

Know Ville

User Manual of KownVille: Unlocking the City of Knowledge

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Group 73

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GroupProject User Manual of
A learning journey application

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1 | Overview

As shown in Fig. 1.1, our KnowVille application implements various learning management functions. The basic learning functions include management of **module**, **activity**, **roles undertaken**, **skills** and **achievements**. What's more, we have also implemented many advanced functions. For example, users can **import and export data in batches** to record the situation of different semesters and transfer easily. We also provide a **file management system** where users can upload, preview, and download various forms of files. The most exciting thing is that users can use the **AI-powered engine** to get personalized learning suggestions.

The screenshot shows the 'Hello Student!' dashboard. On the left is a sidebar with a dark blue header 'Skills & Achievements' and a list of modules: Skills, Achievements, In-Course (Module Types, Module Info), ExtraCurriculum (Activity Management, Roles Undertaken), Others (Time Machine, Portfolios), and Settings. The main area is titled 'Module Information list' with buttons for New, Edit, Delete, and My GPA. A search bar at the top says 'Ask anything. Use && to refer to your information' with a magnifying glass icon. Below the search bar is a table with columns: Module No., Module Name, Module Type, Mark, Credit, and Module Description. The table contains four rows of data:

Module No.	Module Name	Module Type	Mark	Credit	Module Description
3412110079	About the Forbidde...	Public Elective Cours...	100.0	2.0	Online
3512164021	Linear Algebra	Public Elective Cours...	90.0	3.0	2020Fall
EBU4201	Introductory Java Pr...	Compulsory Courses	90.0	4.0	2022Spring
EBU5402	Enterprise managem...	Compulsory Courses	49.0	2.5	2021Fall

Figure 1.1: Overview

2 | Login

As shown in Fig. 2.1, We have set up a login system for users to protect user privacy. However, in some cases, users do not want to log in with a password. For example, when users use the system at home for a long time, they prefer to login without password. So we also provide password-free login and convenient switching between these two modes.

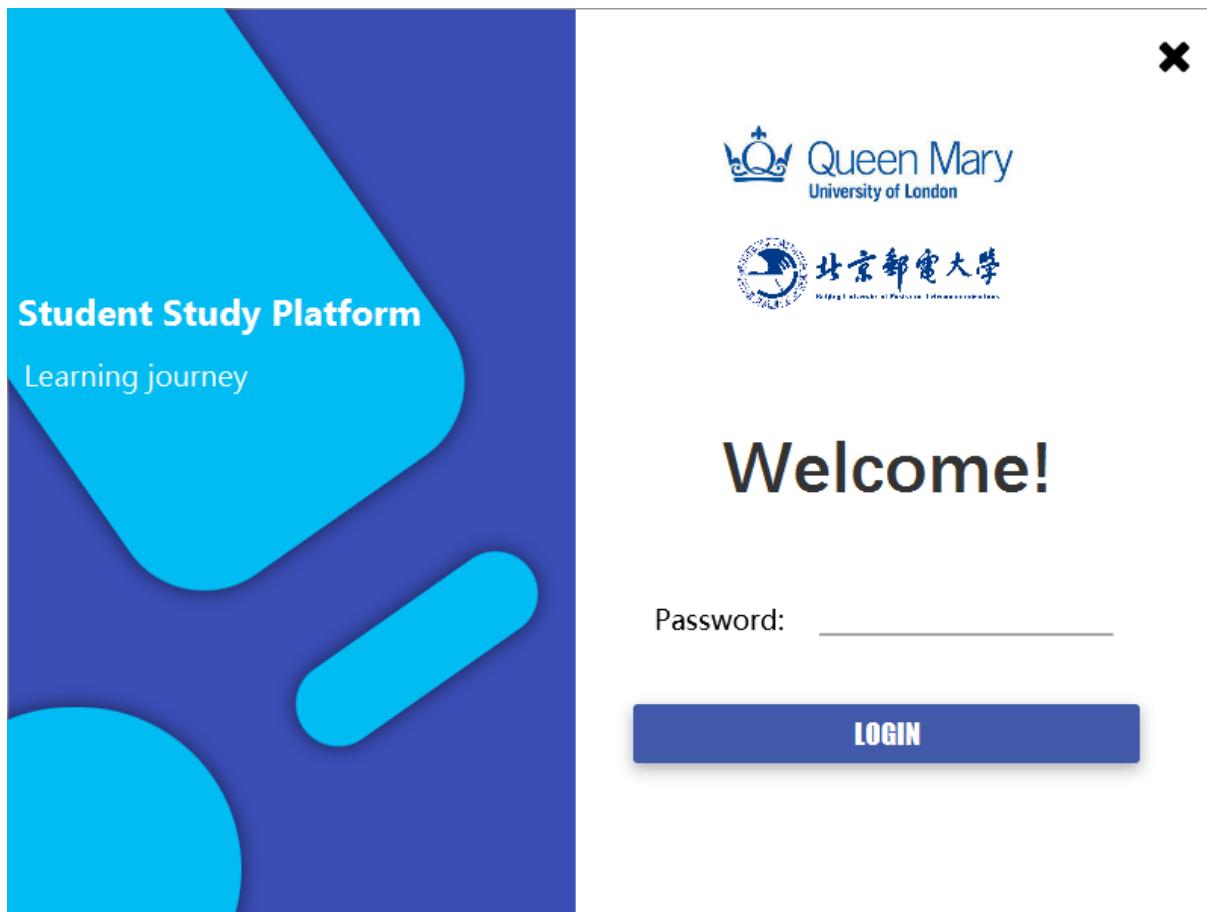


Figure 2.1: Log in

2.1 | password login

Users need to set a matching password to log in, otherwise they will be prompted that the password is wrong (See Fig. 2.2).

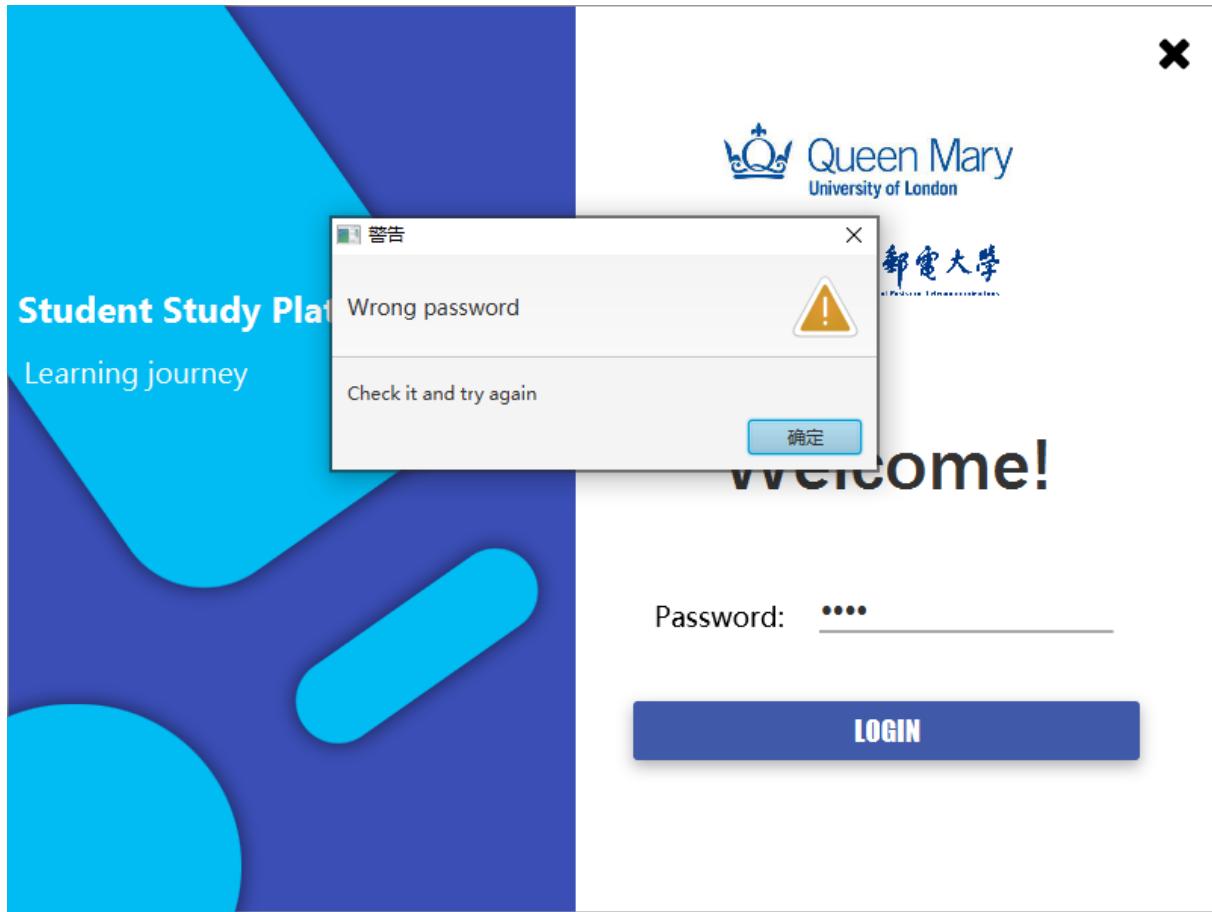


Figure 2.2: Wrong password login

2.2 | password-free login

As shown in Fig. 2.3, users can switch modes by checking the box in front of password. When in password-free mode, user start the application directly.

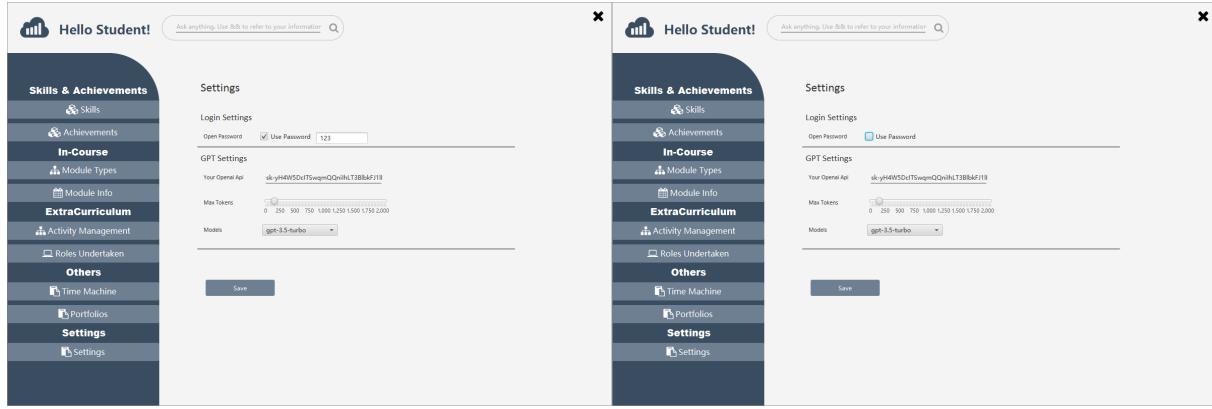


Figure 2.3: login a) password login b) password-free login

2.3 | change password

Users can easily change password by modify the string of text in Fig. 2.3 a).

3 | In-Course

3.1 | Module Types

Module types manage all types of modules. Types can be added and deleted in this interface(see Fig. 3.1), and the type information in the subsequent Module Info is associated with this.

