iGrad - User Guide

By: `Team-iGrad` Since: `Feb 2020`

1. Introduction

Welcome! Thanks for choosing to use iGrad.

Are you a student? Have you been struggling to manage your academic administrative matters whilst trying to juggle a heavy school workload? If so, then iGrad, the ground-breaking graduation tracking application is for you. This official iGrad User Guide will help guide you as you explore the ways to make managing your graduation much more efficient!

2. How to use this guide

To navigate this guide, please scroll back to the top of this page and look at the table of contents. If you wish to go to a certain section, simply click on the name of the section!

Also, we make use of certain symbols throughout this guide to help emphasis multiple things. The following symbols are:

⚠️	Specifies the constraints of the command or situation.
ℹ️	Specifies expected command outcomes.
💡	Specifies extra tips you can use when navigating through our app.
❗	Specifies important things to take note of

3. Quick Start

3.1. Installation

Follow the steps below to get started with iGrad:

1. Ensure that you have Java 11 installed on your computer. Java 11 is bundled together with the Java Development Kit and can be found here
2. Download the .jar file from our latest release!
3. Copy or move the downloaded file into an **empty** folder.

   Ensure that the folder is empty! Doing otherwise might result in unexpected errors.

4. Simply double-click on the file to begin! We hope we make tracking your graduation a breeze!

3.2. Using the app

- If you wish to type in a command, click the command box and type in your command

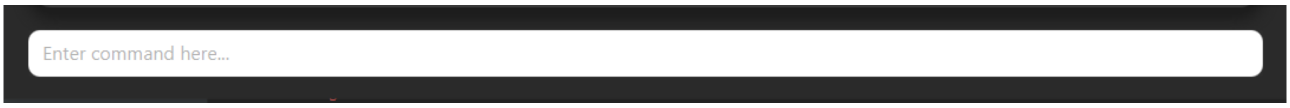


Figure 1. The Command Box

- To minimize the window, press the minimize button as shown circled in yellow
- To make the window full-screen, press the full-screen button as shown circled in green
- To close the window, press the close button as shown circled in red

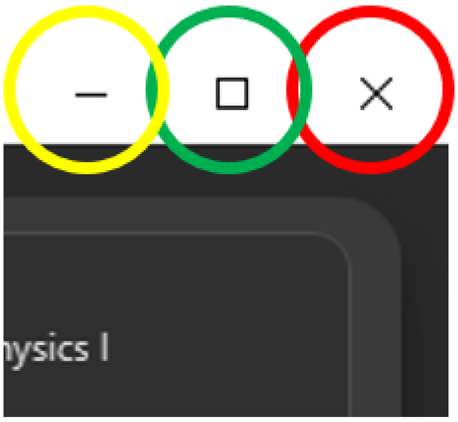


Figure 2. Window Controls

4. Features

Section by: Nathanael Seen

This segment highlights three key features iGrad offers to NUS students, namely; a Course Planner, an MCs (Modular Credits) Tracker, and a CAP (Cumulative Average Point) Tracker.

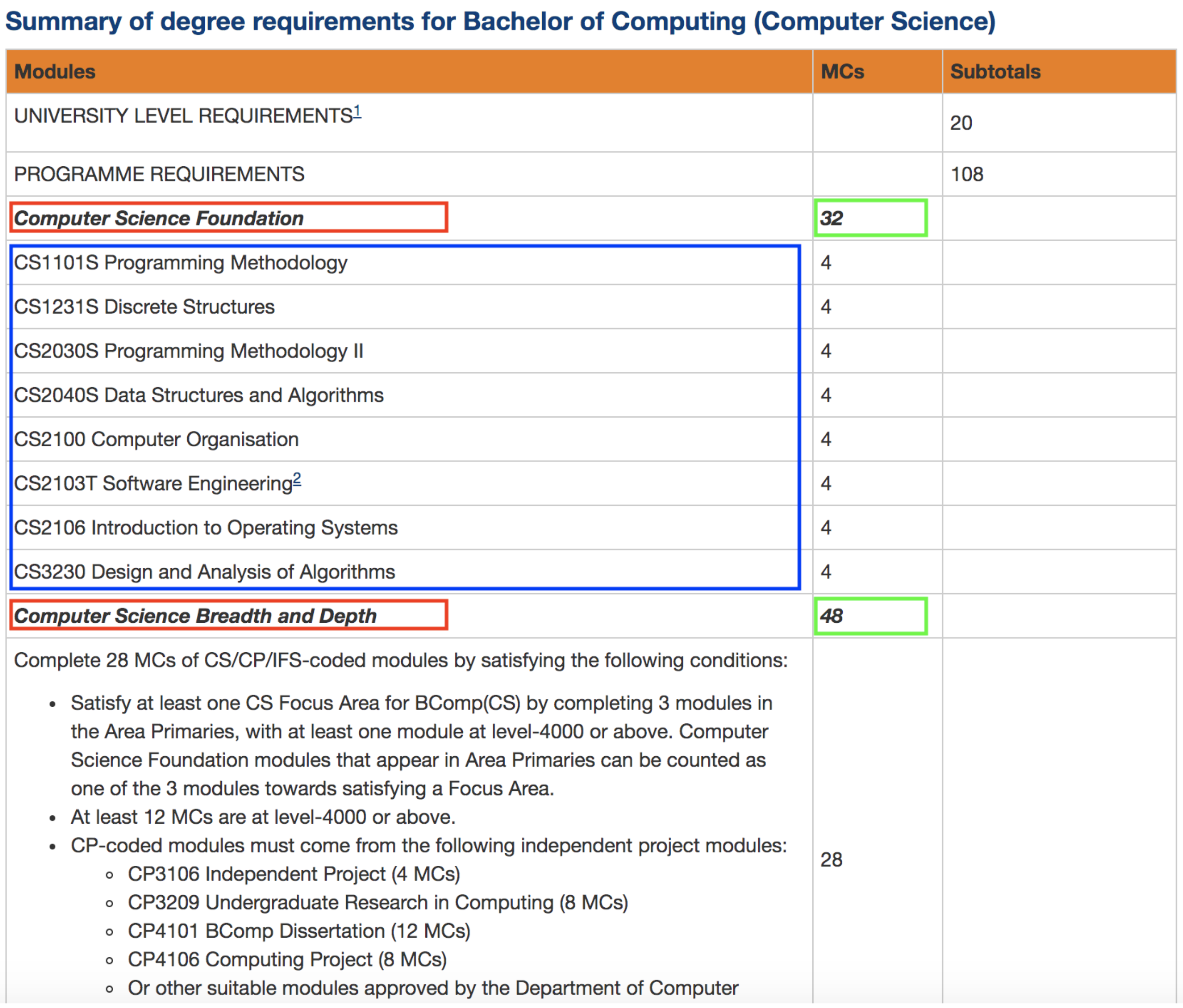
If you would like a more in-depth overview of the actual components of our application, please refer to the next segment; Section 5, “Components”, for more details.

4.1. Course Planner

iGrad was built with every NUS student in mind. Our flexible course planner allows you to plan a course of your own dreams, be it those of you doing a single degree programme, a double degree programme, and even a concurrent degree programme.

With our course planner, you would be able to enter your current course details such as your **modules** and the various **requirements** by which those modules are categorised under.

Take for instance, the *Computer Science* course. There so are so many **modules**, highlighted in blue, and **requirements**, boxed in red, you have to keep track of:



Summary of degree requirements for Bachelor of Computing (Computer Science)

Modules	MCs	Subtotals
UNIVERSITY LEVEL REQUIREMENTS[1]		20
PROGRAMME REQUIREMENTS		108
Computer Science Foundation	***32***	
CS1101S Programming Methodology	4	
CS1231S Discrete Structures	4	
CS2030S Programming Methodology II	4	
CS2040S Data Structures and Algorithms	4	
CS2100 Computer Organisation	4	
CS2103T Software Engineering[2]	4	
CS2106 Introduction to Operating Systems	4	
CS3230 Design and Analysis of Algorithms	4	
Computer Science Breadth and Depth	***48***	
Complete 28 MCs of CS/CP/IFS-coded modules by satisfying the following conditions: • Satisfy at least one CS Focus Area for BComp(CS) by completing 3 modules in the Area Primaries, with at least one module at level-4000 or above. Computer Science Foundation modules that appear in Area Primaries can be counted as one of the 3 modules towards satisfying a Focus Area. • At least 12 MCs are at level-4000 or above. • CP-coded modules must come from the following independent project modules: ◦ CP3106 Independent Project (4 MCs) ◦ CP3209 Undergraduate Research in Computing (8 MCs) ◦ CP4101 BComp Dissertation (12 MCs) ◦ CP4106 Computing Project (8 MCs) ◦ Or other suitable modules approved by the Department of Computer	28	

Figure 3. Computer Science Degree Programme

But our flexible course planner takes care of all these details for you.

4.2. MCs Tracker

We are sick of counting our MCs at the beginning of every semester. Be it counting the total number of MCs left before you can graduate, or counting the number of MCs left for those invidual requirements (boxed in green, in *Figure 1* above).

With our MCs feature, you would be able to easily keep track of how close you are to graduation, as all this information is automatically updated and recomputed, each time you have completed a certain module.

4.3. CAP Tracker

No more googling for CAP calculators. iGrad’s CAP tracker helps you keeps track of your current CAP at every step of your journey in your course.

In addition, it also offers predictive features so you know how well you have to do in order to achieve your dream CAP.

4.4. Everything Integrated into one Application

But the best part of it, is that these features are all integrated into one application; *iGrad*.

And with all these important pieces of information in one place, you would never go amiss keeping track of your graduation requirements.

5. Components

This segment details the various components of *iGrad*.

As shown in *Figure 2* below, the components of our application follows a hierachical structure, exactly like how an (NUS) course is structured:

