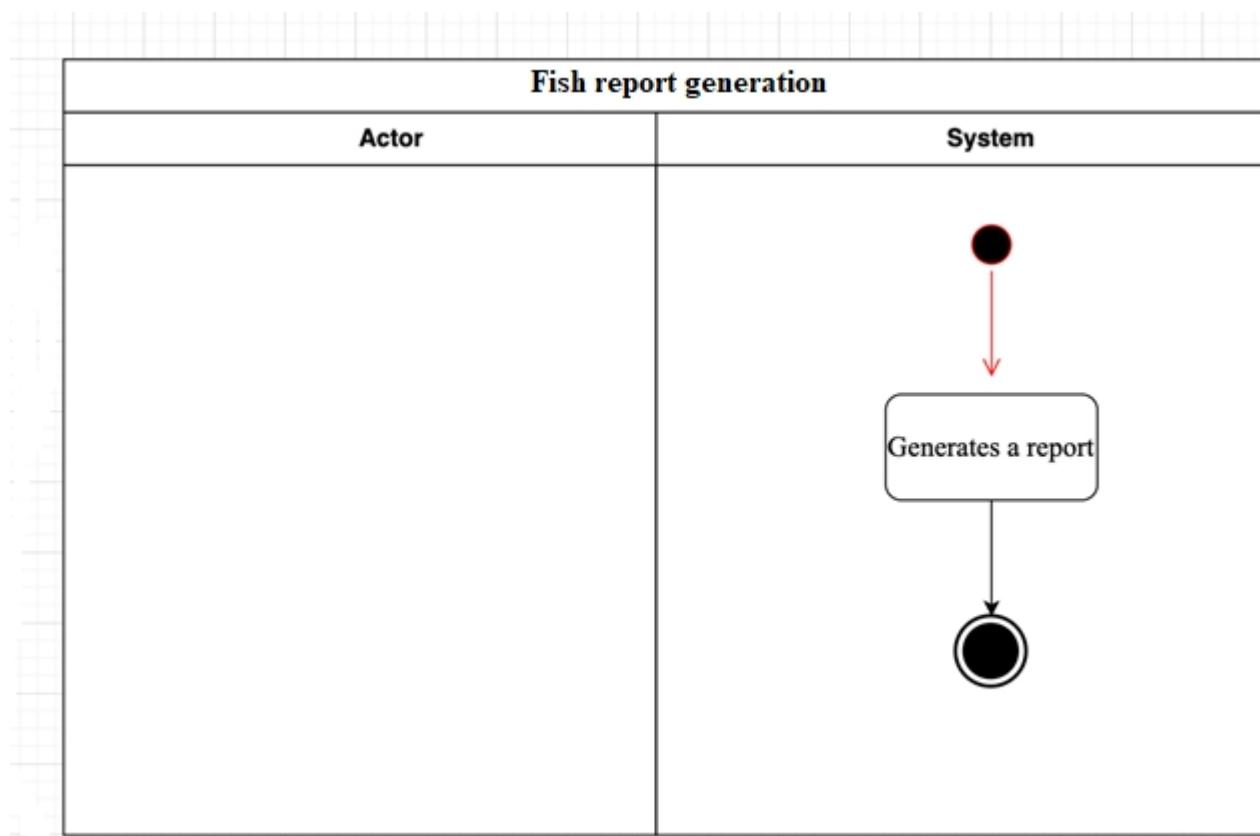
AD-03: Fish report generation (UC-06)

Figure 30: Fish report generation (UC-06)

Document Name	Software Requirement	Owner	YYH,DJ	Page	91
Document Type	Software Requirement	Release Date	13 October 2022	Print Date	13 October 2022

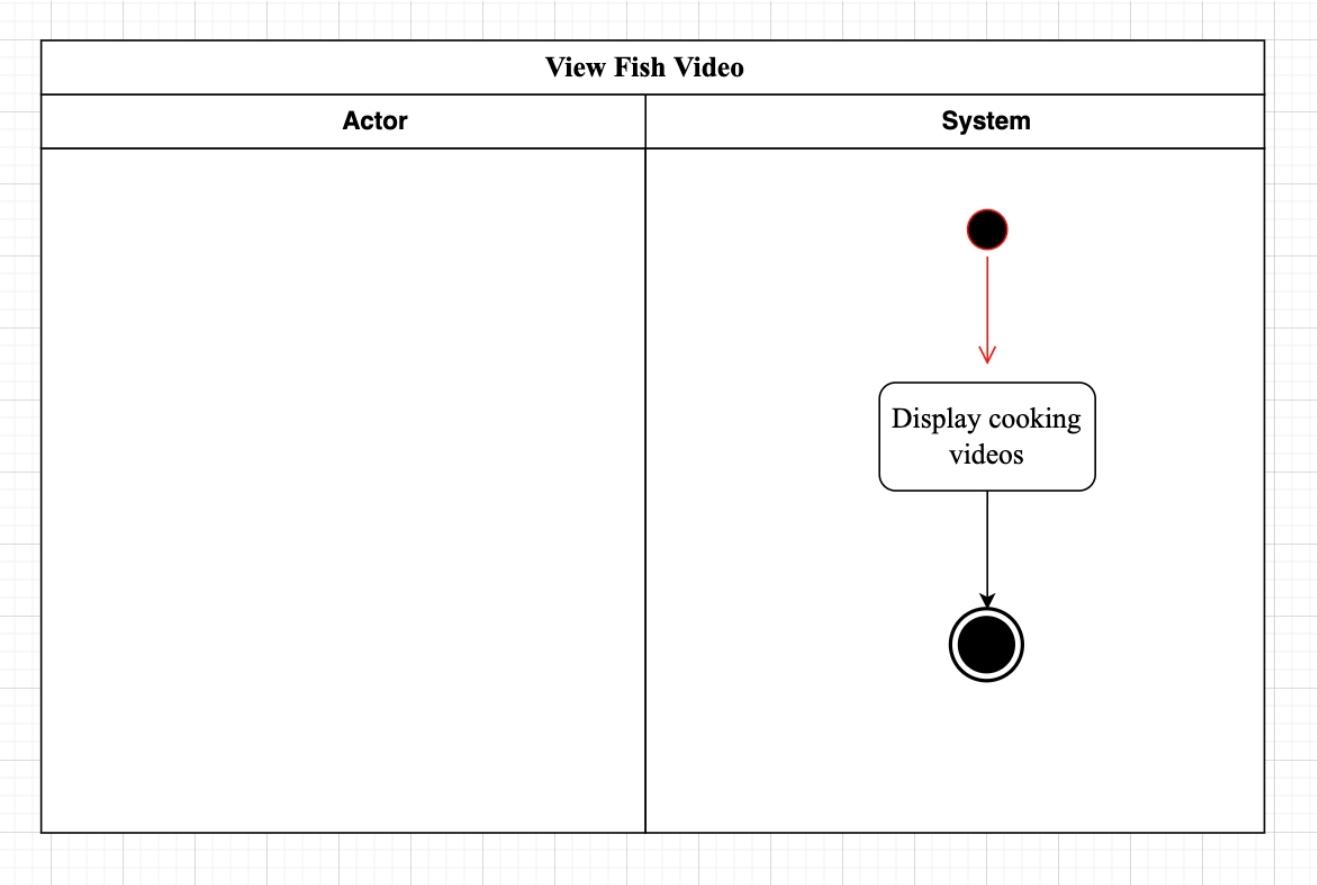
AD-04: View Fish Video(UC-07)

Figure 31: View Fish Video(UC-07)

Document Name	Software Requirement	Owner	YYH,DJ	Page	92
Document Type	Software Requirement	Release Date	13 October 2022	Print Date	13 October 2022

AD-05: Administrator dashboard (UC-08,UC-09)

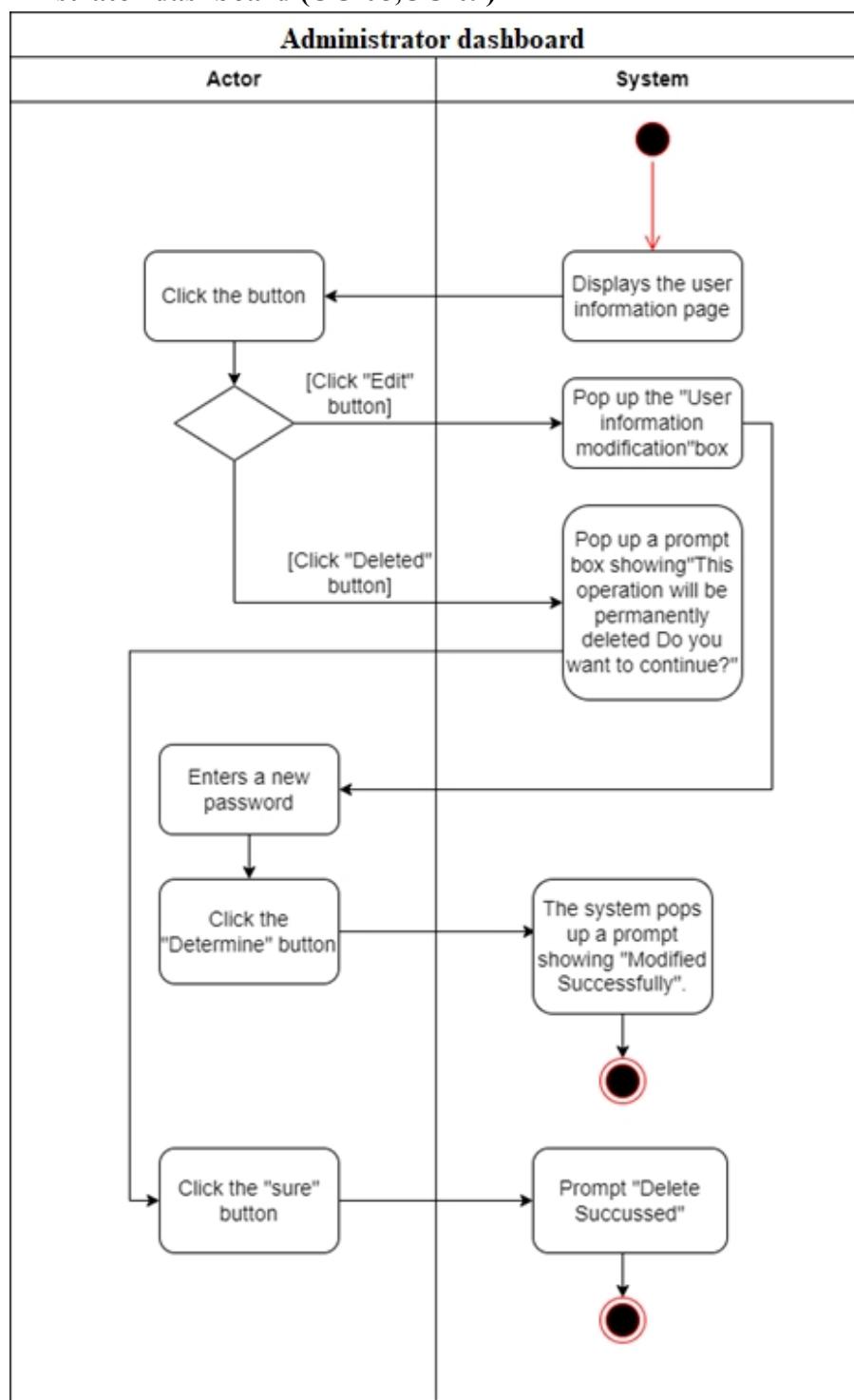


Figure 32: Administrator dashboard (UC-08,UC-09)

Document Name	Software Requirement	Owner	YYH,DJ	Page	93
Document Type	Software Requirement	Release Date	13 October 2022	Print Date	13 October 2022

Chapter 4

Software Design Development

Fish information detection software

Software Design Document

By

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Document History

History	Status	Date	Viewable	Editable	Responsible
Add <ul style="list-style-type: none"> • Introduction • System architecture • Detailed design • Method Description • Sequence Diagram • User Interface Design 	Draft	October, 13 th 2022	YYH, DJ, JH	YYH, DJ	YYH, DJ
Update <ul style="list-style-type: none"> • Detailed design • Method Description • Sequence Diagram • User Interface Design 	Draft	July, 6 th 2022	YYH, DJ, JH	YYH, DJ	YYH, DJ
Update <ul style="list-style-type: none"> • Introduction • System architecture 	Draft	October, 13 th 2022	YYH, DJ, JH	YYH, DJ	YYH, DJ

* YYH= Yanhang Yang

* DJ= Dian Jin

* JH= Jayakrit Hirisajja

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Introduction

The Software Design Document (SDD) is a document to provide documentation which will be used to aid in software development by providing the details for how the software should be built. Within the Software Design Document are narrative and graphical documentation of the software design for the project including use case models, sequence diagrams, collaboration models, object behavior models, and other supporting requirement information.

Purpose

This document is SDD version 1.0, which describes the system's design at a low level according to the Software Requirements Specification (SRS) to support developers in understanding what to build and co-produce it. This document conveys the technical details of the planned solution to the team to help the team organize their ideas before wasting a lot of time implementing the wrong solution or solving the wrong problem solution to ensure correct work.

Project Scope

Develop end-to-end fish identification software based on machine learning technology and network application. In the software, users can upload fish images obtained from cameras or other places to the software from mobile phones, PCs or tablets. The software analyzes the learning data in the background and presents the search results to users. The software will provide users with detailed information, including the name of the fish, whether the fish is poisonous, and the habitat of the fish. The administrator can also manage the users of the web page

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Acronyms

- SDD - Software Design Document
- CD - Class Diagram
- MD – Method Description
- SD - Sequence Diagram
- UI - User Interface

System Architecture

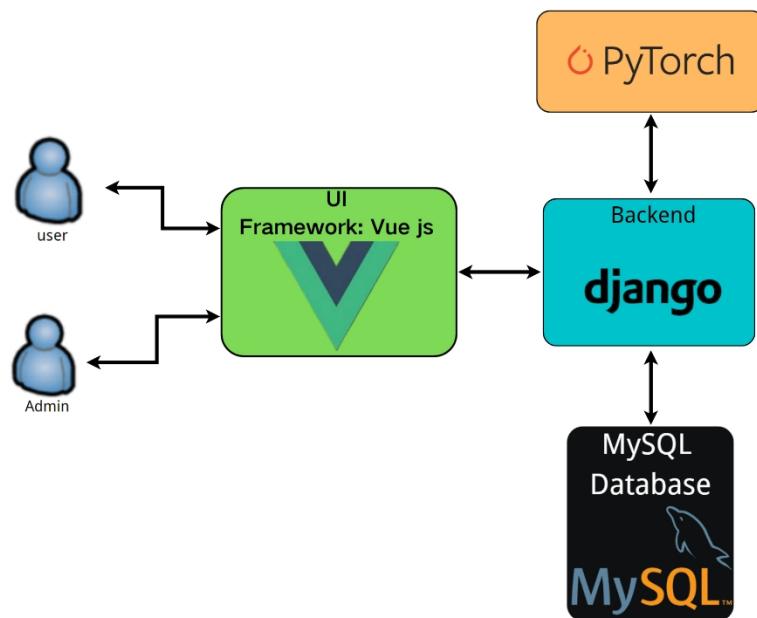


Figure 33: System Architecture

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Detailed Design

Class Diagram Overview Frontend

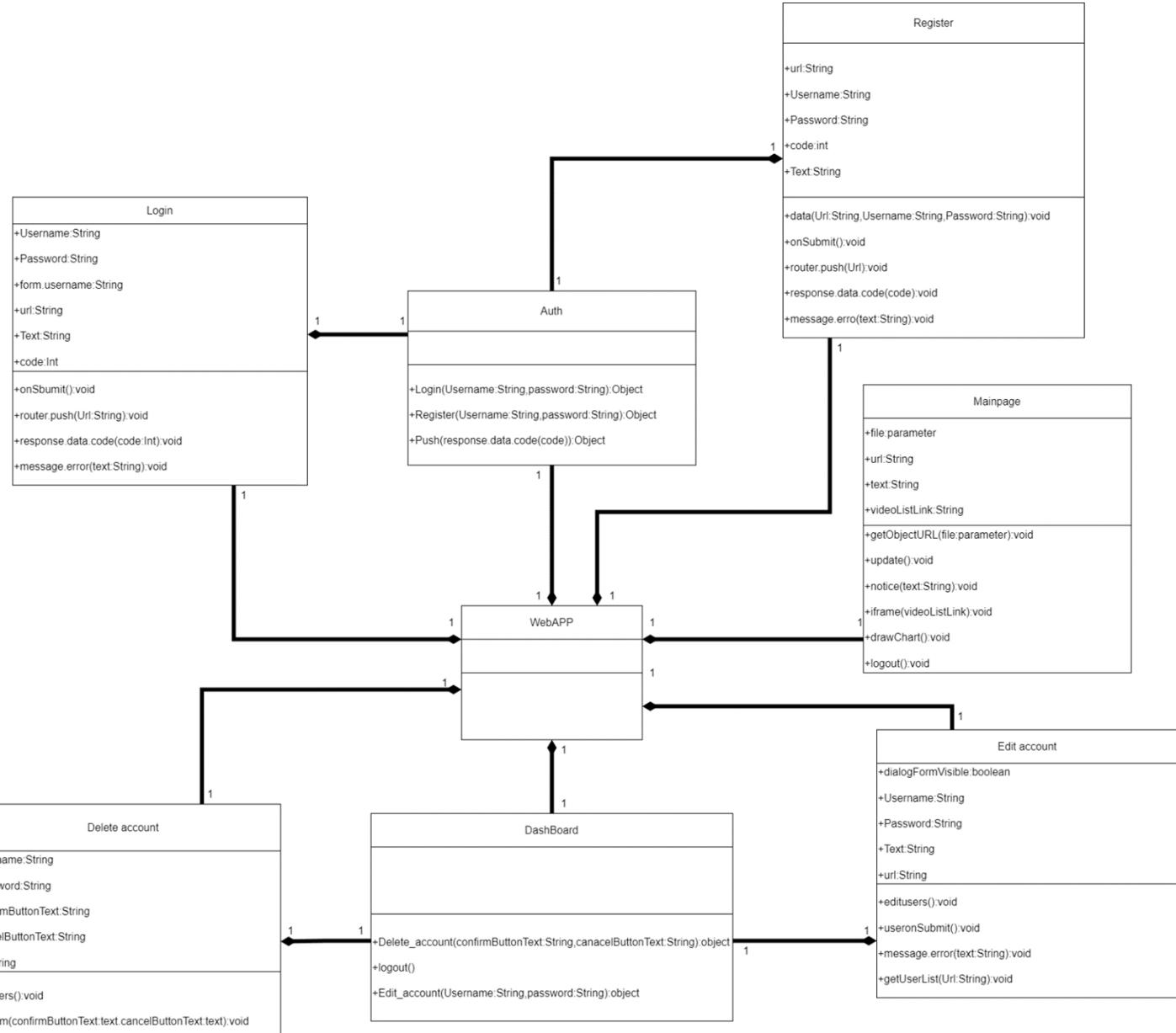


Figure 34: overview Frontend

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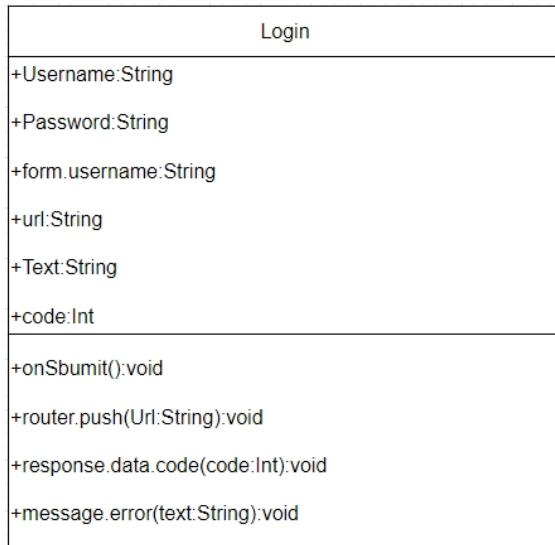
CD-01: Login

Figure 35: Login

Attributes:

ID	Name	Description	Type
1	Username	Store a String of content about username	String
2	Password	Store a String of content about Password	String
3	form.username	Store a restrict the content of username format	String
4	Url	URL of file location or page	String
5	Text	Store a String of displayed text	String
6	code	Int type used to identify the login user	Int

Methods:

ID	Name	Reference
1	onSubmit():void	MD-01
2	router.push(Url:String): void	MD-02
3	response.data.code(code:Int): void	MD-03
4	message.error(text:String):void	MD-04

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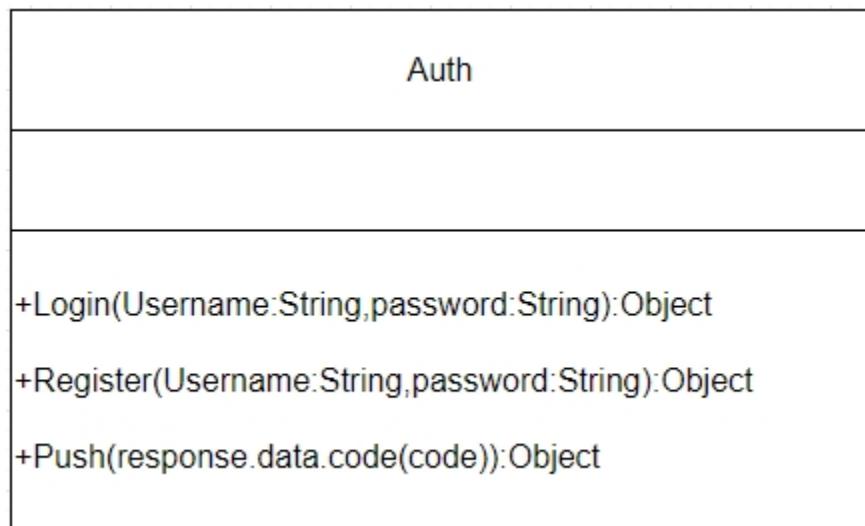
CD-02: Auth

Figure 36: Auth

Attributes:

ID	Name	Description	Type
-	-	-	-

Methods:

ID	Name	Reference
1	Login(username: String, password: String): Object	MD-05
2	Register(username: String, password: String): Object	MD-06
3	Push(response.data.code(code)): Object	MD-07

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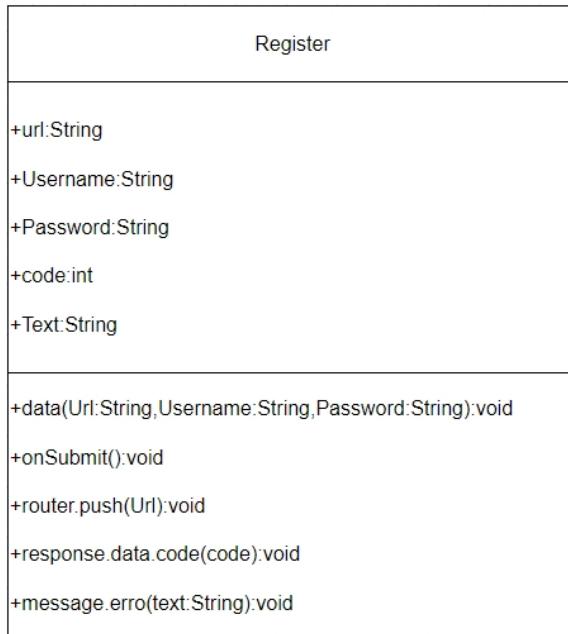
CD-03: Register

Figure 37: Register

Attributes:

ID	Name	Description	Type
1	Url	Store a String of URL of file location or page	String
2	Username	Store a String of content about username	String
3	Password	Store a String of content about Password	String
4	code	Int type used to identify the login user	Int
5	Text	Store a String of displayed text	String

Methods:

ID	Name	Reference
1	data(Url:String,Username:String>Password:String):void	MD-08
2	onSubmit():void	MD-01
3	router.push(Url:String):void	MD-02
4	response.data.code(code:Int): void	MD-03
5	message.error(text:String):void	MD-04

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CD-04: Mainpage

Mainpage
+file:parameter
+url:String
+text:String
+videoListLink:String
+getObjectURL(file:parameter):void
+update():void
+notice(text:String):void
+iframe(videoListLink):void
+drawChart():void
+logout():void

Figure 38: Mainpage

Attributes:

ID	Name	Description	Type
1	File	A document recording specific information about fish	Parameter
2	Url	Store a String of URL of file location or page	String
3	VideoListLink	Store a String of Link to Youtube Video list	String
4	Text	Store a String of displayed text	String

Methods:

ID	Name	Reference
1	getObjectURL(file:paramter):void	MD-09
2	update():void	MD-10
3	notice1(text:String):void	MD-11
4	iframe (videoListLink):void	MD-12
5	drawChart():void	MD-13
6	logout():void	MD-14

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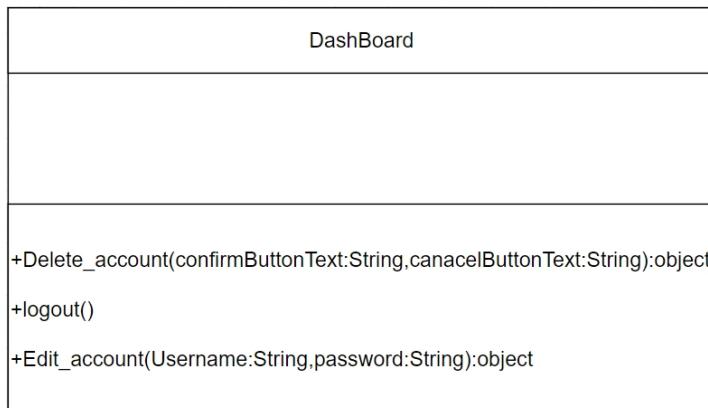
CD-05: DashBoard

Figure 39: DashBoard

Attributes:

ID	Name	Description	Type
-	-	-	-

Methods:

ID	Name	Reference
1	Delete_account(confirmButtonText:String, cancelButtonText:String):object	MD-15
2	Edit_account(username:String, password:String):object	MD-16
3	Logout():void	MD-14

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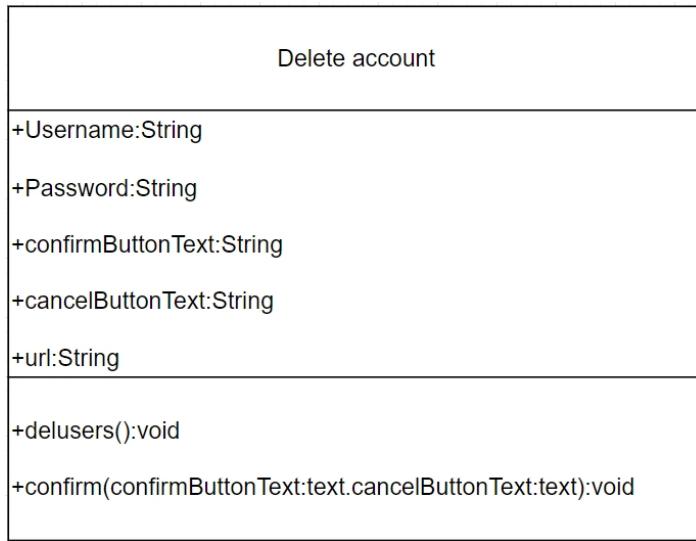
CD-06: Delete account

Figure 40: Delete account

Attributes:

ID	Name	Description	Type
1	Username	Store a String of content about username	String
2	Password	Store a String of content about Password	String
3	confirmButtonText	Store a String of Text of confirmbutton	String
4	cancelButtonText	Store a String of Text of cancelButton	String
5	Url	Store a String of URL of file location or page	String

Methods:

ID	Name	Reference
1	delusers():void	MD-17
2	confirm(confirmButtonText:text.cancelButtonText:text):void	MD-18