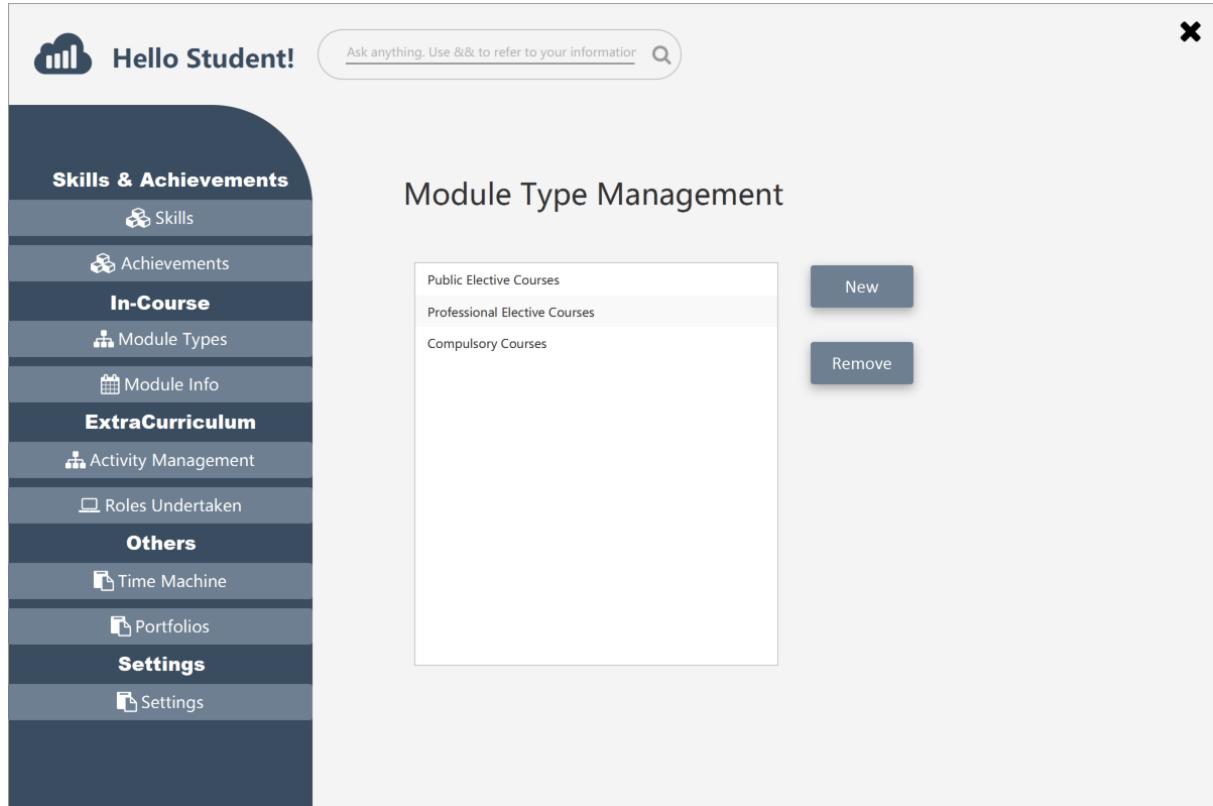


Figure 3.1: Module type overview

3.1.1 | Create new type

When you click the **New** button, the interface will prompt you to enter a new module type and confirm your operation(See Fig. 3.2)

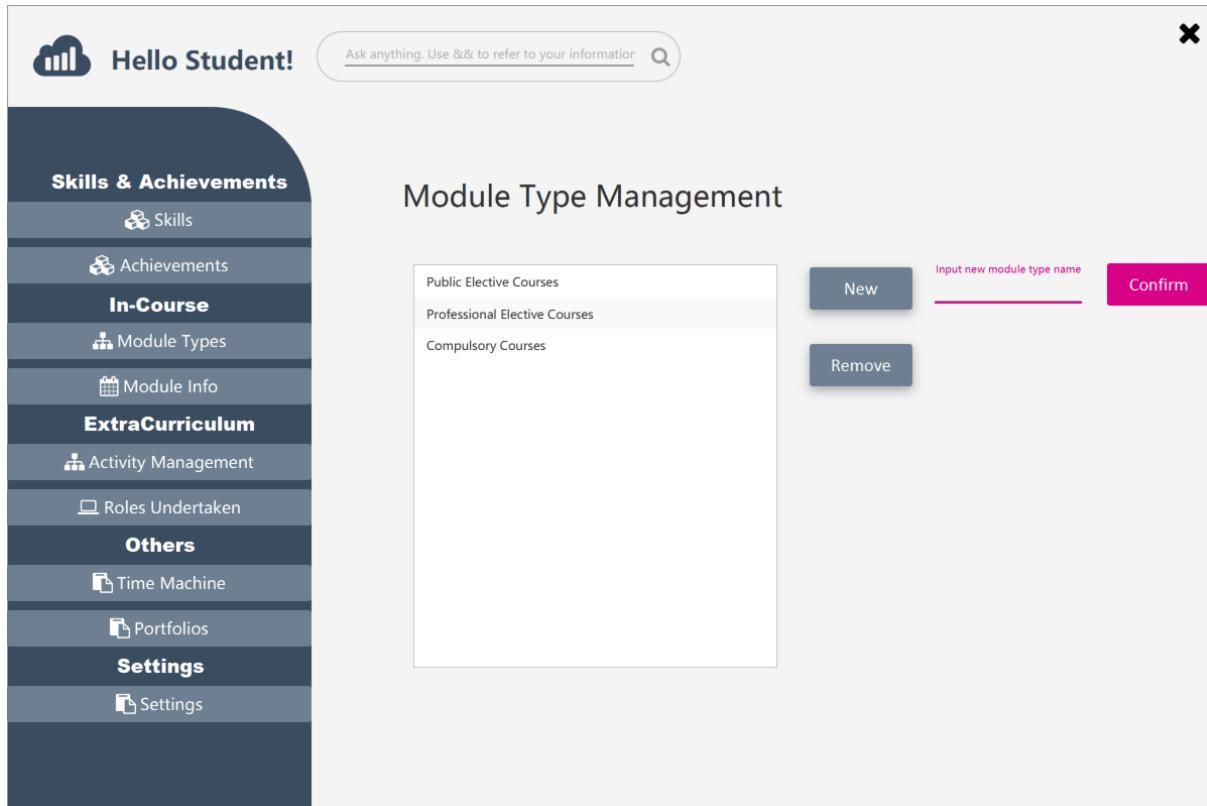


Figure 3.2: Create New Type

3.1.2 | Remove type

If you click the **Remove** button without selecting a specific module, an error message box will appear (See Fig. 3.3 a)). After selecting a module, a message will appear to require you to confirm delete operation.

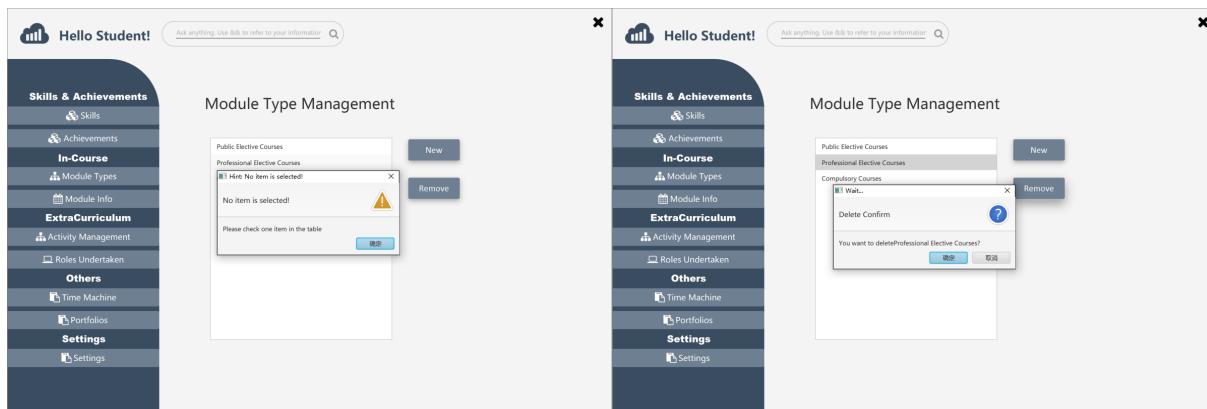


Figure 3.3: Delete module type a) wrong message b) confirm

3.2 | Module Info

The Module Info manages the modules students study. We have designed four functions for the Module: **New**, **Edit**, **Delete** and **My GPA**. The interface is shown in Fig. 1.1.

3.2.1 | Create new module

As shown in Fig. 3.4, when you click the **New** button, a page to create a module will appear, and the gray font in each line will prompt you to enter the information. The module number is automatically generated. In particular, the module type is associated with the type set in the previous section, and can be directly selected in the list.

Figure 3.4: Create new module

3.2.2 | Edit module

If you click the **Edit** button without selecting a specific module, an error message box will appear (See Fig. 3.5 a)). Similarly, the Fig. 3.5 b) shows an interface to modify the module, and its operation logic is similar to the section 3.2.1.

Figure 3.5: Edit Module a) wrong message b)edit interface

3.2.3 | Delete Module

If you click the **Delete** button without selecting a specific module, an error message box will appear (See Fig. 3.6 a)). After selecting a module, a message will appear to require you to confirm delete operation.

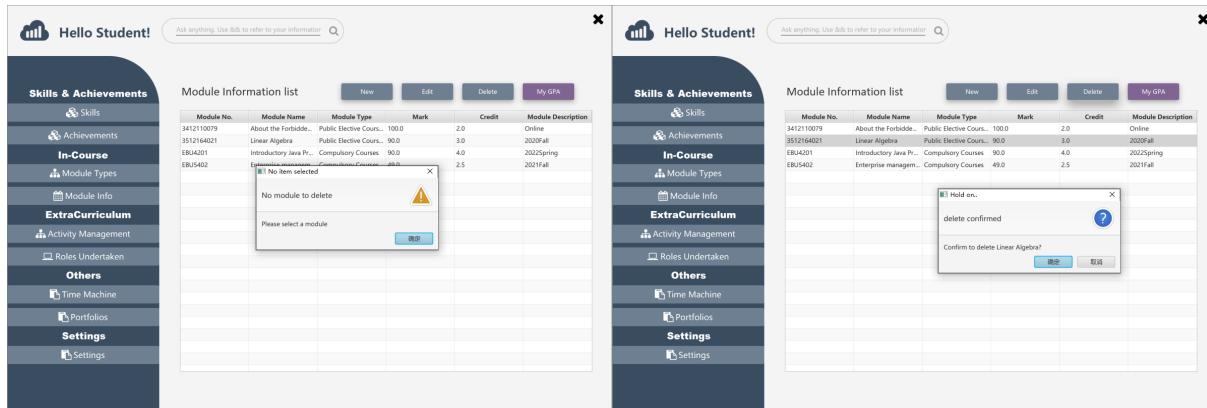


Figure 3.6: Delete module a) wrong message b) confirm

3.2.4 | Calculate GPA

Click the **My GPA** button to calculate the GPA information of all modules, as shown in the Fig. 3.7. The logic for calculating GPA is as follows:

$$\text{GPA} = \frac{\sum(\text{Grade Points} \times \text{Credits})}{\sum \text{Credits}}$$

, Grade Points = $4 - 3(100 - X)^2/1600$ ($60 \leq X \leq 100$), of which X is the Hundred Mark, and 100 corresponds to 4, 60 corresponds to 1, below 60 corresponds to 0.