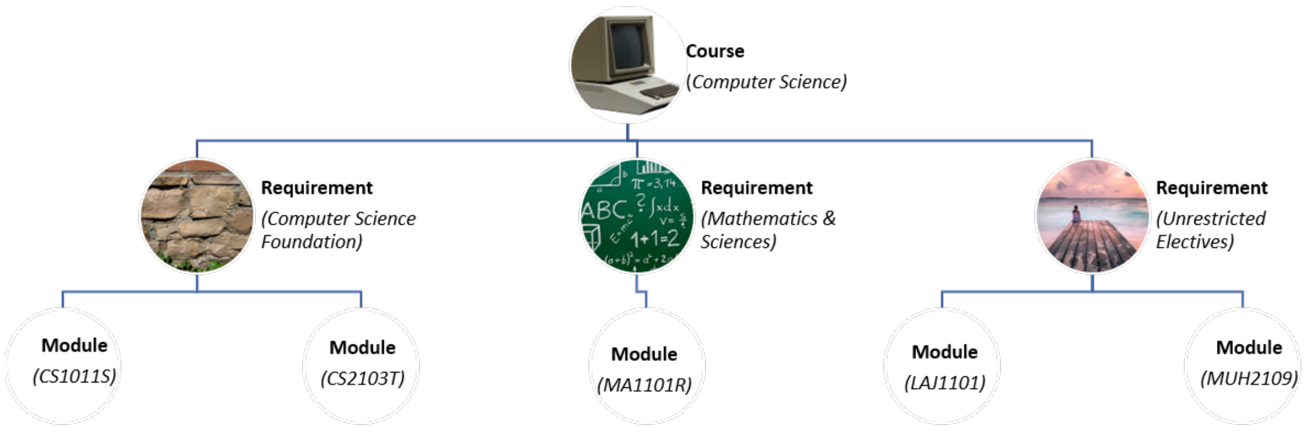
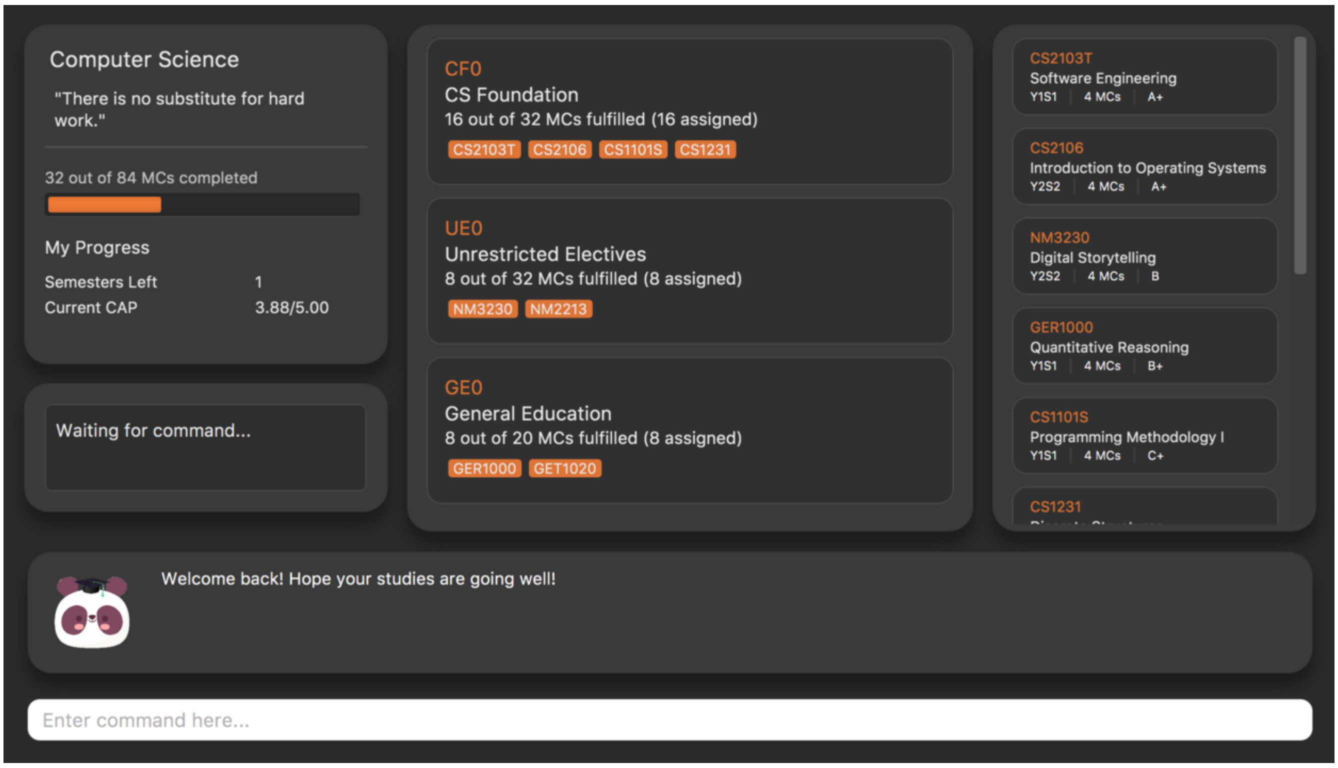


Figure 4. Overview of iGrad Components

Here is how our application looks like (on a typical usage):



Computer Science
"There is no substitute for hard work."
32 out of 84 MCs completed
My Progress
Semesters Left 1
Current CAP 3.88/5.00
Waiting for command...

CF0
CS Foundation
16 out of 32 MCs fulfilled (16 assigned)
CS2103T CS2106 CS1101S CS1231

UE0
Unrestricted Electives
8 out of 32 MCs fulfilled (8 assigned)
NM3230 NM2213

GE0
General Education
8 out of 20 MCs fulfilled (8 assigned)
GER1000 GET1020

CS2103T
Software Engineering
Y1S1 | 4 MCs | A+

CS2106
Introduction to Operating Systems
Y2S2 | 4 MCs | A+

NM3230
Digital Storytelling
Y2S2 | 4 MCs | B

GER1000
Quantitative Reasoning
Y1S1 | 4 MCs | B+

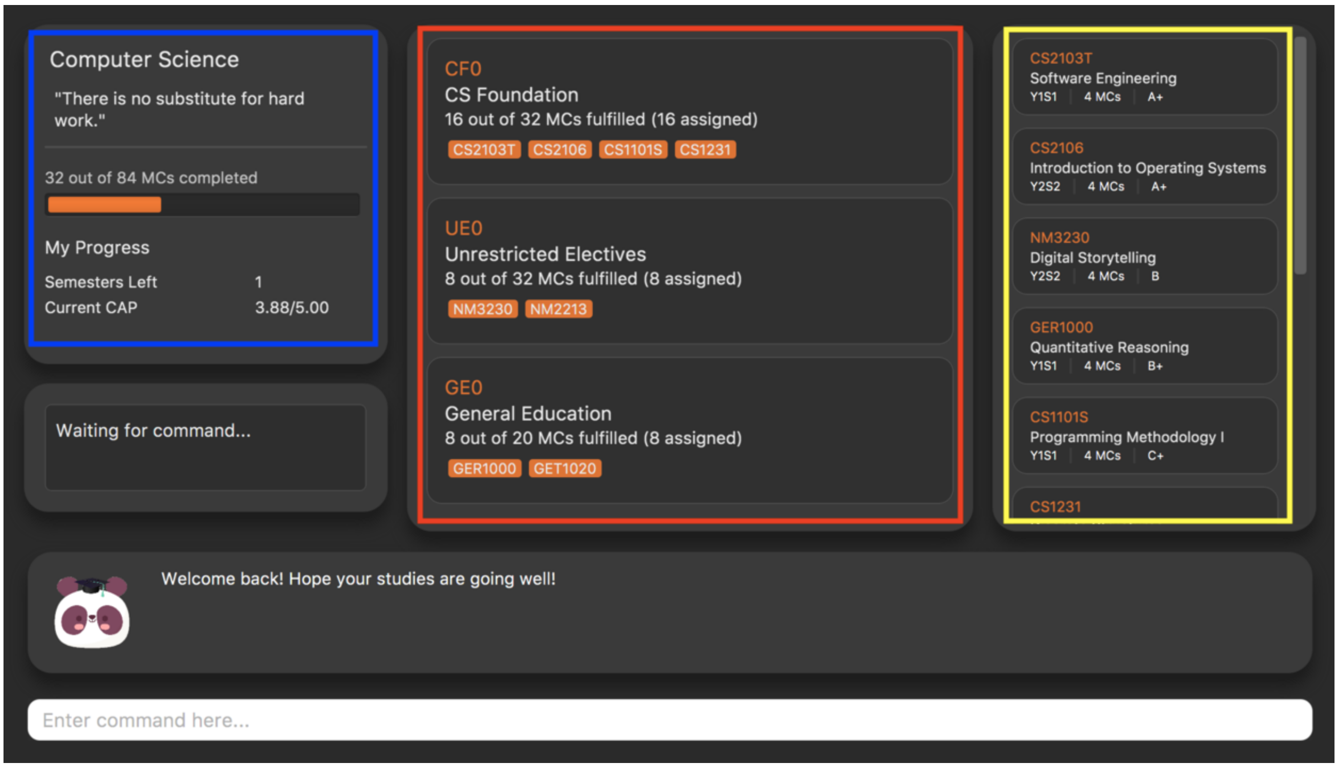
CS1101S
Programming Methodology I
Y1S1 | 4 MCs | C+

CS1231

Welcome back! Hope your studies are going well!

Figure 5. iGrad Application

The following is the same screenshot of our application, but with the various components of our application highlighted:



Computer Science

"There is no substitute for hard work."

32 out of 84 MCs completed

My Progress

Semesters Left	1
Current CAP	3.88/5.00

Waiting for command...

CF0
CS Foundation
16 out of 32 MCs fulfilled (16 assigned)
CS2103T CS2106 CS1101S CS1231

UE0
Unrestricted Electives
8 out of 32 MCs fulfilled (8 assigned)
NM3230 NM2213

GE0
General Education
8 out of 20 MCs fulfilled (8 assigned)
GER1000 GET1020

CS2103T
Software Engineering
Y1S1 | 4 MCs | A+

CS2106
Introduction to Operating Systems
Y2S2 | 4 MCs | A+

NM3230
Digital Storytelling
Y2S2 | 4 MCs | B

GER1000
Quantitative Reasoning
Y1S1 | 4 MCs | B+

CS1101S
Programming Methodology I
Y1S1 | 4 MCs | C+

CS1231

Welcome back! Hope your studies are going well!

Enter command here...

Figure 6. iGrad Components

As per the screenshot above (in *Figure 4*):

- Course is indicated in blue,
- Requirements are indicated in red, and
- Modules are indicated in yellow

You may refer to *Figure 2* above, if you would like a quick recap on the hierarchical structuring of these components.

5.1. Course

A course is simply a group of requirements.

It contains important information such as your current CAP, the total number of MCs you have completed so far, and the number of semesters left before you can graduate.

5.2. Requirements

Under a course are the various requirements, such as the ones shown in *Figure 2* above; *Computer Science Foundation*, *Mathematics and Sciences*, and *Unrestricted Electives*.

Each requirement comprises of the modules under it, which you have to complete in order to fulfill that particular requirement.

Additionally, each requirement also consists of important information such as the number of MCs you have already fulfilled for that particular requirement.

5.3. Modules

Finally, modules are the basic building block of all the other components.

These could be the modules you have taken, the modules you are currently taking or the modules that you plan to take.

Each module allows recording of other optional information, such as the grade you have obtained for those modules.

6. Walkthrough

Section by: Daryl & Teri

This segment details a simple tutorial on how to use the application. It provides a step-by-step guide on how to utilise the main components of the application, and covers the following:

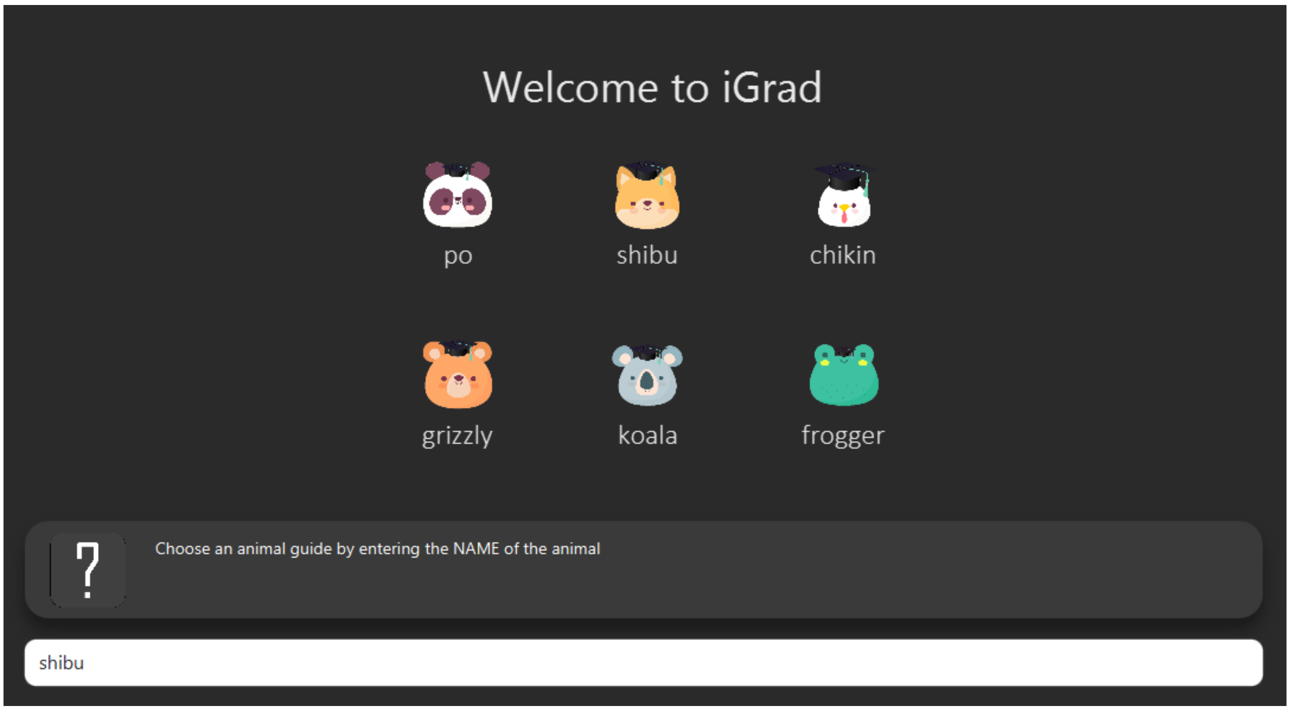
- Choosing an `Avatar`
- Adding a `Course`
- Adding a course `Requirement`
- Adding a `Module`
- Assigning a `Module` to a `Requirement`
- Adding additional details to a `Module`
- Marking as `Module` as done and assigning a `Grade` to it
- Tracking your academic progress: `MCs` and `CAP`
- Exporting your data

The following pages consist of a 10-step guide on how to use `iGrad`.