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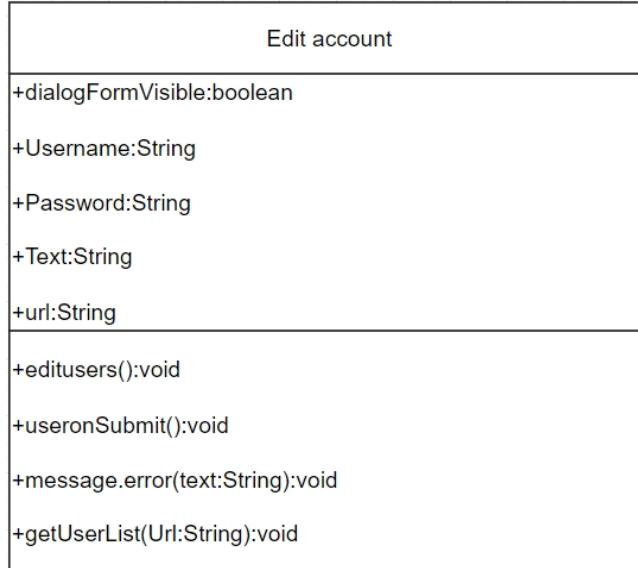
CD-07: Edit account

Figure 41: Edit account

Attributes:

ID	Name	Description	Type
1	dialogFormVisible	Controls the visibility of the prompt dialog box	Boolean
2	Username	Store a String of content about username	String
3	Password	Store a String of content about Password	String
4	Text	Store a String of displayed text	String
5	Url	Store a String of URL of file location or page	String

Methods:

ID	Name	Reference
1	editusers():void	MD-19
2	useronSubmit():void	MD-20
3	message.error(text:String):void	MD-04
4	getUserList(Url:String):void	MD-21

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Overview Backend

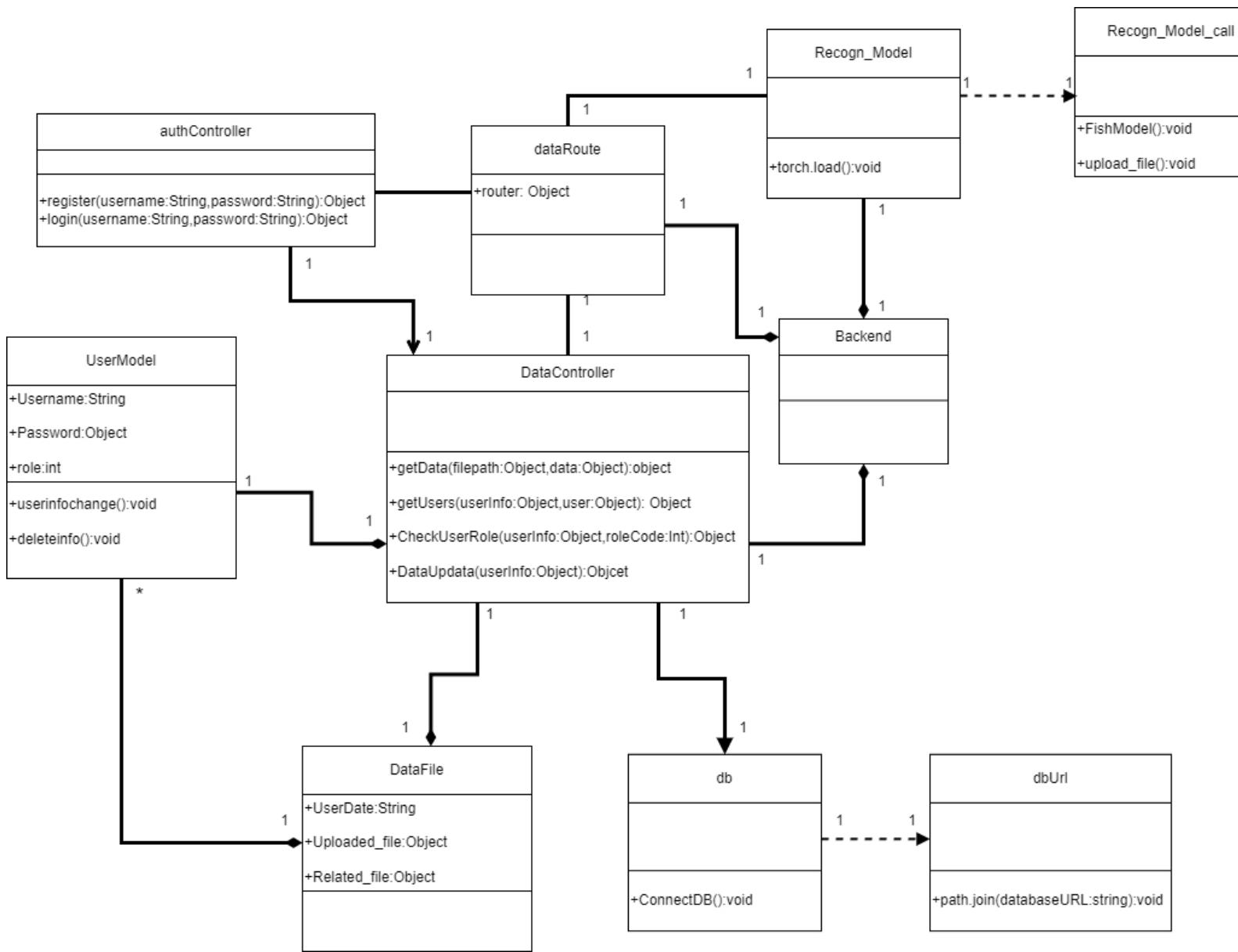


Figure 42: overview Backend

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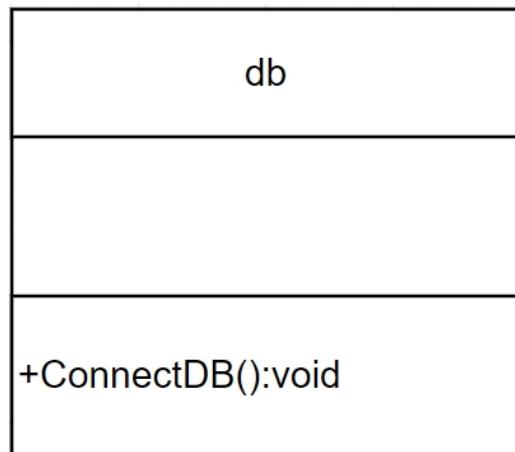
CD-08: db

Figure 43: db

Attributes:

ID	Name	Description	Type
-	-	-	-

Methods:

ID	Name	Reference
1	connectDB(): void	MD-22

Document Name	Software Design Document	Owner	YYH,DJ	Page	109
Document Type	Software Design Document	Release Date	13 October 2022	Print Date	13 October 2022

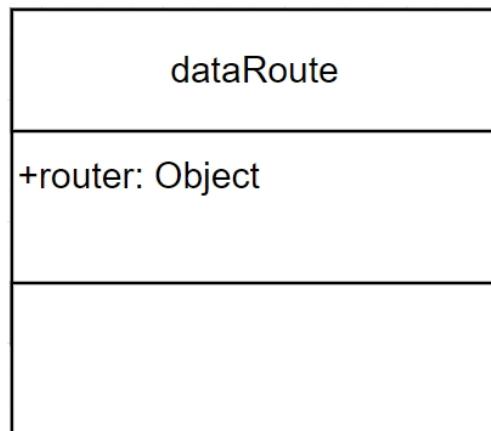
CD-09:dataRoute

Figure 44: dataRoute

Attributes:

ID	Name	Description	Type
1	router	Store the instance of router consists of register, login, RecognModel route.	Object

Methods:

ID	Name	Reference
-	-	-

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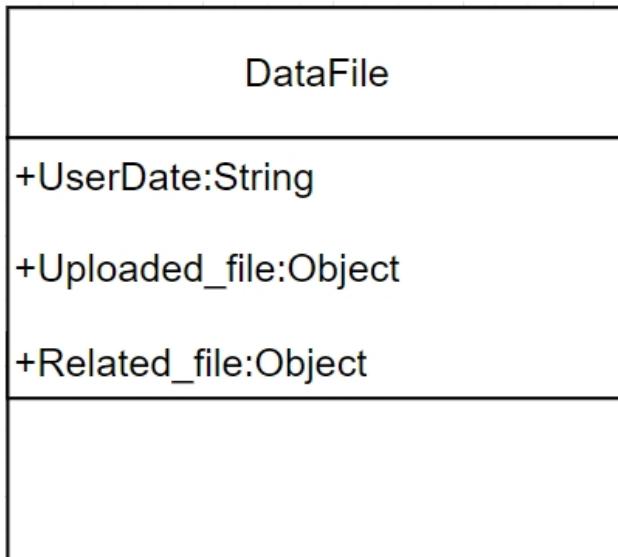
CD-11:DataFile

Figure 45: DataFile

Attributes:

ID	Name	Description	Type
1	UserData	Store the Data of UserData like username and password	String
2	Uploaded_file	Store the object of user uploaded file	Object
3	Related_files	Store the Object of Related description file	Object

Methods:

ID	Name	Reference
-	-	-

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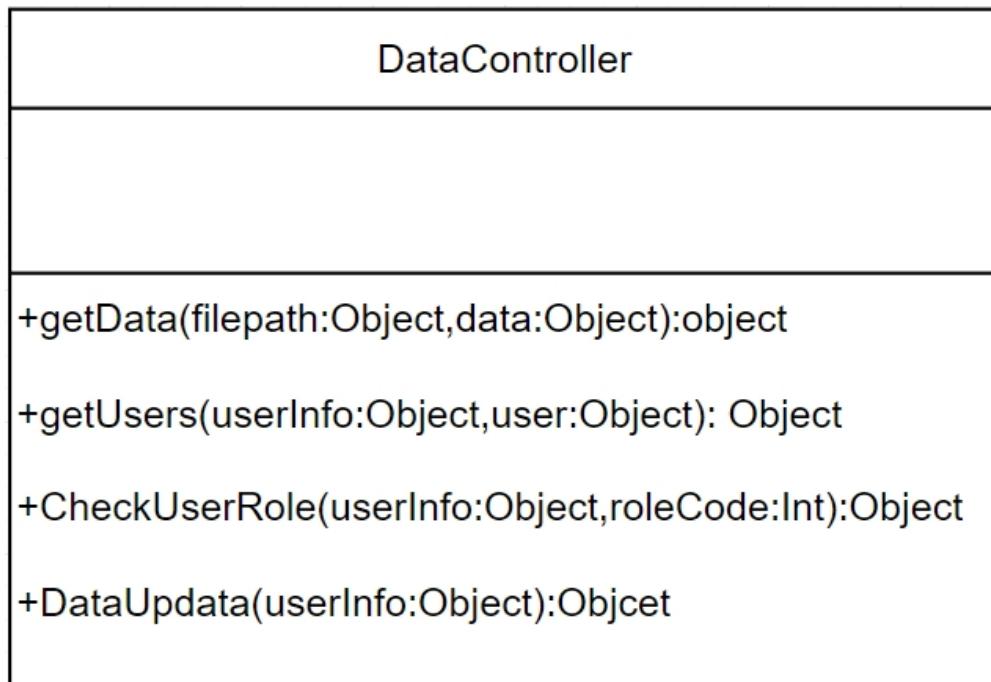
CD-12: DataController

Figure 46: DataController

Attributes:

ID	Name	Description	Type
-	-	-	-

Methods:

ID	Name	Reference
1	getData(filepath:object,data:Object): Object	MD-23
2	getUsers(userInfo:Object, user:Object): Object	MD-24
3	CheckUserRole(userInfo:Object, roleCode:Int):Object	MD-25
4	DataUpdata(userInfo:Object):Object	MD-26

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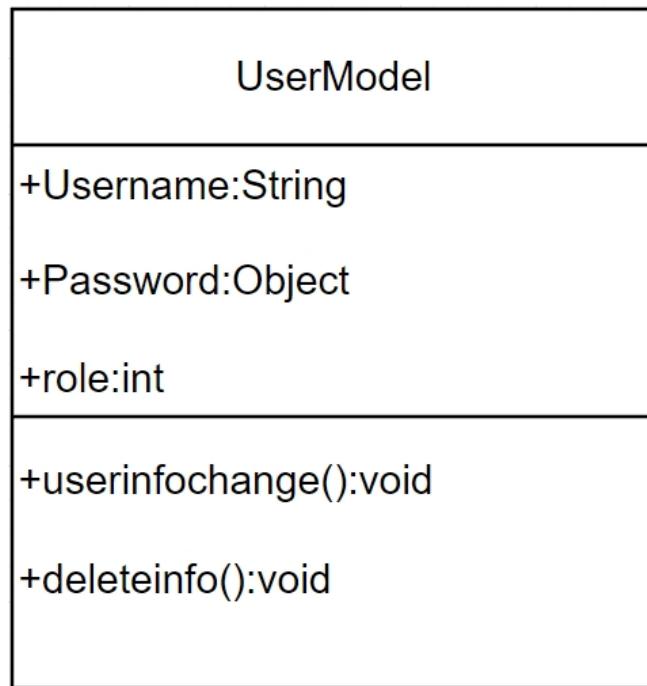
CD-13: UserModel

Figure 47: UserModel

Attributes:

ID	Name	Description	Type
1	username	Store a String of content about username	String
2	Password	Store a String of content about Password	String
3	role	Store a Int of code about role	Int

Methods:

ID	Name	Reference
1	userinfochange():void	MD-27
2	delinfo():void	MD-28

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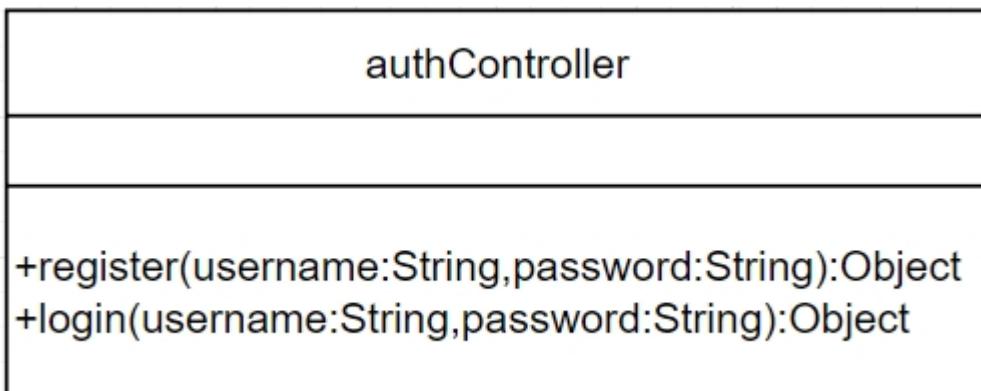
CD-14: authController

Figure 48: authController

Attributes:

ID	Name	Description	Type
-	-	-	-

Methods:

ID	Name	Reference
1	register(username:String,password:String):Object	MD-05
2	login(username:String,password:String):Object	MD-06

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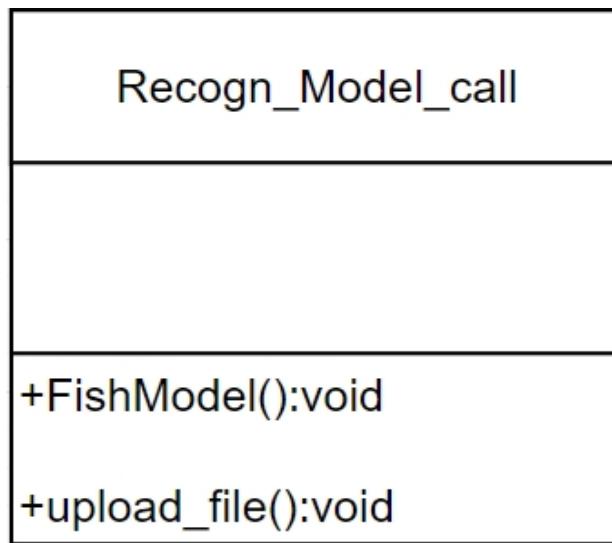
CD-15: Recogn_Model call

Figure 49: Recogn_Model call

Attributes:

ID	Name	Description	Type
-	-	-	-

Methods:

ID	Name	Reference
1	FishModel():void	MD-29
2	upload_file():void	MD-30

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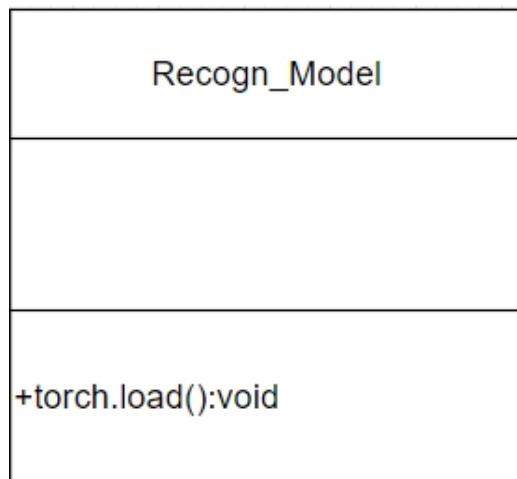
CD-16: Recogn_Model

Figure 50: Recogn_Model

Attributes:

ID	Name	Description	Type
-	-	-	-

Methods:

ID	Name	Reference
1	torch.load():void	MD-31

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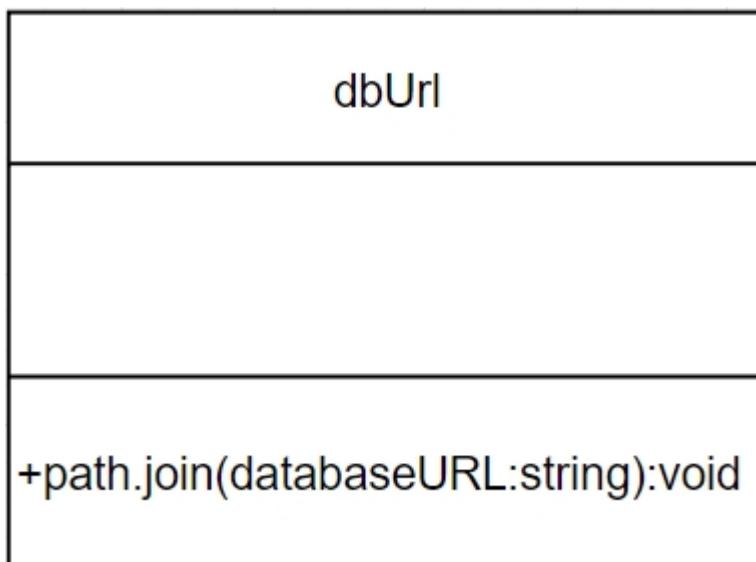
CD-16: dbUrl

Figure 51: dbUrl

Attributes:

ID	Name	Description	Type
-	-	-	-

Methods:

ID	Name	Reference
1	path.join(databaseURL:string):void	MD-32

Document Name	Software Design Document	Owner	YYH,DJ	Page	117
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Method Description

Frontend

ID	MD-01
Name	onSubmit()
Description	This function triggers a series of events including settings when the user clicks the button. For example, check whether the input is empty
Parameter	-
Return	-

ID	MD-02
Name	router.push(Url:String)
Description	After completing some events, jump to the specified page
Parameter	Url- Page path to jump
Return	-

ID	MD-03
Name	response.data.code(code:Int)
Description	This function will recognize the code of the user role
Parameter	code - Code representing the identity of the user
Return	-

ID	MD-04
Name	message.error(text:String)
Description	This function is to display the set prompt when an error occurs
Parameter	text - Set text content
Return	return 'Invalid user name format' if user name format Invalid

Document Name	Software Design Document	Owner	YYH,DJ	Page	118
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ID	MD-05
Name	Login(username:String,password:String):Object
Description	The user can Login. When the user name and password Can match in the database.
Parameter	Username - User name with mailbox format Password - Password for user login
Return	return 'please enter username' if username is null return 'please enter password' if password is null return "Wrong password" if password is not match with username

ID	MD-06
Name	register(username:String,password:String)
Description	The user can register. When the user name and password are entered, the user name is available
Parameter	username - User name with mailbox format password - Password for user login
Return	return 'Invalid user name format' if user name format Invalid return "Account created successfully !" if register successfully return "Registration failed. The Email may have been registered" if the user name is already registered

ID	MD-07
Name	Push(response.data.code(code))
Description	This function will recognize the code of the user role, and then jump to the main page or dashboard
Parameter	code - Code representing the identity of the user
Return	Code=200 jump to Home page Code=4001 jump to dashboard

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ID	MD-08
Name	data(Url:String,Username:String,Password:String)
Description	Make sure that every time you jump to this page, the content entered before the previous jump will not appear
Parameter	Url - Registration page Username- User name with mailbox format Password- Password for user login
Return	-Code=4001 jump to dashboard

ID	MD-09
Name	getObjectURL(file:paramter)
Description	Get the file uploaded by the user and save it in this function
Parameter	file - Files uploaded by users
Return	-

ID	MD-10
Name	update()
Description	Upload the file obtained from the user to the backend for processing
Parameter	-
Return	-

ID	MD-11
Name	notice1(text:String)
Description	Display the set prompt user
Parameter	text - Set text content
Return	-

ID	MD-12
Name	iframe (videoListLink)
Description	This function is to obtain YouTube video list links in the form of links, so as to play them on the web page
Parameter	videoListLink - YouTube video list links
Return	-

ID	MD-13
Name	drawChart()
Description	All the forecast information obtained from the back-end will be displayed in the set table

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Parameter	-
Return	-

ID	MD-14
Name	logout()
Description	Log the user out, then back to Login page
Parameter	-
Return	-

ID	MD-15
Name	Delete_account(confirmButtonText:String,cancelButtonText:String)
Description	On the administrator side, it is used to delete the registered account on the dashboard
Parameter	confirmButtonText - Button text cancelButtonText- Button text
Return	-

ID	MD-16
Name	Edit_account(username:String,password:String)
Description	On the administrator side, it is used to edit the registered account on the dashboard
Parameter	username - User name with mailbox format password - Password for user login
Return	-

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ID	MD-17
Name	delusers()
Description	Permanently delete the selected registered account
Parameter	-
Return	-

ID	MD-18
Name	confirm(confirmButtonText:text cancelButtonText:text)
Description	When deleting, remind the administrator whether you really want to delete. Click OK again to delete the account. Otherwise
Parameter	confirmButtonText - Button text cancelButtonText- Button text
Return	Return "Delete succeeded" if delete Return 'already canceled' if click canceled

ID	MD-19
Name	editusers()
Description	The administrator can modify the password of the account, but cannot modify the user name
Parameter	-
Return	-

ID	MD-20
Name	useronSubmit()
Description	After the user completes the modification, this event will be triggered and the new data will be saved to the database
Parameter	-
Return	-

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ID	MD-21
Name	getUserList(Url:String)
Description	Get all registered user information
Parameter	Url - getUserList
Return	Return "data error" if cant find any

Backend

ID	MD-22
Name	connectDB():
Description	Connect to the back-end database
Parameter	-
Return	-

ID	MD-23
Name	getData(filepath:object,data:Object)
Description	Obtain all the data obtained from the front end, including the uploaded file
Parameter	filepath - Files uploaded by the front end data - Data including user name, password and modification information
Return	-

ID	MD-24
Name	getUsers(userInfo:Object,user:Object)
Description	Obtain the data obtained from the front end, including the entered user name
Parameter	userInfo - All user related information, password, user name user- User identification, administrator or user
Return	-

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ID	MD-25
Name	CheckUserRole(userInfo:Object,roleCode:Int): Object
Description	Whether a user belongs to an administrator or an ordinary user, so that different responses can be made
Parameter	userInfo - All user related information, password, user name roleCode- Code representing the identity of the user
Return	-

ID	MD-26
Name	DataUpdata(userInfo:Object):Object
Description	Upload and update the data in the database, including changing the password and creating a new account
Parameter	userInfo - All user related information, password, user name
Return	-

ID	MD-27
Name	userinfochange()
Description	Change the user information in the database when the back end detects the message from the front end that the change of user information is successful
Parameter	-
Return	-

ID	MD-28
Name	delinfo()
Description	When the back-end receives the user information sent by the front-end to confirm the deletion, delete the user information in the database
Parameter	-
Return	-

ID	MD-29
Name	FishModel()
Description	When a file is detected to be transferred in from the front end, the trained model is called
Parameter	-
Return	-

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ID	MD-30
Name	upload_file()
Description	This function includes accepting files from the front end and handing them to the model for processing. After the model is processed, the result is returned to the front end
Parameter	-
Return	-

ID	MD-31
Name	torch.load()
Description	The API of the loading model realizes that the web side can call the model at any time for identification
Parameter	-
Return	-

ID	MD-32
Name	path.join(databaseURL:string):void
Description	Set the URL path of database to read, store and modify data
Parameter	databaseURL- URL of database used for data storage
Return	-

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Sequence Diagram

Sequence ID: SD-01

Sequence Name: Register

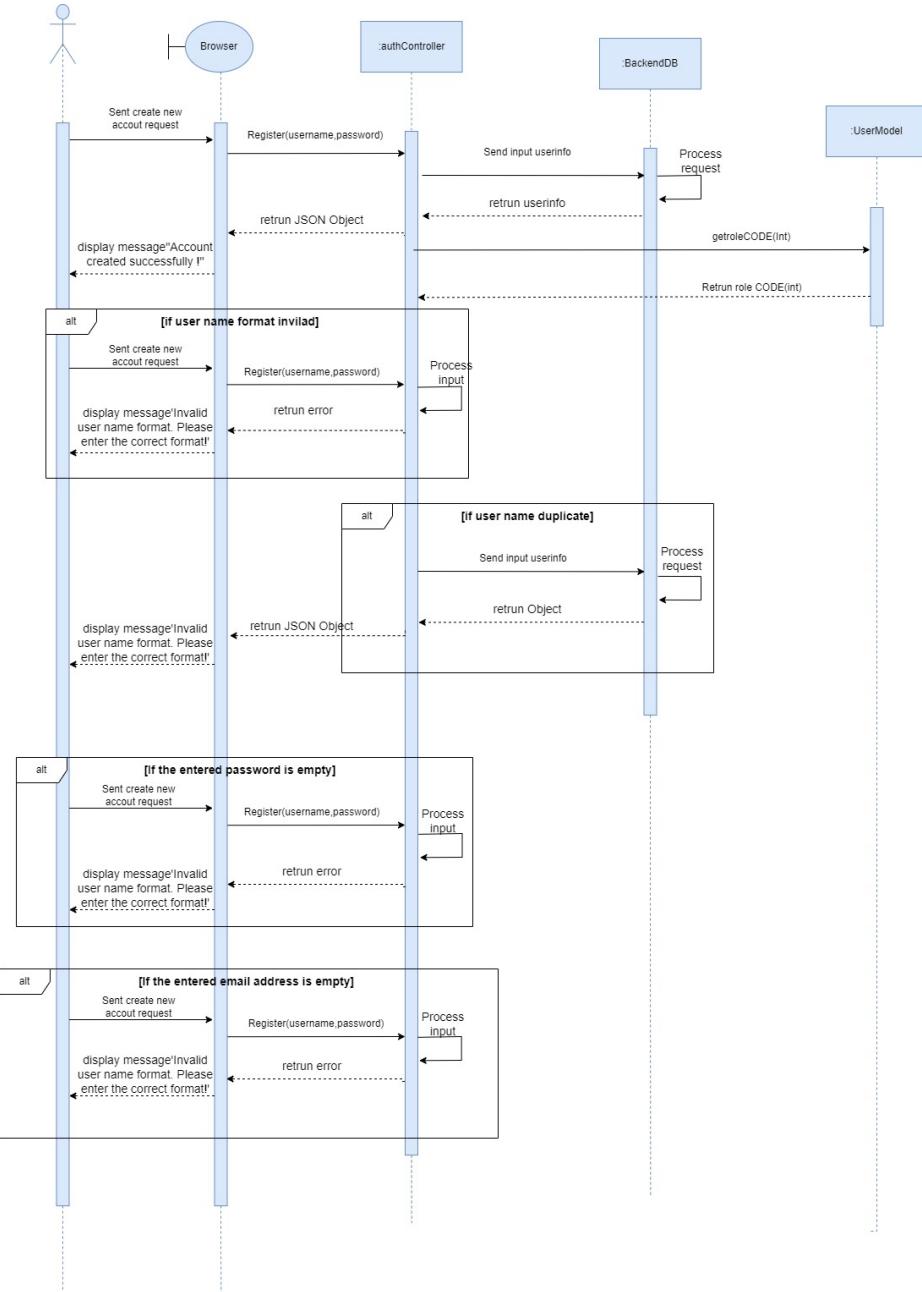


Figure 52: Sequence ID: SD-01

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Sequence ID: SD-02
Sequence Name: Login