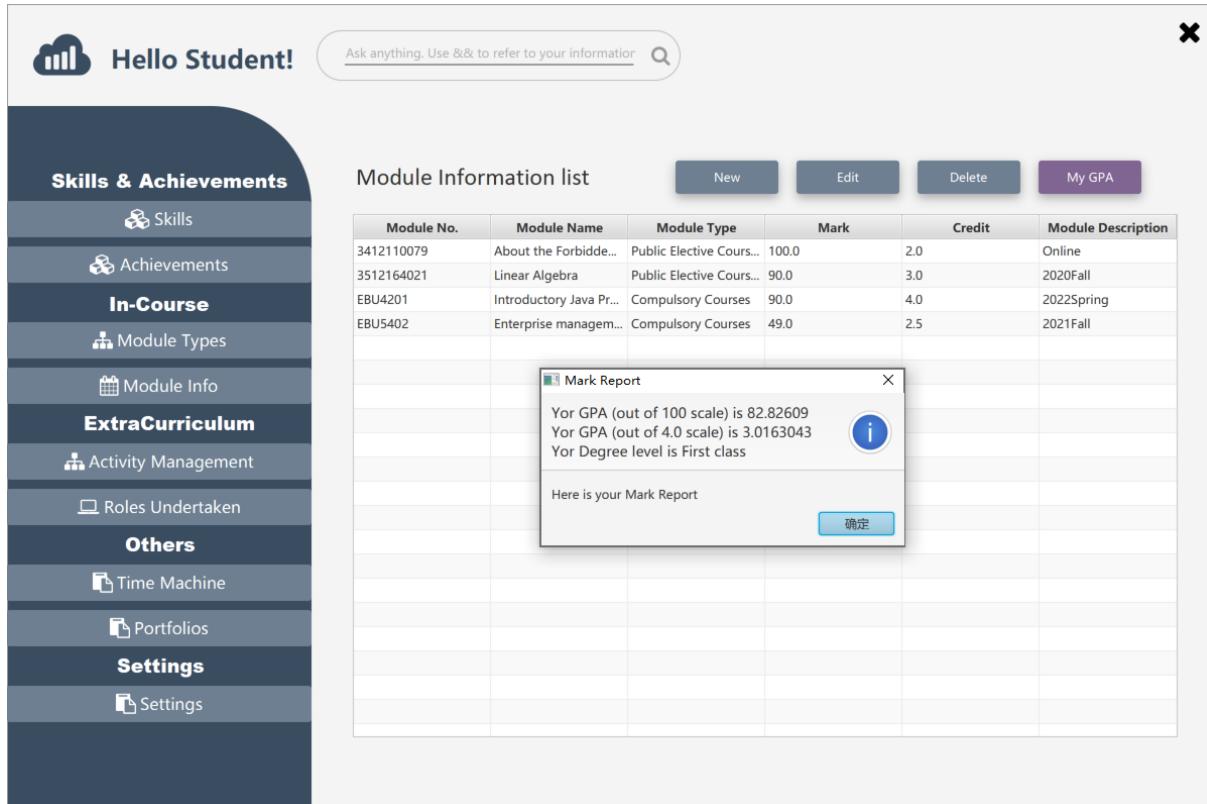


Figure 3.7: calculate GPA

4 | Extra Curriculum

4.1 | Activity Management

We have designed five functions for the activity information: **New Activity**, **Delete Activity**, **Edit Activity**, **New Type** and **Remove Type**. The interface is shown in Fig. 4.1. This interface consists of 2 parts, the left part shows the type of activity, and the right part shows the detailed information of the activity, including activity name, role, start and end time. The 2 parts are associated. When you click on different activity types on the left, the corresponding activity details will be displayed on the right.

Activity	Role	StartDate	EndDate
AI	intern	21-12-21	22-12-21
RISC-V Kernel	intern	22-01-8	22-08-12
Embedded Syst...	intern	22-09-10	22-12-15

Figure 4.1: Activity management overview

4.1.1 | Create new activity

As shown in Fig. 4.2, when you click the **New** button, a page to create an activity will appear, and the gray font in each line will prompt you to enter the information. The the activity type is associated with the type set, and can be directly selected in the list.

Figure 4.2: Create new activity

4.1.2 | Delete Activity

If you click the **Delete** button without selecting a specific module, an error message box will appear(See Fig. 4.3 a)). After selecting a module, a message will appear to require you to confirm delete operation.

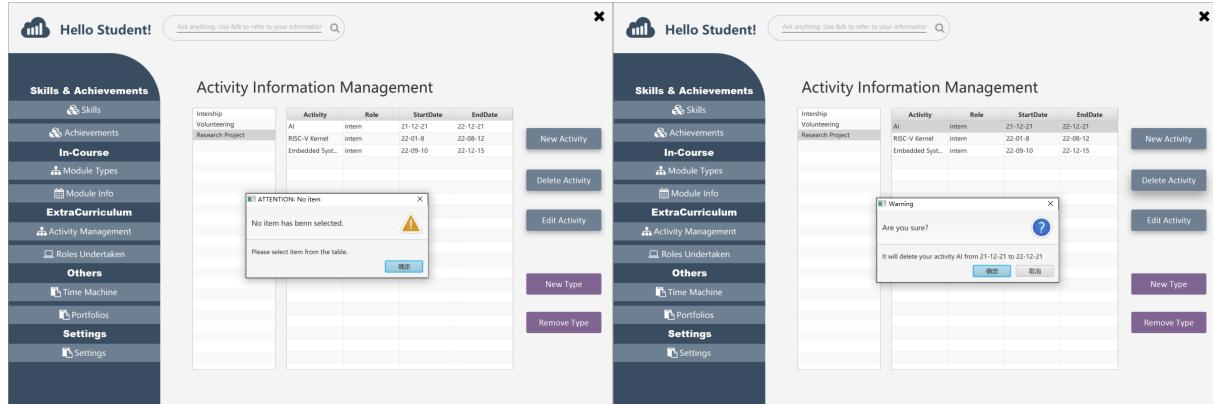


Figure 4.3: Delete activity a) wrong message b) confirm

4.1.3 | Edit Activity

If you click the **Edit** button without selecting a specific activity, an error message box will appear(See Fig. 4.4 a)). Similarly, the Fig. 4.4 b) shows an interface to modify the module, and its operation logic is similar to the section. 4.1.1.

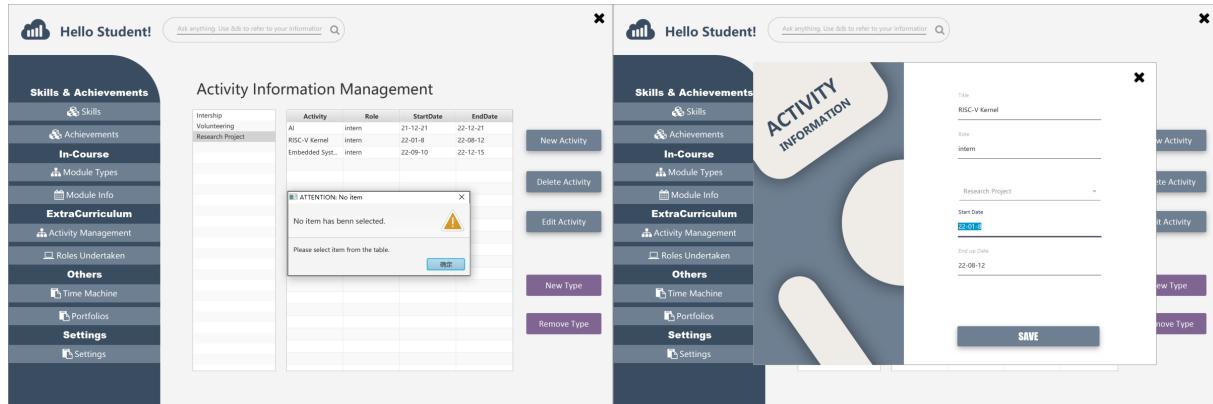


Figure 4.4: Edit Module a) wrong message b)edit interface

4.1.4 | Create New Type

When you click the **New Type** button, the interface will prompt you to enter a new module type and confirm your operation(See Fig. 4.5 a)). As shown in Fig. 4.5 b), the "TestType" is successfully added in the left interface.

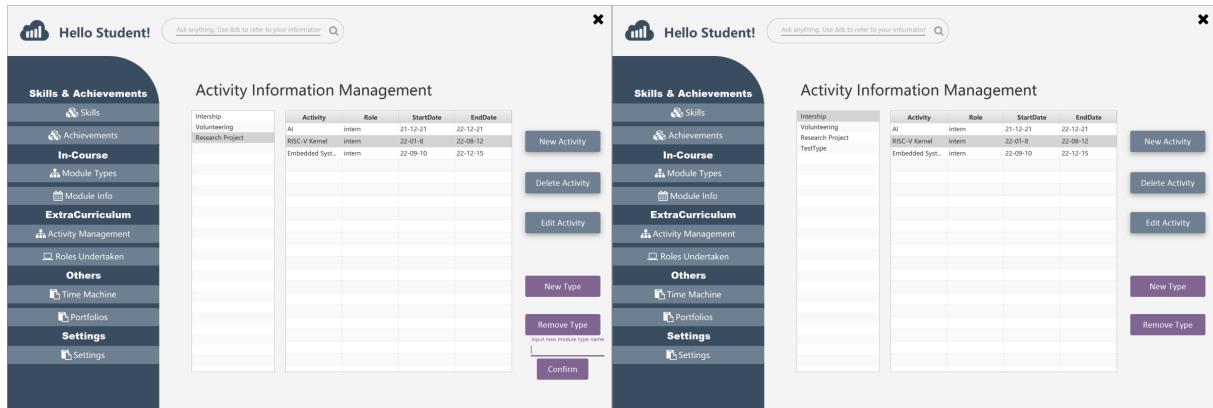


Figure 4.5: Create New Type a) create b) result

4.1.5 | Remove Type

Similar to section. 3.3, after selecting a module, a message will appear to require you to confirm delete operation.

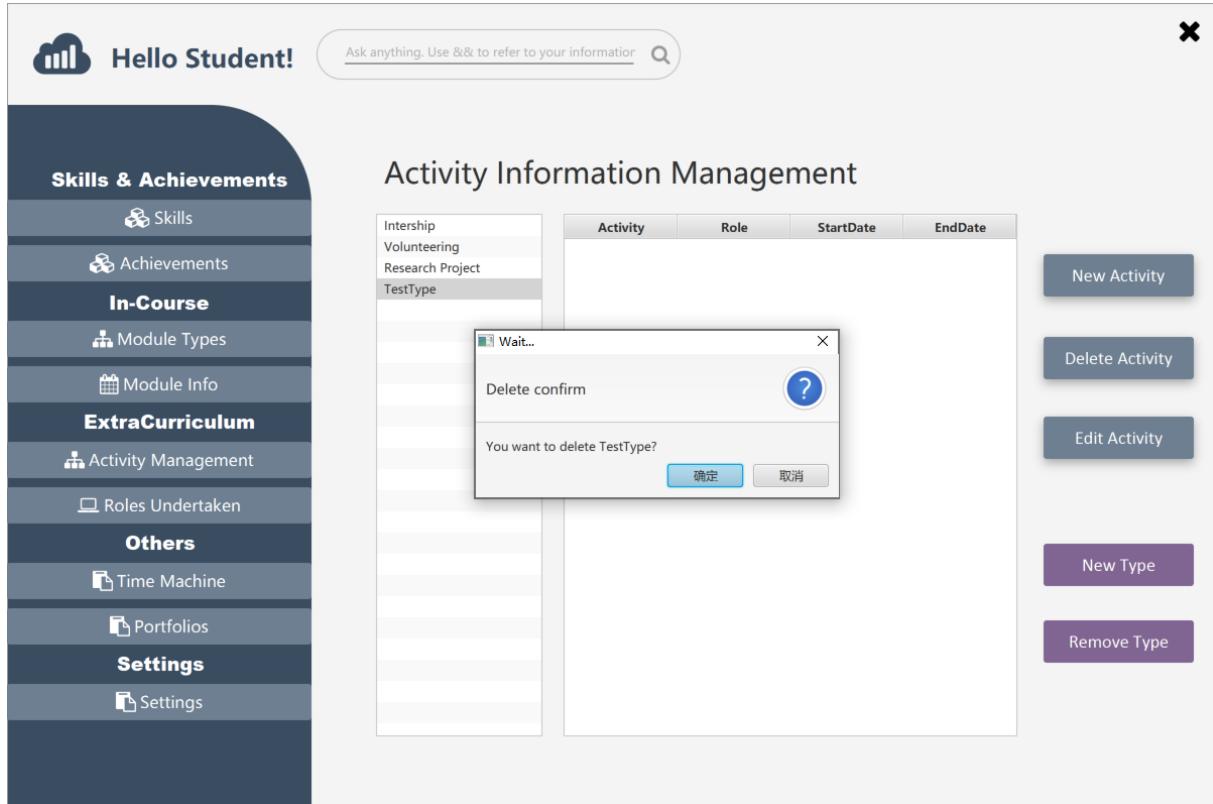


Figure 4.6: Delete activity type

4.2 | Roles Undertaken

We have designed three functions for the roles undertaken information: **New**, **Delete** and **Edit**. The interface is shown in Fig. 4.7.