6.1. Start up the application

Section by: Daryl

- Open up the application by opening the `iGrad.jar` file.
- Select an avatar by typing its name before pressing enter.
- The avatar will act as your guide for the application.



Choose an animal guide by entering the NAME of the animal

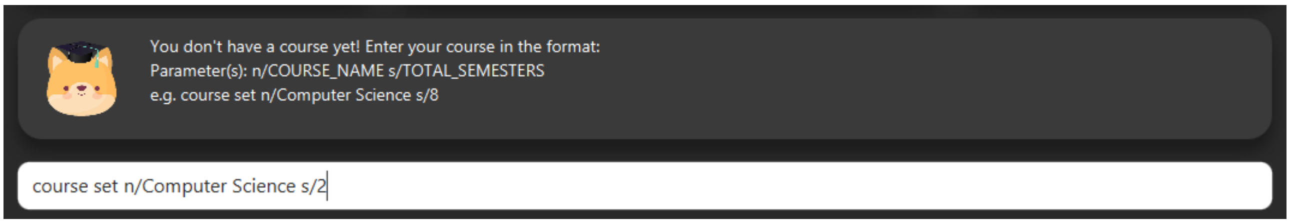
shibu

Figure 7. Avatar Selection

6.2. Enter your course details

Section by: Daryl

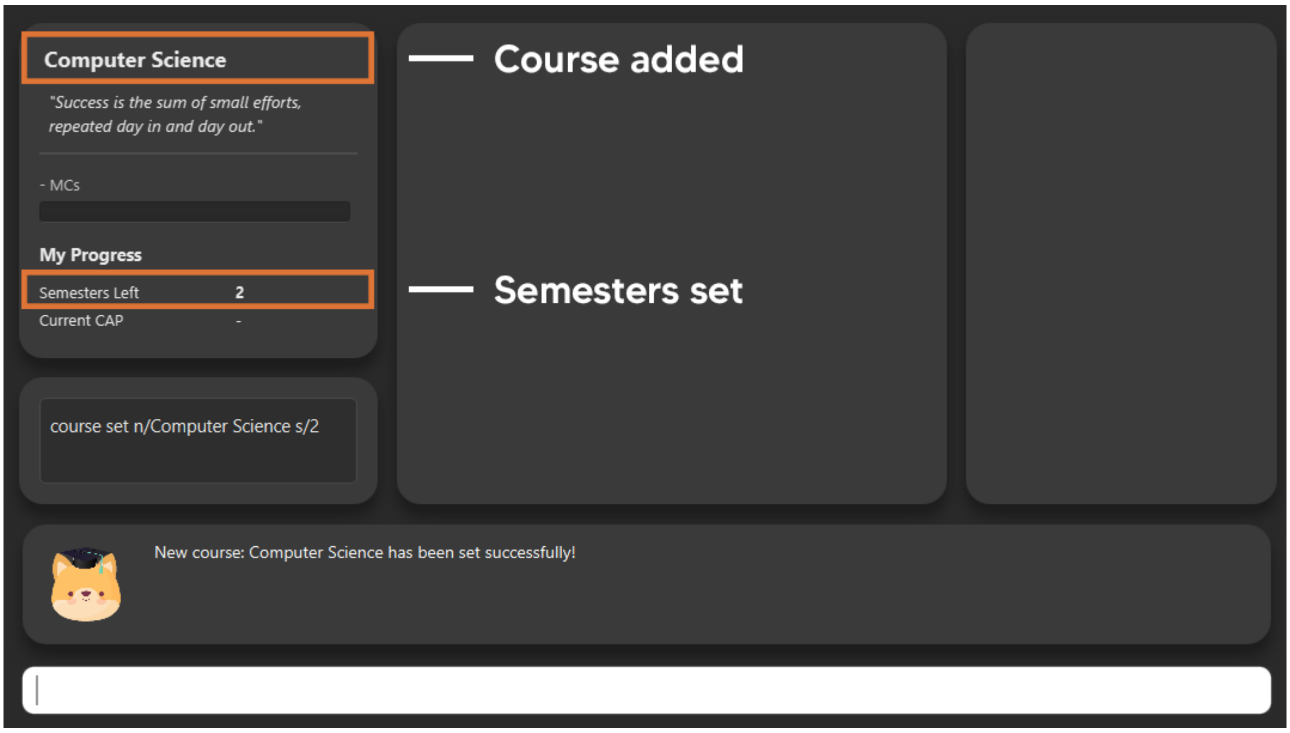
- Course refers to the name of the course you are currently enrolled in.
- Enter the name of your course in the format: `course add n/COURSE_NAME s/TOTAL_SEMESTERS`
- E.g. `course add n/Computer Science s/2`



You don't have a course yet! Enter your course in the format:
Parameter(s): n/COURSE_NAME s/TOTAL_SEMESTERS
e.g. course set n/Computer Science s/8

```
course set n/Computer Science s/2
```

Figure 8. Course Set Command



Computer Science

"Success is the sum of small efforts, repeated day in and day out."

- MCs

My Progress

Semesters Left	2
Current CAP	-

```
course set n/Computer Science s/2
```

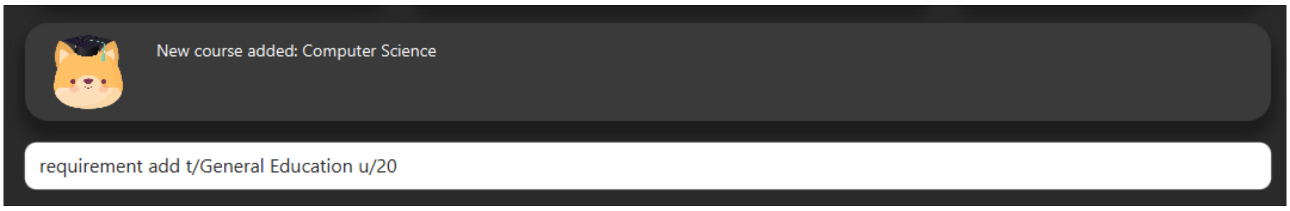
New course: Computer Science has been set successfully!

Figure 9. A Successfully Set Course

6.3. Key in your graduation requirements

Section by: Daryl

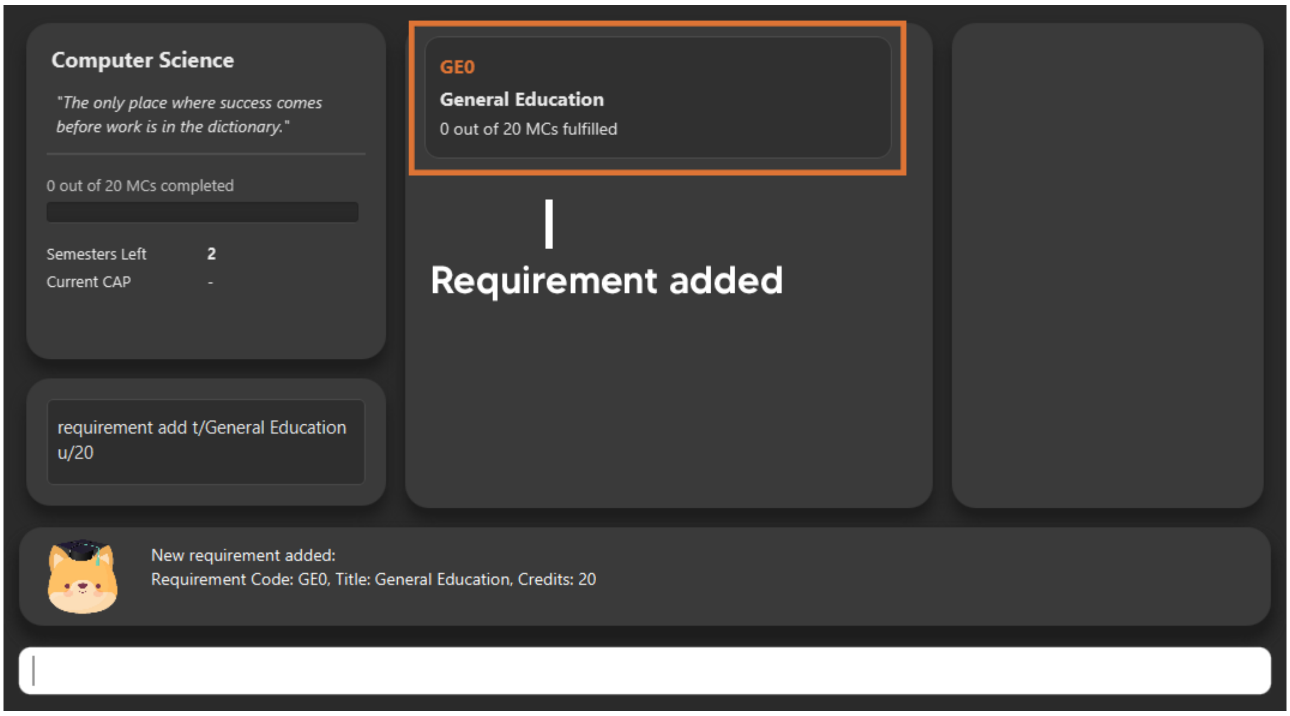
- Requirements refer to degree requirements needed in the entered course.
- Enter your course graduation requirements in the format: `requirement add t/REQUIREMENT_TITLE u/MCS_REQUIRED`
- E.g. `requirement add n/General Education u/20`



New course added: Computer Science

```
requirement add t/General Education u/20
```

Figure 10. Requirement Add Command



Computer Science

"The only place where success comes before work is in the dictionary."