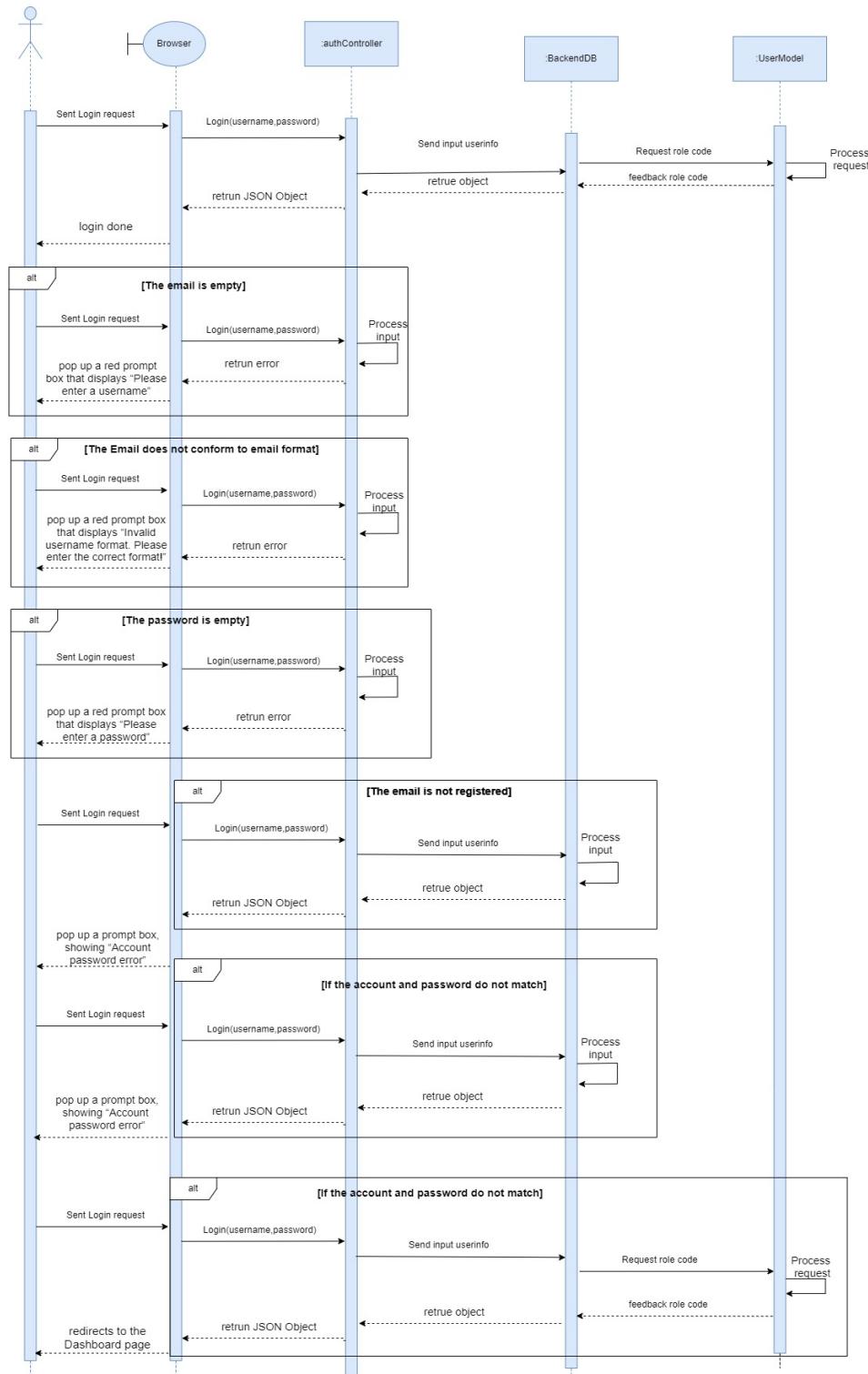


Figure 53: Sequence ID: SD-02

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Sequence ID: SD-03

Sequence Name: Logout

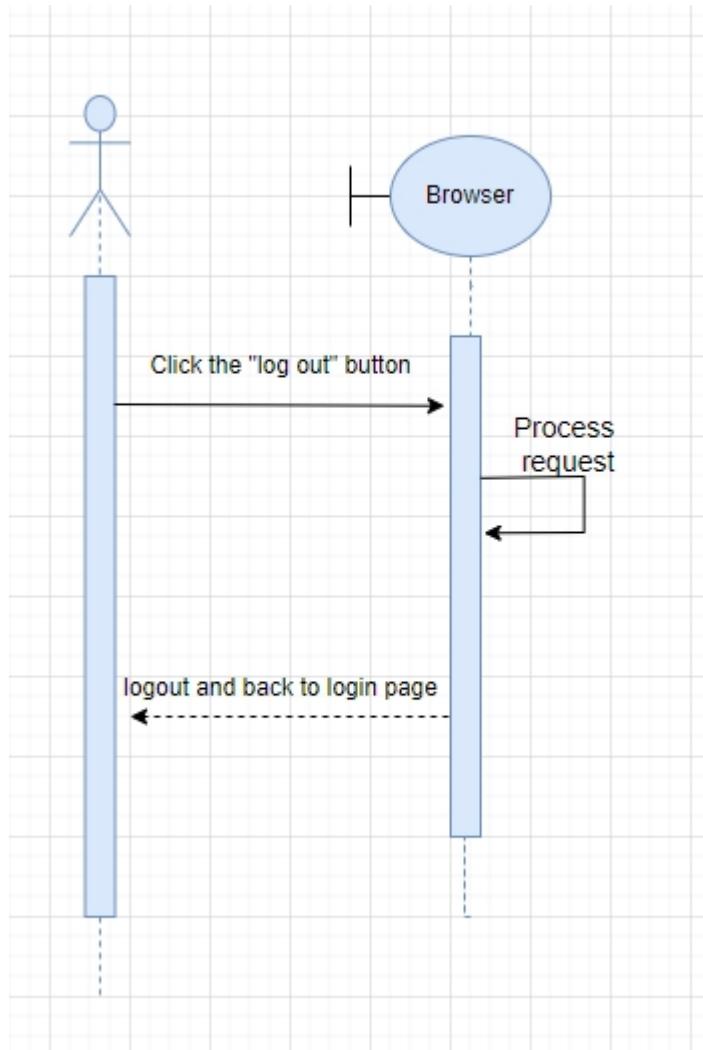


Figure 54: Sequence ID: SD-03

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Sequence ID: SD-04

Sequence Name: Upload Image

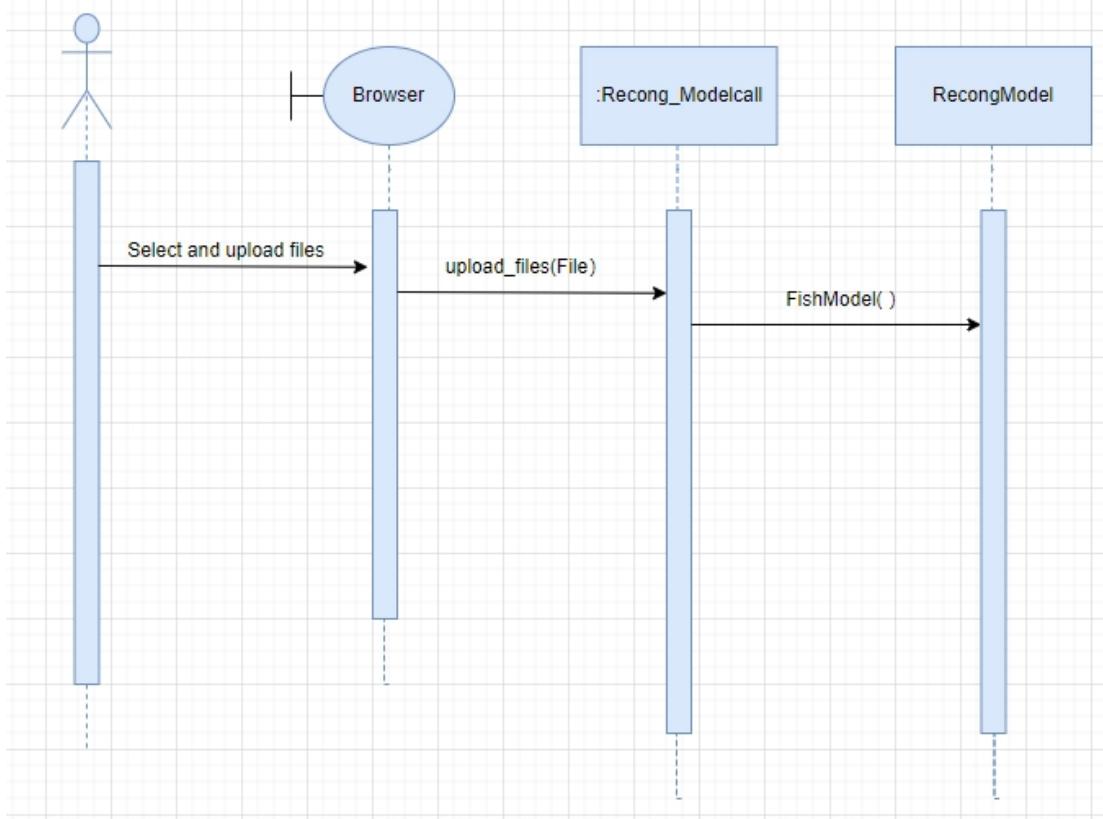


Figure 54: Sequence ID: SD-04

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Sequence ID: SD-05

Sequence Name: Analyze Image

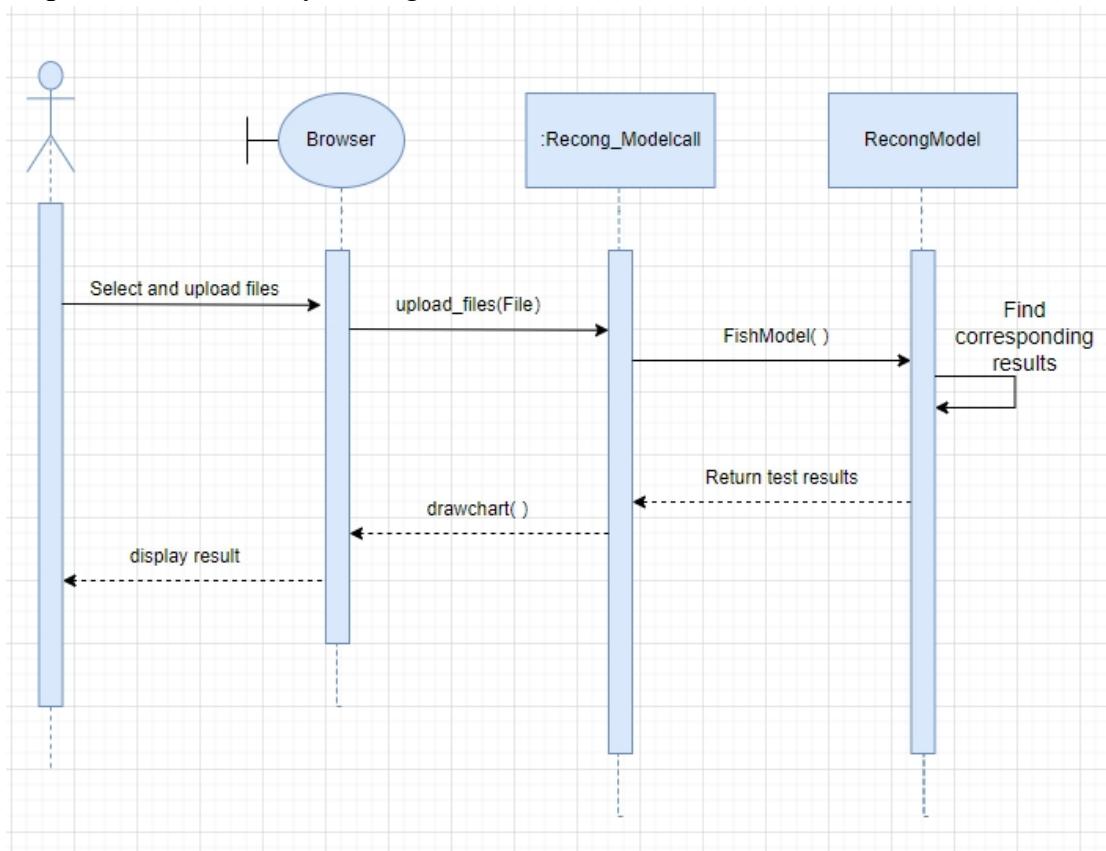


Figure 55: Sequence ID: SD-05

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Sequence ID: SD-06

Sequence Name: View Fish Video

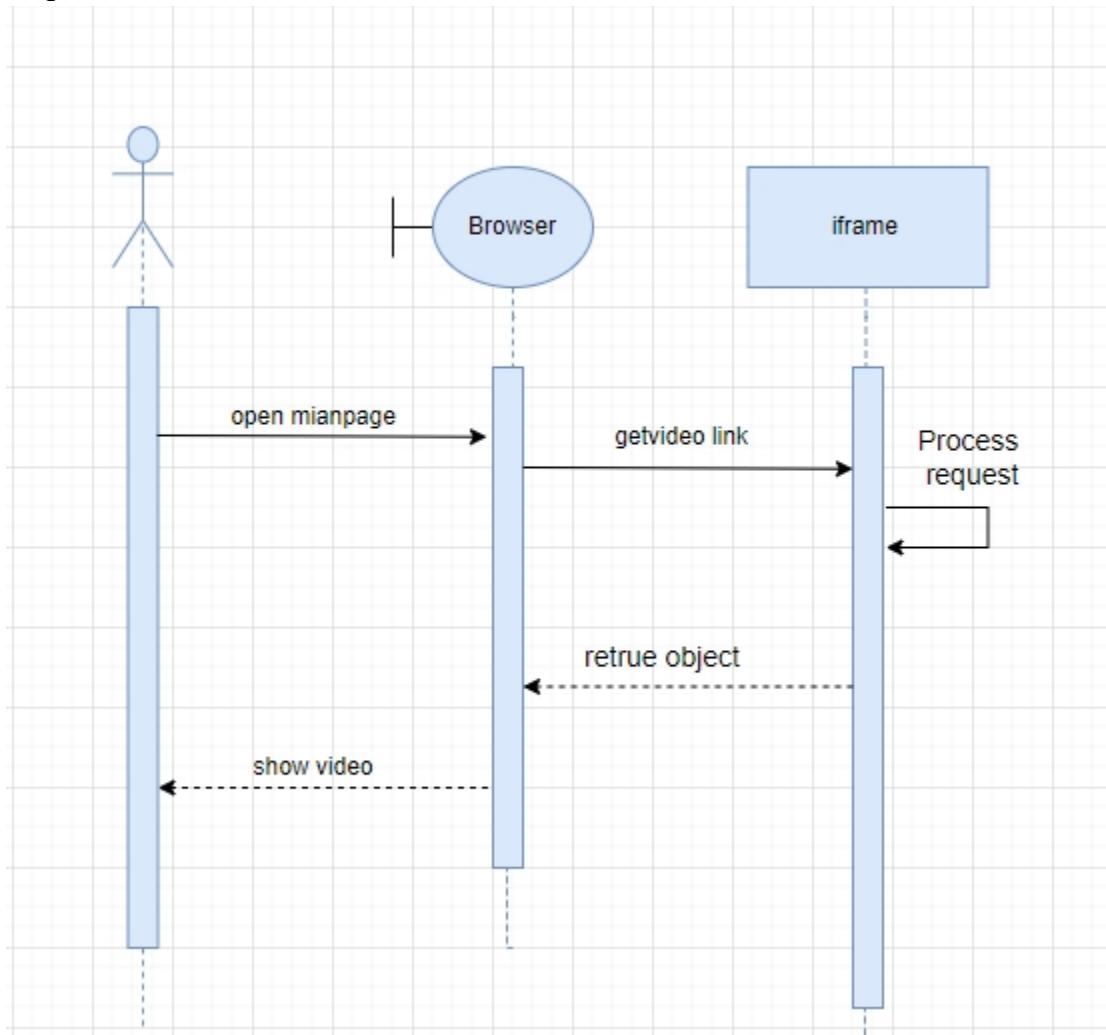


Figure 56: Sequence ID: SD-06

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Sequence ID: SD-07

Sequence Name: Update user password

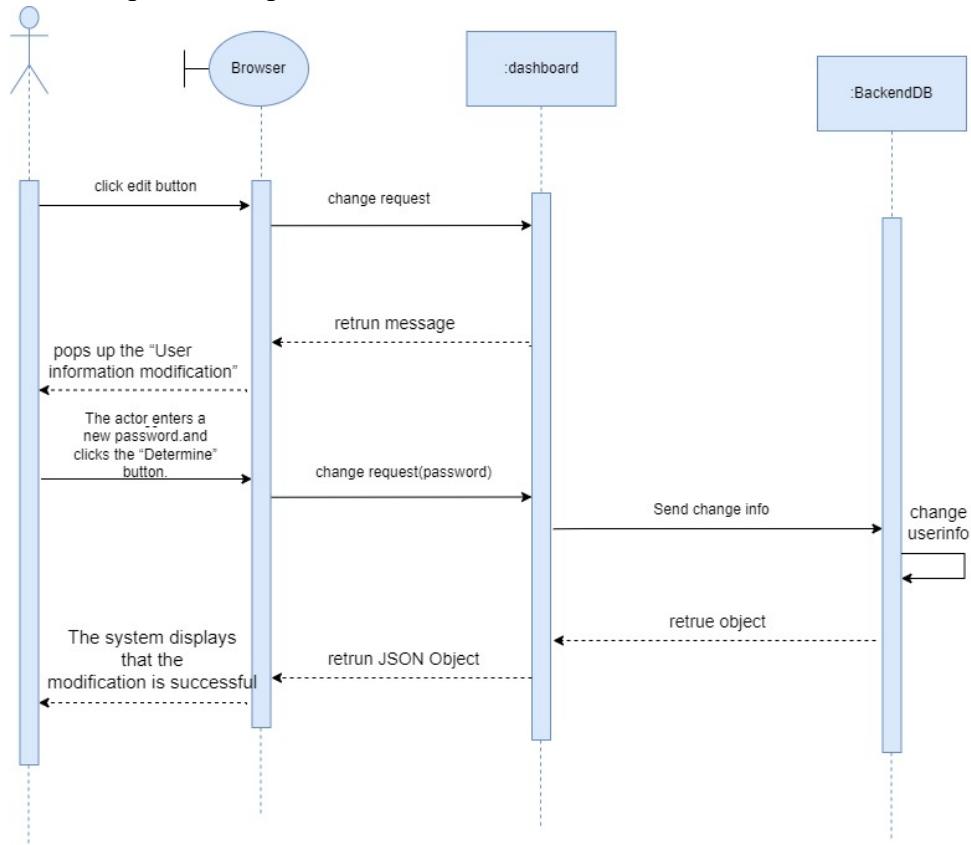


Figure 57: Sequence ID: SD-07

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User Interface Design

UI-01:Login page

The image shows a simple login interface. At the top right, there are links for "Log in" and "Create an account". Below these are two input fields: one for "Email" with the placeholder "Please enter your Email" and another for "Password" with the placeholder "Please enter your Password". At the bottom is a large teal-colored "Log in" button.

Figure 58: Login page

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UI-02:register page

Create an account

Please enter your Email

Please enter your Password

confirm

Figure 59: register page

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UI-03:Fish Detection

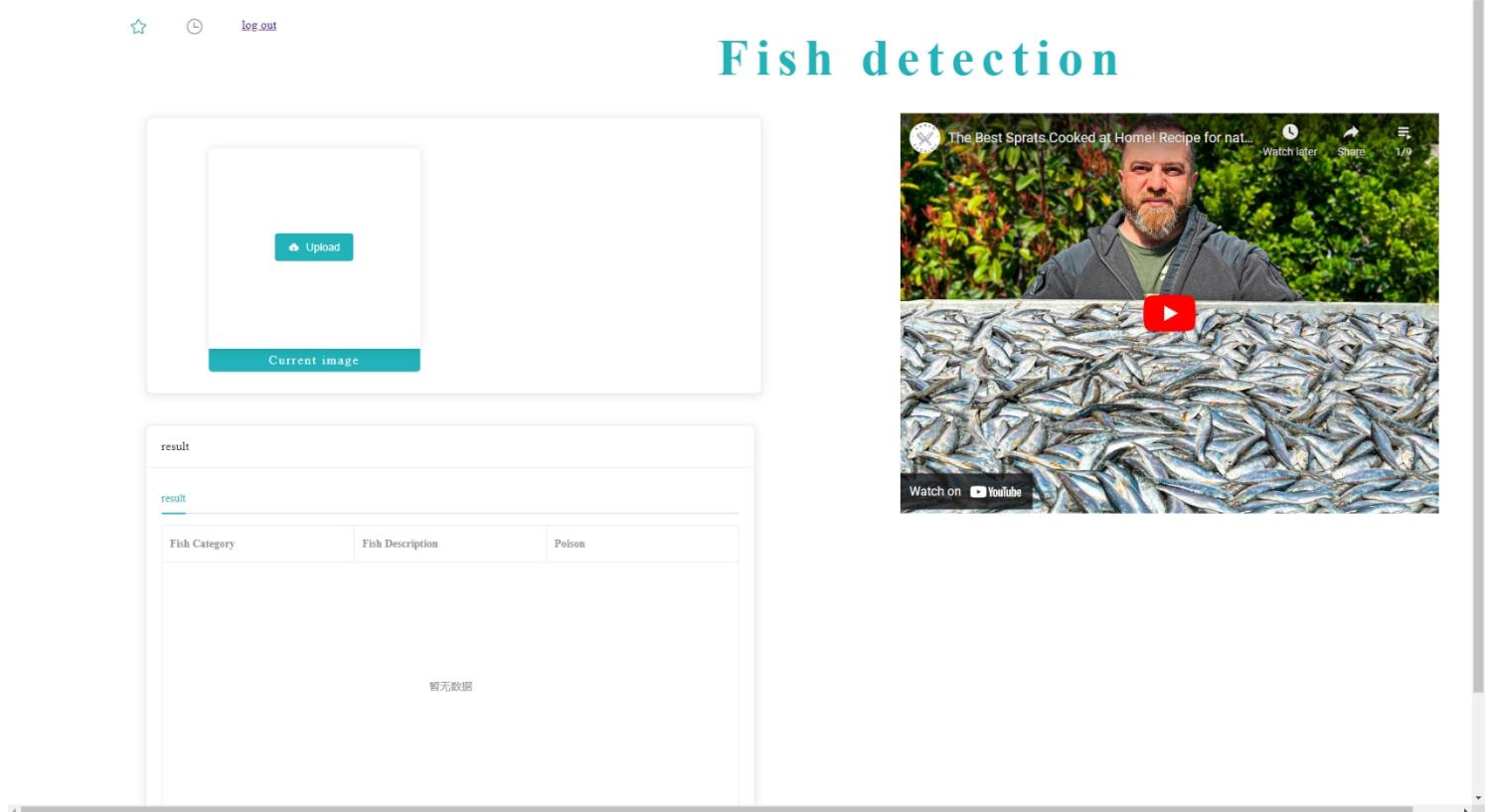


Figure 60: Fish Detection

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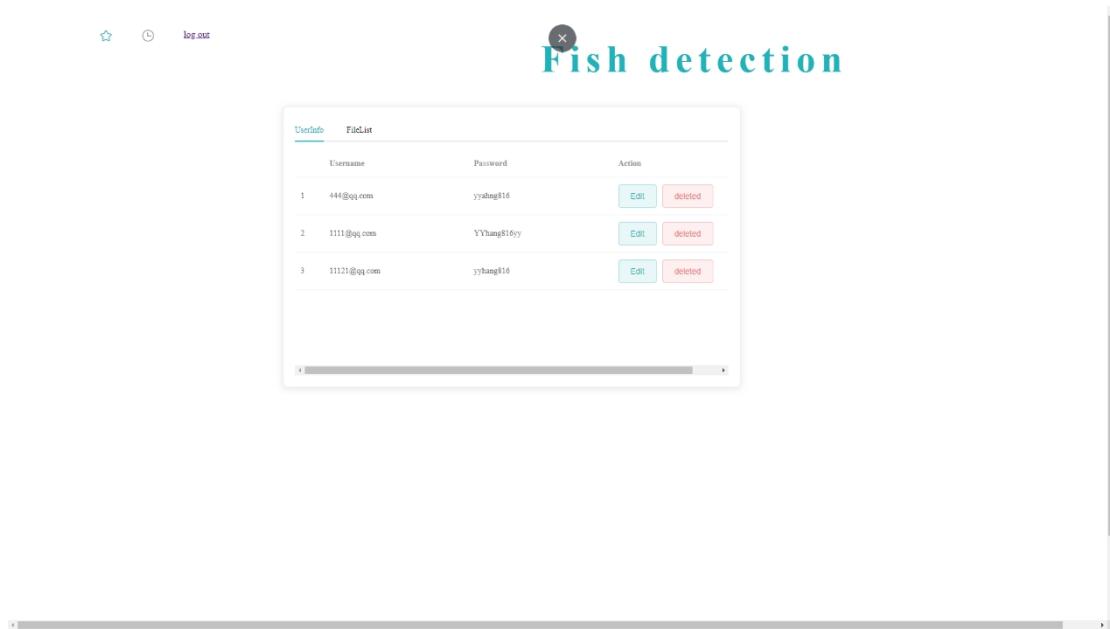
UI-04:dashboard page

Figure 61: dashboard page

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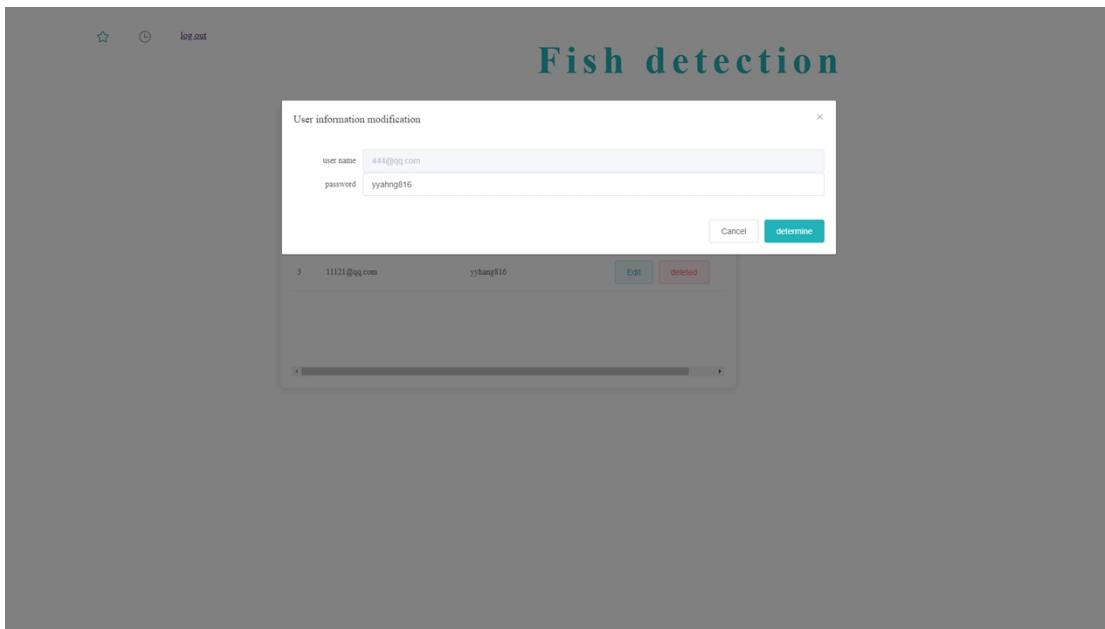
UI-05:change password page

Figure 62: change password page

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Chapter 5

Test Plan

Fish Information Detection Software

Test Plan

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Document History

History	Status	Date	Viewable	Editable	Responsible
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Add • Unit test • System test	Draft	June 24 th 2021	YYH, DJ, JH	YYH, DJ	YYH, DJ
Update • Unit test • System test	Draft	August 25th2021	YYH, DJ, JH	YYH, DJ	YYH, DJ
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Update • Unit test • System test	Draft	October, 20 th 2022	YYH, DJ, JH	YYH, DJ	YYH, DJ

* YYH= Yanhang Yang

* DJ= Dian Jin

* JH= Jayakrit Hirisajja

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Introduction

1. Objective

This document is the Test Plan. It helps us determine the effort needed to validate the quality of the application under test. The test plan serves as a blueprint to conduct software testing activities as a defined process, minutely monitored and controlled by the test manager.