Title	Start Date	End Date	Description
module representative	2021-09-01	2021-12-23	be a module representative in li...

Figure 4.7: Roles management overview

4.2.1 | Create new roles

As shown in Fig. 4.8, when you click the **New** button, a page to create a role will appear, and the gray font in each line will prompt you to enter the information. In particular, we limit the description to 200 words, and we can prompt the number of words in real time for user input. As shown in the Fig. 4.8, when the user enters 7 characters, it indicates that "7/200".

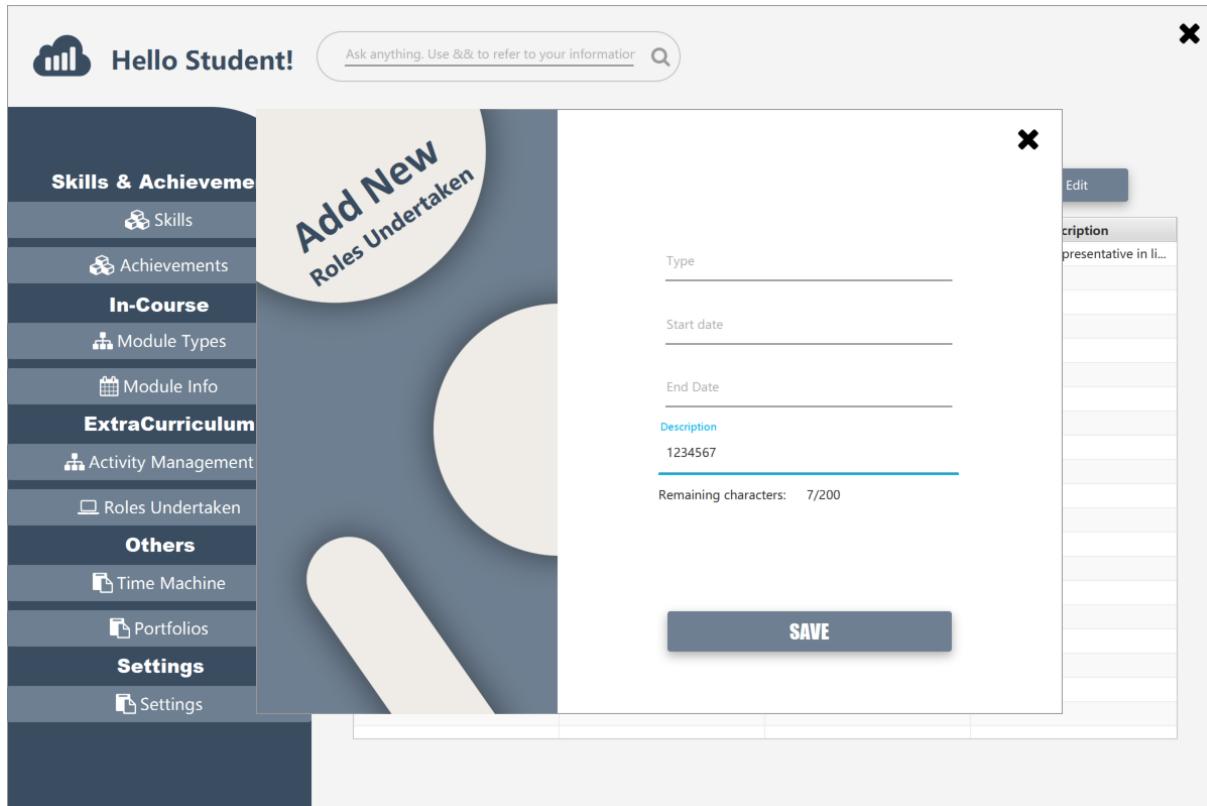


Figure 4.8: Create new roles

4.2.2 | Delete roles

If you click the **Delete** button without selecting a specific role, an error message box will appear(See Fig. 4.9 a)). After selecting a role, a message will appear to require you to confirm delete operation.

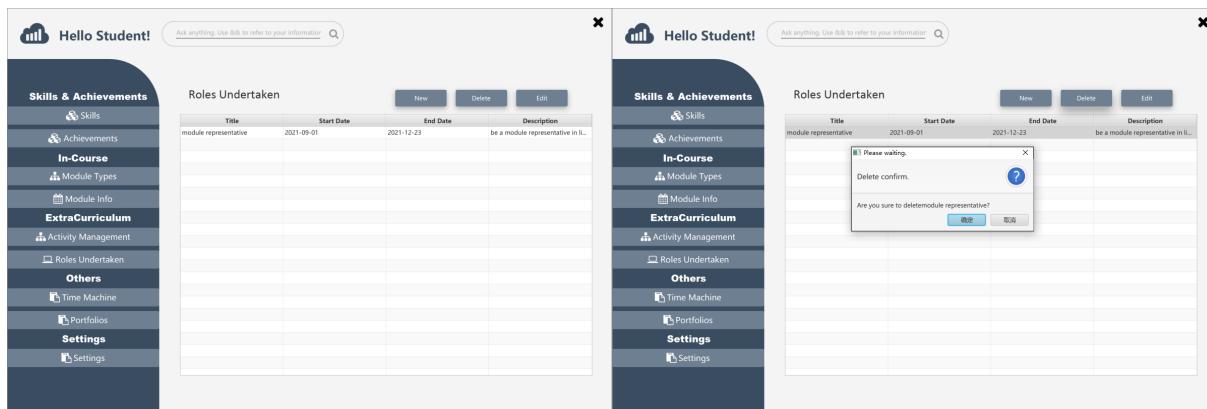


Figure 4.9: Delete roles a) wrong message b) confirm

4.2.3 | Edit roles

If you click the **Edit** button without selecting a specific role, an error message box will appear(See Fig. 4.10 a)).Similarly, the Fig. 4.10 b) shows an interface to modify the module, and its operation logic is similar to the section. 4.1.1. In particular, all information is automatically filled in the modification interface, which is convenient for users to modify.

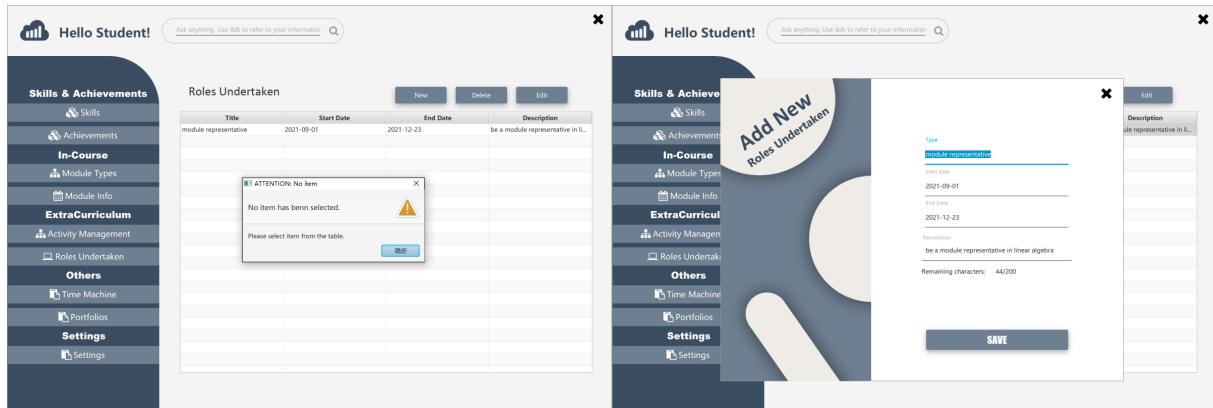


Figure 4.10: Edit roles a) wrong message b)edit interface

5 | Skills & Achievements

5.1 | Skills

The Skills module manages the skills students acquire during their studies. We have designed five functions for the Skills module: **New Skills**, **Delete Skills**, **Edit Skills**, **New Type** and **Remove Type**. The interface of this module is shown in Fig. 5.1. This interface consists of 2 parts, the left part shows the type of skills, and the right part shows the detailed information of the skills, including skill name, type(module/activity), source and end description. The 2 parts are associated. When you click on different skill types on the left, the corresponding details will be displayed on the right.

The figure shows the 'Skills & Achievements' module. The left sidebar has a dark blue header 'Skills & Achievements' and a list of items: Skills, Achievements, In-Course (Module Types, Module Info), ExtraCurriculum (Activity Management, Roles Undertaken), Others (Time Machine, Portfolios, Settings). The main area has a title 'Skill Information Management'. On the left, a sidebar lists skill types: Programming, Academic writing, Mathematics, English. On the right, a table shows skill details: Academic writing, Module, Enterprise mana..., Shamiko. Below the table are buttons: New Skill (blue), Delete Skill (grey), Edit Skill (grey), New Type (purple), and Remove Type (purple).

Skill	Module/Activity	Source	Description
Academic writing	Module	Enterprise mana...	Shamiko

Figure 5.1: Skills management overview

5.1.1 | Create new Skill

As shown in Fig. 5.2, when you click the **New Skill** button, a page to create a skill will appear, and the gray font in each line will prompt you to enter the information. The skill type, module/activity, and source are selected through the drop-down list are set by select. The list of Source and Module/Activity are associated, as shown in the Fig. 5.2, the source is set in the previous sections.

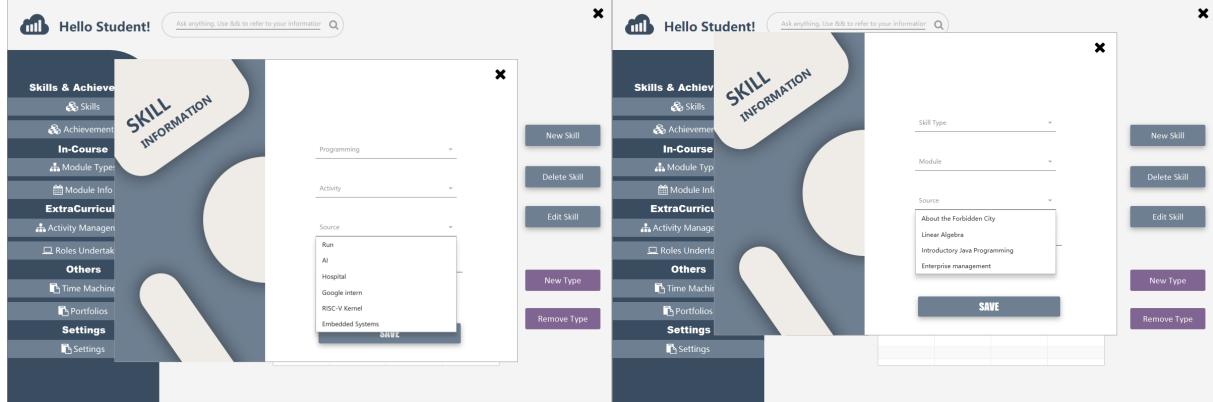


Figure 5.2: Create new skills a) module-related source b) activity-related source

5.1.2 | Delete Skill

The operation logic is the same as the section. 4.1.2.