0 out of 20 MCs completed

Semesters Left 2

Current CAP -

```
requirement add t/General Education u/20
```

GE0

General Education

0 out of 20 MCs fulfilled

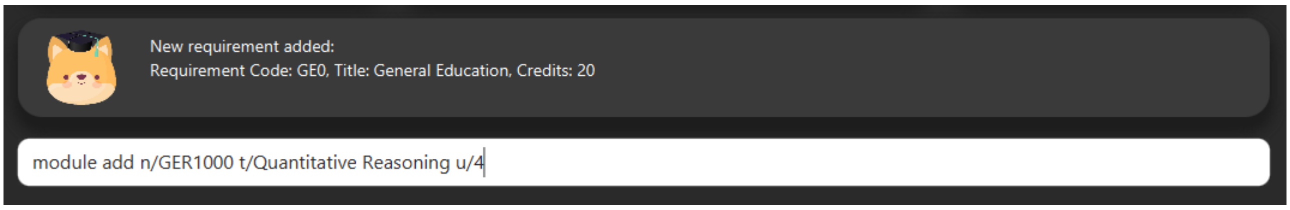
New requirement added:
Requirement Code: GE0, Title: General Education, Credits: 20

Figure 11. Successfully Added Requirement

6.4. Add modules to the tracker

Section by: Daryl

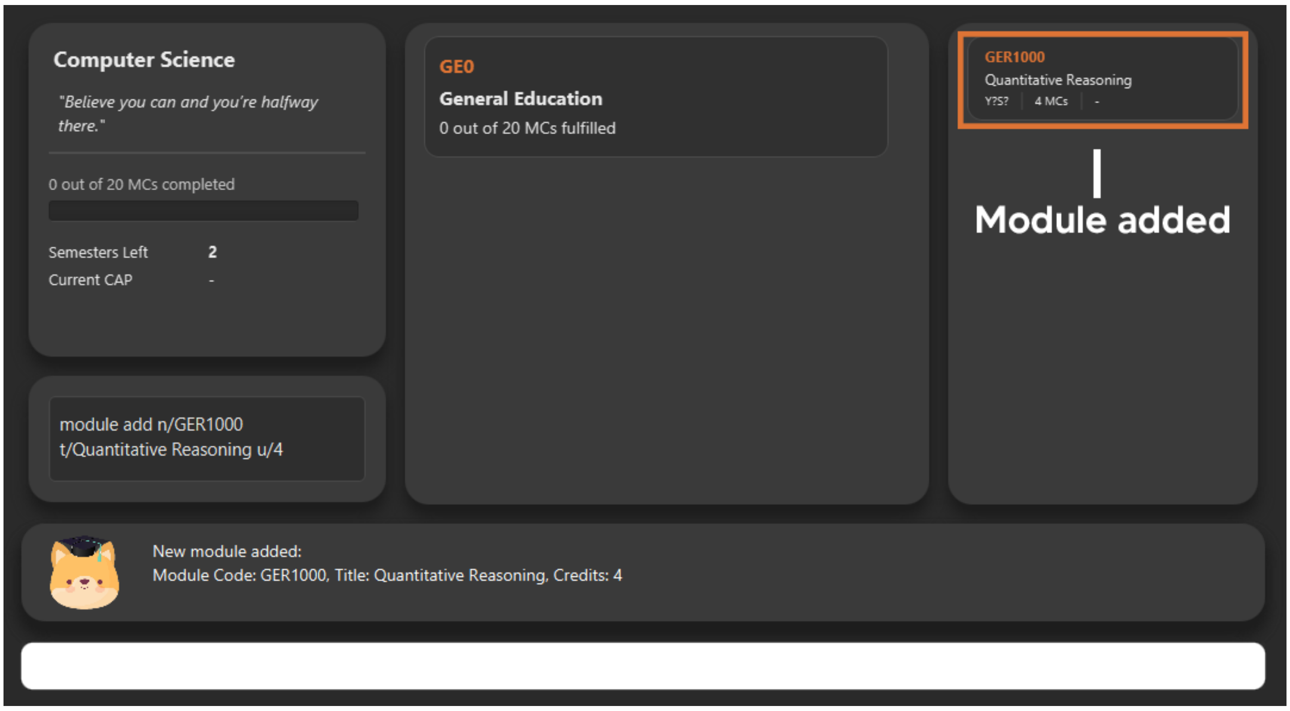
- Modules refer to modules that you have taken or are planning to take.
- Enter modules into the system in the format: `module add n/MODULE_CODE t/MODULE_TITLE u/MCs`
- E.g. `module add n/GER1000 t/Quantitative Reasoning u/4`



New requirement added:
Requirement Code: GE0, Title: General Education, Credits: 20

```
module add n/GER1000 t/Quantitative Reasoning u/4
```

Figure 12. Module Add Command



Computer Science

"Believe you can and you're halfway there."

0 out of 20 MCs completed

Semesters Left	2
Current CAP	-

```
module add n/GER1000
t/Quantitative Reasoning u/4
```

GE0
General Education
0 out of 20 MCs fulfilled

GER1000
Quantitative Reasoning
Y?S? | 4 MCs | -

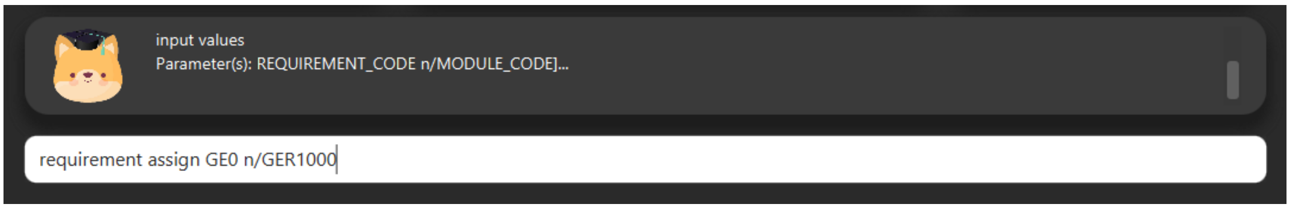
New module added:
Module Code: GER1000, Title: Quantitative Reasoning, Credits: 4

Figure 13. Successfully Added Module

6.5. Assign your modules

Section by: Daryl

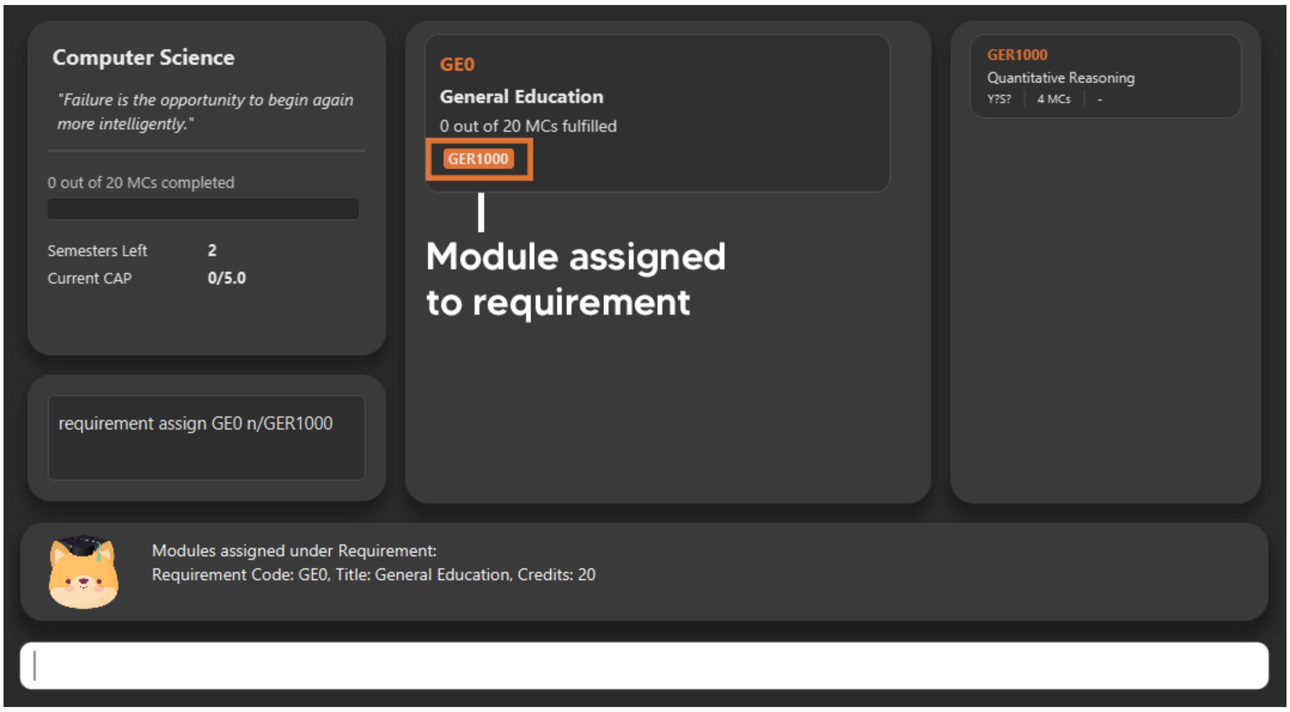
- Assign modules under their respective requirements.
- Enter assign in the format: `requirement assign REQUIREMENT_CODE n/MODULE_CODE`
- Note: Requirement codes are generated by the system.
- E.g. `requirement assign GE0 n/GER1000`



```
input values
Parameter(s): REQUIREMENT_CODE n/MODULE_CODE]...
```

```
requirement assign GE0 n/GER1000
```

Figure 14. Requirement Assign Command


Computer Science
"Failure is the opportunity to begin again more intelligently."
0 out of 20 MCs completed
Semesters Left 2
Current CAP 0/5.0
GE0
General Education
0 out of 20 MCs fulfilled
GER1000
Module assigned to requirement
GER1000
Quantitative Reasoning
Y?S? 4 MCs -

```
requirement assign GE0 n/GER1000
```

```
Modules assigned under Requirement:
Requirement Code: GE0, Title: General Education, Credits: 20
```

Figure 15. Successfully Assigned Module

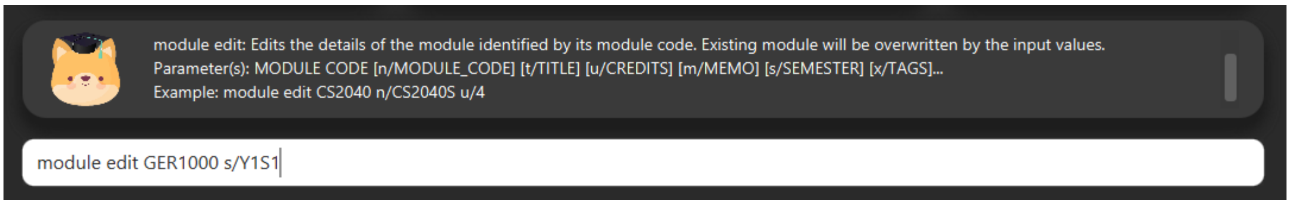
6.6. Key in additional details for your modules

Section by: Teri

- Edit modules with additional information such as Semester. Other information that has already be input can be edited as well.
- Enter edit to be done to the module in the format: `module edit MODULE_CODE s/SEMESTER`

For Semester, it has to follow the format of `Y_S_`

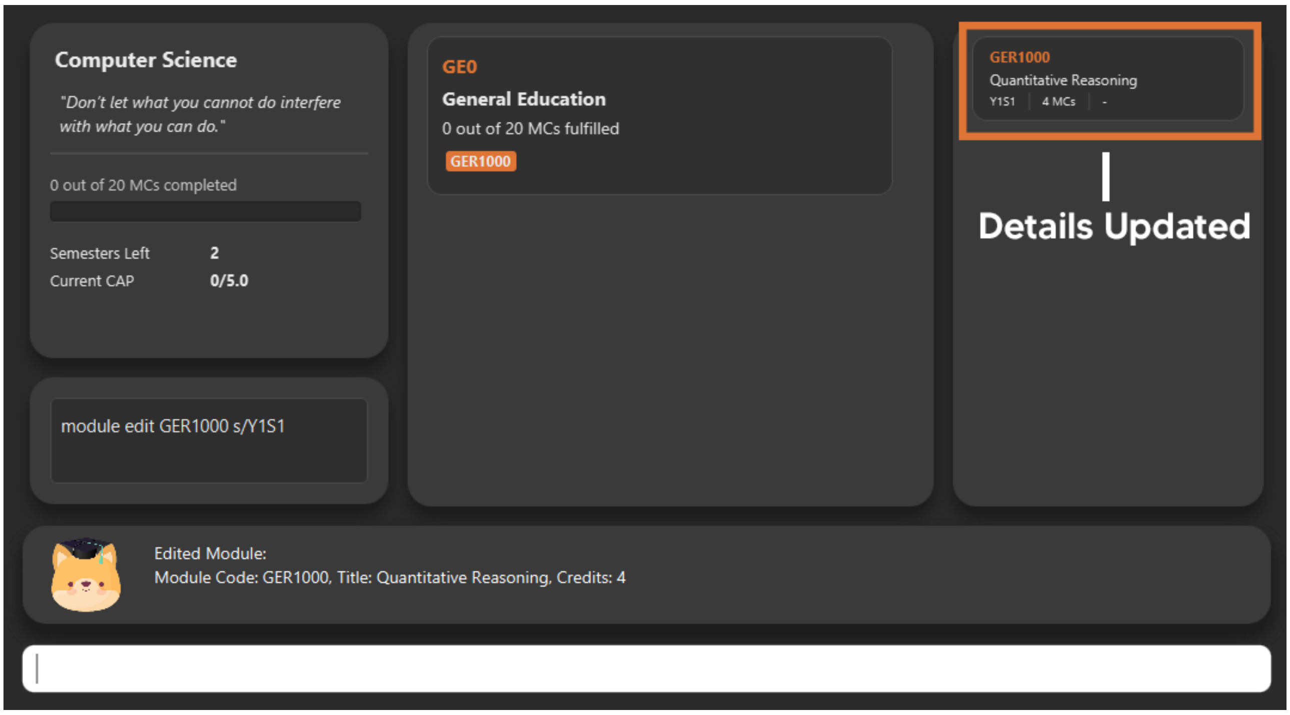
- E.g. `module edit GER1000 s/Y1S1`



```
module edit: Edits the details of the module identified by its module code. Existing module will be overwritten by the input values.
Parameter(s): MODULE CODE [n/MODULE_CODE] [t/TITLE] [u/CREDITS] [m/MEMO] [s/SEMESTER] [x/TAGS]...
Example: module edit CS2040 n/CS2040S u/4
```

```
module edit GER1000 s/Y1S1
```