In addition, it should also have the following objectives:

- To find defects that may get created by the
- To make sure that the result meets the business and user requirements.
- To ensure that it satisfies the SRS that is System Requirement Specifications.

2. Testing method

Unit Test	White-box testing	
	Automatic test (Jest framework)	
System Test	Blackbox testing	Function test
		GUI test

3. Intended Audience

The mainly intended audience of this document is all significant stakeholders, which include the development team, the project owner, testers, the senior project advisor (Dr. Jayakrit Hirisajja), and anyone evaluating the project.

4. Project Scope

Develop end-to-end fish identification software based on machine learning technology and network application. In the software, users can upload fish images obtained from cameras or other places to the software from mobile phones, PCs or tablets. The software analyzes the learning data in the background and presents the search results to users. The software will provide users with detailed information, including the name of the fish, whether the fish is poisonous, and the habitat of the fish. The administrator can also manage the users of the web page.

5. Acronyms

SRS - Software Requirement Specification

URS - User Requirement Specification

UC - Use Case

UI - User Interface

UTC - Unit Test Case

STC - System Test Case

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6. Definition

Name	Definition
Feature	Transformation of input parameters to output parameters based on a specified algorithm. It describes the functionality of the product in the language of the product. Used for requirements analysis, design, coding, testing or maintenance. [IEEE90]
IEEE	Institute for Electrical and Electronics Engineers. Biggest global interest group for engineers of different branches and computer scientists. [IEEE90]
Requirement	(4) A condition or capability needed by the user to solve a problem or achieve an objective. (5) A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document. (6) A documented representation of a condition or capability as in definition (1) or (2). [IEEE90]
Specification	Precise description of an activity or work product that serves as the basic or input for further activities or work product. A specification can comprise requirements for a product and how they will be solved. Different parts of a specification (e.g., what is to be done, how it will be done) must not be mixed. [IEEE90]
Use case	(3) Concept to describe a system based on usage of system resources by its environment. Characterized by an objective-set of interactions within and at the borders of that system. (4) Notation from UML for describing a scenario (Usage approach, operational scenario) from the perspective of this user. [IEEE90]

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Unit test

Unit Test Case 001 (UTC-001):

Method name: inference (self: Object, image_path: String): String

Description: Test whether this method can be used to display the fish labels.

Data for testing:

Picture	Picture Path	Picture Label
	/Users/dianjin/Desktop/Trout_00013.jpg	Trout
	/Users/dianjin/Desktop/Black_Sea_Sprat_00016.jpg	Black Sea Sprat
	/Users/dianjin/Desktop/Gilt_Head_Bream_00015.jpg	Gilt Head Bream

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Test Case:

ID	Description	Input	Expected Result
1.	Enter the image path to test whether the system can give the label of the image.	"/Users/dianjin/Desktop/Trot_00013.jpg"	Trout
2.	Enter the image path to test whether the system can give the label of the image.	"/Users/dianjin/Desktop/Black_Sea_Sprat_00016.jpg"	Black Sea Sprat
3.	Enter the image path to test whether the system can give the label of the image.	"/Users/dianjin/Desktop/Gilt_Head_Bream_00015.jpg"	Gilt Head Bream

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Unit Test Case 002 (UTC-002):

Method name: detect (self: Object, image_path: String): String

Description: Test whether this method can detect the correct fish labels.

Data for testing:

Picture	Picture Path	Picture Label
	/Users/dianjin/Desktop/Trout_00013.jpg	Trout
	/Users/dianjin/Desktop/Black_Sea_Sprat_00016.jpg	Black Sea Sprat
	/Users/dianjin/Desktop/Gilt_Head_Bream_00015.jpg	Gilt Head Bream

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Test Case:

ID	Description	Input	Expected Result
1.	Enter the image path to test whether the system can give the label of the image.	"/Users/dianjin/Desktop/Trout_00013.jpg"	Trout
2.	Enter the image path to test whether the system can give the label of the image.	"/Users/dianjin/Desktop/Black_Sea_Sprat_00016.jpg"	Black Sea Sprat
3.	Enter the image path to test whether the system can give the label of the image.	"/Users/dianjin/Desktop/Gilt_Head_Bream_00015.jpg"	Gilt Head Bream

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Unit Test Case 003 (UTC-003):

Method name: get_description(self: Object, fish_catetory: String): String

Description: Test whether this method can give a corresponding fish description by the category of fish entered.

Data for testing:

File name	Description File Path
Trout	backend\fish_description\Trout.txt
Striped Red Mullet	back-end\fish_description\Striped_Red_Mullet.txt
Shrimp	back-end\fish_description\Shrimp.txt
Sea bass	back-end\fish_description\Sea_Bass.txt
Red seabream	back-end\fish_description\Red_Sea_Bream.txt
Red mullet	back-end\fish_description\Red_Mullet.txt
Horse mackerel	back-end\fish_description\Hourse_Mackerel.txt
Gilt-head bream	back-end\fish_description\Gilt-Head_Bream.txt
Black Sea sprat	back-end\fish_description\Black_Sea_Sprat.txt

Test Case:

ID	Description	Input	Expected Result
1.	When the fish category input to the backend after the software prediction is "Trout", the software needs to find the corresponding description file	{ fish_catetory=Trout }	{ fish_file_name= fish_catetory=Trout+.txt fish_file_path = os.path.join(backend\fish_description\Trout. txt, fish_file_name) content = file.read() return content }
2.	When the fish category input to the backend after the software prediction is "Striped Red Mullet", the software needs to find the corresponding description file	{ fish_catetory="Striped Red Mullet" }	{ fish_file_name= fish_catetory="Striped Red Mullet"+.txt fish_file_path = os.path.join(back- end\fish_description\Striped_Red_Mullet.txt , fish_file_name) content = file.read() return content

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			}
3.	When the fish category input to the backend after the software prediction is "Shrimp", the software needs to find the corresponding description file	{ fish_catetory="Shrimp" }	{ fish_file_name= fish_catetory="Shrimp"+.txt fish_file_path = os.path.join(back- end\fish_description\Shrimp.txt, fish_file_name) content = file.read() return content }
4.	When the fish category input to the backend after the software prediction is "Sea bass", the software needs to find the corresponding description file	{ fish_catetory="Sea bass" }	{ fish_file_name= fish_catetory="Sea bass"+.txt fish_file_path = os.path.join(back- end\fish_description\Sea_Bass.txt, fish_file_name) content = file.read() return content }
5.	When the fish category input to the backend after the software prediction is "Red seabream", the software needs to find the corresponding description file	{ fish_catetory="Red seabream" }	{ fish_file_name= fish_catetory="Red seabream"+.txt fish_file_path = os.path.join(back- end\fish_description\Red_Sea_Bream.txt, fish_file_name) content = file.read() return content }
6.	When the fish category input to the backend after the software prediction is "Red mullet", the software needs to find the corresponding description file.	{ fish_catetory="Red mullet" }	{ fish_file_name= fish_catetory="Red mullet"+.txt fish_file_path = os.path.join(back- end\fish_description\Red_Mullet.txt, fish_file_name) content = file.read() return content }

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7.	<p>When the fish category input to the backend after the software prediction is "Horse mackerel", the software needs to find the corresponding description file.</p>	<pre>{ fish_catetory="Horse mackerel" }</pre>	<pre>{ fish_file_name= fish_catetory="Horse mackerel"+.txt fish_file_path = os.path.join(back- end\fish_description\Hourse_Mackerel.txt, fish_file_name) content = file.read() return content }</pre>
8.	<p>When the fish category input to the backend after the software prediction is "Gilt-head bream", the software needs to find the corresponding description file.</p>	<pre>{ fish_catetory="Gilt-head bream" }</pre>	<pre>{ fish_file_name= fish_catetory= "Gilt-head bream"+.txt fish_file_path = os.path.join(back- end\fish_description\Gilt-Head_Bream.txt, fish_file_name) content = file.read() return content }</pre>
9.	<p>When the fish category input to the backend after the software prediction is "Black Sea sprat", the software needs to find the corresponding description file.</p>	<pre>{ fish_catetory="Black Sea sprat" }</pre>	<pre>{ fish_file_name= fish_catetory= "Black Sea sprat"+.txt fish_file_path = os.path.join back- end\fish_description\Black_Sea_Sprat.txt, fish_file_name) content = file.read() return content }</pre>

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Unit Test Case 004 (UTC-004):

Method name: register(username:String,password:String):String

Description: Test whether this method can be used to detect whether user account is registered.

Data for testing:

Username	Account registration status
testproject@qq.com	Not registered
1111@qq.com	registered

Test Case:

ID	Description	Input	Expected Result
1.	The user enters an unregistered user name, enters a password for the user name, and the format of the user name meets the requirements of the software. Then click the Registration button	{ "Username":" testproject@qq.com", "password":"123456" }	{ db.session.commit(), "code":200, "message":" Account created successfully ! " }
2.	The user enters an user name have already registered, enters a password for the user name. Then click the Registration button	{ "Username":" 1111@qq.com", "password":"123456" }	{ db.session.commit(), except, "code":203, "message":" Registration failed. The Email may have been registered" }

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Unit Test Case 005 (UTC-005):

Method name: login(username:String,password:String):String

Description: Test when login, will redirect different page according to different login actor.

Data for testing:

Username	Type of actor
admin@admin.com	admin
1111@qq.com	user

Test Case:

ID	Description	Input	Expected Result
1.	When the login actor is admin, the webpage should redirect it to the administrator dashboard page	{ "Username": "admin@admin.com", "password": "admin" }	{ response.data.code==4001, this.\$router.push("/Admin"); }
2.	The user enters an user name have already registered, enters a password for the user name. Then click the Registration button	{ "Username": "1111@qq.com", "password": "123456" }	{ response.data.code==200, this.\$router.push("/Home"); }

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System test

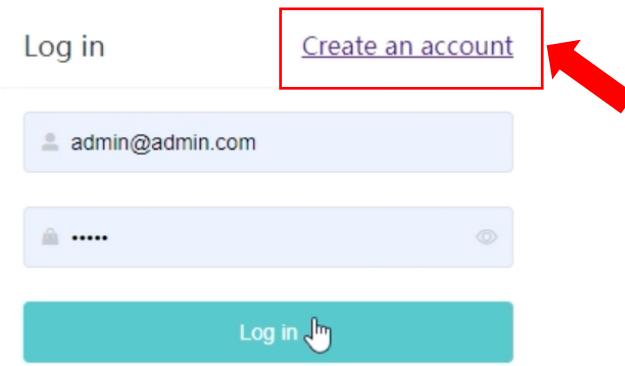
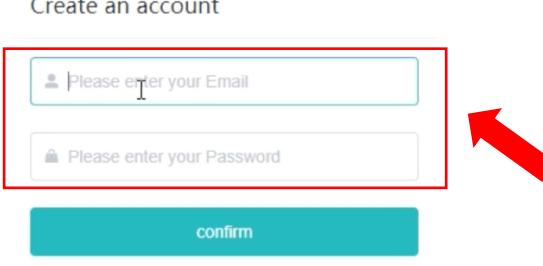
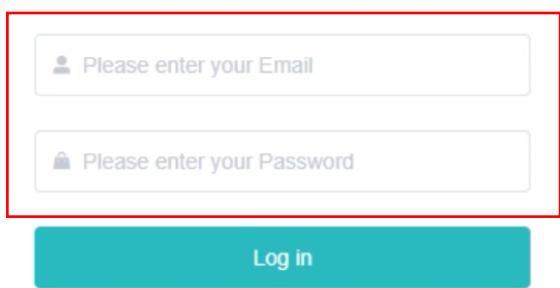
System Test Case 001 (STC-001):

Test Description	Test for UC-01, UC-02, UC-03
	System test for Authentication System (Feature#01).
	<ul style="list-style-type: none"> • Test whether the user can register an account to use the web application. (Normal flow of the register) • Test whether the logout function of the system is correctly implemented. • Test whether the system wil store the Registered data to backend database
Prerequisite	The tester has already run the software and open the Login page (UI-01).

Prepared Data: An email account and password have not been registered.

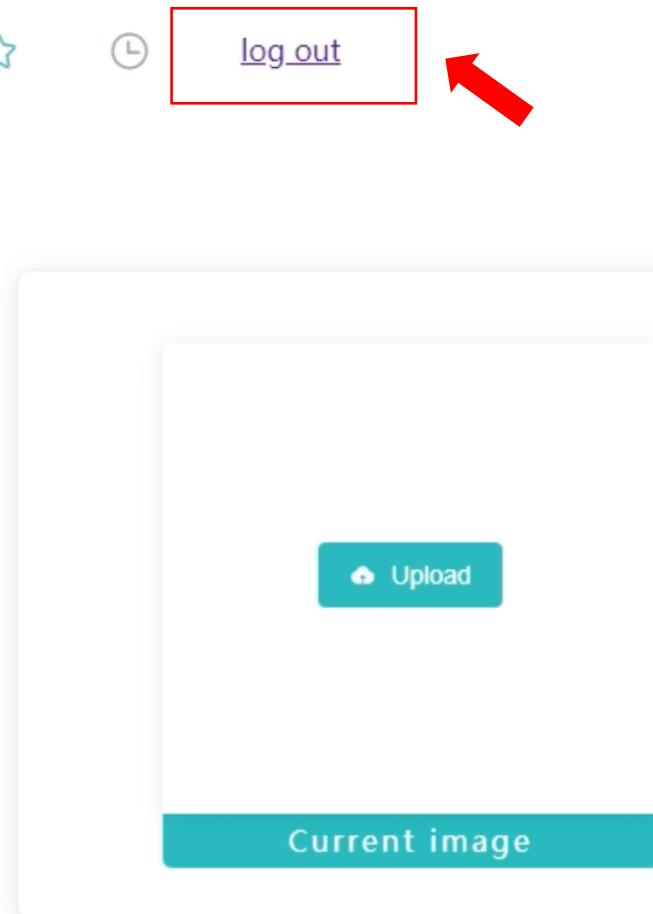
Email	Dsgdkwg1@qq.com
Password	Yanhang123

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Test Steps	<p>1. Click the “Create an account” link on the Login page (UI-01).</p>  <p>2. Input email, password on the Register page (UI-02).</p>  <p>3. Click the “confirm” button on the registration page (UI-02).</p> <p>4. Enter the email address and password of the newly registered account on the login page (UI-01).</p>  <p>5. Enter the email address and password of the newly registered account on the login page (UI-01).</p> <p>6. Click the “Login” button on the Login page (UI-01).</p>
------------	--

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7. Click the “Logout” button on the Fish Detection page (UI-03).



8. Use SQLiteStudio checks whether the back-end database stores Registered data just input.

	userid	username	password
1	2	admin@admin.com	admin
2	7	1111@qq.com	Yhang816yy
3	8	11121@qq.com	yyhang816
4	10	yang@qq.com	1111
5	11	1234@qq.com	1234
6	12	1234test@qq.com	12345
7	13	1111test@qq.com	1234
8	14	1212test@gmail.com	1234
9	15	project@gmail.com	1234

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ID	Action	Description	Input data		Expected Result
STC-01	1. Click the “Create an account” link on the Login page (UI-01).	Test whether the system can redirect to the correct page by clicking the “Create an account” link.	-		The system can redirect to the registration page (UI-02).
	2. Input email, password on the Register page.	Test whether the new user can be successfully registered.	Email	Dsgdkwg1@qq.com	The system pops up a prompt box showing "Account created successfully!"
	3. Click the “confirm” button on the registration page (UI-02).	Test whether the system will automatically redirect to the login page after the new user is successfully registered.	Password	Yanhang123	
			-		The system redirects to the Login page (UI-01).
	4. Enter the email address and password of the newly registered account on the login page (UI-02).	Test whether the system can log in with the newly registered account.	Email	Dsgdkwg1@qq.com	The system redirects to the Fish Detection page (UI-02).
	5. Click the “Login” button on the Login page (UI-01).		Password	Yanhang123	

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	6. Click the “Logout” button on the Fish Detection page (UI-02)	Test whether the logout function of the system is correctly implemented.	-	The user is logged out and the system redirects to the login page.
	7. Use SQLiteStudio checks whether the back-end database stores Registered data just input.	Test whether the newly registered account has been saved in the backend database		After checking, the newly registered account has been added to the database table of backend

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System Test Case 002 (STC-002):

Test Description	Test for UC-01
	System test for Authentication System (Feature#01).
	<p>Test the alternative flow of registration function.</p> <ul style="list-style-type: none"> • If the entered email address is empty • If the email address is entered in an incorrect format • If the entered password is empty • If the email account has already been registered
Prerequisite	The tester has already run the software and open the Register page (UI-03).

Prepared Data:

A registered email account:

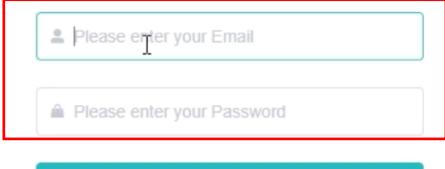
Email	Jindian111@qq.com
-------	-------------------

An unregistered account information:

Email	Jindian222@qq.com
Password	jindian123

An incorrect format email:

Email	Iamjindian
-------	------------

Test Steps	1. Input email, password on the Register page (UI-02).
	<p>Create an account</p>  <p>confirm</p>
	2. Click the "confirm" button on the registration page (UI-03).

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Test alternative flow A1

ID	Action	Description	Input data		Expected Result
STC - 02.1	1. Input email, password on the Register page (UI-03).	Test that the system's alternative flows conform to the descriptions in the SRS document.	Email	null	The system shall pop up a red prompt box that displays "Please enter a username".
	2. Click the "confirm" button on the registration page (UI-03).	Test alternative flow A1: If the entered email address is empty	Password	jindian123	

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Test alternative flow A2

ID	Action	Description	Input data		Expected Result
STC - 02.2	1. Input email, password on the Register page (UI-03).	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A2: If the email address is entered in an incorrect format</p>	Email	Iamjindian	<p>The system shall pop up a red prompt box showing “Invalid username format! Please enter the correct format!”.</p> <p>-</p>
	2. Click the “confirm” button on the registration page (UI-03).		Password	jindian123	

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Test alternative flow A3

ID	Action	Description	Input data		Expected Result
STC - 02.3	1. Input email, password on the Register page (UI-03).	Test that the system's alternative flows conform to the descriptions in the SRS document.	Email	Jindian222@qq.com	The system shall pop up a red prompt box showing "Please enter the Password!".
			Password	null	
	2. Click the "confirm" button on the registration page (UI-03).	Test alternative flow A3: If the entered password is empty	-		

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Test alternative flow A4

ID	Action	Description	Input data		Expected Result
STC - 02.4	1. Input email, password on the Register page (UI-03).	Test that the system's alternative flows conform to the descriptions in the SRS document.	Email	Jindian222@qq.com	The system shall pop up a prompt showing "Registration failed. This email has been registered".
	2. Click the "confirm" button on the registration page (UI-03).	Test alternative flow A4: If the email account has already been registered	Password	jindian123	

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System Test Case 003 (STC-003):

Test Description	Test for UC-02
	System test for Authentication System (Feature#01).
	<p>Test the alternative flow of login function.</p> <ul style="list-style-type: none"> • If the entered email address is empty • If the email address is entered in an incorrect format • If the entered password is empty • If the email is not registered • If the account and password do not match • If it is the account is administrator role
Prerequisite	The tester has already run the software and open the Login page (UI-01).

Prepared Data:

A registered user information:

Email	Yyh123@qq.com
Password	Yyh123456

An unregistered user information:

Email	Jidian5555@qq.com
Password	iamjindian123456

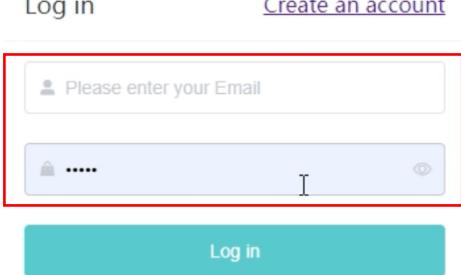
An incorrect email format:

Email	123456
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An administrator information:

Email	admin@admin.com
Password	admin

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	<p>1. Input email, password on the Login page (UI-01).</p>  <p>Log in Create an account</p> <p>Please enter your Email</p> <p>.....</p> <p>Log in</p>
Test Steps	<p>2. Click the “Login” button on the Login page (UI-01).</p>

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Test alternative flow A1

ID	Action	Description	Input data		Expected Result
STC - 03.1	1. Input email, password on the Login page (UI-01).	Test that the system's alternative flows conform to the descriptions in the SRS document.	Email	null	The system shall pop up a red prompt box that displays "Please enter a username".
	Password	Yyh123456			
	2. Click the "Login" button on the Login page (UI-01).	Test alternative flow A1: If the entered email address is empty	-		

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Test alternative flow A2

ID	Action	Description	Input data		Expected Result
STC - 03.2	1. Input email, password on the Login page (UI-01).	Test that the system's alternative flows conform to the descriptions in the SRS document.	Email	123456	The system shall pop up a red prompt box that displays "Invalid username format. Please enter the correct format!".
	2. Click the "Login" button on the Login page (UI-01).	Test alternative flow A2: The Email does not conform to email format	Password	Yyh123456	

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Test alternative flow A3

ID	Action	Description	Input data		Expected Result
STC - 03.3	1. Input email, password on the Login page (UI-01).	Test that the system's alternative flows conform to the descriptions in the SRS document.	Email	Yyh123@qq.com	The system shall pop up a red prompt box that displays "Please enter a password".
	2. Click the "Login" button on the Login page (UI-01).	Test alternative flow A3: The entered password is empty	Password	null	

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Test alternative flow A4

ID	Action	Description	Input data		Expected Result
STC - 03.4	1. Input email, password on the Login page (UI-01).	Test that the system's alternative flows conform to the descriptions in the SRS document.	Email	Jidian5555@qq.com	The system shall pop up a red prompt box that displays "Please enter a password".
	2. Click the "Login" button on the Login page (UI-01).	Test alternative flow A4: The email is not registered	Password	iamjindian123456	
				-	

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Test alternative flow A5

ID	Action	Description	Input data		Expected Result
STC - 03.5	1. Input email, password on the Login page (UI-01).	Test that the system's alternative flows conform to the descriptions in the SRS document.	Email	Yyh123@qq.com	The system shall pop up a prompt box, showing "Account password error".
	2. Click the "Login" button on the Login page (UI-01).	Test alternative flow A5: If the account and password do not match	Password	iamjindian123456	

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Test alternative flow A6

ID	Action	Description	Input data		Expected Result
STC - 03.6	1. Input email, password on the Login page (UI-01).	Test that the system's alternative flows conform to the descriptions in the SRS document.	Email	admin@admin.com	The system shall redirect to the Dashboard page (UI-04).
	2. Click the "Login" button on the Login page (UI-01).	Test alternative flow A6: If the account is the administrator role	Password	admin	

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System Test Case 004 (STC-004):

	Test for UC-04, UC-05, UC-06
Test Description	<ul style="list-style-type: none"> • System test for Fish image recognition (Feature#02). • System test for Fish report generation (Feature#03). <p>Test whether the Fish Detection page (UI-03) works as described in the SRS:</p> <ul style="list-style-type: none"> • Test whether the system can upload pictures • Test whether system save the picture uploaded to the back-end folder • Test whether the system can analyze the uploaded pictures • Test whether the system can generate appropriate reports
Prerequisite	The user has successfully logged in and is on the Fish Detection page (UI-03).

Prepared Data:

Fish image:



(Red Mullet)



(Trout)

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Fish Category	Description	Poison
Red Mullet	<p>The red mullets or surmullets are two species of goatfish, <i>Mullus barbatus</i> and <i>Mullus surmuletus</i>, found in the Mediterranean Sea, east North Atlantic Ocean, and the Black Sea. Both "red mullet" and "surmullet" can also refer to the Mullidae in general.</p> <p>Classification Though they can easily be distinguished—<i>M. surmuletus</i> has a striped first dorsal fin—their common names overlap in many of the languages of the region. In English, <i>M. surmuletus</i> is sometimes called the striped red mullet. Despite the English name "red mullet", these fishes of the goatfish family Mullidae are not closely related to many other species called "mullet", which are members of the grey mullet family Mugilidae. The word "surmullet" comes from the French, and ultimately probably from a Germanic root "sor" 'reddish brown'.</p> <p>Cultural impact See also: Hecate § Sacred animals</p> <p>Rouget et Anguille, by Édouard Manet (1864). They are both favored delicacies in the Mediterranean, and in antiquity were "one of the most famous and valued fish". They are very similar, and cooked in the same ways. <i>M. surmuletus</i> is perhaps somewhat more prized. The ancient Romans reared them in ponds where they were attended and caressed by their owners, and taught to come to be fed at the sound of the voice or bell of the keeper. Specimens were sometimes sold for their weight in silver. Pliny cites a case in which a large sum was paid for a single fish, and an extraordinary expenditure of time was lavished upon these slow-learning pets. Juvenal and other satirists descended upon the height to which the pursuit of this luxury was carried as a type of</p>	non-toxic

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	<p>extravagance. The statesman Titus Annius Milo, exiled to Marseille in 52 B.C., joked that he would have no regrets as long as he could eat the delicious red mullet of Marseille.</p> <p>Claudius Aelianus in his On the Nature of Animals, writes that the species is sacred to the Greek agricultural goddess Demeter. "At Eleusis it [the Red Mullet] is held in honour by the initiated, and of this honour two accounts are given. Some say, it is because it gives birth three times in a year; others, because it eats the Sea-Hare, which is deadly to man." The red mullet was also significant in the cult of the witch goddess Hecate.</p>	
Trout	<p>Trout are species of freshwater fish belonging to the genera <i>Oncorhynchus</i>, <i>Salmo</i> and <i>Salvelinus</i>, all the subfamily Salmonidae of the family Salmonidae. The word trout is also used as part of the name of some non-salmonid fish such as <i>Cynoscion nebulosus</i>, the spotted seatrout, or speckled trout.</p> <p>Trout are closely related to salmon and char (or charr): species termed salmon and char occur in the same genera as do fish called trout (<i>Oncorhynchus</i> – Pacific salmon and trout, <i>Salmo</i> – Atlantic salmon and various trout, <i>Salvelinus</i> – char and trout).</p> <p>Lake trout and most other trout live in freshwater lakes and rivers exclusively, while there are others, such as the steelhead, a form of the coastal rainbow trout, that can spend two or three years at sea before returning to fresh water to spawn (a habit more typical of salmon). Arctic char and brook trout are part of the char genus. Trout are an important food source for humans and wildlife, including brown</p>	non-toxic

Test Steps	1. Click “Upload” button on the Fish Detection page (UI-03).
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2. Selects an image
3. Click “Upload new image” button

4. Check whether the picture has been save at uploaded folder

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ID	Action	Description	Input data	Expected Result
	1. Click “Upload” button on the Fish Detection page (UI-03).		-	Tester can select and upload pictures, and the system displays a progress bar while analyzing the pictures.
STC - 04	2. Selects an image (Red Mullet)	<p>Test whether the system can allow users to select images to upload.</p> <p>Test whether the system can analyze the uploaded images to generate relevant reports.</p> <p>Test that the system interacts as described in the SRS documentation.</p>		<p>When the system analysis is complete, the progress bar disappears, and the selected uploaded image (Red Mullet) is displayed in the current image.</p> <p>At the same time, the system pops up a prompt to inform the user that the analysis is complete, and the related report of Red Mullet is generated.</p> <p>The report should show all information related to Red Mullet, including Fish Category, Description, Poison.</p>

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	3. Click “Upload new image” button		<p>Tester can select and upload pictures, and the system displays a progress bar while analyzing the pictures.</p> <p>When the system analysis is complete, the progress bar disappears, and the selected uploaded image (Trout) is displayed in the current image.</p> <p>At the same time, the system pops up a prompt to inform the user that the analysis is complete, and the related report of Trout is generated.</p> <p>The report should show all information related to Trout, including Fish Category, Description, Poison.</p>
	Test whether system save the		There are uploaded pictures in the (

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	4. Check whether the picture has been save at uploaded folder	picture uploaded to the back-end folder		back end uploads folder
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System Test Case 005 (STC-005):

Test Description	Test for UC-04, UC-05, UC-06
	<ul style="list-style-type: none"> • System test for Fish image recognition (Feature#02). • System test for Fish report generation (Feature#03).
	Test whether the system can identify nine different species of fish and give the correct corresponding report.
Prerequisite	The user has successfully logged in and is on the Fish Detection page (UI-03).