5.1.3 | Edit Skill

The operation logic is the same as the section. 4.1.3. The interface can be seen in Fig. 5.3.

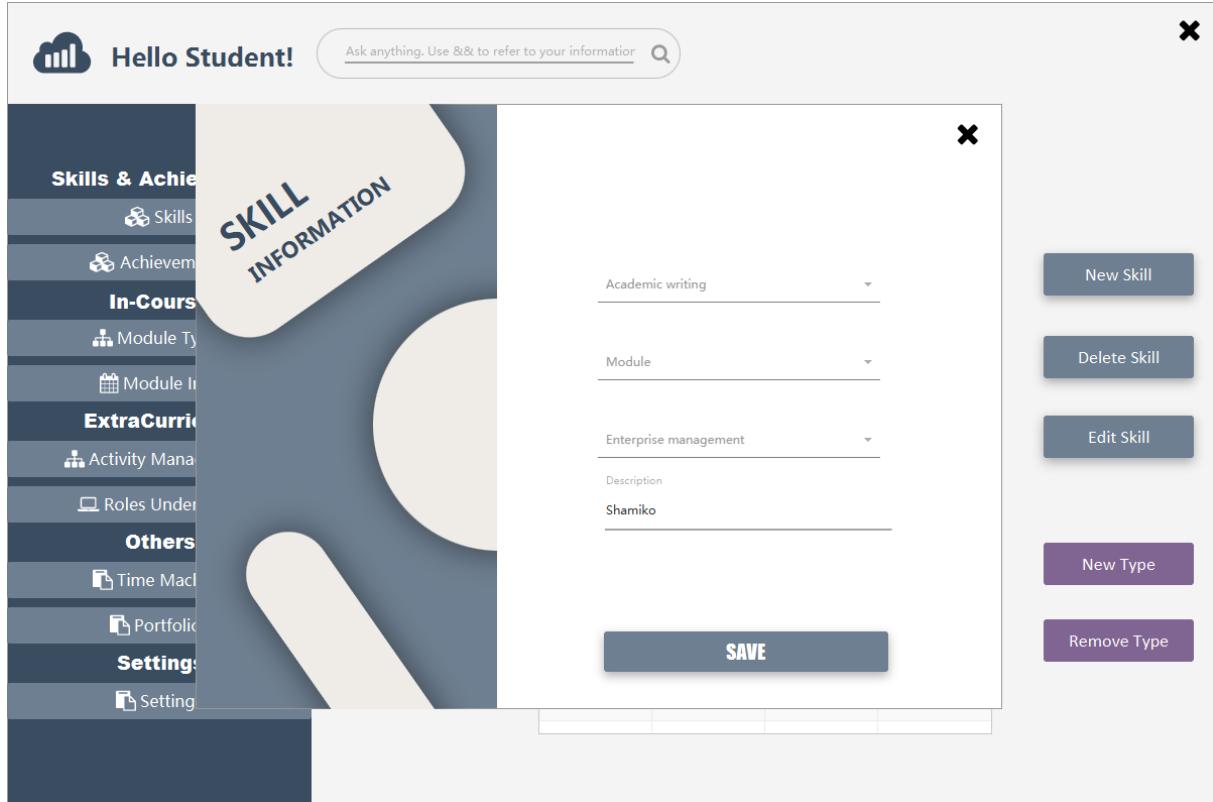


Figure 5.3: Edit Skill

5.1.4 | Create New Type

The operation logic is the same as the section. 4.1.4.

5.1.5 | Remove New Type

The operation logic is the same as the section. 4.1.5.

5.2 | Achievements

The Achievements module manages the achievements students acquire during their studies. We have designed three functions for the achievements management: **New**, **Deletes** and **Edit**. The interface of this module is shown in Fig. 5.4. User can set type, source and description of the achievements.

The screenshot shows the 'Achievement Information list' page. At the top left is a 'Hello Student!' greeting with a cloud icon. To its right is a search bar containing the placeholder 'Ask anything. Use && to refer to your information' with a magnifying glass icon. On the far right is a close button (an 'X'). Below the header is a sidebar with a dark blue background and white text, listing categories: Skills & Achievements, In-Course, ExtraCurriculum, and Others. Under 'Skills & Achievements', there are links for Skills, Achievements, Module Types, and Module Info. Under 'In-Course', there are links for Activity Management and Roles Undertaken. Under 'ExtraCurriculum', there are links for Time Machine and Portfolios. Under 'Others', there is a link for Settings. To the right of the sidebar is the main content area titled 'Achievement Information list'. It features a table with three columns: 'Module/Activity', 'Source', and 'Description'. The table contains three rows of data:

Module/Activity	Source	Description
Module	Introductory Java Programming	Forgot to click submit
Activity	IELTS	Band 5
Module	Linear Algebra	ssss

Below the table are three buttons: 'New', 'Edit', and 'Delete'. The entire interface has a clean, modern design with a light gray background.

Figure 5.4: Achievement overview

5.2.1 | Create Achievements

The operation logic is the same as the section. 3.2.1. The interface can be seen in Fig. 5.5.

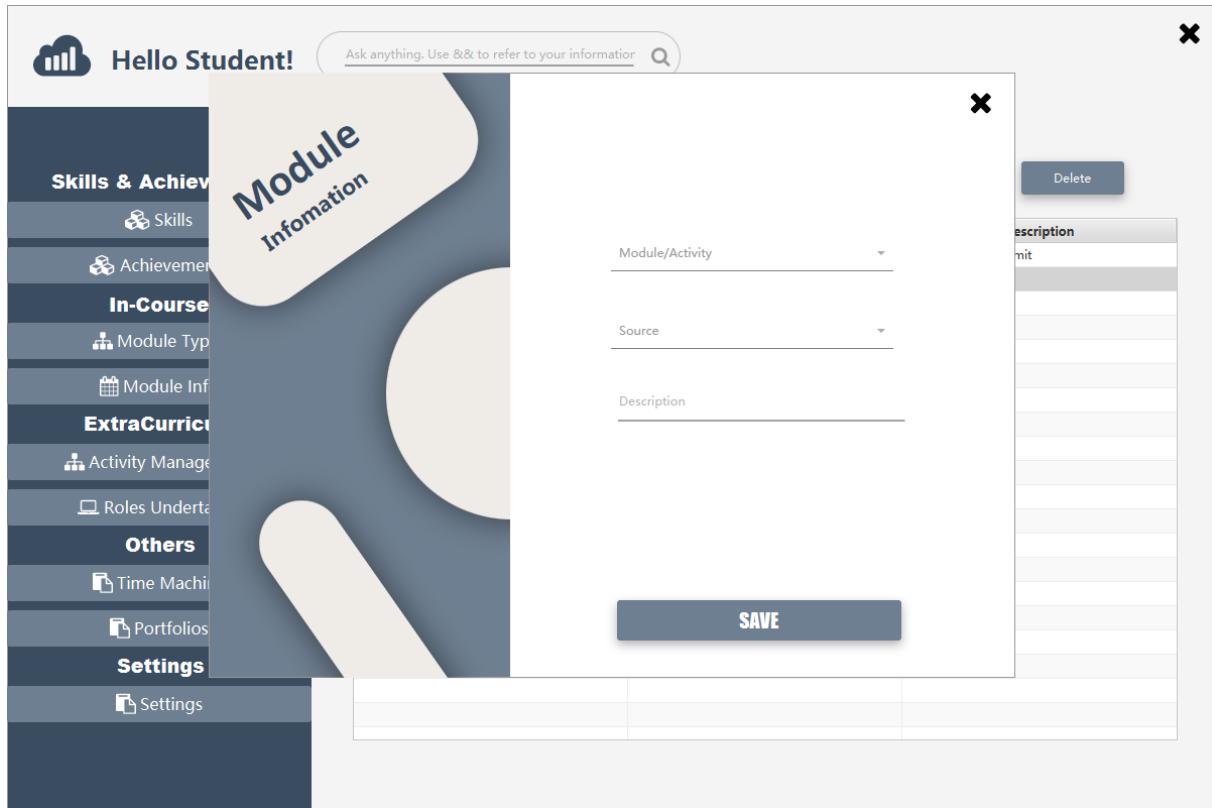


Figure 5.5: Create new achievements

5.2.2 | Delete Achievements

The operation logic is the same as the section. [3.2.3](#).

5.2.3 | Edit Achievements

The operation logic is the same as the section. [3.2.2](#). The interface can be seen in Fig. [5.6](#)

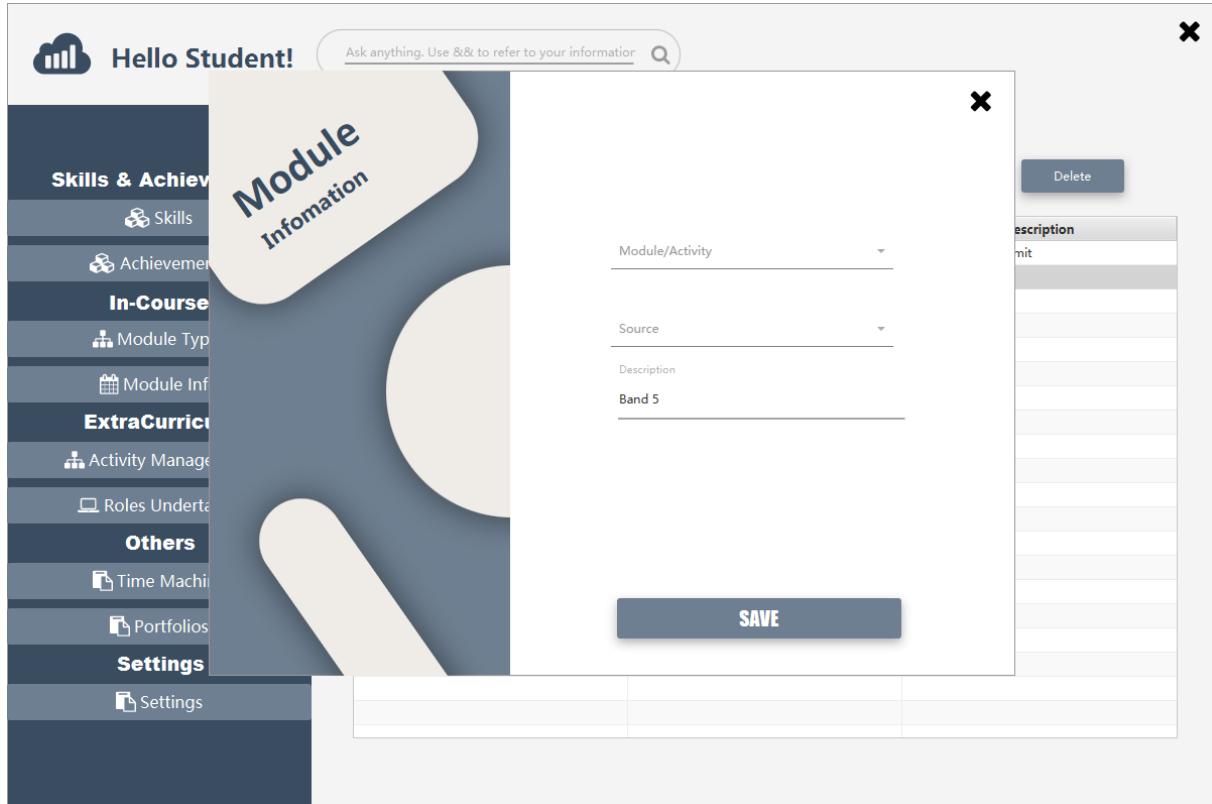


Figure 5.6: Edit Achievements

6 | Sort

In each information display interface, we provide a sorting function for users to filter. For example, Fig. 6.1 a) shows module information sorted in ascending order by module name, Fig. 6.1 b) shows it sorted in descending order by mark. Fig. 6.2 a) shows achievement information sorted in descending order by type, Fig. 6.2 b) shows it sorted in ascending order by source.