Figure 16. Module Edit Command



```
module edit GER1000 s/Y1S1
```

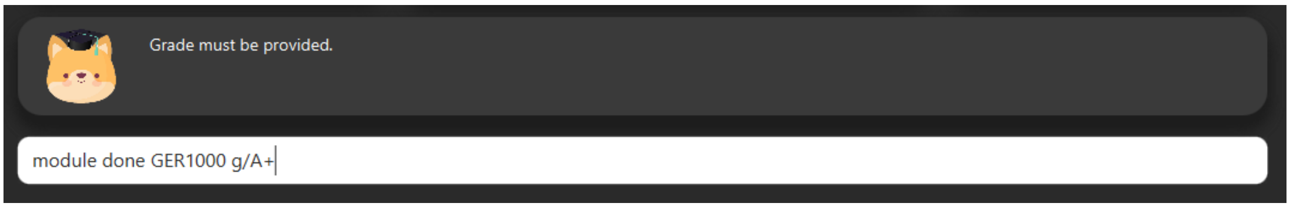
```
Edited Module:
Module Code: GER1000, Title: Quantitative Reasoning, Credits: 4
```

Figure 17. Successfully Edited Module

6.7. Mark a module as done and assign a grade to it

Section by: Teri

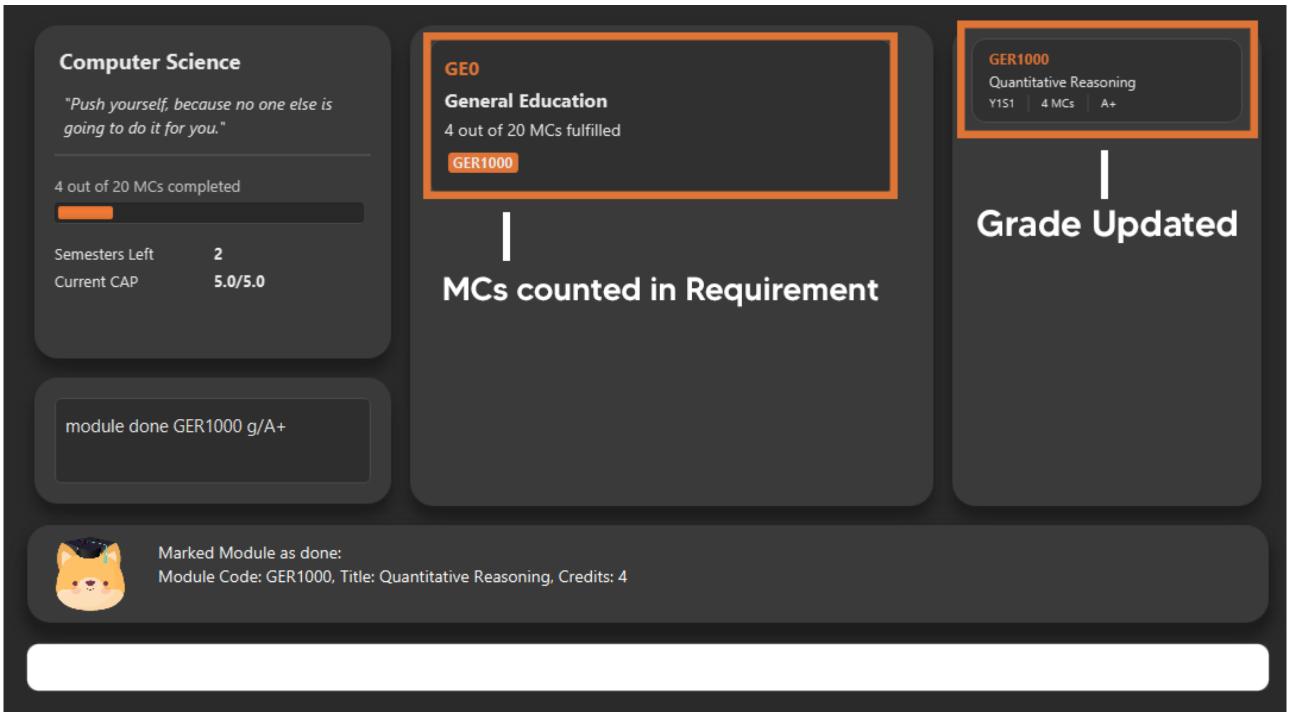
- A module is considered as done when a grade is assigned to it.
- Enter grade for the module in the format: `module done MODULE_CODE g/GRADE`
- E.g. `module done GER1000 g/A+`



```
Grade must be provided.
```

```
module done GER1000 g/A+
```

Figure 18. Module Done Command



Computer Science

"Push yourself, because no one else is going to do it for you."

4 out of 20 MCs completed

Semesters Left	2
Current CAP	5.0/5.0

```
module done GER1000 g/A+
```

GE0
General Education
4 out of 20 MCs fulfilled
GER1000

GER1000
Quantitative Reasoning
Y1S1 | 4 MCs | A+

```
Marked Module as done:
Module Code: GER1000, Title: Quantitative Reasoning, Credits: 4
```

Figure 19. Successfully Marked as Done Module

6.8. Track your MCs

Section by: Teri

- MCs refer to Module Credits.
- MCs are automatically tracked and updated.
- Total MCs count is the total of all requirement MCs.
- MCs are fulfilled when modules that are within a requirement are marked done.

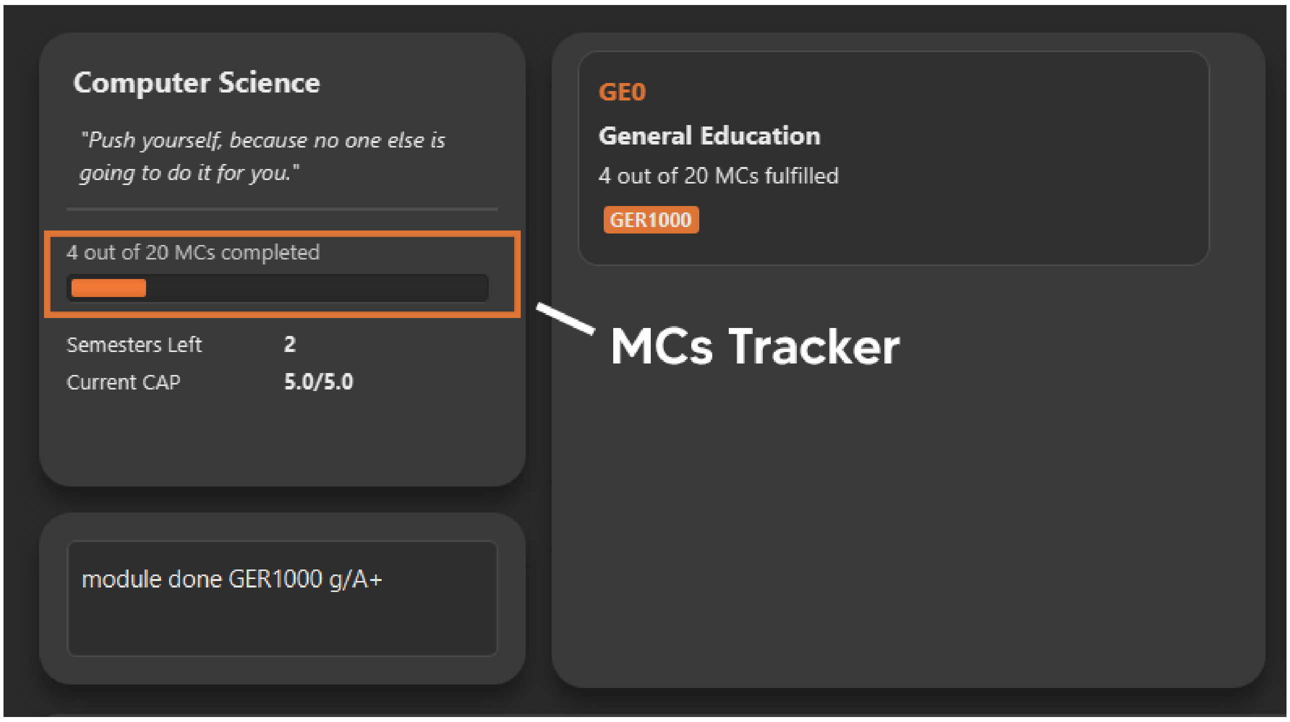
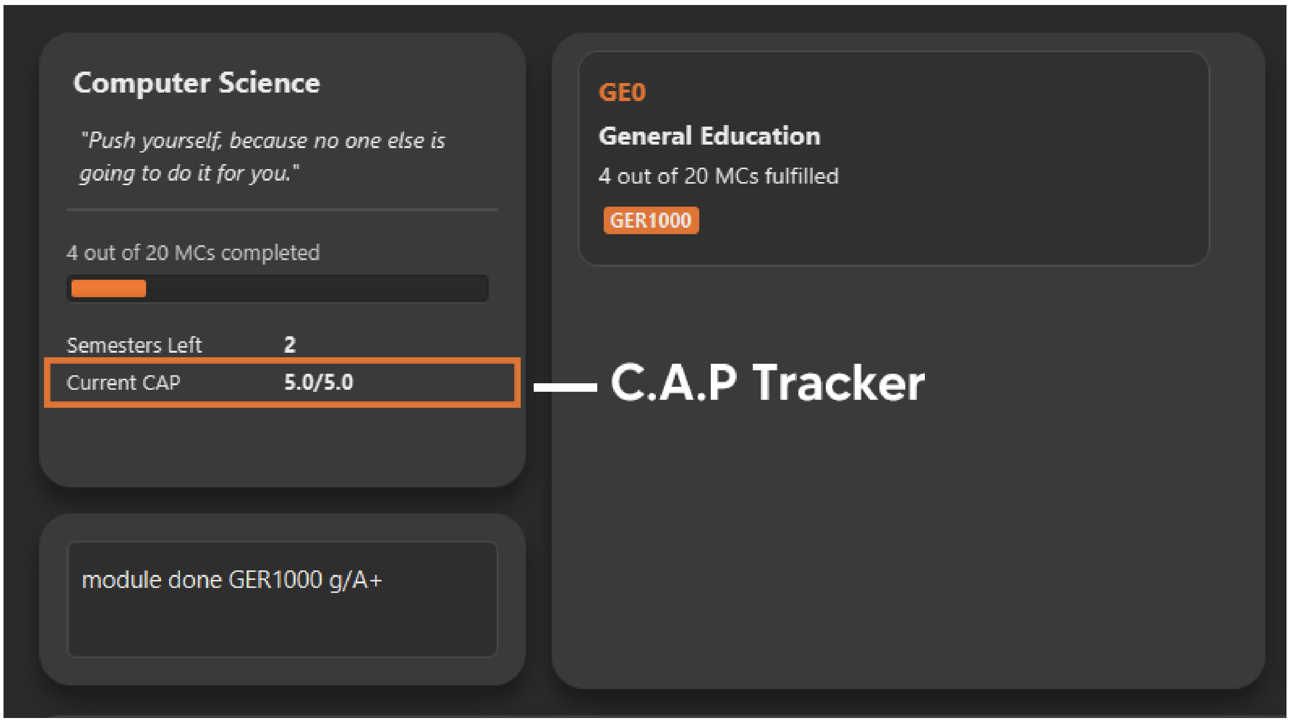

Computer Science
"Push yourself, because no one else is going to do it for you."
4 out of 20 MCs completed
Semesters Left 2
Current CAP 5.0/5.0
module done GER1000 g/A+
GE0
General Education
4 out of 20 MCs fulfilled
GER1000
MCs Tracker

Figure 20. Module Credits Tracked

6.9. View your CAP

Section by: Teri

- CAP refers to Cumulative Average Points and is out of 5 (max).
- CAP is automatically tracked and updated.
- CAP is updated whenever a module within a requirement is marked done with a grade.