*STC-04 has been completed for 2 fish species and the remaining 7(Striped Red Mullet, Shrimp, Sea bass, Red seabream, Horse mackerel, Gilt-head bream, Black Sea sprat) untested species are tested here. And STC-04 has been tested interactively. This system test only considers whether the system can make correct species predictions and generate correct reports for the other seven fish species pictures.

Prepared Data:

ID	Fish category	Image
1.	Striped Red Mullet	
2.	Shrimp	

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3.	Sea Bass		
4.	Red Sea Bream	 01/01/2006	
5.	Horse Mackerel		
6.	Gilt-head bream	 05/04/2019	
7.	Black Sea Sprat		

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Fish Category	Description	Poison
Striped Red Mullet	<p>The striped red mullet or surmullet (<i>Mullus surmuletus</i>) is a species of goatfish found in the Mediterranean Sea, eastern North Atlantic Ocean, and the Black Sea. They can be found in water as shallow as 5 meters (16 ft) or as deep as 409 meters (1,342 ft) depending upon the portion of their range that they are in. This species can reach a length of 40 centimetres (16 in) SL though most are only around 25 centimetres (9.8 in). The greatest recorded weight for this species is 1 kilogram (2.2 lb). This is a commercially important species and is also sought after as a game fish.</p> <p><i>Mullus barbatus</i> and it are commonly called "red mullets" and often are not distinguished, though they can be told apart by the striped first dorsal fin of <i>M. surmuletus</i>.</p> <p>Despite its English name, the striped red mullet, of the goatfish family Mullidae, is only very distantly related to the grey mullet and other species called "mullet", classified in their own separate order and family.</p>	non-toxic
Shrimp	<p>Shrimp are decapod crustaceans with elongated bodies and a primarily swimming mode of locomotion – most commonly Caridea and Dendrobranchiata. More narrow definitions may be restricted to Caridea, to smaller species of either group or to only the marine species. Under a broader definition, shrimp may be synonymous with prawn, covering stalk-eyed swimming crustaceans with long, narrow muscular tails (abdomens), long whiskers (antennae), and slender legs. Any small crustacean which resembles a shrimp tends to be called one. They swim forward by paddling with swimmerets on the underside of their abdomens, although their escape response is typically repeated flicks with the tail driving them backwards very quickly. Crabs and lobsters have</p>	non-toxic

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	<p>strong walking legs, whereas shrimp have thin, fragile legs which they use primarily for perching.</p> <p>Shrimp are widespread and abundant. There are thousands of species adapted to a wide range of habitats. They can be found feeding near the seafloor on most coasts and estuaries, as well as in rivers and lakes. To escape predators, some species flip off the seafloor and dive into the sediment. They usually live from one to seven years. Shrimp are often solitary, though they can form large schools during the spawning season.</p> <p>They play important roles in the food chain and are an important food source for larger animals ranging from fish to whales. The muscular tails of many shrimp are edible to humans, and they are widely caught and farmed for human consumption. Commercial shrimp species support an industry worth 50 billion dollars a year, and in 2010 the total commercial production of shrimp was nearly 7 million tonnes. Shrimp farming became more prevalent during the 1980s, particularly in China, and by 2007 the harvest from shrimp farms exceeded the capture of wild shrimp. There are significant issues with excessive bycatch when shrimp are captured in the wild, and with pollution damage done to estuaries when they are used to support shrimp farming. Many shrimp species are small as the term shrimp suggests, about 2 cm (0.79 in) long, but some shrimp exceed 25 cm (9.8 in). Larger shrimp are more likely to be targeted commercially and are often referred to as prawns, particularly in Britain.</p>	
Sea bass	<p>Sea bass is a common name for a variety of different species of marine fish. Many fish species of various families have been called sea bass.</p> <p>In Ireland and the United Kingdom, the fish sold and consumed as sea bass is exclusively the European bass, <i>Dicentrarchus labrax</i>.[1] Sometimes referred to as sea bass include the following:</p>	non-toxic

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	<p>Family Serranidae</p> <p>Genus Paralabrax Barred sand bass (<i>Paralabrax nebulifer</i>) lives mainly off the coast of California.</p> <p>Genus Centropristes Black sea bass (<i>Centropristes striata</i>) is found on the East Coast of the United States.</p> <p>Genus Caesioperca Butterfly perch (<i>Caesioperca Lepidoptera</i>) is found in the eastern Indian Ocean and the southwest Pacific Ocean, including southern Australia and New Zealand.</p> <p>Genus Caprodon Pink maomao (<i>Caprodon longimanus</i>) is found in the eastern Indian Ocean and the southern Pacific Ocean, including Australia and New Zealand.</p> <p>Genus Epinephelus Potato cod (<i>Epinephelus tukula</i>), also known as the potato bass or potato grouper, is a large reef fish found in the Indian and Pacific Oceans.</p> <p>Dusky grouper (<i>Epinephelus marginatus</i>)</p> <p>Dogtooth grouper (<i>Epinephelus caninus</i>)</p> <p>Genus Hypoplectrodes Redbanded perch (<i>Hypoplectrodes huntii</i>) is found in southeastern Australia and the North Island and northern South Island of New Zealand.</p> <p>Genus Trachypoma Toadstool groper (<i>Trachypoma macracanthus</i>) is found in the southwest Pacific Ocean.</p> <p>Genus Serranus <i>Serranus cabrilla</i> (Comber) (Linnaeus, 1758) <i>Serranus scriba</i> (Painted comber) (Linnaeus, 1758)</p>	
Red seabream		non-toxic

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	<p>Red seabream is a name given to at least two species of fish of the family Sparidae, <i>Pagrus major</i> and <i>Pagellus bogaraveo</i>.</p> <p><i>Pagrus major</i> is of great culinary and cultural importance in Japan, and is known as Tai in Japanese. It is considered an auspicious fish, eaten during Japanese New Year and other special occasions, such as weddings. It is also eaten in Taiwan and Korea, where it is known as chamdom.</p>	
Horse mackerel	<p>Horse mackerel is a vague vernacular term for a range of species of fish throughout the English-speaking world. It is commonly applied to pelagic fishes, especially of the Carangidae (jack mackerels and scads) family, most commonly those of the genera <i>Trachurus</i> or <i>Caranx</i>. Species known as "horse mackerel" in one English dialect or another include:</p> <p><i>Alectis indicus</i>, Indian threadfish (Malaysia) <i>Caranx cryos</i>, blue runner (Guadeloupe, Martinique) <i>Caranx hippos</i>, Crevalle jack (Guyana, India) <i>Megalaspis cordyla</i>, torpedo scad (India) <i>Naucrates ductor</i>, pilot fish <i>Sarda australis</i>, Australian bonito (Australia) various saurel of the Pacific coast of the Americas <i>Selar crumenophthalmus</i>, bigeye (India) <i>Trachurus capensis</i>, cape horse mackerel (South Africa) <i>Trachurus declivis</i>, greenback horse mackerel (Australia) <i>Trachurus japonicus</i>, Japanese horse mackerel (Japan) <i>Trachurus novaezelandiae</i>, yellowtail horse mackerel (New Zealand) <i>Trachurus trachurus</i>, Atlantic horse mackerel (United Kingdom, Ireland)</p>	non-toxic
Gilt-head bream	<p>The Gilt-head (sea) bream (<i>Sparus aurata</i>), known as Orata in antiquity and still today in Italy and Tunisia (known as "Dorada" in Spain, "Dourada" in Portugal and "Dorade Royale" in France), is a fish of the bream family Sparidae found in the Mediterranean Sea and the eastern coastal regions of the North Atlantic Ocean. It commonly</p>	non-toxic

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	<p>reaches about 35 centimetres (1.15 ft) in length, but may reach 70 cm (2.3 ft) and weigh up to about 7.36 kilograms (16.2 lb).</p> <p>The gilt-head bream is generally considered the best-tasting of the breams. It is the single species of the genus <i>Sparus</i> – the Latin name for this fish – which has given the whole family of Sparidae its name. Its specific name, <i>aurata</i>, derives from the gold bar marking between its eyes.</p> <p>The genome of the species was released in 2018, where the authors detected fast evolution of ovary-biased genes likely resulting from the peculiar reproduction mode of the species.</p>	
Black Sea sprat	<p>The Black Sea sprat, <i>Clupeonella cultriventris</i>, is a small fish of the herring family, Clupeidae. It is found in the Black Sea and Sea of Azov and rivers of its basins: Danube, Dnister, Dnipro (Ukraine), Southern Bug, Don, Kuban. It has white-grey flesh and silver-grey scales. A typical size is 10 cm (maximum 15 cm) The life span is of up to 5 years. The peak of its spawning is in April and it can be found in enormous shoals in sea-shores, filled all-round coastal shallows, moving quickly back in the sea at a depth of 6–30 metres. Used for food; it has around 12% fat in flesh.</p> <p>It is one of the most abundant fishes in the Sea of Azov. It is important prey for other fishes, particularly the pikeperch.</p> <p>The Caspian tyulka <i>Clupeonella caspia</i> has been long considered a subspecies of <i>C. cultriventris</i>, <i>C. cultriventris caspia</i>, and a common name "Black and Caspian Sea sprat" was then applied to the whole.</p>	non-toxic

Test Steps	1. Click “Upload” button on the Fish Detection page (UI-03).
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2. Selects an image

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ID	Action	Description	Input data	Expected Result
STC - 04.1	1. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	-	The system displays reports related to Striped Red Mullet.
	2. Selects an image (Striped Red Mullet)			

ID	Action	Description	Input data	Expected Result
STC - 04.2	1. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	-	The system displays reports related to Shrimp.
	2. Selects an image (Shrimp)			

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ID	Action	Description	Input data	Expected Result
STC - 04.3	1. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	-	The system displays reports related to Sea bass.
	2. Selects an image (Sea bass)			

ID	Action	Description	Input data	Expected Result
STC - 04.4	1. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	-	The system displays reports related to Red Sea Bream.
	2. Selects an image (Red Sea Bream)			

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ID	Action	Description	Input data	Expected Result
STC - 04.5	1. Click “Upload” button on the Fish Detection page (UI-03). []	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	-	The system displays reports related to Horse Mackerel.
	2. Selects an image (Horse Mackerel)			

ID	Action	Description	Input data	Expected Result
STC - 04.6	1. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	-	The system displays reports related to Gilt-head bream.
	2. Selects an image (Gilt-head bream)			

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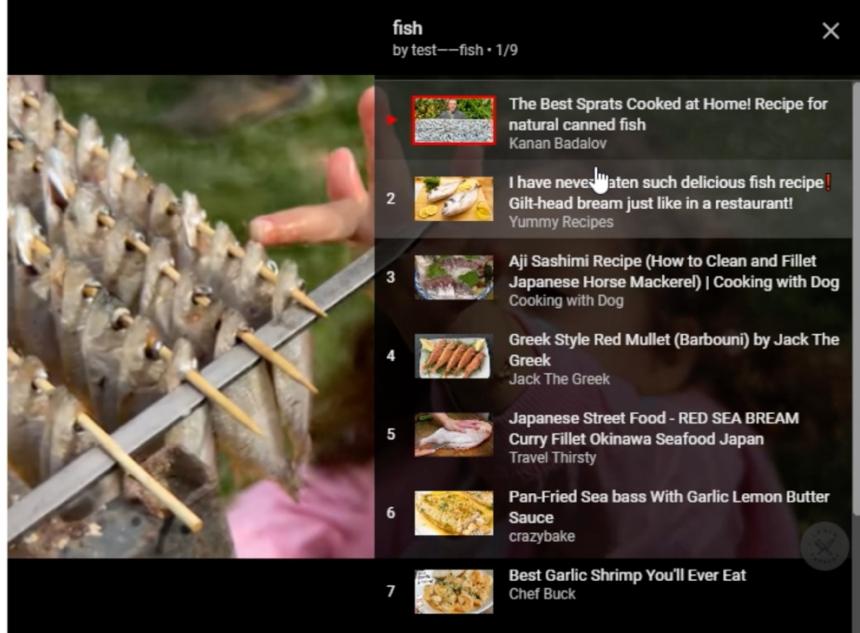
ID	Action	Description	Input data	Expected Result
STC - 04.7	1. Click “Upload” button on the Fish Detection page (UI- 03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	-	The system displays reports related to Black Sea Sprat.
	2. Selects an image (Black Sea Sprat)			

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System Test Case 006 (STC-006):

Test Description	Test for UC-07
	System test for Show fish related video (Feature#04).
	Test whether the system can display cooking videos of 9 fish species.
Prerequisite	The user has successfully logged in and is on the Fish Detection page (UI-03).

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Test Steps	<p>1. Click on the playlist button on the video on the Fish Detection page (UI-03).</p>  <p>2. Click on the videos in the playlist in turn.</p> 
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ID	Action	Description	Input data	Expected Result
STC - 06	1. Click on the playlist button on the video on the Fish Detection page (UI-03).	Test whether the video can play or not.	-	The video can be played.
	2. Click on the 1 st video.			
	3. Click on the 2 nd video.			The video can be played.
	4. Click on the 3 rd video.			The video can be played.
	5. Click on the 4 th video.			The video can be played.
	6. Click on the 5 th video.			The video can be played.
	7. Click on the 6 th video.			The video can be played.
	8. Click on the 7 th video.			The video can be played.
	9. Click on the 8 th video.			The video can be played.

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	10. Click on the 9 th video.			The video can be played.
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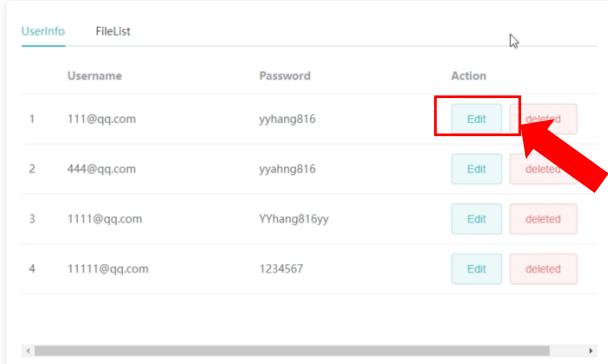
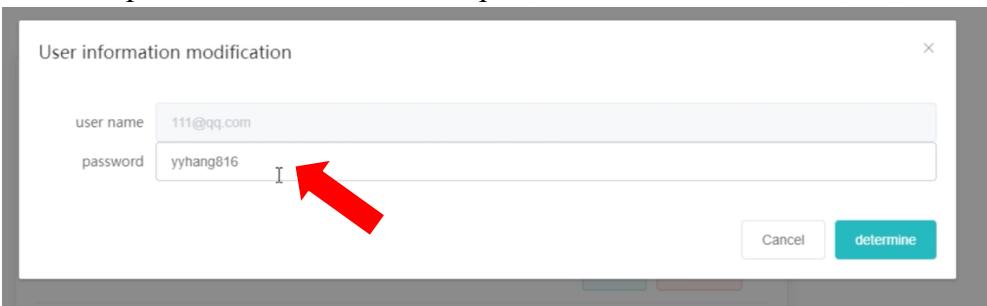
System Test Case 007 (STC-007):

Test Description	Test for UC-02, UC-03, UC-08
	System test for Administrator dashboard (Feature#05).
	Test whether the administrator can update the user password on the Dashboard page (UI-04).
Prerequisite	The administrator has successfully logged in and is on the Dashboard page (UI-04).

Prepared Data:

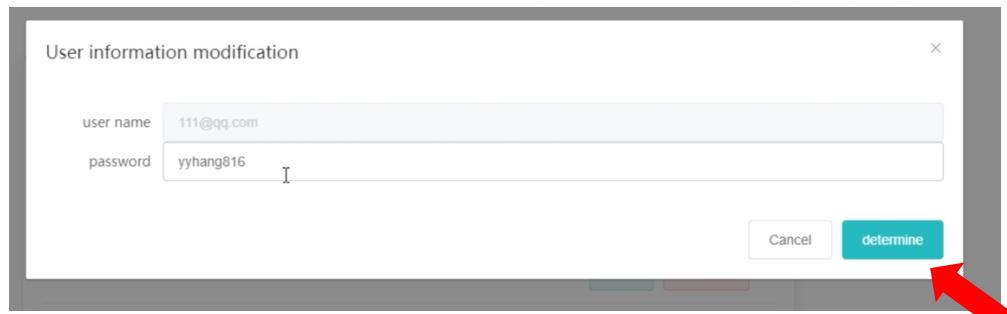
A redigested user information

Email	111@qq.com
Password	Yyhang816

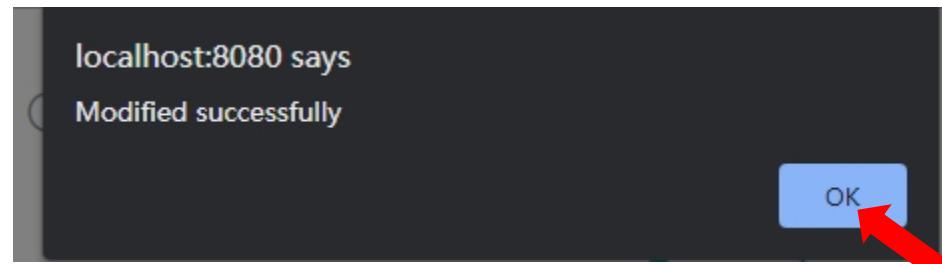
Test Steps	<p>1. Click the "Edit" button next to the user whose password you want to update.</p> 
	<p>2. Enter the password that needs to be updated.</p> 

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3. Click the "determine" button on the “User information modification” Pop-up box.



4. Click “OK” button.



5. Logout
 6. Use the old password to log in.
 7. Use the updated password to log in.
 8. Use SQLiteStudio checks whether the back-end database have recorded Registered data modified.

	userid	username	password
1	2	admin@admin.com	admin
2	7	1111@qq.com	YYhang816yy
3	8	11121@qq.com	yyhang816
4	10	yang@qq.com	1111
5	11	1234@qq.com	1234
6	12	1234test@qq.com	12345
7	13	1111test@qq.com	1234
8	14	1212test@gmail.com	1234
9	15	project@gmail.com	1234

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Test normal flow

c	Action	Description	Input data		Expected Result
STC 07.1	1. Click the "Edit" button next to the user whose password you want to update	Test that whether the system can update the user's password or not.			The system displays the "User information modification" pop-up box. This pop-up box displays the user's email address and password, where the password can be modified.
	2. Enter the password that needs to be updated.		Password	Jindian222	
	3. Click the "determine" button on the "User information modification" Pop-up box.				The system pops up a prompt showing "Modified Successfully".

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	4. Click “OK” button.			The "Modified Successfully" prompt disappears. The system automatically updates to display the new password of the user being changed.	
	5. Logout			The system redirects to the Login page (UI-01).	
	6. Use the old password to log in.	Test if the user can log in with the old password.	Email Password	Jidian419@qq.com Jidian555	The system shall pop up a prompt box, showing “Account password error”.
	7. Use the update password to log in.	Test if the user can log in with the update password.	Email Password	Jidian419@qq.com Jidian222	The system redirects to the Fish Detection page (UI-04).
		Test whether the modified			The password data in the

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	8. Use SQLiteStudio checks whether the back-end database have recorded Registered data modified	data is recorded in the database and has been modified			database has been modified to the data just modified by the administrator
--	---	--	--	--	---

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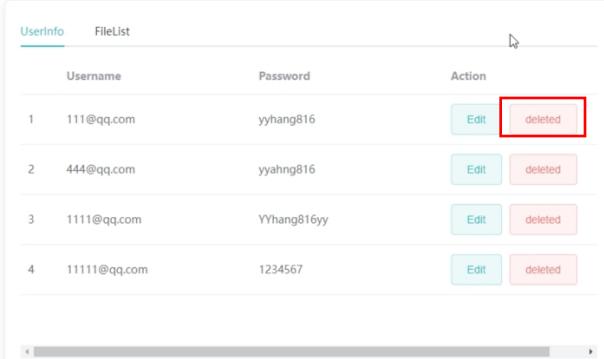
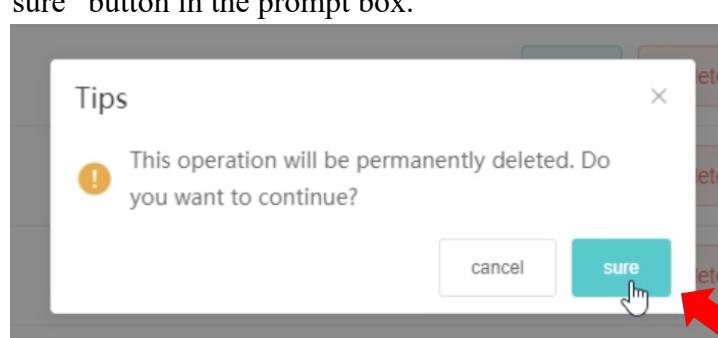
System Test Case 008 (STC-008):

Test Description	Test for UC-09
	System test for Administrator dashboard (Feature#05).
	Test whether the administrator can delete the user on the Dashboard page (UI-04).
Prerequisite	The administrator has successfully logged in and is on the Dashboard page (UI-04).

Prepared Data:

A redigested user information

Email	Mk419@gmail.com
Password	Mk419

Test Steps	1. Click the “Deleted” button for the user you want to delete.
	 <p>2. Click the “sure” button in the prompt box.</p> 

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3. Click the “OK” button in the prompt box.



4. Logout
 5. Login with old account
 6. Use SQLiteStudio checks whether the back-end database have recorded Registered data modified.

	userid	username	password
1	2	admin@admin.com	admin
2	7	1111@qq.com	YYhang816yy
3	8	11121@qq.com	yyhang816
4	10	yang@qq.com	1111
5	11	1234@qq.com	1234
6	12	1234test@qq.com	12345
7	13	1111test@qq.com	1234
8	14	1212test@gmail.com	1234
9	15	project@gmail.com	1234

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Test normal flow:

ID	Action	Description	Input data		Expected Result
STC - 08.1	1. Click the “Deleted” button for the user you want to delete.	Test whether the system can delete users.			The system pops up a prompt box showing "This operation will be permanently deleted. Do you want to continue?"
	2. Click the “sure” button in the prompt box.				The system prompts “Delete Succussed”
	3. Click the “OK” button in the prompt box.				The system will automatically update, and the deleted user information will disappear.
	4. Logout				The system redirects to the Login page (UI-01).
	5. Login with old account		Email	Mk419@gmail.com	The system shall pop up a prompt box, showing “Account password error”.
			Password	Mk419	

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	6. Use SQLiteStudio checks whether the back-end database have recorded Registered data modified.	Test whether the password just deleted by the administrator has been successfully deleted in the database			The account just deleted by the administrator has been removed from the database
--	--	---	--	--	--

Test alternative flow:

ID	Action	Description	Input data	Expected Result
STC - 08.2	1. Click the “Deleted” button for the user you want to delete.	Test whether the system can delete users.	-	The system pops up a prompt box showing "This operation will be permanently deleted. Do you want to continue?"
	2. Click the “cancel” button in the prompt box.			The system prompts “Already canceled”

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Chapter 6

Test Record

Fish Information Detection Software

Test Record

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Document History

History	Status	Date	Viewable	Editable	Responsible
Add • Introduction	Draft	August 31 th 2022	YYH, DJ, JH	YYH, DJ	YYH, DJ
Add • Unit test • System test	Draft	August 31 th 2022	YYH, DJ, JH	YYH, DJ	YYH, DJ
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Update • Unit test • System test	Draft	September 1 th 2022	YYH, DJ, JH	YYH, DJ	YYH, DJ
Update • Unit test • System test	Draft	October, 17 th 2022	YYH, DJ, JH	YYH, DJ	YYH, DJ

* YYH= Yanhang Yang

* DJ= Dian Jin

* JH= Jayakrit Hirisajja

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Introduction

7. Objective

The purpose of the Test Record for the Fish Information Detection Software System is to record the actual result and pass/fail criteria of each test case designed in the test plan and executed.

8. Intended Audience

The mainly intended audience of this document is all significant stakeholders, which include the development team, the project owner, testers, the senior project advisor (Dr. Jayakrit Hirisajja), and anyone evaluating the project.

9. Project Scope

Develop end-to-end fish identification software based on machine learning technology and network application. In the software, users can upload fish images obtained from cameras or other places to the software from mobile phones, PCs or tablets. The software analyzes the learning data in the background and presents the search results to users. The software will provide users with detailed information, including the name of the fish, whether the fish is poisonous, and the habitat of the fish. The administrator can also manage the users of the web page.

10. Acronyms

SRS - Software Requirement Specification

URS - User Requirement Specification

UC - Use Case

UI - User Interface

11. Definition

Name	Definition
Feature	Transformation of input parameters to output parameters based on a specified algorithm. It describes the functionality of the product in the language of the product. Used for requirements analysis, design, coding, testing or maintenance. [IEEE90]
IEEE	Institute for Electrical and Electronics Engineers. Biggest global interest group for engineers of different branches and computer scientists. [IEEE90]
Requirement	(7) A condition or capability needed by the user to solve a problem or achieve an objective.

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	<p>(8) A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document.</p> <p>(9) A documented representation of a condition or capability as in definition (1) or (2). [IEEE90]</p>
Specification	Precise description of an activity or work product that serves as the basic or input for further activities or work product. A specification can comprise requirements for a product and how they will be solved. Different parts of a specification (e.g., what is to be done, how it will be done) must not be mixed. [IEEE90]
Use case	<p>(5) Concept to describe a system based on usage of system resources by its environment. Characterized by an objective-set of interactions within and at the borders of that system.</p> <p>(6) Notation from UML for describing a scenario (Usage approach, operational scenario) from the perspective of this user. [IEEE90]</p>

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Unit test

Unit Test Case 001 (UTC-001):

Method name: inference (self: Object, image_path: String): String

Description: Test whether this method can be used to display the fish labels.