Module Information list					
	New	Edit	Delete	My GPA	
Module No.	Module Name	Module Type	Mark	Credit	Module Description
343110079	Algebra for Forklifts	Public Elective Courses	100.0	2.0	Other
2815402	Enterprise management	Compulsory Courses	52.0	2.5	2021Fall
3814201	Introduction Java Prog	Compulsory Courses	90.0	4.0	2022Spring
3512164021	Linear Algebra	Public Elective Courses	90.0	3.0	2020Fall

Module Information list					
	New	Edit	Delete	My GPA	
Module No.	Module Name	Module Type	Mark	Credit	Module Description
343110079	Algebra for Forklifts	Public Elective Courses	100.0	2.0	Other
EBU42021	Introductory Java Prog	Compulsory Courses	90.0	4.0	2022Spring
3512164021	Linear Algebra	Public Elective Courses	90.0	3.0	2020Fall
EBU5402	Enterprise management	Compulsory Courses	52.0	2.5	2021Fall

Figure 6.1: Sort module information

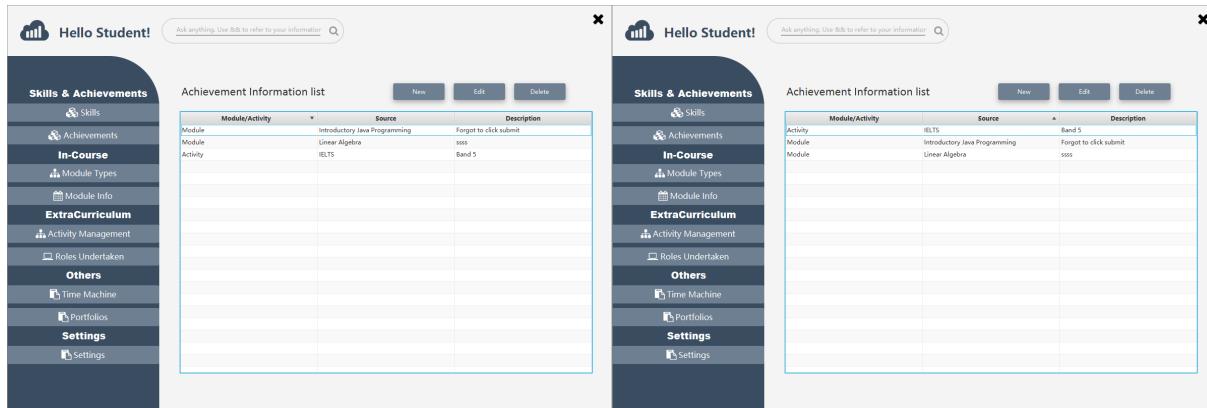


Figure 6.2: Sort achievements information

7 | Others

7.1 | Time Machine

The Time Machine module supports users to import and export data in batches to realize backup, data transfer and version management functions. As shown in the Fig. 7.1, this module supports the import and export of module, roles undertaken, activities data.

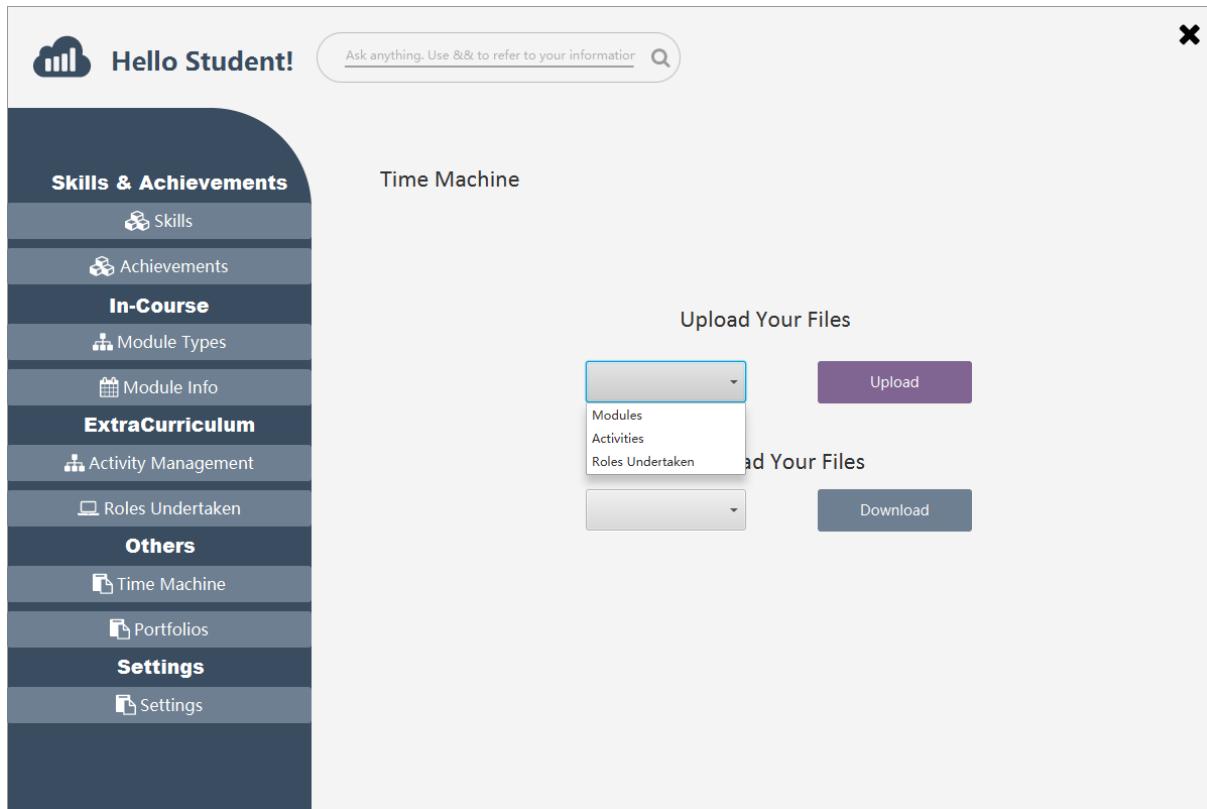


Figure 7.1: Time Machine Overview

7.1.1 | Download

Once the download category is selected, the user will be able to select the location of the file download on the resource manager page, as shown in the Fig. 7.2.

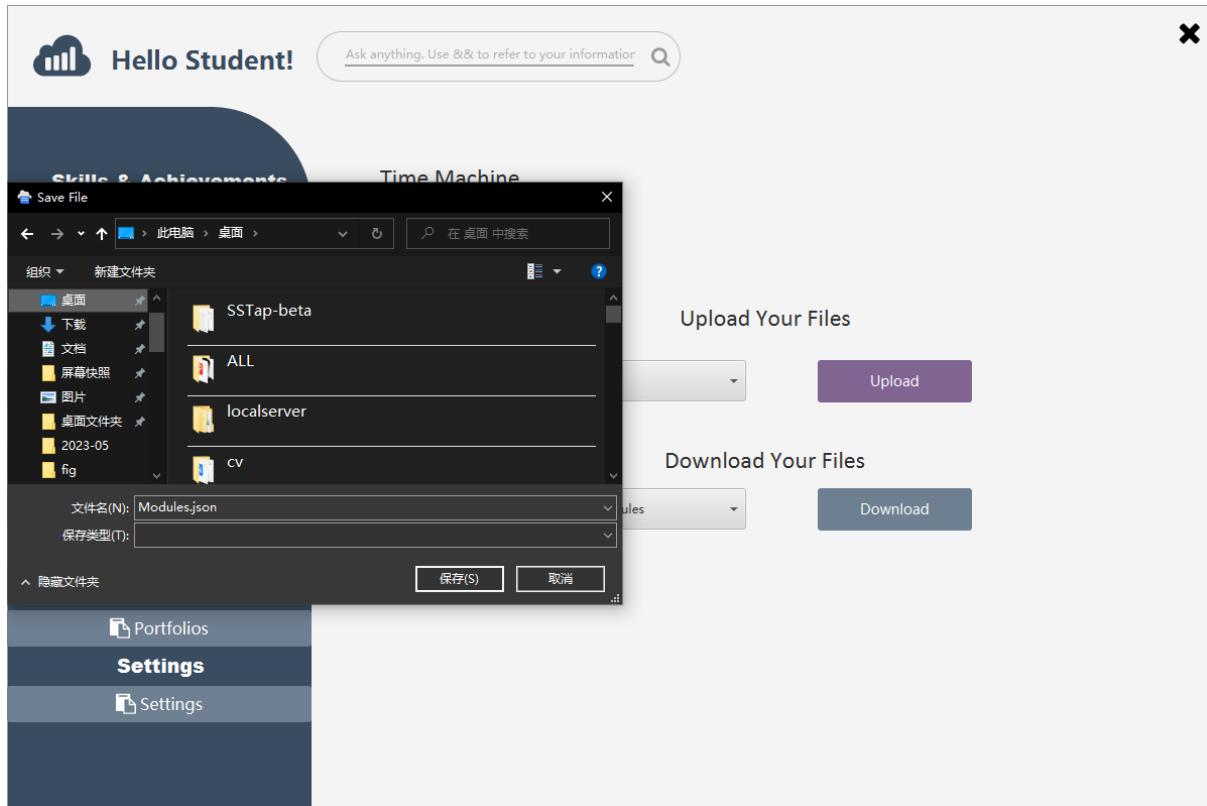


Figure 7.2: Time Machine download

7.1.2 | Upload

Users can choose to upload data from previous semesters, and these results will be updated on the page. As shown in the Fig. 7.3, we choose to upload Modules_v2.json. The Fig. 7.4 shows that the uploaded results are successfully displayed on the module page.