Computer Science
"Push yourself, because no one else is going to do it for you."
4 out of 20 MCs completed
Semesters Left 2
Current CAP 5.0/5.0
C.A.P Tracker
GE0
General Education
4 out of 20 MCs fulfilled
GER1000

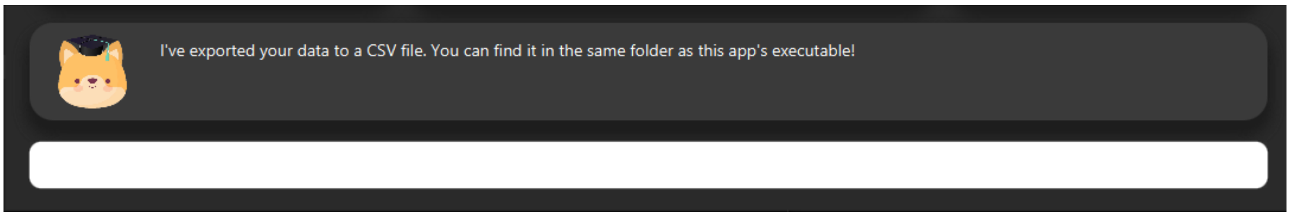
```
module done GER1000 g/A+
```

Figure 21. CAP Tracked

6.10. Export your data

Section by: Teri

- Data of your entire study plan can to exported to a comma-separated values (.csv) file.
- Export your data in the format: `export`



I've exported your data to a CSV file. You can find it in the same folder as this app's executable!

Figure 22. Export Command

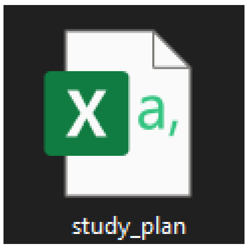


Figure 23. Successfully exported file - study_plan.csv

Data file can be found in the same folder as this application.

7. Command List

Section by: Yijie

This section provides a detailed breakdown of the various commands you may use in iGrad. Please read Section 7.1, “Command Format” to understand how our commands work!

7.1. Command Format

Section by: Yijie

This section explains the syntax for the commands in iGrad. You may move onto Section 7.2, “Help” if you are already familiar with our syntax which involves the command word(s), prefixes, parameters, specifiers and flags.

The table below summarises the components of our syntax, using `module` commands as example.

Table 1. Command Format Components

Component	Description	Example
Command Word(s)	Command words tell iGrad what command you are trying to perform.	E.g. `module add`.
Prefix	Prefixes tell iGrad what kind of information you are trying to key in. A prefix consists of an alphabet followed by a forward slash (i.e. `/`).	E.g. `t/` is the prefix for `TITLE`.
Parameter	Parameters tell iGrad the information you want to key in. Parameters are specified in **uppercase**. Parameters come directly after a prefix, and you can chain prefix-parameters pairs.	E.g. In `t/TITLE`, `TITLE` is the parameter where you can key in your desired title.
Specifier	Specifiers inform iGrad of the item you want to edit or delete. To differentiate them from the properties of the item you are trying to modify, they do not come with prefixes.	E.g. In the `module edit CS2103T t/Hardware Engineering` command, `CS2103T` is the module we are trying to edit, and `Hardware Engineering` is what we want to set as the new module title.

Component	Description	Example
Flag	Flags tell iGrad to use a different version of the command. Flags consist of a dash (i.e. `-`) followed by an alphabet. Flags can only be indicated at the end of the command.	E.g. `module add n/CS2101 -a` adds a module by pulling its data from NUSMods.

We have also listed all the parameters and their corresponding prefixes in the table below. If square brackets (i.e. `[ ]`) are specified around a parameter-prefix pair, this means that the parameter-prefix pair is optional. However, do note that if all parameter-prefix pairs are indicated with square brackets, this means that at least one of them must be provided. Parameter-prefix pairs which can be entered multiple times in a single command are also indicated by ellipses (i.e. `…`) behind the parameter.

Table 2. Parameter Prefix Pairs

Parameter	Prefix
`NAME` or `CODE`	`n/`
`TITLE`	`t/`
`CREDITS`	`u/`
`SEMESTER`	`s/`
`GRADE`	`g/`
`CAP`	`c/`

The two flags used in iGrad are listed in the table below.

Table 3. Flags

Flag	Purpose
`-a`	Informs iGrad to use automated module adding by pulling data of modules from NUSMods. Only used in the ModuleAutoAdd command.
`-o`	Informs iGrad to use the or option when filtering modules. Only used in the ModuleFilter command.

7.2. Help

Section by: Yijie

This command opens up a help window for easy reference on the list of commands that can be used in iGrad. A link is also provided to direct users to the user guide for more detailed explanations.

Table 4. Help Quick Reference

Purpose	Opens a help window with a list of commands
Syntax	`help`
Example	`help`

7.3. Course

Section by: Yijie

This section details each command used in manipulating the course. All course commands begin with the identifier `course`, followed by the action, e.g. `set`.

All course commands use the same parameters, as listed in the table below:

Table 5. Course Parameters

Name	Description	Example	Restrictions
`COURSE_NAME`	The course name	Computer Science	-
`SEMESTER`	The total number of semesters you will be spending in NUS	8	Must be a number less than 100.

If the parameter restrictions are not strictly adhered to when issuing a course command, or if iGrad cannot find what you're looking for, you might come across a common error. The following error is generic and may be encountered when dealing with any course command:

Table 6. Course Parameters Error Reference

Parameter	Error Name
`COURSE_CREDITS`	Invalid Course Credits

This error can be resolved by adhering to the restriction detailed in Table 5, "Course Parameters"

7.3.1. Course Set

This command sets the course.

Table 7. Course Set Quick Reference

Purpose	Sets the course
Syntax	`course set n/COURSE_NAME s/SEMESTERS`
Example	`course set n/Computer Science s/8`

How it Works

When you type in this command, we take the values given for the `COURSE_NAME` and `SEMESTERS` and fill in those fields for your course. We do not check if the given course refers to actual courses in NUS. However, restrictions stated in the Requirement Parameters table still apply.

Table 8, "Course Set Error Reference" lists errors you might encounter after issuing this command:

Table 8. Course Set Error Reference

Name	Message	Explanation	Solution
Parameters Not Provided Error	All fields to be filled, course set n/COURSE_NAME s/SEMESTERS	Not all parameters needed to set the course have been provided	Provide all parameters prepended with their prefixes

Tutorial

Follow these steps to get a clearer idea of how this command works.

For this tutorial, actual values will be given instead of placeholders. You may undo changes made from this tutorial by using the appropriate command.

1. Ensure that you do not have a course yet. You may do so by deleting the existing course with the `course delete` command.
2. Type the following into the command box: `course set n/Computer Science s/8`, and press enter.
3. The message in the response box should change and you should see the course name and semesters updated in the top left corner panel.

7.3.2. Course Edit

This command edits the editable fields in a course which include the `COURSE_NAME` and `SEMESTERS`.

Course name does not need to be specified.

Table 9. Course Edit Quick Reference

Purpose	Edits the course
Syntax	`course edit [n/COURSE_NAME] [s/SEMESTERS]`
Example	`course edit n/Engineering s/8`

How it Works

When you issue the command, we replace the fields provided with the given values. You are able to change the values as you wish as long as they follow the restrictions as listed in the parameters table.

Table 10, "Course Edit Error Reference" lists the errors you might encounter after issuing this command:

Table 10. Course Edit Error Reference

Name	Message	Explanation	Solution
Parameters Not Provided Or Not Modified	At least one field to edit must be provided	Parameters needed to edit the course are not provided	Try specifying either the name or the credits, or provide a value that is different from the existing one

Tutorial

For this tutorial, actual values will be given instead of placeholders. You may undo or delete objects created from this tutorial by using the appropriate commands.

1. Ensure that you have a course set.
2. Type the following into the command box: `course edit n/Computer Science s/8`, and press enter.
3. The message in the response box should change and you should see the course name and semesters updated in the top left corner panel.

7.3.3. Course Delete

This command **deletes the course as well as all other information stored** in iGrad. Please use with caution!

Course name does not need to be specified.

Table 11. Course Delete Quick Reference

Purpose	Deletes the course
Syntax	`course delete`
Example	`course delete`

Tutorial

You may undo changes made from this tutorial by using the appropriate command.

1. Ensure that you have a course set.
2. Type the following into the command box: `course delete`, and press enter.
3. The message in the response box should change and you should see the course name and semesters disappear, as well as all other information in iGrad.

7.4. Requirement

Section by: Yijie

This section details each command used in manipulating requirements. All requirement commands begin with the identifier `requirement`, followed by the action, e.g. `add`.

All requirement commands use the same parameters, as listed in the table below:

Table 12. Requirement Parameters

Name	Description	Example	Restrictions
`REQUIREMENT_CODE`	A requirement's unique identifier, automagically generated by iGrad based on the requirement title	CSF0	-
`REQUIREMENT_TITLE`	A requirement's title	Computer Science Foundation	Must contain at least one alphabet
`REQUIREMENT_CREDITS`	The number of modular credits needed to fulfill the requirement	32	Must be a positive number less than or equal to 10,000
`MODULE_CODE`	A module's module code, used when assigning or unassigning modules to and from a requirement	CS2103T	Detailed restrictions are specified here, but the requirement-specific restriction is that the module must already be added to iGrad.

If the parameter restrictions are not strictly adhered to when issuing a requirement command, or if iGrad cannot find what you're looking for, you might come across some common errors. The following errors are generic and may be encountered when dealing with any requirement command:

Table 13. Requirement Parameters Error Reference

Parameter	Error Name
`REQUIREMENT_CODE`	Invalid Requirement Code
`REQUIREMENT_TITLE`	Invalid Requirement Title
`REQUIREMENT_CREDITS`	Invalid Requirement Credits

These errors can all be resolved by adhering to the restrictions detailed in Table 12, "Requirement Parameters"

7.4.1. Requirement Add

This command adds a requirement to the requirement list.

Table 14. Requirement Add Quick Reference

Purpose	Adds a requirement
Syntax	`requirement add t/REQUIREMENT_TITLE u/REQUIREMENT_CREDITS`
Example	`requirement add t/Computer Science Foundation u/32`

How it Works

When you type in this command, we take the values given for the `REQUIREMENT_TITLE` and `REQUIREMENT_CREDITS` and fill in those fields for your requirement. We do not check if the given requirement title or credits refer to actual requirements as stated on NUS websites. However, restrictions stated in the Requirement Parameters table still apply.