Data for testing:

Picture	Picture Path	Picture Label
	/Users/dianjin/Desktop /Trout_00013.jpg	Trout
	/Users/dianjin/Desktop /Black_Sea_Sprat_00016.jpg	Black Sea Sprat
	/Users/dianjin/Desktop /Gilt_Head_Bream_00015.jpg	Gilt Head Bream

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Test Case:

ID	Description	Expected Result	Actual Result	Fail/Pass
1.	Enter the image path to test whether the system can give the label of the image.	Trout	Trout	Pass
2.	Enter the image path to test whether the system can give the label of the image.	Black Sea Sprat	Black Sea Sprat	Pass
3.	Enter the image path to test whether the system can give the label of the image.	Gilt Head Bream	Gilt Head Bream	Pass

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Unit Test Case 002 (UTC-002):

Method name: detect (self: Object, image_path: String): String

Description: Test whether this method can detect the correct fish labels.

Data for testing:

Picture	Picture Path	Picture Label
	/Users/dianjin/Desktop/Trout_00013.jpg	Trout
	/Users/dianjin/Desktop/Black_Sea_Sprat_00016.jpg	Black Sea Sprat
	/Users/dianjin/Desktop/Gilt_Head_Bream_00015.jpg	Gilt Head Bream

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Test Case:

ID	Description	Expected Result	Actual Result	Fail/Pass
1.	Enter the image path to test whether the system can give the label of the image.	Trout	"/Users/dianjin/Desktop/Trout_00013.jpg"	Pass
2.	Enter the image path to test whether the system can give the label of the image.	Black Sea Sprat	"/Users/dianjin/Desktop/Black_Sea_Sprat_00016.jpg"	Pass
3.	Enter the image path to test whether the system can give the label of the image.	Gilt Head Bream	"/Users/dianjin/Desktop/Gilt_Head_Bream_00015.jpg"	Pass

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Unit Test Case 003 (UTC-003):

Method name: get_description(self: Object, fish_catetory: String): String

Description: Test whether this method can give a corresponding fish description by the category of fish entered.

Data for testing:

File name	Description File Path
Trout	backend\fish_description\Trout.txt
Striped Red Mullet	back-end\fish_description\Striped_Red_Mullet.txt
Shrimp	back-end\fish_description\Shrimp.txt
Sea bass	back-end\fish_description\Sea_Bass.txt
Red seabream	back-end\fish_description\Red_Sea_Bream.txt
Red mullet	back-end\fish_description\Red_Mullet.txt
Horse mackerel	back-end\fish_description\Hourse_Mackerel.txt
Gilt-head bream	back-end\fish_description\Gilt-Head_Bream.txt
Black Sea sprat	back-end\fish_description\Black_Sea_Sprat.txt

Test Case:

ID	Description	Expected Result	Actual Result	Fail/Pass
1.	When the fish category input to the backend after the software prediction is "Trout", the software needs to find the corresponding description file	<pre>{ fish_file_name= fish_catetory=Trout+.txt fish_file_path = os.path.join(backend\fish_descript ion\Trout.txt, fish_file_name) content = file.read() return content }</pre>	<pre>{ fish_file_name= fish_catetory=Trout+.txt fish_file_path = os.path.join(backend\fish_descript ion\Trout.txt, fish_file_name) content = file.read() return content }</pre>	Pass
2.	When the fish category input to the backend after the software prediction is "Striped Red Mullet", the software needs to find the corresponding description file	<pre>{ fish_file_name= fish_catetory="Striped Red Mullet"+.txt fish_file_path = os.path.join(back- end\fish_description\Striped_Red _Mullet.txt, fish_file_name) content = file.read() return content }</pre>	<pre>{ fish_file_name= fish_catetory="Striped Red Mullet"+.txt fish_file_path = os.path.join(back- end\fish_description\Striped_Red _Mullet.txt, fish_file_name) content = file.read() return content }</pre>	Pass

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3.	When the fish category input to the backend after the software prediction is "Shrimp", the software needs to find the corresponding description file	<pre> { fish_file_name= fish_catetory="Shrimp"+.txt fish_file_path = os.path.join(back- end\fish_description\Shrimp.txt, fish_file_name) content = file.read() return content } </pre>	<pre> { fish_file_name= fish_catetory="Shrimp"+.txt fish_file_path = os.path.join(back- end\fish_description\Shrimp.txt, fish_file_name) content = file.read() return content } </pre>	Pass
4.	When the fish category input to the backend after the software prediction is "Sea bass", the software needs to find the corresponding description file.	<pre> { fish_file_name= fish_catetory="Sea bass"+.txt fish_file_path = os.path.join(back- end\fish_description\Sea_Bass.txt, fish_file_name) content = file.read() return content } </pre>	<pre> { fish_file_name= fish_catetory="Sea bass"+.txt fish_file_path = os.path.join(back- end\fish_description\Sea_Bass.txt, fish_file_name) content = file.read() return content } </pre>	Pass
5.	When the fish category input to the backend after the software prediction is "Red seabream", the software needs to find the corresponding description file	<pre> { fish_file_name= fish_catetory="Red seabream"+.txt fish_file_path = os.path.join(back- end\fish_description\Red_Sea_Br eam.txt, fish_file_name) content = file.read() return content } </pre>	<pre> { fish_file_name= fish_catetory="Red seabream"+.txt fish_file_path = os.path.join(back- end\fish_description\Red_Sea_Br eam.txt, fish_file_name) content = file.read() return content } </pre>	Pass
6.	When the fish category input to the backend after the software prediction is "Red mullet", the software needs to find the corresponding description file.	<pre> { fish_file_name= fish_catetory="Red mullet"+.txt fish_file_path = os.path.join(back- end\fish_description\Red_Mullet.t xt, fish_file_name) content = file.read() return content } </pre>	<pre> { fish_file_name= fish_catetory="Red mullet"+.txt fish_file_path = os.path.join(back- end\fish_description\Red_Mullet.t xt, fish_file_name) content = file.read() return content } </pre>	Pass

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7.	When the fish category input to the backend after the software prediction is "Horse mackerel", the software needs to find the corresponding description file.	<pre>{ fish_file_name= fish_catetory="Horse mackerel"+.txt fish_file_path = os.path.join(back- end\fish_description\Hourse_Mac kerel.txt, fish_file_name) content = file.read() return content }</pre>	<pre>{ fish_file_name= fish_catetory="Horse mackerel"+.txt fish_file_path = os.path.join(back- end\fish_description\Hourse_Mac kerel.txt, fish_file_name) content = file.read() return content }</pre>	Pass
8.	When the fish category input to the backend after the software prediction is "Gilt-head bream", the software needs to find the corresponding description file.	<pre>{ fish_file_name= fish_catetory= "Gilt-head bream"+.txt fish_file_path = os.path.join(back- end\fish_description\Gilt- Head_Bream.txt, fish_file_name) content = file.read() return content }</pre>	<pre>{ fish_file_name= fish_catetory= "Gilt-head bream"+.txt fish_file_path = os.path.join(back- end\fish_description\Gilt- Head_Bream.txt, fish_file_name) content = file.read() return content }</pre>	Pass
9.	When the fish category input to the backend after the software prediction is "Black Sea sprat", the software needs to find the corresponding description file.	<pre>{ fish_file_name= fish_catetory= "Black Sea sprat"+.txt fish_file_path = os.path.join back- end\fish_description\Black_Sea_S prat.txt, fish_file_name) content = file.read() return content }</pre>	<pre>{ fish_file_name= fish_catetory= "Black Sea sprat"+.txt fish_file_path = os.path.join back- end\fish_description\Black_Sea_S prat.txt, fish_file_name) content = file.read() return content }</pre>	Pass

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Unit Test Case 004 (UTC-004):

Method name: register(username:String,password:String):String

Description: Test whether this method can be used to detect whether user account is registered.

Data for testing:

Email	Account registration status
testproject@qq.com	Not registered
1111@qq.com	registered

Test Case:

ID	Description	Expected Result	Actual Result	Fail/Pass
1.	The user enters an unregistered user name, enters a password for the user name, and the format of the user name meets the requirements of the software. Then click the Registration button	{ db.session.commit(), "code":200, "message":" Account created successfully ! " }	{ db.session.commit(), "code":200, "message":" Account created successfully ! " }	Pass
2.	The user enters an user name have already registered, enters a password for the user name. Then click the Registration button	{ db.session.commit(), except, "code":203, "message":" Registration failed. The Email may have been registered" }	{ db.session.commit(), except, "code":203, "message":" Registration failed. The Email may have been registered" }	Pass

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Unit Test Case 005 (UTC-005):

Method name: login(username:String,password:String):String

Description: Test when login, will redirect different page according to different login actor.

Data for testing:

Username	Type of actor
admin@admin.com	admin
1111@qq.com	user

Test Case:

ID	Description	Expected Result	Actual Result	Fail/Pass
1.	When the login actor is admin, the webpage should redirect it to the administrator dashboard page	{ response.data.code==4001, this.\$router.push("/Admin"); }	{ response.data.code==4001, this.\$router.push("/Admin"); }	Pass
2.	The user enters an user name have already registered, enters a password for the user name. Then click the Registration button	{ response.data.code==200, this.\$router.push("/Home"); }	{ response.data.code==200, this.\$router.push("/Home"); }	Pass

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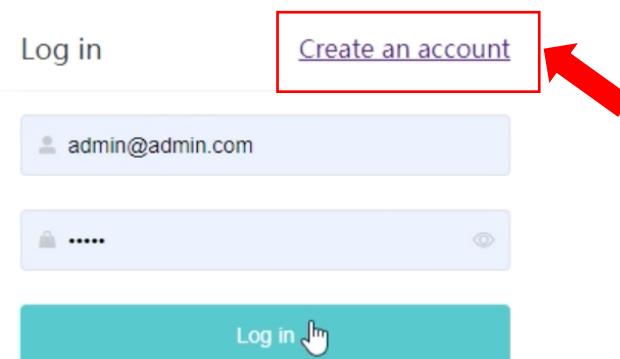
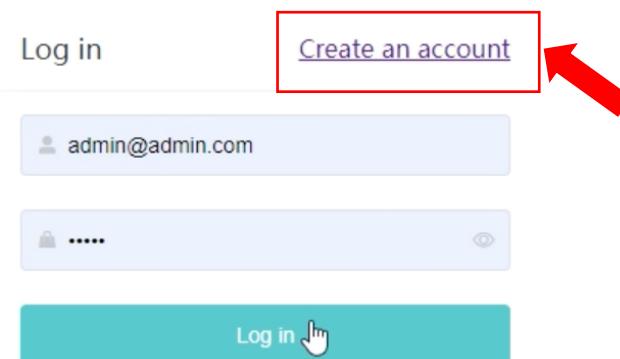
System test

System Test Case 001 (STC-001):

Test Description	Test for UC-01, UC-02, UC-03
	System test for Authentication System (Feature#01). <ul style="list-style-type: none"> • Test whether the user can register an account to use the web application. (Normal flow of the register) • Test whether the logout function of the system is correctly implemented.
Prerequisite	The tester has already run the software and open the Login page (UI-01).

Prepared Data: An email account and password have not been registered.

Email	Dsgdkwg1@qq.com
Password	Yanhang123

9. Click the “Create an account” link on the Login page (UI-01).	
Test Steps	

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10. Input email, password on the Register page (UI-02).

Create an account

Please enter your Email

Please enter your Password

confirm

11. Click the “confirm” button on the registration page (UI-02).
 12. Enter the email address and password of the newly registered account on the login page (UI-01).

Log in

[Create an account](#)

Please enter your Email

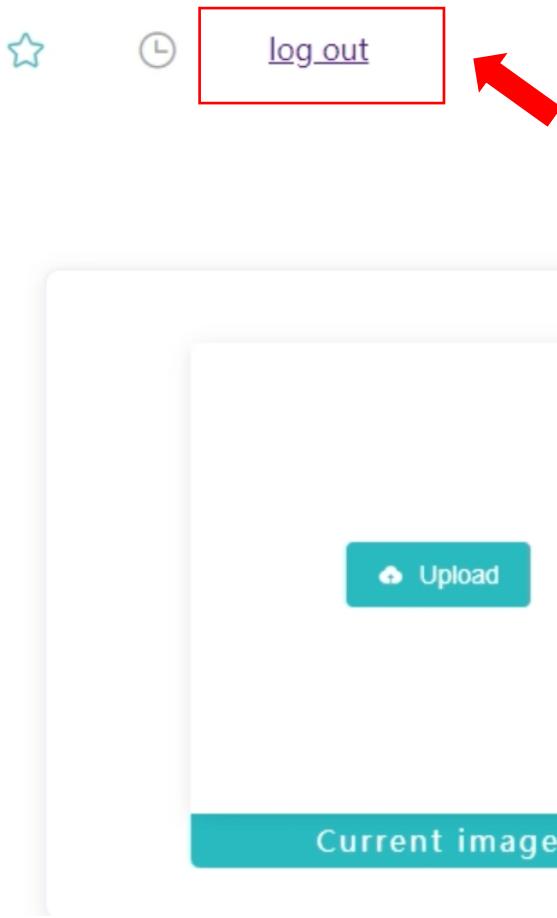
Please enter your Password

Log in

13. Enter the email address and password of the newly registered account on the login page (UI-01).
 14. Click the “Login” button on the Login page (UI-01).

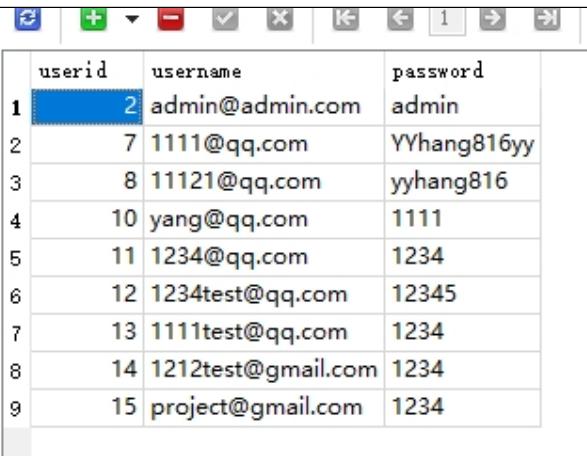
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15. Click the “Logout” button on the Fish Detection page (UI-03).



16. Use SQLiteStudio checks whether the back-end database stores Registered data just input.

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ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC-01	8. Click the “Create an account” link on the Login page (UI-01).	Test whether the system can redirect to the correct page by clicking the “Create an account” link.	The system can redirect to the registration page (UI-02).	The system can redirect to the registration page (UI-02).	Pass
	9. Input email, password on the Register page.	Test whether the new user can be successfully registered. Test whether the system will automatically redirect to the login page after the new user is successfully registered.	The system pops up a prompt box showing "Account created successfully!"	The system pops up a prompt box showing "Account created successfully!"	Pass
	10. Click the “confirm” button on the registration page (UI-02).		The system redirects to the Login page (UI-01).	The system redirects to the Login page (UI-01).	Pass

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	11. Enter the email address and password of the newly registered account on the login page (UI-02).	Test whether the system can log in with the newly registered account.	The system redirects to the Fish Detection page (UI-02).	The system redirects to the Fish Detection page (UI-02).	Pass
	12. Click the “Login” button on the Login page (UI-01).				Pass
	13. Click the “Logout” button on the Fish Detection page (UI-02)	Test whether the logout function of the system is correctly implemented.	The user is logged out and the system redirects to the login page.	The user is logged out and the system redirects to the login page.	Pass
	14. Use SQLiteStudio checks whether the back-end database stores Registered data just input.	Test whether the newly registered account has been saved in the backend database	After checking, the newly registered account has been added to the database table of backend	After checking, the newly registered account has been added to the database table of backend	Pass

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System Test Case 002 (STC-002):

Test Description	Test for UC-01
	System test for Authentication System (Feature#01).
	<p>Test the alternative flow of registration function.</p> <ul style="list-style-type: none"> • If the entered email address is empty • If the email address is entered in an incorrect format • If the entered password is empty • If the email account has already been registered
Prerequisite	The tester has already run the software and open the Register page (UI-03).

Prepared Data:

A registered email account:

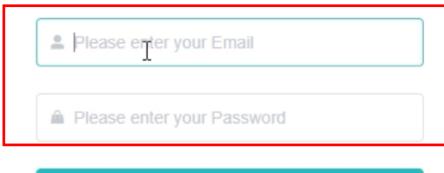
Email	Jindian111@qq.com
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An unregistered account information:

Email	Jindian222@qq.com
Password	jindian123

An incorrect format email:

Email	Iamjindian
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Test Steps	3. Input email, password on the Register page (UI-02).
	<p>Create an account</p>  <p>confirm</p>
	4. Click the "confirm" button on the registration page (UI-03).

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Test alternative flow A1

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 02.1	<p>3. Input email, password on the Register page (UI-03).</p> <p>4. Click the “confirm” button on the registration page (UI-03).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A1: If the entered email address is empty</p>	<p>The system shall pop up a red prompt box that displays “Please enter a username”.</p>	<p>The system shall pop up a red prompt box that displays “Please enter a username”.</p>	Pass

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Test alternative flow A2

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 02.2	<p>3. Input email, password on the Register page (UI-03).</p> <p>4. Click the “confirm” button on the registration page (UI-03).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A2: If the email address is entered in an incorrect format</p>	<p>The system shall pop up a red prompt box showing “Invalid username format! Please enter the correct format!”.</p>	<p>The system shall pop up a red prompt box showing “Invalid username format! Please enter the correct format!”.</p>	Pass

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Test alternative flow A3

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 02.3	<p>3. Input email, password on the Register page (UI-03).</p> <p>4. Click the “confirm” button on the registration page (UI-03).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A3: If the entered password is empty</p>	<p>The system shall pop up a red prompt box showing “Please enter the Password!”.</p>	<p>The system shall pop up a red prompt box showing “Please enter the Password!”.</p>	Pass

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Test alternative flow A4

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 02.4	<p>3. Input email, password on the Register page (UI-03).</p> <p>4. Click the “confirm” button on the registration page (UI-03).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A4: If the email account has already been registered</p>	<p>The system shall pop up a prompt showing “Registration failed. This email has been registered”.</p>	<p>The system shall pop up a prompt showing “Registration failed. This email has been registered”.</p>	Pass

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System Test Case 003 (STC-003):

Test Description	Test for UC-02
	System test for Authentication System (Feature#01).
	<p>Test the alternative flow of login function.</p> <ul style="list-style-type: none"> • If the entered email address is empty • If the email address is entered in an incorrect format • If the entered password is empty • If the email is not registered • If the account and password do not match • If it is the account is administrator role
Prerequisite	The tester has already run the software and open the Login page (UI-01).

Prepared Data:

A registered user information:

Email	Yyh123@qq.com
Password	Yyh123456

An unregistered user information:

Email	Jidian5555@qq.com
Password	iamjindian123456

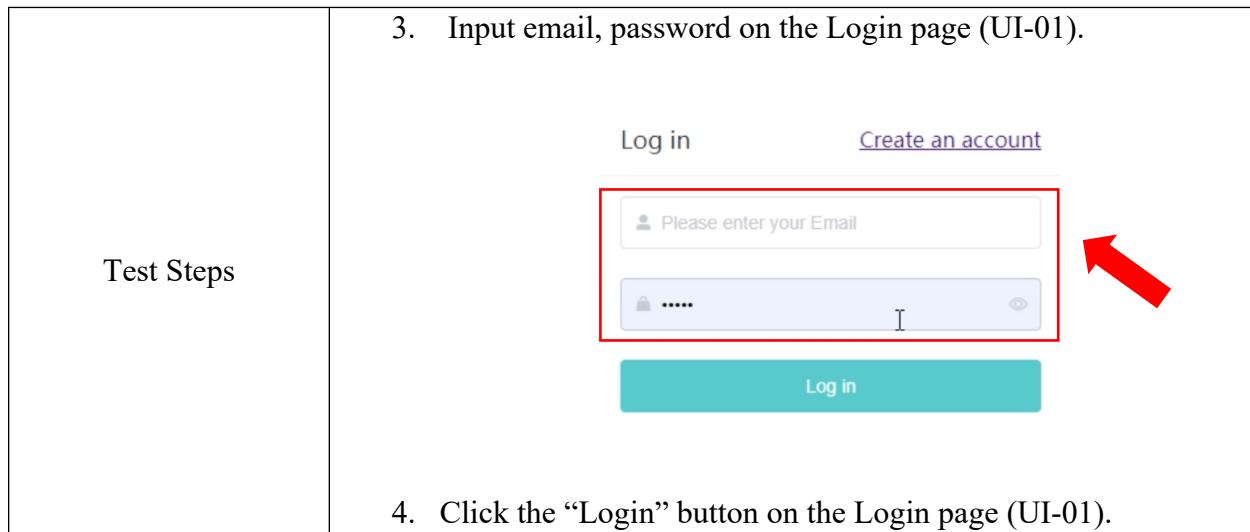
An incorrect email format:

Email	123456
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An administrator information:

Email	admin@admin.com
Password	admin

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	3. Input email, password on the Login page (UI-01).
Test Steps	 <p>The screenshot shows a login interface. At the top right are links for "Log in" and "Create an account". Below them is a form with two input fields: one for "Email" with placeholder text "Please enter your Email" and another for "Password" with placeholder text ".....". Both fields have a small eye icon to the right. A large red box highlights both the Email and Password fields. A red arrow points from the bottom right towards the "Log in" button at the bottom of the form.</p>

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Test alternative flow A1

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 03.1	<p>3. Input email, password on the Login page (UI-01).</p> <p>4. Click the “Login” button on the Login page (UI-01).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A1: If the entered email address is empty</p>	<p>The system shall pop up a red prompt box that displays “Please enter a username”.</p>	<p>The system shall pop up a red prompt box that displays “Please enter a username”.</p>	Pass

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Test alternative flow A2

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 03.2	<p>3. Input email, password on the Login page (UI-01).</p> <p>4. Click the “Login” button on the Login page (UI-01).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A2: The Email does not conform to email format</p>	<p>The system shall pop up a red prompt box that displays “Invalid username format. Please enter the correct format!”.</p>	<p>The system shall pop up a red prompt box that displays “Invalid username format. Please enter the correct format!”.</p>	Pass

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Test alternative flow A3

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 03.3	<p>3. Input email, password on the Login page (UI-01).</p> <p>4. Click the “Login” button on the Login page (UI-01).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A3: The entered password is empty</p>	<p>The system shall pop up a red prompt box that displays “Please enter a password”.</p>	<p>The system shall pop up a red prompt box that displays “Please enter a password”.</p>	Pass

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Test alternative flow A4

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 03.4	<p>3. Input email, password on the Login page (UI-01).</p> <p>4. Click the “Login” button on the Login page (UI-01).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A4: The email is not registered</p>	<p>The system shall pop up a red prompt box that displays “Please enter a password”.</p>	<p>The system shall pop up a red prompt box that displays “Please enter a password”.</p>	Pass

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Test alternative flow A5

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 03.5	<p>3. Input email, password on the Login page (UI-01).</p> <p>4. Click the “Login” button on the Login page (UI-01).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A5: If the account and password do not match</p>	<p>The system shall pop up a prompt box, showing “Account password error”.</p>	<p>The system shall pop up a prompt box, showing “Account password error”.</p>	Pass

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Test alternative flow A6

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 03.6	<p>3. Input email, password on the Login page (UI-01).</p> <p>4. Click the “Login” button on the Login page (UI-01).</p>	<p>Test that the system's alternative flows conform to the descriptions in the SRS document.</p> <p>Test alternative flow A6: If the account is the administrator role</p>	<p>The system shall redirect to the Dashboard page (UI-04).</p>	<p>The system shall redirect to the Dashboard page (UI-04).</p>	Pass

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System Test Case 004 (STC-004):

Test Description	Test for UC-04, UC-05, UC-06
	<ul style="list-style-type: none"> • System test for Image Detection (Feature#02). • System test for Report Generation (Feature#03).
	Test whether the Fish Detection page (UI-03) works as described in the SRS: <ul style="list-style-type: none"> • Test whether the system can upload pictures • Test whether the system can analyze the uploaded pictures • Test whether the system can generate appropriate reports
Prerequisite	The user has successfully logged in and is on the Fish Detection page (UI-03).

Prepared Data:

Fish image:



(Red Mullet)



(Trout)

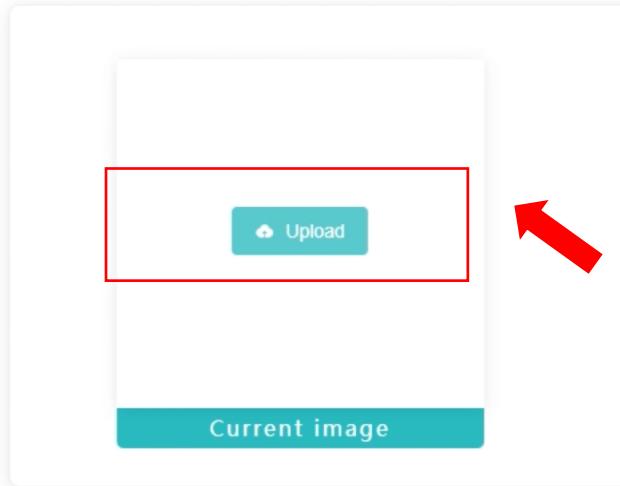
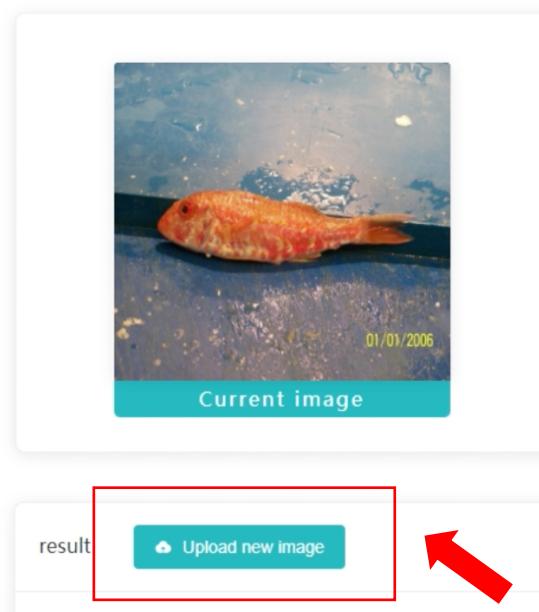
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Fish Category	Description	Poison
Red Mullet	<p>The red mullets or surmullets are two species of goatfish, <i>Mullus barbatus</i> and <i>Mullus surmuletus</i>, found in the Mediterranean Sea, east North Atlantic Ocean, and the Black Sea. Both "red mullet" and "surmullet" can also refer to the Mullidae in general.</p> <p>Classification</p> <p>Though they can easily be distinguished—<i>M. surmuletus</i> has a striped first dorsal fin—their common names overlap in many of the languages of the region. In English, <i>M. surmuletus</i> is sometimes called the striped red mullet. Despite the English name "red mullet", these fishes of the goatfish family Mullidae are not closely related to many other species called "mullet", which are members of the grey mullet family Mugilidae. The word "surmullet" comes from the French, and ultimately probably from a Germanic root "sor" 'reddish brown'.</p> <p>Cultural impact</p> <p>See also: Hecate § Sacred animals</p> <p>Rouget et Anguille, by Édouard Manet (1864). They are both favored delicacies in the Mediterranean, and in antiquity were "one of the most famous and valued fish". They are very similar, and cooked in the same ways. <i>M. surmuletus</i> is perhaps somewhat more prized. The ancient Romans reared them in ponds where they were attended and caressed by their owners, and taught to come to be fed at the sound of the voice or bell of the keeper. Specimens were sometimes sold for their weight in silver. Pliny cites a case in which a large sum was paid for a single fish, and an extraordinary expenditure of time was lavished upon these slow-learning pets. Juvenal and other satirists descended upon the height to which the pursuit of this luxury was carried as a type of</p>	non-toxic

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	<p>extravagance. The statesman Titus Annius Milo, exiled to Marseille in 52 B.C., joked that he would have no regrets as long as he could eat the delicious red mullet of Marseille.</p> <p>Claudius Aelianus in his <i>On the Nature of Animals</i>, writes that the species is sacred to the Greek agricultural goddess Demeter. "At Eleusis it [the Red Mullet] is held in honour by the initiated, and of this honour two accounts are given. Some say, it is because it gives birth three times in a year; others, because it eats the Sea-Hare, which is deadly to man." The red mullet was also significant in the cult of the witch goddess Hecate.</p>	
Trout	<p>Trout are species of freshwater fish belonging to the genera <i>Oncorhynchus</i>, <i>Salmo</i> and <i>Salvelinus</i>, all the subfamily <i>Salmoninae</i> of the family <i>Salmonidae</i>. The word trout is also used as part of the name of some non-salmonid fish such as <i>Cynoscion nebulosus</i>, the spotted seatrout, or speckled trout.</p> <p>Trout are closely related to salmon and char (or charr): species termed salmon and char occur in the same genera as do fish called trout (<i>Oncorhynchus</i> – Pacific salmon and trout, <i>Salmo</i> – Atlantic salmon and various trout, <i>Salvelinus</i> – char and trout).</p> <p>Lake trout and most other trout live in freshwater lakes and rivers exclusively, while there are others, such as the steelhead, a form of the coastal rainbow trout, that can spend two or three years at sea before returning to fresh water to spawn (a habit more typical of salmon). Arctic char and brook trout are part of the char genus. Trout are an important food source for humans and wildlife, including brown bears, birds of prey such as eagles, and other animals. They are classified as oily fish.</p>	non-toxic

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	5. Click “Upload” button on the Fish Detection page (UI-03).
Test Steps	 <p>6. Selects an image 7. Click “Upload new image” button</p> 

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ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 04	<p>5. Click “Upload” button on the Fish Detection page (UI-03).</p> <p>6. Selects an image (Red Mullet)</p>	<p>Test whether the system can allow users to select images to upload.</p> <p>Test whether the system can analyze the uploaded images to generate relevant reports.</p> <p>Test that the system interacts as described in the SRS documentation.</p>	<p>Tester can select and upload pictures, and the system displays a progress bar while analyzing the pictures.</p> <p>When the system analysis is complete, the progress bar disappears, and the selected uploaded image (Red Mullet) is displayed in the current image.</p> <p>At the same time, the system pops up a prompt to inform the user that the analysis is complete, and the related report of Red Mullet is generated.</p> <p>The report should show all information related to Red Mullet, including Fish Category, Description, Poison.</p>	<p>Tester can select and upload pictures, and the system displays a progress bar while analyzing the pictures.</p> <p>When the system analysis is complete, the progress bar disappears, and the selected uploaded image (Red Mullet) is displayed in the current image.</p> <p>At the same time, the system pops up a prompt to inform the user that the analysis is complete, and the related report of Red Mullet is generated.</p> <p>The report should show all information related to Red Mullet, including Fish Category, Description, Poison.</p>	Pass

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System Test Case 005 (STC-005):

Test Description	Test for UC-04, UC-05, UC-06
	<ul style="list-style-type: none"> • System test for Image Detection (Feature#02). • System test for Report Generation (Feature#03).
	Test whether the system can identify nine different species of fish and give the correct corresponding report.
Prerequisite	The user has successfully logged in and is on the Fish Detection page (UI-03).