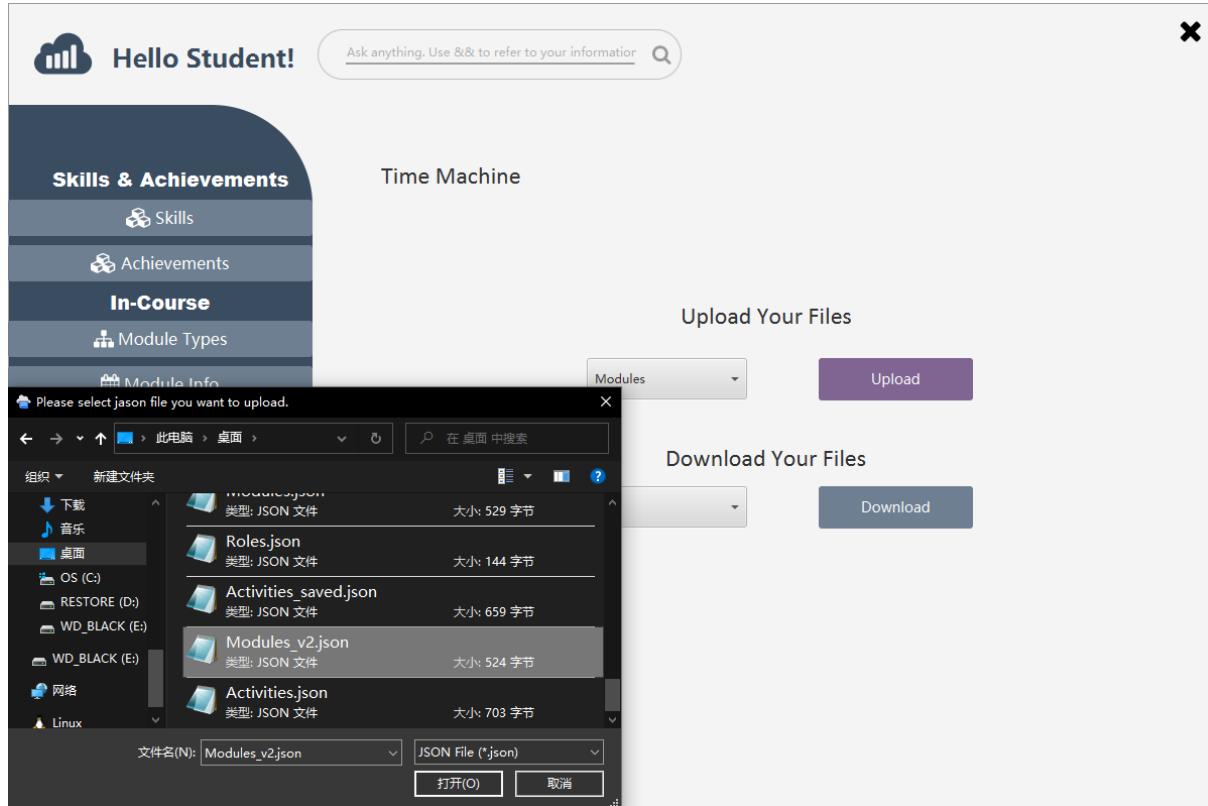


Figure 7.3: Time Machine upload

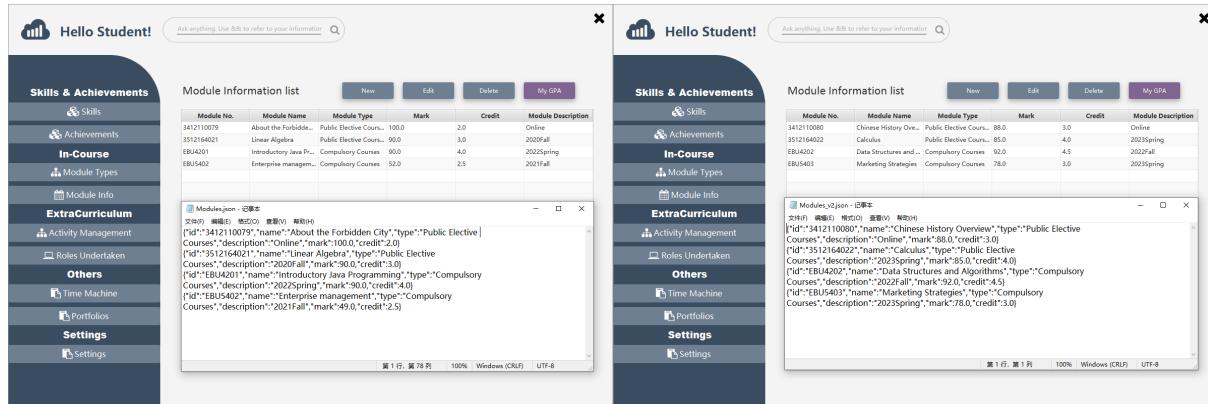


Figure 7.4: Time Machine upload result a) before b) after

7.2 | Portfolios

Portfolios supports users to manage three types of files: video, poster, and article (pdf). As shown in Fig. 7.5, we provide **New Portfolios**, **Delete Portfolios**, **Edit Portfolios** and **View** functions. The operation logic of theses functions are similar to section. 4.1. We will show the effect of viewing these three files below.

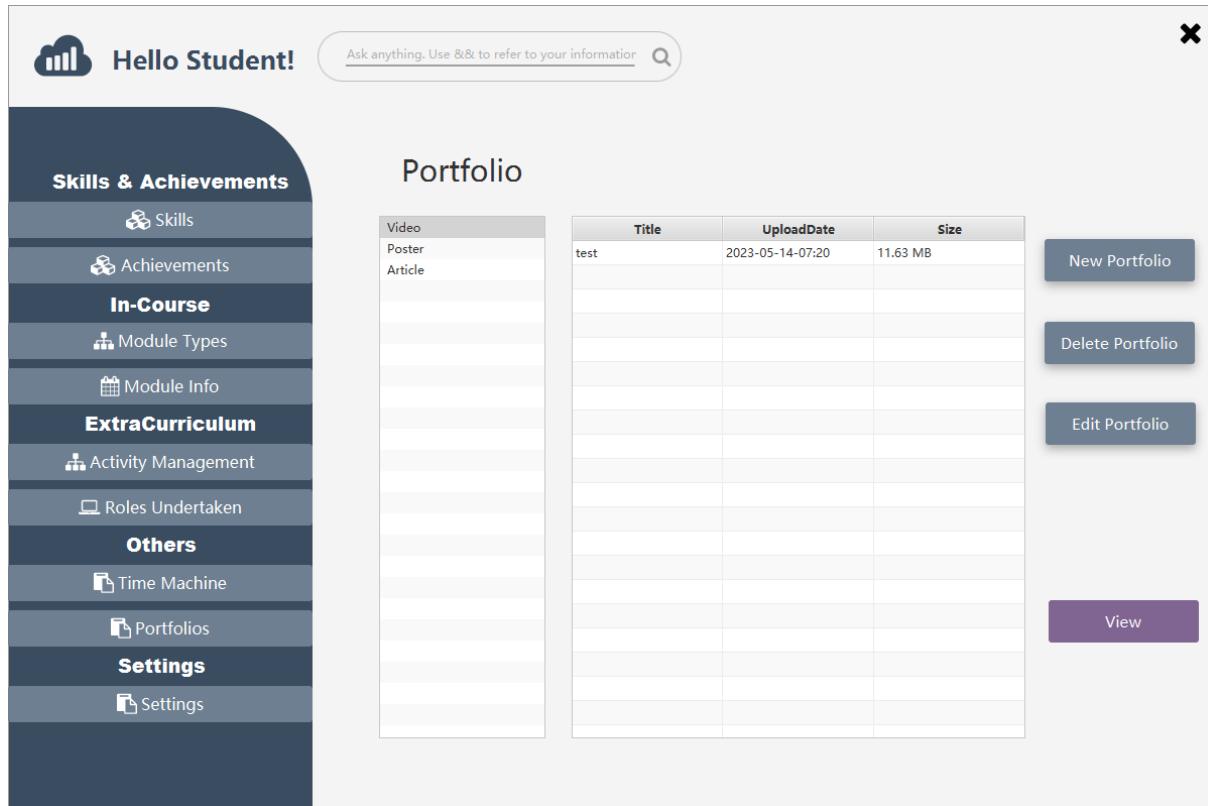


Figure 7.5: Portfolios Overview

7.2.1 | Poster

As shown in Fig. 7.6, user can add new posters by selecting files in local file management system. The poster can be viewed in Fig. 7.8.

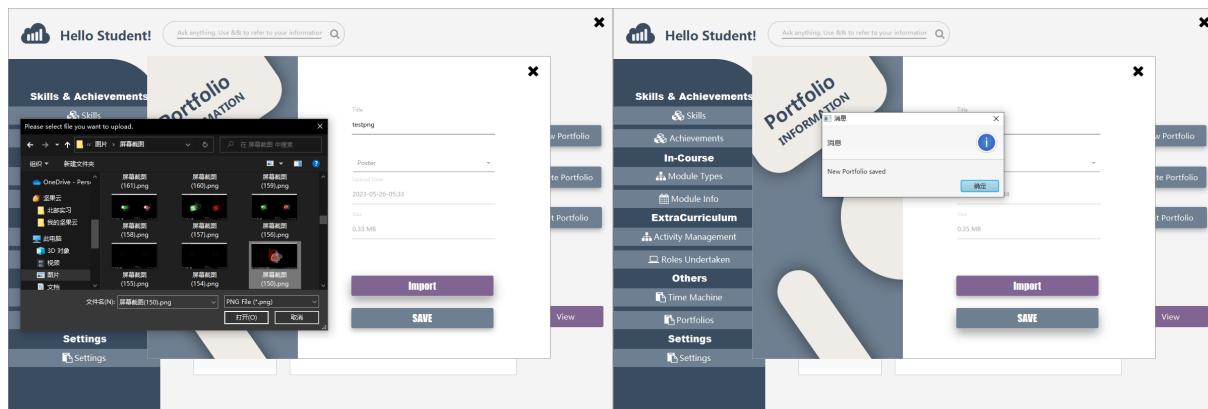


Figure 7.6: Add Poster

7.2.2 | Video

As shown in Fig. 7.7, we embed a video player in the page. When the video is selected to view, the user will be able to play/pause the video. The picture shows a screenshot of 2 frames of the video.