Table 15, "Requirement Add Error Reference" lists errors you might encounter after issuing this command:

Table 15. Requirement Add Error Reference

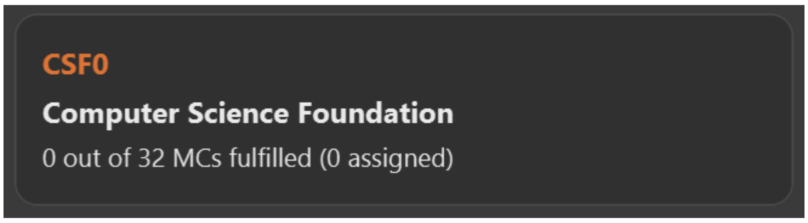
Name	Message	Explanation	Solution
Parameters Not Provided Error	Added requirement must be provided with arguments t/TITLE u/CREDITS	Not all parameters needed to add a requirement are provided	Provide all parameters prepended with their prefixes

Tutorial

Follow these steps to get a clearer idea of how this command works.

For this tutorial, actual values will be given instead of placeholders. You may undo changes made from this tutorial by using the appropriate command.

1. Type the following into the command box: `requirement add t/Computer Science Foundation u/32`, and press enter
2. The message in the response box should change and you should see the following in the requirement panel:



CSF0

Computer Science Foundation

0 out of 32 MCs fulfilled (0 assigned)

Figure 24. Requirement "Computer Science Foundation" successfully added

7.4.2. Requirement Edit

This command edits the editable fields in a requirement which include the `REQUIREMENT_TITLE` and `REQUIREMENT_CREDITS`. The `REQUIREMENT_CODE` is not editable as it is a unique identifier assigned by iGrad.

Table 16. Requirement Edit Quick Reference

Purpose	Edits a requirement
Syntax	`requirement edit REQUIREMENT_CODE [t/REQUIREMENT_TITLE] [u/REQUIREMENT_CREDITS]`
Example	`requirement edit CSF0 t/Engineering Foundation u/40`

How it Works

❗ Please type the requirement code in uppercase.

When you issue the command, we replace the fields provided with the given values. You are able to change the values as you wish as long as they follow the restrictions as listed in the parameters table.

Table 17, “Requirement Edit Error Reference” lists the errors you might encounter after issuing this command:

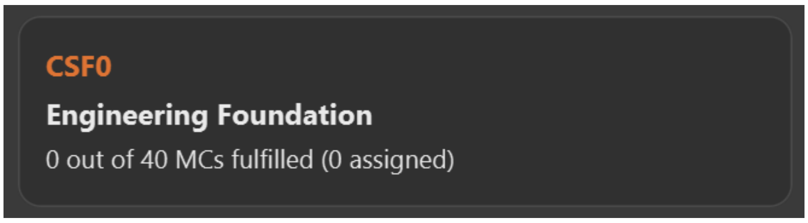
Table 17. Requirement Edit Error Reference

Name	Message	Explanation	Solution
Requirement Not Found Error	The requirement code provided is invalid	The requirement you are attempting to edit does not exist	Try changing the requirement code to one that you can find in the list, or add a new one instead
Parameters Not Provided Or Not Modified	At least one field to edit must be provided	Parameters needed to edit the requirement are not provided	Try specifying either the title or the credits, or provide a value that is different from the existing one

Tutorial

For this tutorial, actual values will be given instead of placeholders. You may undo or delete objects created from this tutorial by using the appropriate commands.

1. Ensure that you have the requirement "Computer Science Foundation", coded CSF0, in the list.
2. Type the following into the command box: `requirement edit CSF0 t/Engineering Foundation u/40`, and press enter.
3. The message in the response box should change and you should see the following updated in the list:



CSF0
Engineering Foundation
0 out of 40 MCs fulfilled (0 assigned)

Figure 25. Requirement "Computer Science Foundation" successfully edited

7.4.3. Requirement Delete

This command deletes a requirement from the list.

Table 18. Requirement Delete Quick Reference

Purpose	Deletes a requirement
Syntax	`requirement delete REQUIREMENT_CODE`
Example	`requirement delete CSF0`

How it Works

The requirement that you wish to delete is completely removed from the list.

> Restoring the requirement is only possible using the `undo` command which would only work if `delete` was the last issued command.

Table 19, “Requirement Delete Error Reference” lists the errors you might encounter after issuing this command:

Table 19. Requirement Delete Error Reference

Name	Message	Explanation	Solution
Requirement Not Found Error	The requirement code provided is invalid	The requirement you are attempting to delete does not exist in the list	Your problem is your solution!

Tutorial

> For this tutorial, actual values will be given instead of placeholders. You may undo objects deleted from this tutorial by using the appropriate command.

1. Ensure that you have the requirement with requirement code "CSF0" in the list.
2. Type the following into the command box: `requirement delete CSF0`, and hit enter.
3. The message in the response box should change and you should see that the requirement CSF0 disappears from the list.

7.4.4. Requirement Assign

This command assigns one or more than one module to a requirement.

Table 20. Requirement Assign Quick Reference

Purpose	Assigns module(s) to a requirement
Syntax	`requirement assign REQUIREMENT_CODE n/MODULE_CODE …`
Example	`requirement assign CSF0 n/CS2103T n/CS2101`

How it Works

The module must already be added in iGrad for this command to work! Refer to Section 7.5.1, “Module Add” to find out how to add a module.

Table 21, “Requirement Assign Error Reference” lists the errors you might encounter after issuing this command:

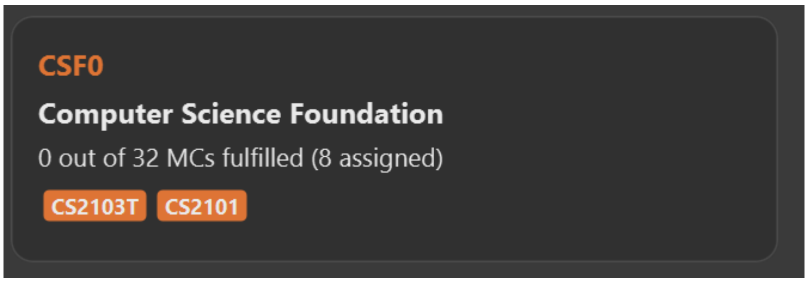
Table 21. Requirement Assign Error Reference

Name	Message	Explanation	Solution
Requirement Not Found Error	The requirement code provided is invalid	The requirement you are attempting to assign to does not exist	Try changing the requirement code to one that you can find in the list
Module Not Found Error	The module does not exit in system	The module you are attempting to assign does not exist	You need to first add the module!
Module Already Assigned Error	The module is already assigned under the requirement	The module has been assigned to the requirement	Try assigning a different module instead

Tutorial

For this tutorial, actual values will be given instead of placeholders. You may undo changes made from this tutorial by using the appropriate command.

1. Ensure that you have the requirement "Computer Science Foundation", coded CSF0, in the list.
2. Type the following into the command box: `requirement assign CSF0 n/CS2103T n/CS2101`, and press enter.
3. The message in the response box should change and you should see the following updated in the list:



CSF0

Computer Science Foundation

0 out of 32 MCs fulfilled (8 assigned)

CS2103T CS2101

Figure 26. Modules successfully assigned to requirement "Computer Science Foundation"

7.4.5. Requirement Unassign

This command unassigns one or more than one module from a requirement.

Table 22. Requirement Unassign Quick Reference

Purpose	Unassign module(s) from a requirement
Syntax	`requirement unassign REQUIREMENT_CODE n/MODULE_CODE …`
Example	`requirement unassign CSF0 n/CS2103T n/CS2101`

How it Works

The module must already be assigned to the requirement for this command to work!

Table 23, “Requirement Unassign Error Reference” lists the errors you might encounter after issuing this command:

Table 23. Requirement Unassign Error Reference

Name	**Message**	**Explanation**	**Solution**
Requirement Not Found Error	The requirement code provided is invalid	The requirement you are attempting to unassign from does not exist	Try changing the requirement code to one that you can find in the list
Module Not Found Error	The module does not exit in system	The module you are attempting to unassign does not exist	You can add the module if you want

Tutorial

For this tutorial, actual values will be given instead of placeholders. You may undo changes made from this tutorial by using the appropriate command.

1. Ensure that you have the requirement "Computer Science Foundation", coded CSF0, in the list, with modules CS2103T and CS2101 assigned to it.
2. Type the following into the command box: `requirement unassign CSF0 n/CS2103T n/CS2101`, and press enter.
3. The message in the response box should change and you should see the modules disappear from the requirement.

7.5. Module

Section by: Wayne

This section details each command used to manipulate modules. All module commands begin with the identifier `module` followed by the action e.g. `add`.

All module commands use the same parameters, listed in the table below:

Table 24. Module Parameters

Name	Description	Example	Restrictions
`MODULE_CODE`	A module's unique identifier	CS2103T	Must have two letters in the front, four numbers in the middle with an optional letter at the back
`MODULE_TITLE`	A module's title	Software Engineering	-
`MODULE_CREDITS`	The number of modular credits a module is worth	4	Must be a number
`SEMESTER`	An academic semester. There are two semesters in a year	Y1S1	Must be in the format Y?S* where ? represents a digit from 0 - 4 and * represents a digit from 1 -2
`GRADE`	A module's grade	A+	Must be one of the following: A+, A, A-, B+, B-, C+, C, D, D+, F, S, U

If, when issuing a command, the parameter restrictions are not strictly adhered to, you might come across some common errors. The following errors are generic and may be encountered when dealing with any module command:

Table 25. Module Parameters Error Reference

Parameter	Error Message
`MODULE_CODE`	The Module Code provided for the module is invalid!
`MODULE_CREDITS`	The Module Credits provided for the module is invalid!
`SEMESTER`	The Semester provided for the module is invalid!
`GRADE`	The Grade provided for the module is invalid!

These errors can all be resolved by adhering to the restrictions detailed in Table 24, “Module Parameters”

7.5.1. Module Add

Section by: Wayne

This command adds a module to the module list.

Table 26. Module Add Quick Reference

Purpose	Adds a module
Syntax	`module add n/MODULE_CODE t/MODULE_TITLE u/MODULE_CREDITS [s/SEMESTER]`
Example	`module add n/CS2103T t/Software Engineering u/4 s/Y1S1`

How it Works

When you type in this command, we take the given values for the `MODULE_CODE`, `MODULE_TITLE`, `MODULE_CREDITS` and optionally, the `SEMESTER`, and fill in those fields. We do not check if the given `MODULE_CODE` or `MODULE_TITLE` refer to actual modules offered by NUS. However, the restrictions stated in the module parameters table still apply.

Table 27, "Module Add Error Reference" lists errors you might encounter after issuing this command:

Table 27. Module Add Error Reference

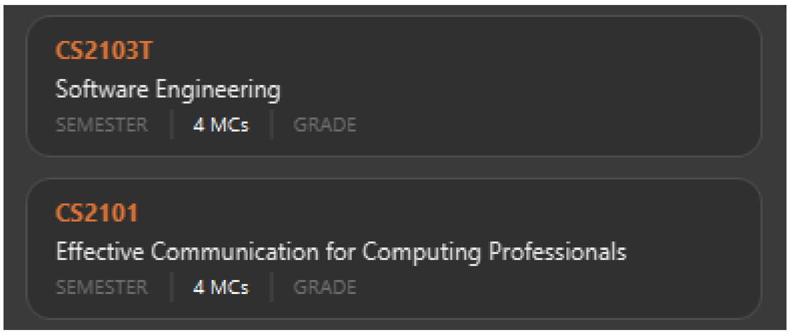
Name	Message	Explanation	Solution
Duplicate Module Error	Sorry, this module already exists in the course book.	The module you are attempting to add already exists in the module list	Delete the existing module in the list and try again

Tutorial

Follow these steps to get a clearer idea of how this command works

For this tutorial, actual values will be given instead of placeholders. Undo or Delete objects created from this tutorial by using the appropriate commands

1. Check that you do not have the modules with `MODULE_CODE` CS2103T and CS2101 in your list of modules
2. Type the following into the command box `module add n/CS2103T u/4 t/Software Engineering` and press enter
3. Type the following into the command box `module add n/CS2101 u/4 t/Effective Communication for Computing Professionals` and press enter
4. The message in the response box should change and you should see the following in the module panel:



CS2103T
Software Engineering
SEMESTER | 4 MCs | GRADE

CS2101
Effective Communication for Computing Professionals
SEMESTER | 4 MCs | GRADE

Figure 27. Modules CS2103T and CS2101 successfully added

7.5.2. Module Auto Add

Section by: Wayne

This command adds a module to the module list. The module information is taken from the NUSMods API and includes the `MODULE_CODE`, `MODULE_TITLE` and `MODULE_CREDITS`.