*STC-04 has been completed for 2 fish species and the remaining 7(Striped Red Mullet, Shrimp, Sea bass, Red seabream, Horse mackerel, Gilt-head bream, Black Sea sprat) untested species are tested here. And STC-04 has been tested interactively. This system test only considers whether the system can make correct species predictions and generate correct reports for the other seven fish species pictures.

Prepared Data:

ID	Fish category	Image
8.	Striped Red Mullet	 01/01/2006
9.	Shrimp	 01/01/2006

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10.	Sea Bass		
11.	Red Sea Bream	 01/01/2006	
12.	Horse Mackerel		
13.	Gilt-head bream	 05/04/2019	
14.	Black Sea Sprat		

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Fish Category	Description	Poison
Striped Red Mullet	<p>The striped red mullet or surmullet (<i>Mullus surmuletus</i>) is a species of goatfish found in the Mediterranean Sea, eastern North Atlantic Ocean, and the Black Sea. They can be found in water as shallow as 5 meters (16 ft) or as deep as 409 meters (1,342 ft) depending upon the portion of their range that they are in. This species can reach a length of 40 centimetres (16 in) SL though most are only around 25 centimetres (9.8 in). The greatest recorded weight for this species is 1 kilogram (2.2 lb). This is a commercially important species and is also sought after as a game fish.</p> <p><i>Mullus barbatus</i> and it are commonly called "red mullets" and often are not distinguished, though they can be told apart by the striped first dorsal fin of <i>M. surmuletus</i>.</p> <p>Despite its English name, the striped red mullet, of the goatfish family Mullidae, is only very distantly related to the grey mullet and other species called "mullet", classified in their own separate order and family.</p>	non-toxic
Shrimp	<p>Shrimp are decapod crustaceans with elongated bodies and a primarily swimming mode of locomotion – most commonly Caridea and Dendrobranchiata. More narrow definitions may be restricted to Caridea, to smaller species of either group or to only the marine species. Under a broader definition, shrimp may be synonymous with prawn, covering stalk-eyed swimming crustaceans with long, narrow muscular tails (abdomens), long whiskers (antennae), and slender legs. Any small crustacean which resembles a shrimp tends to be called one. They swim forward by paddling with swimmerets on the underside of their abdomens, although their escape response is typically repeated flicks with the tail driving them backwards very quickly. Crabs and lobsters have</p>	non-toxic

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	<p>strong walking legs, whereas shrimp have thin, fragile legs which they use primarily for perching.</p> <p>Shrimp are widespread and abundant. There are thousands of species adapted to a wide range of habitats. They can be found feeding near the seafloor on most coasts and estuaries, as well as in rivers and lakes. To escape predators, some species flip off the seafloor and dive into the sediment. They usually live from one to seven years. Shrimp are often solitary, though they can form large schools during the spawning season.</p> <p>They play important roles in the food chain and are an important food source for larger animals ranging from fish to whales. The muscular tails of many shrimp are edible to humans, and they are widely caught and farmed for human consumption. Commercial shrimp species support an industry worth 50 billion dollars a year, and in 2010 the total commercial production of shrimp was nearly 7 million tonnes. Shrimp farming became more prevalent during the 1980s, particularly in China, and by 2007 the harvest from shrimp farms exceeded the capture of wild shrimp. There are significant issues with excessive bycatch when shrimp are captured in the wild, and with pollution damage done to estuaries when they are used to support shrimp farming. Many shrimp species are small as the term shrimp suggests, about 2 cm (0.79 in) long, but some shrimp exceed 25 cm (9.8 in). Larger shrimp are more likely to be targeted commercially and are often referred to as prawns, particularly in Britain.</p>	
Sea bass	<p>Sea bass is a common name for a variety of different species of marine fish. Many fish species of various families have been called sea bass.</p> <p>In Ireland and the United Kingdom, the fish sold and consumed as sea bass is exclusively the European bass,</p>	non-toxic

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	Dicentrarchus labrax.[1] Sometimes referred to as sea bass include the following: Family Serranidae Genus Paralabrax Barred sand bass (<i>Paralabrax nebulifer</i>) lives mainly off the coast of California. Genus Centropristes Black sea bass (<i>Centropristes striata</i>) is found on the East Coast of the United States. Genus Caesioperca Butterfly perch (<i>Caesioperca Lepidoptera</i>) is found in the eastern Indian Ocean and the southwest Pacific Ocean, including southern Australia and New Zealand. Genus Caprodon Pink maomao (<i>Caprodon longimanus</i>) is found in the eastern Indian Ocean and the southern Pacific Ocean, including Australia and New Zealand. Genus Epinephelus Potato cod (<i>Epinephelus tukula</i>), also known as the potato bass or potato grouper, is a large reef fish found in the Indian and Pacific Oceans. Dusky grouper (<i>Epinephelus marginatus</i>) Dogtooth grouper (<i>Epinephelus caninus</i>) Genus Hypoplectrodes Redbanded perch (<i>Hypoplectrodes huntii</i>) is found in southeastern Australia and the North Island and northern South Island of New Zealand. Genus Trachypoma Toadstool groper (<i>Trachypoma macracanthus</i>) is found in the southwest Pacific Ocean. Genus Serranus <i>Serranus cabrilla</i> (Comber) (Linnaeus, 1758) <i>Serranus scriba</i> (Painted comber) (Linnaeus, 1758)	
Red seabream		non-toxic

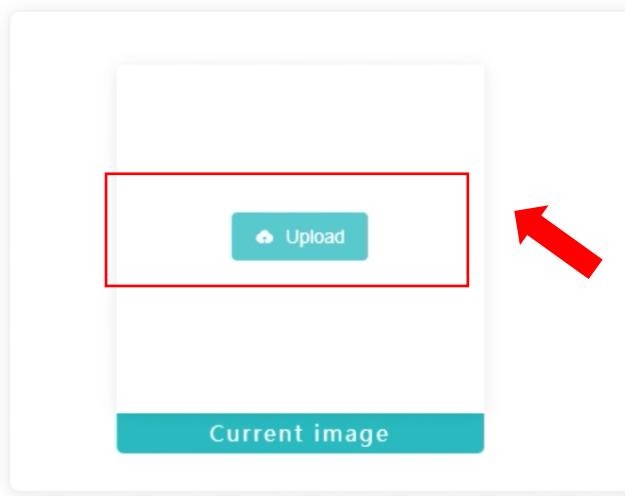
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	<p>Red seabream is a name given to at least two species of fish of the family Sparidae, <i>Pagrus major</i> and <i>Pagellus bogaraveo</i>.</p> <p><i>Pagrus major</i> is of great culinary and cultural importance in Japan, and is known as Tai in Japanese. It is considered an auspicious fish, eaten during Japanese New Year and other special occasions, such as weddings. It is also eaten in Taiwan and Korea, where it is known as chamdom.</p>	
Horse mackerel	<p>Horse mackerel is a vague vernacular term for a range of species of fish throughout the English-speaking world. It is commonly applied to pelagic fishes, especially of the Carangidae (jack mackerels and scads) family, most commonly those of the genera <i>Trachurus</i> or <i>Caranx</i>.</p> <p>Species known as "horse mackerel" in one English dialect or another include:</p> <ul style="list-style-type: none"> <i>Alectis indicus</i>, Indian threadfish (Malaysia) <i>Caranx cryos</i>, blue runner (Guadeloupe, Martinique) <i>Caranx hippos</i>, Crevalle jack (Guyana, India) <i>Megalaspis cordyla</i>, torpedo scad (India) <i>Naucrates ductor</i>, pilot fish <i>Sarda australis</i>, Australian bonito (Australia) various saurel of the Pacific coast of the Americas <i>Selar crumenophthalmus</i>, bigeye (India) <i>Trachurus capensis</i>, cape horse mackerel (South Africa) <i>Trachurus declivis</i>, greenback horse mackerel (Australia) <i>Trachurus japonicus</i>, Japanese horse mackerel (Japan) <i>Trachurus novaezelandiae</i>, yellowtail horse mackerel (New Zealand) <i>Trachurus trachurus</i>, Atlantic horse mackerel (United Kingdom, Ireland) 	non-toxic
Gilt-head bream	<p>The Gilt-head (sea) bream (<i>Sparus aurata</i>), known as Orata in antiquity and still today in Italy and Tunisia (known as "Dorada" in Spain, "Dourada" in Portugal and "Dorade Royale" in France), is a fish of the bream family Sparidae found in the Mediterranean Sea and the eastern</p>	non-toxic

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	<p>coastal regions of the North Atlantic Ocean. It commonly reaches about 35 centimetres (1.15 ft) in length, but may reach 70 cm (2.3 ft) and weigh up to about 7.36 kilograms (16.2 lb).</p> <p>The gilt-head bream is generally considered the best-tasting of the breams. It is the single species of the genus <i>Sparus</i> – the Latin name for this fish – which has given the whole family of Sparidae its name. Its specific name, <i>aurata</i>, derives from the gold bar marking between its eyes.</p> <p>The genome of the species was released in 2018, where the authors detected fast evolution of ovary-biased genes likely resulting from the peculiar reproduction mode of the species.</p>	
Black Sea sprat	<p>The Black Sea sprat, <i>Clupeonella cultriventris</i>, is a small fish of the herring family, Clupeidae. It is found in the Black Sea and Sea of Azov and rivers of its basins: Danube, Dnister, Dnipro (Ukraine), Southern Bug, Don, Kuban. It has white-grey flesh and silver-grey scales. A typical size is 10 cm (maximum 15 cm). The life span is of up to 5 years. The peak of its spawning is in April and it can be found in enormous shoals in sea-shores, filled all-round coastal shallows, moving quickly back in the sea at a depth of 6–30 metres. Used for food; it has around 12% fat in flesh.</p> <p>It is one of the most abundant fishes in the Sea of Azov. It is important prey for other fishes, particularly the pikeperch.</p> <p>The Caspian tyulka <i>Clupeonella caspia</i> has been long considered a subspecies of <i>C. cultriventris</i>, <i>C. cultriventris caspia</i>, and a common name "Black and Caspian Sea sprat" was then applied to the whole.</p>	non-toxic

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	3. Click “Upload” button on the Fish Detection page (UI-03).
Test Steps	
	4. Selects an image

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ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 04.1	3. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	The system displays reports related to Striped Red Mullet.	The system displays reports related to Striped Red Mullet.	Pass
	4. Selects an image (Striped Red Mullet)				

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 04.2	3. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	The system displays reports related to Shrimp.	The system displays reports related to Shrimp.	Pass
	4. Selects an image (Shrimp)				

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ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 04.3	3. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	The system displays reports related to Sea bass.	The system displays reports related to Sea bass.	Pass
	4. Selects an image (Sea bass)				

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 04.4	3. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	The system displays reports related to Red Sea Bream.	The system displays reports related to Red Sea Bream.	Pass
	4. Selects an image (Red Sea Bream)				

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ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 04.2	1. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	The system displays reports related to Horse Mackerel.	The system displays reports related to Horse Mackerel.	Pass
	2. Selects an image (Horse Mackerel)				

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 04.6	3. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	The system displays reports related to Gilt-head bream.	The system displays reports related to Gilt-head bream.	Pass
	4. Selects an image (Gilt-head bream)				

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ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 04.6	5. Click “Upload” button on the Fish Detection page (UI-03).	Test whether the system can correctly classify the image. And whether the report displayed by the system is correct.	The system displays reports related to Black Sea Sprat.	The system displays reports related to Black Sea Sprat.	Pass
	3. Selects an image (Black Sea Sprat)				

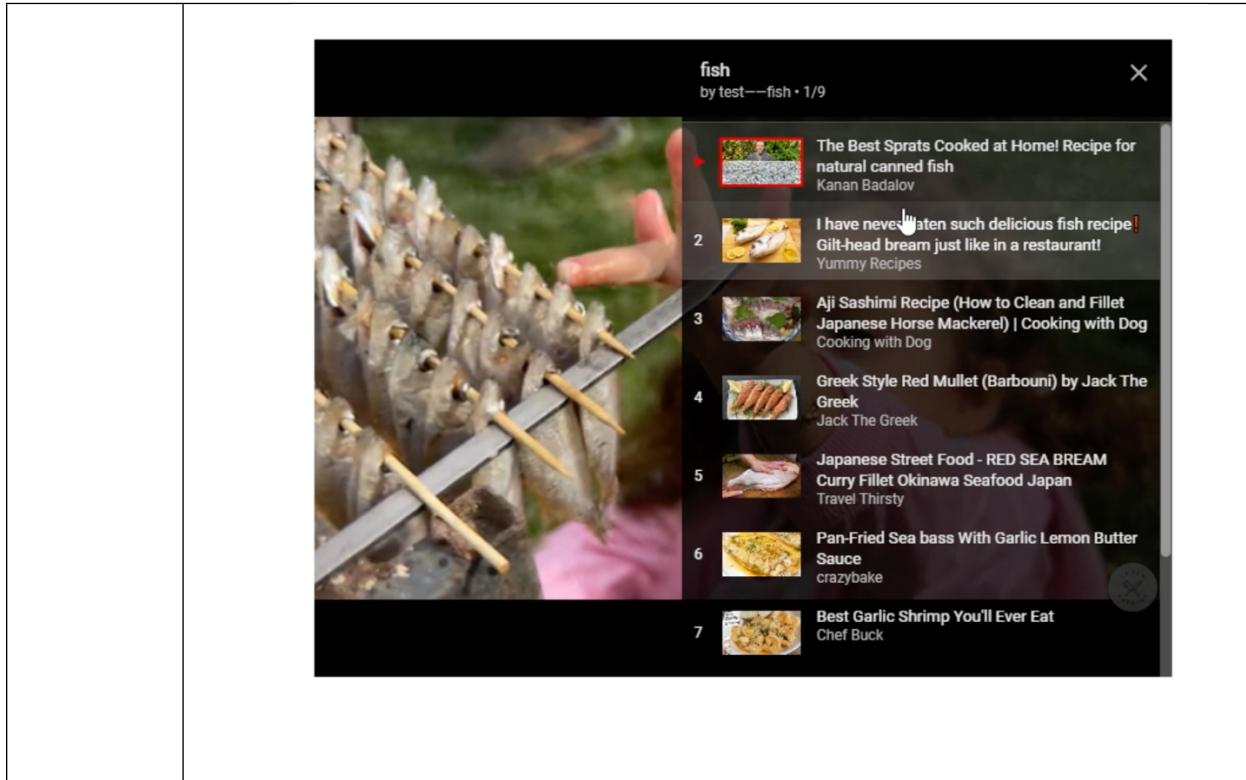
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System Test Case 006 (STC-006):

Test Description	Test for UC-07
	System test for Show fish related video (Feature#04).
	Test whether the system can display cooking videos of 9 fish species.
Prerequisite	The user has successfully logged in and is on the Fish Detection page (UI-03).

Test Steps	1.Click on the playlist button on the video on the Fish Detection page (UI-03). 
	2.Click on the videos in the playlist in turn.

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ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 06	11. Click on the playlist button on the video on the Fish Detection page (UI-03).	Test whether the video can play or not.	The video can be played.	The video can be played.	Pass
	12. Click on the 1 st video.		The video can be played.	The video can be played.	Pass
	13. Click on the 2 nd video.		The video can be played.	The video can be played.	Pass
	14. Click on the 3 rd video.		The video can be played.	The video can be played.	Pass
	15. Click on the 4 th video.		The video can be played.	The video can be played.	Pass
	16. Click on the 5 th video.		The video can be played.	The video can be played.	Pass
	17. Click on the 6 th video.		The video can be played.	The video can be played.	Pass
	18. Click on the 7 th video.		The video can be played.	The video can be played.	Pass

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	19. Click on the 8 th video.		The video can be played.	The video can be played.	Pass
	20. Click on the 9 th video.		The video can be played.	The video can be played.	Pass

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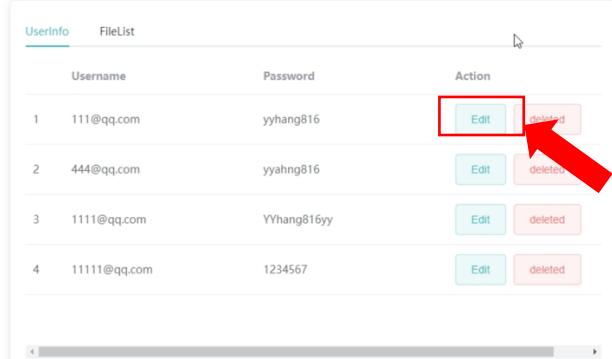
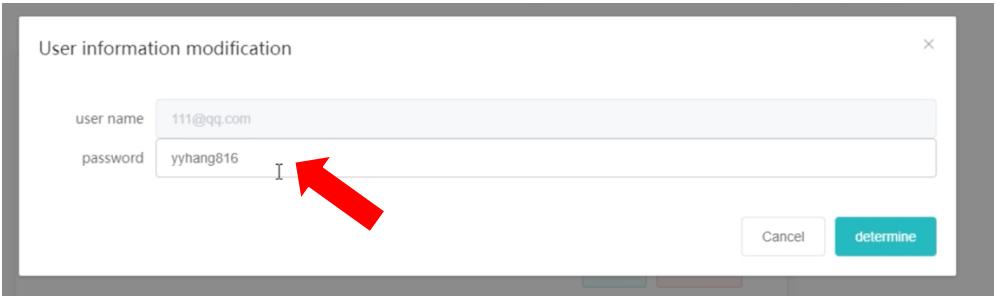
System Test Case 007 (STC-007):

Test Description	Test for UC-02, UC-03, UC-08
	System test for Dashboard (Feature#05).
	Test whether the administrator can update the user password on the Dashboard page (UI-04).
Prerequisite	The administrator has successfully logged in and is on the Dashboard page (UI-04).

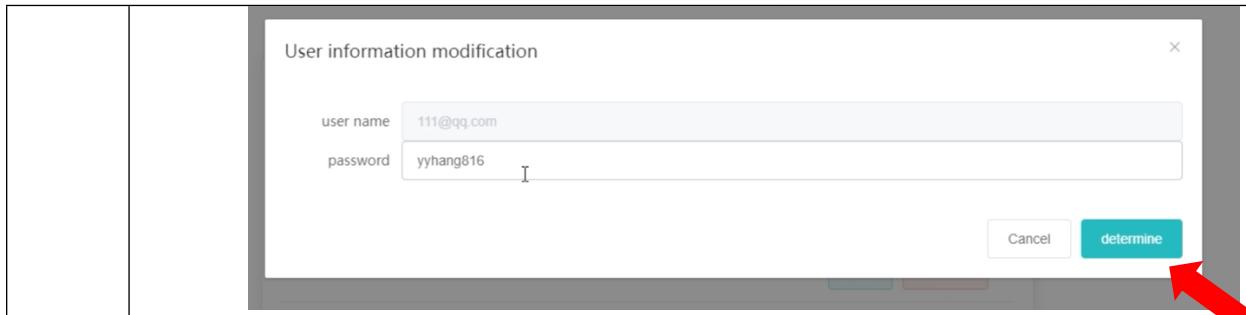
Prepared Data:

A redigested user information

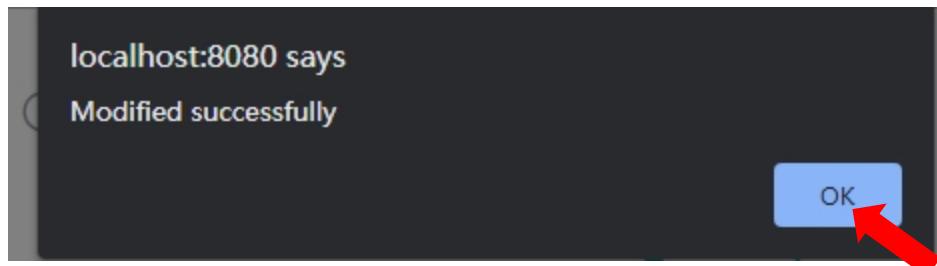
Email	111@qq.com
Password	Yyhang816

Test Steps	9. Click the "Edit" button next to the user whose password you want to update.
	
	10. Enter the password that needs to be updated.
	
	11. Click the "determine" button on the "User information modification" Pop-up box.

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12. Click “OK” button.



13. Logout

14. Use the old password to log in.

15. Use the updated password to log in.

16. Use SQLiteStudio checks whether the back-end database have recorded Registered data modified.

	userid	username	password
1	2	admin@admin.com	admin
2	7	1111@qq.com	YYhang816yy
3	8	11121@qq.com	yyhang816
4	10	yang@qq.com	1111
5	11	1234@qq.com	1234
6	12	1234test@qq.com	12345
7	13	1111test@qq.com	1234
8	14	1212test@gmail.com	1234
9	15	project@gmail.com	1234

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Test normal flow

c	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 07.1	9. Click the "Edit" button next to the user whose password you want to update	Test that whether the system can update the user's password or not.	The system displays the "User information modification" pop-up box. This pop-up box displays the user's email address and password, where the password can be modified.	The system displays the "User information modification" pop-up box. This pop-up box displays the user's email address and password, where the password can be modified.	Pass
	10. Enter the password that needs to be updated.		The system pops up a prompt showing “Modified Successfully”.	The system pops up a prompt showing “Modified Successfully”.	pass.
	11. Click the "determine" button on the "User information modification" Pop-up box.		The "Modified Successfully"	The "Modified Successfully"	pass
	12. Click “OK” button.				

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			prompt disappears.	prompt disappears.	
			The system automatically updates to display the new password of the user being changed.	The system automatically updates to display the new password of the user being changed.	
13. Logout			The system redirects to the Login page (UI-01).	The system redirects to the Login page (UI-01).	pass
14. Use the old password to log in.	Test if the user can log in with the old password.		The system shall pop up a prompt box, showing “Account password error”.	The system shall pop up a prompt box, showing “Account password error”.	pass
15. Use the update password to log in.	Test if the user can log in with the update password.		The system redirects to the Fish Detection page (UI-04).	The system redirects to the Fish Detection page (UI-04).	pass

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	16. Use SQLiteStudio checks whether the back-end database have recorded Registered data modified	Test whether the modified data is recorded in the database and has been modified	The password data in the database has been modified to the data just modified by the administrator	The password data in the database has been modified to the data just modified by the administrator	pass
--	--	--	--	--	------

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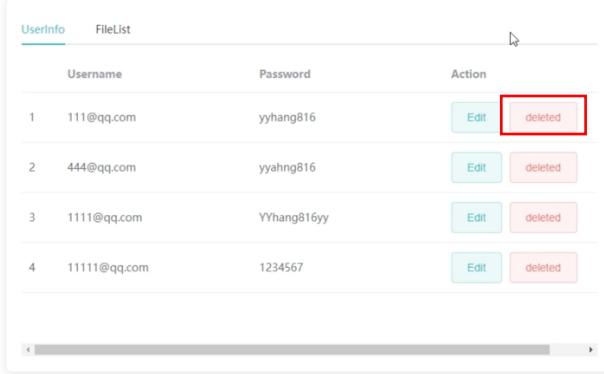
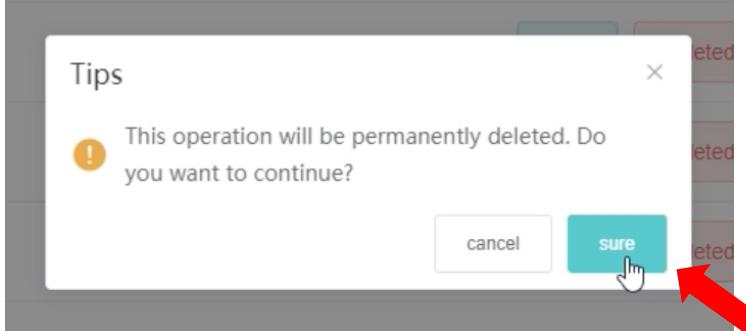
System Test Case 008 (STC-008):

Test Description	Test for UC-09
	System test for Dashboard (Feature#05).
	Test whether the administrator can delete the user on the Dashboard page (UI-04).
Prerequisite	The administrator has successfully logged in and is on the Dashboard page (UI-04).

Prepared Data:

A redigested user information

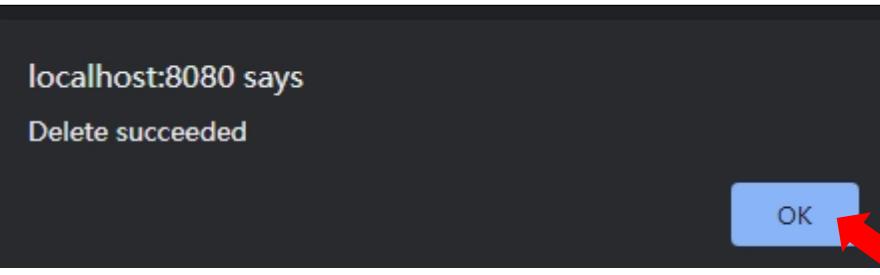
Email	Mk419@gmail.com
Password	Mk419

Test Steps	7. Click the “Deleted” button for the user you want to delete.
	