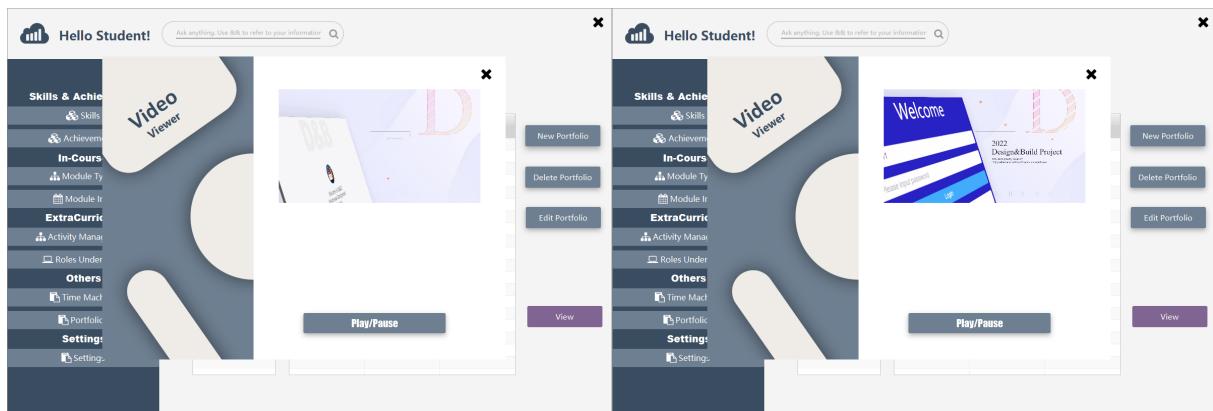


Figure 7.7: View Video

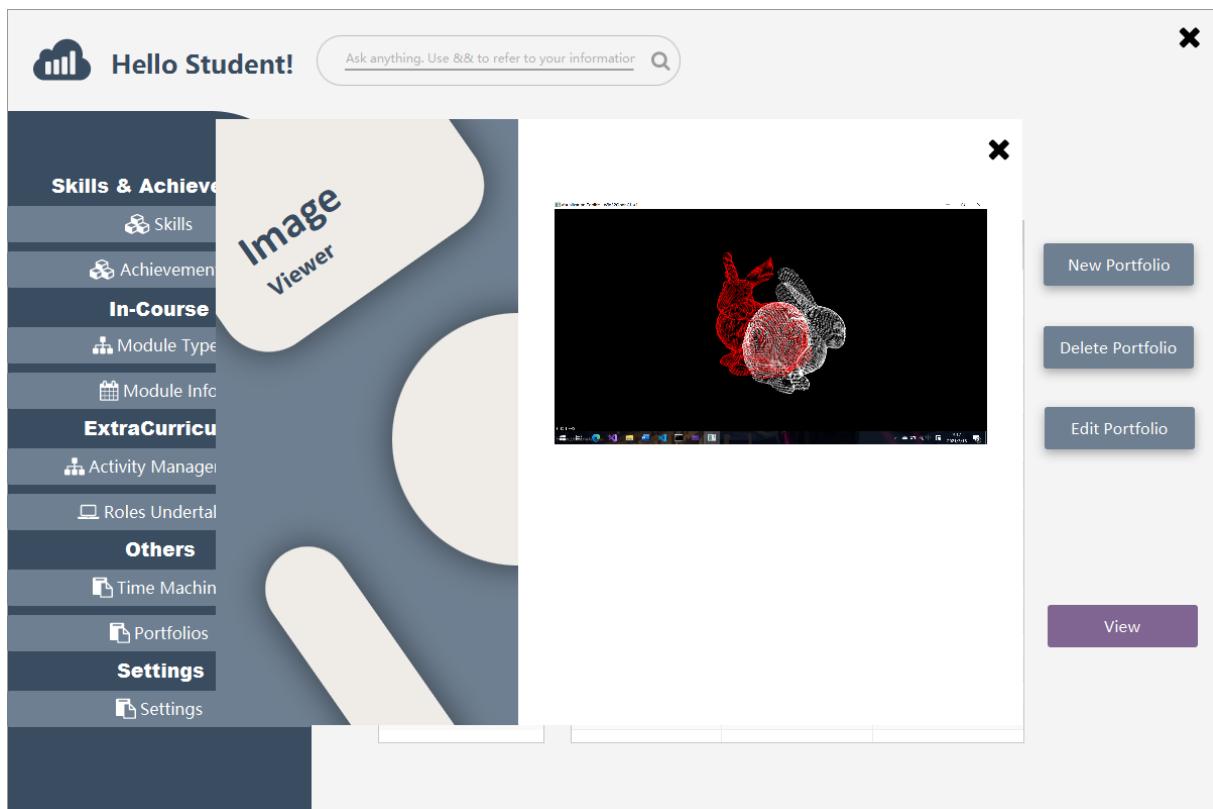


Figure 7.8: View Poster

7.2.3 | Article

For the view function of Article, users can download the existing PDF file to view locally(See Fig. 7.9).

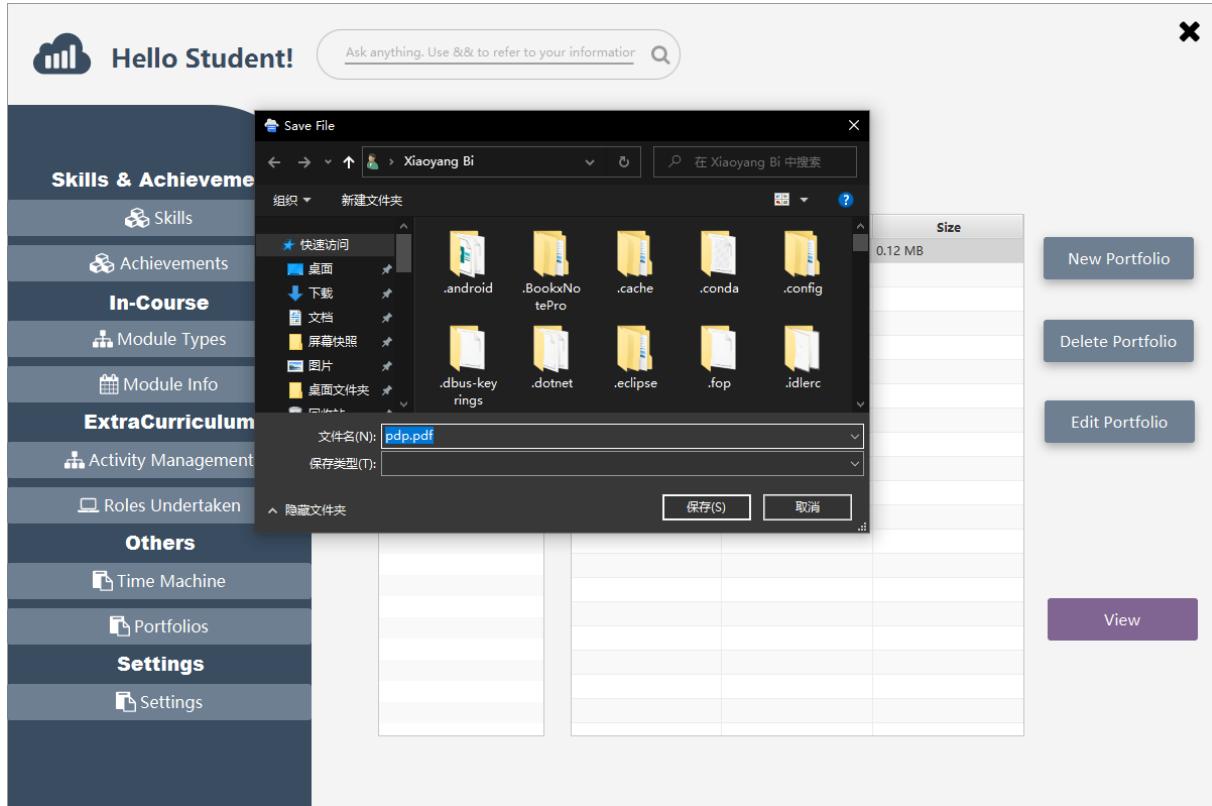


Figure 7.9: View Pdf

8 | AI Embedded

We set up an AI-driven question answering system that adapts to user information, and now supports openai's GPT-3.5. The System can acquire user's information and question then respond by using openai's key.

8.1 | Setting

As shown in Fig. 8.1, users can set their own openai keys in the format of "sk-xxxxxx", and set the Max-token by sliding the scale. In addition, users can also select different AI models through the drop-down list. Overall, we have designed a complete and user-friendly settings system.

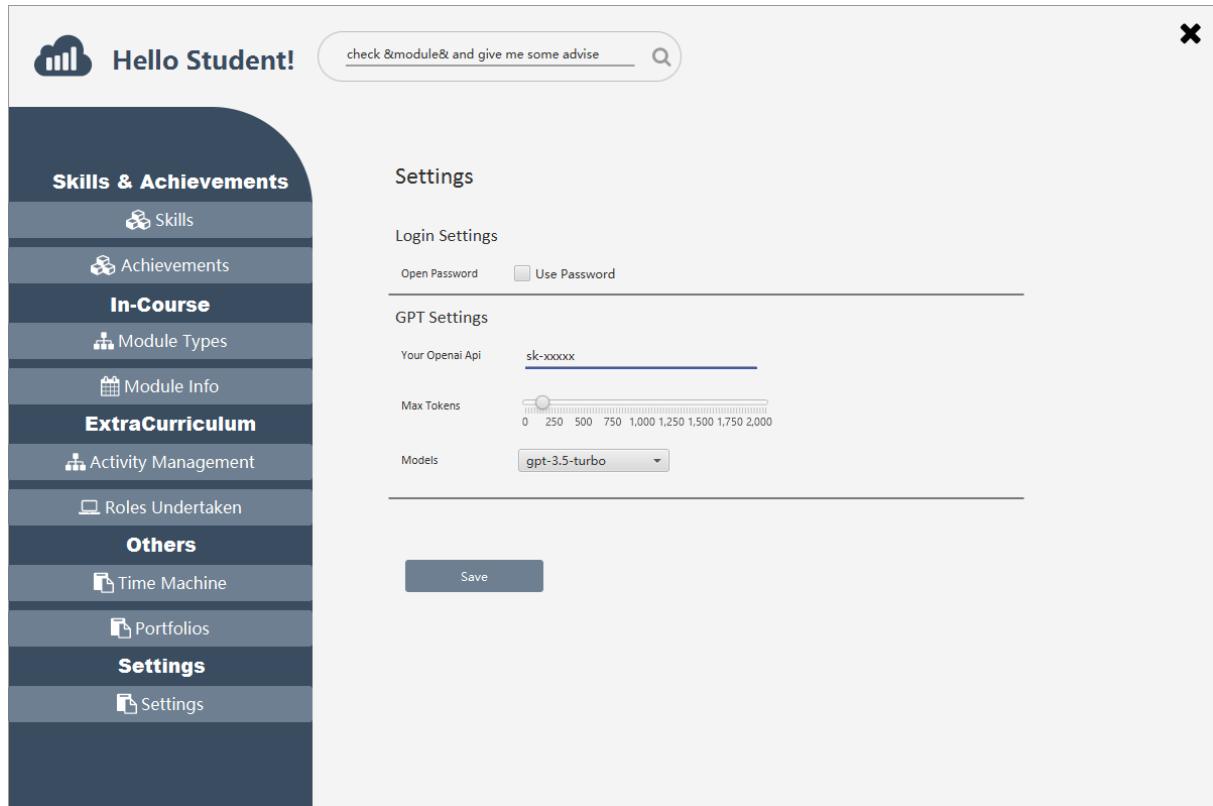


Figure 8.1: Chat Gpt Setting

8.2 | Usage

As shown in Fig. 8.2, users can enter questions in the input box in the upper left corner, and the system will obtain and display the AI output in the text box in the upper right corner. In order to allow the system to obtain user data, we have designed some special characters. When the user enters these special characters, the system will get the corresponding data(See Table. 8.1).

&module&	get module information
&activity&	get activity information
&role&	get role information
&skill&	get skill information
&achievements&	get achievements information

Table 8.1: Special characters meaning table

As show in fig. 8.2, we want AI give us some advice about module learning.

input:

check &module& and give me some advise

Response:

Based on the provided modules, it seems like you have taken a mix of public elective courses and compulsory courses in different semesters. It's good to have a balance between the two types of courses.

You have scored well in most of the modules, except for "Enterprise Management," where you scored 49.0. It's important to identify the reasons for the lower score and try to improve in that area in the future. You can also consider seeking help from your professors or peers to understand the concepts better.

Overall, it's good to keep up the good work and continue to strive for excellence in your academics.

It's also advisable to plan your courses well in advance, considering your interests and career aspirations.

The dashboard features a sidebar on the left with icons for Skills, Achievements, In-Course, Module Types, Module Info, ExtraCurriculum, Activity Management, Roles Undertaken, Others, Time Machine, Portfolios, Settings, and another Settings icon. The main area has a search bar with placeholder text "check &module& and give me some advise". A response box displays a message from the system. Below the search bar is a "Module Information list" table with columns: Module No., Module Name, Module Type, Mark, Credit, and Module Description. The table contains four rows of data.

Module No.	Module Name	Module Type	Mark	Credit	Module Description
3412110079	About the Forbidde...	Public Elective Cours...	100.0	2.0	Online
3512164021	Linear Algebra	Public Elective Cours...	90.0	3.0	2020Fall
EBU4201	Introductory Java Pr...	Compulsory Courses	90.0	4.0	2022Spring
EBU5402	Enterprise managem...	Compulsory Courses	49.0	2.5	2021Fall

Figure 8.2: AI response of module