	8. Click the “sure” button in the prompt box. 
	9. Click the “OK” button in the prompt box.

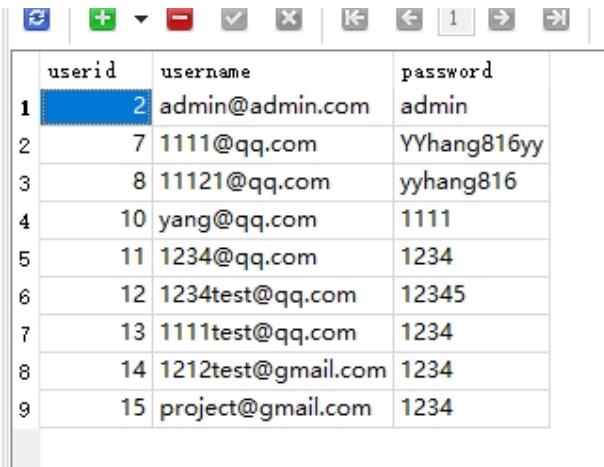
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localhost:8080 says
Delete succeeded

OK



10. Logout
 11. Login with old account
 12. Use SQLiteStudio checks whether the back-end database have recorded Registered data modified.



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Test normal flow:

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 08.1	7. Click the “Deleted” button for the user you want to delete.	Test whether the system can delete users.	The system pops up a prompt box showing "This operation will be permanently deleted. Do you want to continue?"	The system pops up a prompt box showing "This operation will be permanently deleted. Do you want to continue?"	Pass
	8. Click the “sure” button in the prompt box.		The system prompts “Delete Succussed”	The system prompts “Delete Succussed”	Pass
	9. Click the “OK” button in the prompt box.		The system will automatically update, and the deleted user information will disappear.	The system will automatically update, and the deleted user information will disappear.	Pass
	10. Logout	Test whether the user can still log in after being deleted.	The system redirects to the Login page (UI-01).	The system redirects to the Login page (UI-01).	Pass
	11. Login with old account		The system shall pop up a prompt box, showing “Account password error”.	The system shall pop up a prompt box, showing “Account password error”.	Pass.

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	12. Use SQLiteStudio checks whether the back-end database have recorded Registered data modified.	Test whether the password just deleted by the administrator has been successfully deleted in the database	The account just deleted by the administrator has been removed from the database	The account just deleted by the administrator has been removed from the database	Pass.
--	---	---	--	--	-------

Test alternative flow:

ID	Action	Description	Expected Result	Actual Result	Fail/Pass
STC - 08.2	3. Click the “Deleted” button for the user you want to delete.	Test whether the system can delete users.	The system pops up a prompt box showing "This operation will be permanently deleted. Do you want to continue?"	The system pops up a prompt box showing "This operation will be permanently deleted. Do you want to continue?"	Pass
	4. Click the “cancel” button in the prompt box.		The system prompts “Already canceled”	The system prompts “Already canceled”	Pass

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Chapter 7

Traceability Record

Fish information detection software

Traceability Record

By

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Project Advisor

Jayakrit Hirisajja

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Purpose

The purpose of the Traceability Record document is the link the requirements throughout the validation process. The purpose of the Requirements Traceability Matrix is to ensure that all requirements defined for the Fish information detection software system are tested in the test protocols.

Scope

The Traceability Record document describes the relationship between the user requirement specification, system requirement specification, use case, sequence diagram, user interface, and unit test case.

Acronyms

URS - User Requirement Specification
 SRS - System Requirement Specification
 UC - Use case
 AD - Activity Diagram
 MD - Method Description
 SD - Sequence Diagram
 UI - User Interface
 UTC - Unit Test Case
 STC - System Test Case

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URS-UC

Fish information detection software									
	UC-01	UC-02	UC-03	UC-04	UC-05	UC-06	UC-07	UC-08	UC-09
URS-01									
URS-02									
URS-03									
URS-04									
URS-05									
URS-06									
URS-07									
URS-08									
URS-09									

URS-SRS

Fish information detection software																
	SRS-001	SRS-002	SRS-003	SRS-004	SRS-005	SRS-006	SRS-007	SRS-008	SRS-009	SRS-010	SRS-011	SRS-012	SRS-013	SRS-014	SRS-015	SRS-016
URS-01																
URS-02																

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URS-SRS2

Fish information detection software																	
	SRS-017	SRS-018	SRS-019	SRS-020	SRS-021	SRS-022	SRS-023	SRS-024	SRS-025	SRS-026	SRS-027	SRS-028	SRS-029	SRS-030	SRS-031	SRS-032	
URS-03																	
URS-04																	
URS-05																	
URS-06																	

URS-SRS3

Fish information detection software																	
	SRS-033	SRS-034	SRS-035	SRS-036	SRS-037	SRS-038	SRS-039	SRS-040	SRS-041	SRS-042	SRS-043						
URS-07																	
URS-08																	
URS-09																	

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URS-AD

Fish information detection software					
	AD-01	AD-02	AD-03	AD-04	AD-05
URS-01					
URS-02					
URS-03					
URS-04					
URS-05					
URS-06					
URS-07					
URS-08					
URS-09					

URS-AI

Fish information detection software					
	UI-01	UI-02	UI-03	UI-04	UI-05
URS-01					
URS-02					
URS-03					
URS-04					
URS-05					
URS-06					
URS-07					
URS-08					
URS-09					

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UTC-SRS

Fish information detection software				
UTC-01	SRS-28			
UTC-02	SRS-30			
UTC-03	SRS-29	SRS-31		
UTC-04	SRS-06	SRS-07	SRS-08	SRS-10
UTC-05	SRS-16			

URS-STC

Fish information detection software								
	STC-01	STC-02	STC-03	STC-04	STC-05	STC-06	STC-07	STC-08
URS-01								
URS-02								
URS-03								
URS-04								
URS-05								
URS-06								
URS-07								
URS-08								
URS-09								

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Summary

N0.	URS	UC	AD	UI			SRS										
1	URS-01	UC-01	AD-01	UI-02			SRS-001	SRS-002	SRS-003	SRS-004	SRS-005	SRS-006	SRS-007	SRS-008	SRS-009	SRS-010	
2	URS-02	UC-02	AD-01	UI-01			SRS-011	SRS-012	SRS-013	SRS-014	SRS-015	SRS-016					
3	URS-03	UC-03	AD-03	UI-03	UI-04	UI-05	SRS-017	SRS-018									
4	URS-04	UC-04	AD-04	UI-03			SRS-019	SRS-020	SRS-021	SRS-022	SRS-023						
5	URS-05	UC-05	AD-05	UI-03			SRS-024	SRS-025	SRS-026	SRS-027	SRS-028	SRS-029					
6	URS-06	UC-06	AD-06	UI-03			SRS-030	SRS-031	SRS-032								
7	URS-07	UC-07	AD-07	UI-03			SRS-033	SRS-034									
8	URS-08	UC-08	AD-08	UI-04	UI-05		SRS-035	SRS-036	SRS-037	SRS-038	SRS-039	SRS-040					
9	URS-09	UC-09	AD-09	UI-04	UI-05		SRS-041	SRS-042	SRS-043								

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Chapter 8

Change Request

Fish information detection software

Change Request

By

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Jayakrit Hirisajja

Change Request

Project	Fish information detection Software	Date	August 20 th 2022		
Change Requestor	YANHANG YANG	Change No.	1		
Type of Change	() Bug <input checked="" type="checkbox"/> Change <input type="checkbox"/> Add				
Type of Change	Change the UI design and change the content of the prototype in the proposal				
Reason of Change	The UI designed in the prototype cannot be well implemented in webapp, and other UI interfaces are used instead				
Effect / Impact					
Time estimation	-				
Impact to requirement/design/test	Change UI design				
Impact to module	-				
Other impacts	-				
Approval	<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Not Approved				
Approval by	Dr. Jayakrit Hirisajja				
Date	August 21 th 2022				

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Change Request

Project	Fish information detection Software	Date	August 20 th 2022
Change Requestor	YANHANG YANG	Change No.	2
Type of Change	<input type="checkbox"/> Bug <input checked="" type="checkbox"/> Change <input type="checkbox"/> Add		
Type of Change	Delete the function that the administrator can retrain and deploy the model on the web page		
Reason of Change	The webapp uses a model that has been trained and encapsulated into an API, so it is impossible to change the content of the model at the front end		
Effect / Impact			
Time estimation	-		
Impact to requirement/design/test	Delete the method of retraining and deploying the model on the web page		
Impact to module	-		
Other impacts	-		
Approval	<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Not Approved		
Approval by	Dr. Jayakrit Hirisajja		
Date	August 21 th 2022		

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Change Request

Project	Fish information detection Software	Date	August 20 th 2022		
Change Requestor	YANHANG YANG	Change No.	3		
Type of Change	() Bug <input checked="" type="checkbox"/> Change () Add				
Type of Change	Delete the function of show the fish recent price				
Reason of Change	Unfortunately, we can't find such an API to display the price of these fish, and we don't want to display this data through fraud				
Effect / Impact					
Time estimation	-				
Impact to requirement/design/test	Delete the method of show the fish recent price				
Impact to module	-				
Other impacts	-				
Approval	<input checked="" type="checkbox"/> Approval () Not Approved				
Approval by	Dr. Jayakrit Hirisajja				
Date	August 21 th 2022				

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Change Request

Project	Fish information detection Software	Date	August 20 th 2022		
Change Requestor	YANHANG YANG	Change No.	4		
Type of Change	() Bug <input checked="" type="checkbox"/> Change () Add				
Type of Change	Change proposal content				
Reason of Change	Change the content of the proposal according to the content of the above change request				
Effect / Impact					
Time estimation	-				
Impact to requirement/design/test	-				
Impact to module	-				
Other impacts	-				
Approval	<input checked="" type="checkbox"/> Approval () Not Approved				
Approval by	Dr. Jayakrit Hirisajja				
Date	August 21 th 2022				

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Chapter 9

Executive Summar

Fish information detection software

Executive Summary

By

Yanhong Yang 622115513

Dian Jin 622115503

Department of Software Engineering
College of Arts, Media and Technology
Chiang Mai University

Project Advisor

Jayakrit Hirisajja

Document History

History	Status	Date	Viewable	Editable	Responsible
Add <ul style="list-style-type: none"> • Proposal • Milestone Deliverable • Features in Project • Summary Report 	Draft	June, 18 th 2022	YYH, DJ JH	YYH, DJ	YYH, DJ
Update <ul style="list-style-type: none"> • Proposal • Milestone Deliverable • Features in Project • Summary Report 	Draft	August, 20 th 2021	YYH, DJ JH	YYH, DJ	YYH, DJ
Update <ul style="list-style-type: none"> • Proposal • Milestone Deliverable • Features in Project • Summary Report 	Draft	October, 20 th 2022	YYH, DJ JH	YYH, DJ	YYH, DJ

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Fish information detection software

Executive Summary

Proposal

In this progress, we had meeting with the project advisor, discussing to define the scope of the project, the alternative solutions, development plan, deliverables, and the schedule of the project.

We established documents including : project plan, software design document, software requirement specification, test plan, and traceability record . And we also implemented the software covering all features in this progress, which are

- Feature#01: Fish image recognition
- Feature#02: Fish report generation
- Feature#03: Administrator dashboard
- Feature#04: Show fish related videos
- Feature#05: Sign up for the system
- Feature#06: Login system

Project Name: Fish information detection software					
Create By:	Date	Reporting Progress			
YYH, DJ	26/10/2022	Redemption progress			
Project Overall Status					
Milestone Deliverables performance reporting					
Milestone	Due Date	%Complete	Deliverable Status		
Proposal	19/05/2022	100%	On Schedule		
Progress 1	07/07/2022	100%	On Schedule		
Progress 2	22/09/2022	100%	On Schedule		
Redemption progress	23/10/2022	100%	On Schedule		

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Feature in project

Features	Feature name	Status
1	Fish image recognition	Complete
2	Fish report generation	Complete
3	Administrator dashboard	Complete
4	Show fish related videos	Complete
5	Sign up for the system	Complete
6	Login system	Complete

Summary Report

Document/Program	Version	Status
Proposal	V.3.0	100% Complete
Project Plan	V.3.0	100% Complete
SRS	V.3.0	100% Complete
Software Design	V.3.0	100% Complete
Test Plan	V.3.0	100% Complete
Test Record	V.3.0	100% Complete
Traceability	V.3.0	100% Complete
Executive Summary	V.3.0	100% Complete
Coding	V.1.0	100% Complete

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After the project

What we learned?

First of all, in the software part, we learned knowledge about machine learning, including model types and names, training models, encapsulation models, and call models. As well as being proficient in how Django calls the model, and more proficient in the writing and operation of VUE.js

We learned more about the documentation in this project. Under the guidance of professors many times, we learned how to make a document in a more standardized way. Including font, cover making, document history, and a more standardized layout of documents

In our SOFTWARE REQUIREMENT document, we were pointed out by the teacher that many SRS is not a function. This means that we need to make the SRS of previous documents more functional (according to the teacher's opinion, we have no calculation SRS or calculation SRS). Later, we followed the comments and improved our document. We learned the meaning of SRS. SRS is a description of how applications interact with system hardware and users in various situations. Therefore, we have modified the SRS to describe the interaction between the system and the user as well as the hardware (database interaction, more user interaction) and refine some SRS descriptions to make them conform to correct and standard descriptions

In our TEST document, we found that the original Unit test was few and did not describe the control data of the computer program, and after we update the SRS, we need more unit tests to verify the updated SRS so we added and modified the Unit test to describe what the system would do when some SRS was triggered, as well as the data generated by the code, It includes the code of the interaction part with the database, as well as the code of the acquisition and output result part with the model to make it more consistent with the meaning of the unit test. In the system test, we also add the description and test of database changes in SOFTWARE REQUIREMENT. In the system test, we found that the previous documents were also lacking in database testing, so we used sqlitestudio to visualize the database. Add descriptions of database changes (add, delete, modify, verify) and multiple tests in the SOFTWARE REQUIREMENT document

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REFERENCE

[1] Chen, Allen A R. Fish species recognition by shape analysis of images[J]. Pattern Recognition, 1990, 23(5): 539-544

[2] Larsen R, Olafsdottir H, et al. Shape and texture based classification of fish species[J]. Image Analysis. 2009. 5575: 745-749

[3] Huang P X, Boom B J et al. Underwater fish recognition using a balance-guaranteed optimized tree[C], Asian Conference on Computer Vision, 2012.

[4] ResNet 详解:

https://blog.csdn.net/qq_45649076/article/details/120494328

[5] Residual Networks, ResNets:

<https://blog.csdn.net/CVAILD/article/details/105979961>

[6] Introduction to PyTorch:

<https://towardsdatascience.com/introduction-to-py-torch-13189fb30cb3>

[7] Django (web framework):

[https://en.wikipedia.org/wiki/Django_\(web_framework\)](https://en.wikipedia.org/wiki/Django_(web_framework))

[8] Introduction What is Vue.js?:

<https://v2.vuejs.org/v2/guide/>

APPENDICES

Appendix A

Test data for UTC-01

Picture Label: Trout



Picture Label: Black Sea Sprat



Picture Label: Gilt Head Bream



Test data for UTC-02

Picture Label: Trout



Picture Label: Black Sea Sprat



Picture Label: Gilt Head Bream



Test data for UTC-03

Description file: backend\fish_description\Trout.txt

Trout are species of freshwater fish belonging to the genera *Oncorhynchus*, *Salmo* and *Salvelinus*, all the subfamily Salmonidae of the family Salmonidae. The word trout is also used as part of the name of some non-salmonid fish such as *Cynoscion nebulosus*, the spotted seatrout, or speckled trout.

Trout are closely related to salmon and char (or charr): species termed salmon and char occur in the same genera as do fish called trout (*Oncorhynchus* – Pacific salmon and trout, *Salmo* – Atlantic salmon and various trout, *Salvelinus* – char and trout).

Lake trout and most other trout live in freshwater lakes and rivers exclusively, while there are others, such as the steelhead, a form of the coastal rainbow trout, that can spend two or three years at sea before returning to fresh water to spawn (a habit more typical of salmon). Arctic char and brook trout are part of the char genus. Trout are an important food source for humans and wildlife, including brown bears, birds of prey such as eagles, and other animals. They are classified as oily fish.

Description file: back-end\fish_description\Striped_Red_Mullet.txt

The striped red mullet or surmullet (*Mullus surmuletus*) is a species of goatfish found in the Mediterranean Sea, eastern North Atlantic Ocean, and the Black Sea. They can be found in water as shallow as 5 meters (16 ft) or as deep as 409 meters (1,342 ft) depending upon the portion of their range that they are in. This species can reach a length of 40 centimetres (16 in) SL though most are only around 25 centimetres (9.8 in). The greatest recorded weight for this species is 1 kilogram (2.2 lb). This is a commercially important species and is also sought after as a game fish.

Mullus barbatus and it are commonly called "red mullets" and often are not distinguished, though they can be told apart by the striped first dorsal fin of *M. surmuletus*.

Despite its English name, the striped red mullet, of the goatfish family Mullidae, is only very distantly related to the grey mullet and other species called "mullet", classified in their own separate order and family.

Description file: back-end\fish_description\Shrimp.txt

Shrimp are decapod crustaceans with elongated bodies and a primarily swimming mode of locomotion – most commonly Caridea and Dendrobranchiata. More narrow definitions may be restricted to Caridea, to smaller species of either group or to only the marine species. Under a broader definition, shrimp may be synonymous with prawn, covering stalk-eyed swimming crustaceans with long, narrow muscular tails (abdomens), long whiskers (antennae), and slender legs. Any small crustacean which resembles a shrimp tends to be called one. They swim forward by paddling with swimmerets on the underside of their abdomens, although their escape response is typically repeated flicks with the tail driving them backwards very quickly. Crabs and lobsters have strong walking legs, whereas shrimp have thin, fragile legs which they use primarily for perching.

Shrimp are widespread and abundant. There are thousands of species adapted to a wide range of habitats. They can be found feeding near the seafloor on most coasts and estuaries, as well as in rivers and lakes. To escape predators, some species flip off the seafloor and dive into the sediment. They usually live from one to seven years. Shrimp are often solitary, though they can form large schools during the spawning season.

They play important roles in the food chain and are an important food source for larger animals ranging from fish to whales. The muscular tails of many shrimp are edible to humans, and they are widely caught and farmed for human consumption. Commercial shrimp species support an industry worth 50 billion dollars a year, and in 2010 the total commercial production of shrimp was nearly 7 million tonnes. Shrimp farming became more prevalent during the 1980s, particularly in China, and by 2007 the harvest from shrimp farms exceeded the capture of wild shrimp. There are significant issues with excessive bycatch when shrimp are captured in the wild, and with pollution damage done to estuaries when they are used to support shrimp farming. Many shrimp species are small as the term shrimp suggests, about 2 cm (0.79 in) long, but some shrimp exceed 25 cm (9.8 in). Larger shrimp are more likely to be targeted commercially and are often referred to as prawns, particularly in Britain.

Description file: back-end\fish_description\Sea_Bass.txt

Sea bass is a common name for a variety of different species of marine fish. Many fish species of various families have been called sea bass.

In Ireland and the United Kingdom, the fish sold and consumed as sea bass is exclusively the European bass, *Dicentrarchus labrax*.^[1] Sometimes referred to as sea bass include the following:

Family Serranidae

Genus Paralabrax

Barred sand bass (*Paralabrax nebulifer*) lives mainly off the coast of California.

Genus Centropristes

Black sea bass (*Centropristes striata*) is found on the East Coast of the United States.

Genus Caesioperca

Butterfly perch (*Caesioperca Lepidoptera*) is found in the eastern Indian Ocean and the southwest Pacific Ocean, including southern Australia and New Zealand.

Genus Caprodon

Pink maomao (*Caprodon longimanus*) is found in the eastern Indian Ocean and the southern Pacific Ocean, including Australia and New Zealand.

Genus Epinephelus

Potato cod (*Epinephelus tukula*), also known as the potato bass or potato grouper, is a large reef fish found in the Indian and Pacific Oceans.

Dusky grouper (*Epinephelus marginatus*)

Dogtooth grouper (*Epinephelus caninus*)

Genus Hypoplectrodes

Redbanded perch (*Hypoplectrodes huntii*) is found in southeastern Australia and the North Island and northern South Island of New Zealand.

Genus Trachypoma

Toadstool groper (*Trachypoma macracanthus*) is found in the southwest Pacific Ocean.

Genus Serranus

Serranus cabrilla (Comber) (Linnaeus, 1758)

Serranus scriba (Painted comber) (Linnaeus, 1758)

Description file: back-end\fish_description\Red_Sea_Bream.txt

Red seabream is a name given to at least two species of fish of the family Sparidae, *Pagrus major* and *Pagellus bogaraveo*.

Pagrus major is of great culinary and cultural importance in Japan, and is known as Tai in Japanese. It is considered an auspicious fish, eaten during Japanese New Year and other special occasions, such as weddings. It is also eaten in Taiwan and Korea, where it is known as chamdom

Description file: back-end\fish_description\Red_Mullet.txt

The red mullets or surmullets are two species of goatfish, *Mullus barbatus* and *Mullus surmuletus*, found in the Mediterranean Sea, east North Atlantic Ocean, and the Black Sea. Both "red mullet" and "surmullet" can also refer to the Mullidae in general.

Classification

Though they can easily be distinguished—*M. surmuletus* has a striped first dorsal fin—their common names overlap in many of the languages of the region. In English, *M. surmuletus* is sometimes called the striped red mullet. Despite the English name "red mullet", these fishes of the goatfish family Mullidae are not closely related to many other species called "mullet", which are members of the grey mullet family Mugilidae. The word "surmullet" comes from the French, and ultimately probably from a Germanic root "sor" 'reddish brown'.

Cultural impact

See also: Hecate § Sacred animals

Rouget et Anguille, by Édouard Manet (1864).

They are both favored delicacies in the Mediterranean, and in antiquity were "one of the most famous and valued fish". They are very similar, and cooked in the same ways. *M. surmuletus* is perhaps somewhat more prized. The ancient Romans reared them in ponds where they were attended and caressed by their owners, and taught to come to be fed at the sound of the voice or bell of the keeper. Specimens were sometimes sold for their weight in silver.

Pliny cites a case in which a large sum was paid for a single fish, and an extraordinary expenditure of time was lavished upon these slow-learning pets. Juvenal and other satirists descended upon the height to which the pursuit of this luxury was carried as a type of extravagance. The statesman Titus Annius Milo, exiled to Marseille in 52 B.C., joked that he would have no regrets as long as he could eat the delicious red mullet of Marseille.

Claudius Aelianus in his *On the Nature of Animals*, writes that the species is sacred to the Greek agricultural goddess Demeter. "At Eleusis it [the Red Mullet] is held in honour by the initiated, and of this honour two accounts are given. Some say, it is because it gives birth three times in a year; others, because it eats the Sea-Hare, which is deadly to man." The red mullet was also significant in the cult of the witch goddess Hecate.

Description file: back-end\fish_description\Hourse_Mackerel.txt

Horse mackerel is a vague vernacular term for a range of species of fish throughout the English-speaking world. It is commonly applied to pelagic fishes, especially of the Carangidae (jack mackerels and scads) family, most commonly those of the genera *Trachurus* or *Caranx*. Species known as "horse mackerel" in one English dialect or another include:

Alectis indicus, Indian threadfish (Malaysia)
Caranx cryos, blue runner (Guadeloupe, Martinique)
Caranx hippos, Crevalle jack (Guyana, India)
Megalaspis cordyla, torpedo scad (India)
Naucrates ductor, pilot fish
Sarda australis, Australian bonito (Australia)
various saurel of the Pacific coast of the Americas
Selar crumenophthalmus, bigeye (India)
Trachurus capensis, cape horse mackerel (South Africa)
Trachurus declivis, greenback horse mackerel (Australia)
Trachurus japonicus, Japanese horse mackerel (Japan)
Trachurus novaezelandiae, yellowtail horse mackerel (New Zealand)
Trachurus trachurus, Atlantic horse mackerel (United Kingdom, Ireland)

Description file: back-end\fish_description\Gilt-Head_Bream.txt

The Gilt-head (sea) bream (*Sparus aurata*), known as Orata in antiquity and still today in Italy and Tunisia (known as "Dorada" in Spain, "Dourada" in Portugal and "Dorade Royale" in France), is a fish of the bream family Sparidae found in the Mediterranean Sea and the eastern coastal regions of the North Atlantic Ocean. It commonly reaches about 35 centimetres (1.15 ft) in length, but may reach 70 cm (2.3 ft) and weigh up to about 7.36 kilograms (16.2 lb).

The gilt-head bream is generally considered the best-tasting of the breams. It is the single species of the genus *Sparus* – the Latin name for this fish – which has given the whole family of Sparidae its name. Its specific name, *aurata*, derives from the gold bar marking between its eyes.

The genome of the species was released in 2018, where the authors detected fast evolution of ovary-biased genes likely resulting from the peculiar reproduction mode of the species.

Description file: back-end\fish_description\Black_Sea_Sprat.txt

The Black Sea sprat, *Clupeonella cultriventris*, is a small fish of the herring family, Clupeidae. It is found in the Black Sea and Sea of Azov and rivers of its basins: Danube, Dnister, Dnipro (Ukraine), Southern Bug, Don, Kuban. It has white-grey flesh and silver-grey scales. A typical size is 10 cm (maximum 15 cm) The life span is of up to 5 years. The peak of its spawning is in April and it can be found in enormous shoals in sea-shores, filled all-round coastal shallows, moving quickly back in the sea at a depth of 6–30 metres. Used for food; it has around 12% fat in flesh.

Test data for UTC-04**Not registered:**

“Username”：“testproject@qq.com”,
“password”：“123456”

Registered:

“Username”：“1111@qq.com”,
“password”：“123456”

Test data for UTC-05**Type of actor: admin**

“Username”：“admin@admin.com”,
“password”：“admin”

Type of actor: user

“Username”：“1111@qq.com”,
“password”：“123456”

Appendix B

Test data for STC-01

Register account

Email:Dsgdkwg1@qq.com

Password:Yanhang123

Test data for STC-02

A registered email account:

Email:Jindian111@qq.com

An unregistered account information:

Email:Jindian222@qq.com

Password:jindian123

An incorrect format email:

Email:Iamjindian

Test data for STC-03

A registered user information:

Email:Yyh123@qq.com

Password:Yyh123456

An unregistered user information:

Email:Jidian5555@qq.com

Password:iamjindian123456

An incorrect email format:

Email:123456

An administrator information:

Email:admin@admin.com

Password:admin

Test data for STC-04**Fish image:****(Red Mullet)****Fish image:****(Trout)****Test data for STC-05****Striped Red Mullet:**

01/01/2006

Shrimp:

01/01/2006

Sea Bass:



Red Sea Bream:



Horse Mackerel:



Gilt-head bream:



Black Sea Sprat:**Test data for STC-07****A redigested user information**

Email:111@qq.com

Password:Yhang816

Test data for STC-07**A redigested user information**

Email: Mk419@gmail.com

Password: Mk419

CURRICULUM VITAE

Yanhong yang

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Education

Chiang Mai University –College of Art, Media, and Technology 2019-2023

Bachelor of Science in Software Engineering (International Program)

Computer and technical skills

- | | |
|------------------------------|--------|
| -Python | -Vue |
| -JavaScript | -MySQL |
| -HTML | -CSS |
| -Java | |
| -Object-Oriented Programming | |

Experience

- Senior Project “Fish information detection software”



Dian Jin

Gender: Male

Date of birth: 19 April 2000

Language: Chinese, English

Telephone: +86 15958373333

Email: michaeljin10@outlook.com

Education

Chiang Mai University –College of Art, Media, and Technology 2019-2023

Bachelor of Science in Software Engineering (International Program)

Computer and technical skills

- | | |
|-------|------|
| -PHP | -Vue |
| -Java | -SQL |
| -HTML | -CSS |

Experience

- Senior Project “Fish information detection software”