Table 28. Module Auto Add Quick Reference

Purpose	Adds a module from NUSMods
Syntax	`module add n/MODULE_CODE_A n/MODULE_CODE_B -a`
Example	`module add n/CS2103T n/CS2101 -a`

How it Works

Do not miss out the `-a` flag

When you type in this command, a request is made to NUSMods API. More specifically, we visit the module page and ask for the information provided there. An example page can be found here.

We try to get the module information from the current academic year. However, this might not always be possible as NUS might not have released the module details. As a contingency, we retrieve the module information from the previous academic year.

In general, using this command speeds up the process of module addition greatly. However, as we have to make a request to an external webpage, the time taken to process the request might be considerably longer.

After issuing the command, the app might seem to freeze. Not to worry! It is merely processing your request. Please be patient when executing this command, especially when attempting to add a large number of modules.

This command also supports *batch processing* and you can add multiple modules, with the necessary information all filled in, by issuing a single command. In the case where adding a single module in a batch of modules raises an error, we skip that module and let you know what went wrong.

You can add up to 10 modules at once! Try this: `module add n/CS1101 n/CS1231 n/CS2030 n/CS2040 n/CS2100 n/CS2103T n/CS2105 n/CS2106 n/CS3230 n/CS3219 -a`

Table 29, “Module Auto Add Error Reference” lists the errors you might encounter after issuing this command:

Table 29. Module Auto Add Error Reference

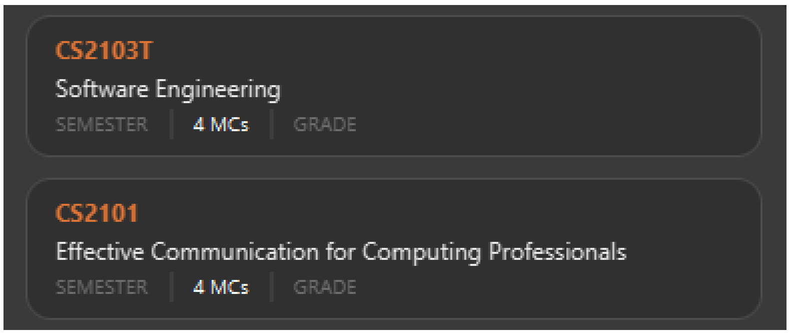
Name	Message	Explanation	Solution
Duplicate Module Error	Duplicate Detected	Sorry, this module already exists in the course book.	Delete the existing module in the list and try again
Module Not Found Error	Module Not Found	Sorry, I was unable to find this module. Is your internet down?	Use the command Section 7.5.1, “Module Add” instead
Module Overload Error	Module Overload Error	Please do not attempt to add more then 10 modules.	Divide the list of modules into smaller batches of size less than 10 and try again
Connection Error	Connection Error	Sorry, I was unable to find this module. Is your internet down?	Whilst all other commands work offline. You need an internet connection to issue this command. Go online before trying again

Tutorial

Follow these steps to get a clearer idea of how this command works

For this tutorial, actual values will be given instead of placeholders. Undo or Delete objects created from this tutorial by using the appropriate commands

1. Check that you do not have the modules with `MODULE_CODE` CS2103T and CS2101 in your list of modules
2. Type the following into the command box `module add n/CS2103T n/CS2101 -a` and press enter
3. Wait for up to 5 seconds
4. The message in the response box should change and you should see the following in the module panel


CS2103T
Software Engineering
SEMESTER | 4 MCs | GRADE

CS2101
Effective Communication for Computing Professionals
SEMESTER | 4 MCs | GRADE

Figure 28. Modules CS2103T and CS2101 successfully added from NUSMods

Additional Information

We are also able to retrieve information pertaining to a module’s prerequisites and preclusions. However, as our app can function as a module planner in addition to tracking your graduation requirements, we do not prevent you from adding modules that have unfulfilled prerequisites but instead, simply show a warning.

As the prerequisites and preclusions from NUSMods do not follow any standard formatting, the warning messages shown might not always be accurate. This is due to a difficulty of interpreting the data given by NUSMods. This remains a BETA feature and we hope to upgrade it in time.

7.5.3. Module Done

Section by: Wayne

This command marks a module as done by giving it a grade and optionally, a semester.

Table 30. Module Done Quick Reference

Purpose	Marks a module as done
Syntax	`module done MODULE_CODE g/GRADE [s/SEMESTER]`
Example	`module done CS2103T g/A s/Y1S1`

How it Works

When you issue the command, we give your module the grade, and optionally the semester, that you provided. This helps us keep track of both your CAP and the number of semesters you have left before graduating.

In order to calculate your CAP, we use a known algorithm which is guaranteed to be accurate. To see what semester you are currently at, we take the latest semester given to a module which has been marked as done. From that, we are able to tell you how many semesters you have left.

We do not currently allow the input of special terms. As a workaround, for modules taken during special term, you could input the most recent semester instead

Table 31, “Module Done Error Reference” lists the errors you might encounter after issuing this command:

Table 31. Module Done Error Reference

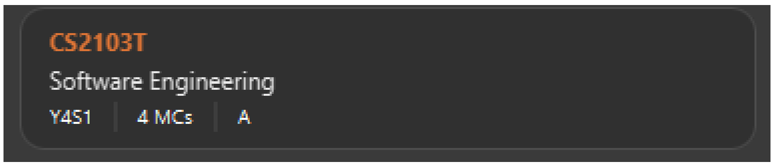
Name	Message	Explanation	Solution
Module Not Found Error	Sorry, I was unable to find this module.	The module you are attempting to mark as done does not exist in the module list	Add the module you wish to mark as done and try again

Tutorial

For this tutorial, actual values will be given instead of placeholders. Undo or Delete objects created from this tutorial by using the appropriate commands

Ensure that you have the module CS2103T in the module list

1. Type the following into the command box `module done CS2103T g/A s/Y4S1`
2. The message in the response box should change and you should see the following



CS2103T
Software Engineering
Y4S1 | 4 MCs | A

Figure 29. Modules CS2103T successfully given a grade and a semester

7.5.4. Module Edit

Section by: Wayne

This command edits the editable fields in a module which include the `MODULE_TITLE`, `MODULE_CREDITS`, `SEMESTER`. Although it is possible to edit the fields as listed, it is unadvisable unless you made a mistake while keying in the values.

Table 32. Module Edit Quick Reference

Purpose	Edits a module
Syntax	`module edit MODULE_CODE [t/MODULE_TITLE] [u/MODULE_CREDITS] [s/SEMESTER]`
Example	`module edit CS2103T t/Hardware Engineering u/8 s/Y1S2`

How it Works

When you issue the command, we replace the fields provided with the given values. You are able to change the values as you wish as long as they follow the restrictions as listed in the parameters table.

Table 33, “Module Edit Error Reference” lists the errors you might encounter after issuing this command:

Table 33. Module Edit Error Reference

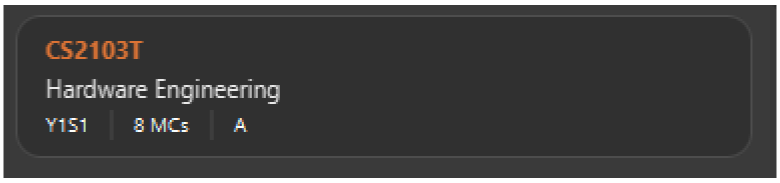
Name	Message	Explanation	Solution
Module Not Found Error	Sorry, I was unable to find this module	The module you are attempting to edit does not exist in the module list	Instead of editing a module that does not exist, try adding a new one!

Tutorial

For this tutorial, actual values will be given instead of placeholders. Undo or Delete objects created from this tutorial by using the appropriate commands

Ensure that you have the module CS2103T in the module list

1. Type the following into the command box `module edit CS2103T t/Hardware Engineering s/Y1S1 u/8`
2. The message in the response box should change and you should see the following



CS2103T
Hardware Engineering
Y1S1 | 8 MCs | A

Figure 30. Modules CS2103T successfully given a grade and a semester

7.5.5. Module Delete

Section by: Wayne

This command deletes a module from the module list.

Table 34. Delete Quick Reference

Purpose	Deletes a module
Syntax	`module delete MODULE_CODE`https://xxx[]
Example	`module delete CS2103T`

How it Works

The module that you wish to delete is completely removed from the module list.

Restoring the module is only possible using the `undo` command which would only work if `delete` was the last issued command.

Table 35, "Module Delete Error Reference" lists the errors you might encounter after issuing this command:

Table 35. Module Delete Error Reference

Name	Message	Explanation	Solution
Module Not Found Error	Sorry, I was unable to find this module	The module you are attempting to delete does not exist in the module list	Your problem is your solution!

Tutorial

For this tutorial, actual values will be given instead of placeholders. Undo or Delete objects created from this tutorial by using the appropriate commands

Ensure that you have the module CS2103T in the module list

1. Type the following into the command box `module delete CS2103T`
2. The message in the response box should change and you should see that the module CS2103T disappears from the module list

7.5.6. Module Filter

Section by: Wayne

This command allows you to find your modules by various parameters. You can filter the complete module list by `SEMESTER`, `MODULE_CREDITS` and `GRADE`.

Table 36. Filter Quick Reference

Purpose	Displays a module list filtered based on the given parameters
Syntax	`module filter [s/SEMESTER] [u/MODULE_CREDITS] [g/GRADE] [-o]`
Example	`module filter s/Y1S1 u/4 g/A -o`

How it Works

Two options are provided for you:

[Option 1] Displays modules that match all provided parameters

or

[Option 2] Displays modules that match at least one of the provided parameters.

If the flag `-o` is included at the end of the command, Option 2 will be chosen. Otherwise, the default option is Option 1.

In order to display all modules once again, simply type `module filter`. This will display an unfiltered module list containing all modules.

There are no notable errors to list. If wrong parameters are given, the app will simply display the unfiltered module list. However, you should always take note of what filters are currently in place. If you are unable to find some modules after using this command, please reset the display by typing in `module filter`.

If you are unable to find some modules after using this command, please reset the display by typing in `module filter`.

Tutorial

Ensure that the following modules are in the module list:

Module Code	Credits	Semester	Grade
CS2103T	4	Y1S1	A
CS2101	4	Y1S2	B
CS2040	6	Y2S1	C

a. Retrieving modules which have 4 `CREDITS`
   1. Type `module filter u/4` into the command box
   2. The message in the response box should change and you should see the modules CS2103T and CS2101 in the module panel

b. Retrieving modules which have either `SEMESTER` Y1S2 or `GRADE` C
   1. Type `module filter s/Y1S1 g/B -o`
   2. The message in the response box should change and you should see the modules CS2101 and CS2040 in the module panel

Additional Information

> This section contains information which requires prior knowledge of discrete mathematics or more specifically, logical operators

The flag `-o`, is present, sets the logical operator used in concatenating the parameters as *"or"*. The default logical operator used is *"and"*.

7.6. Export

Section by: Wayne

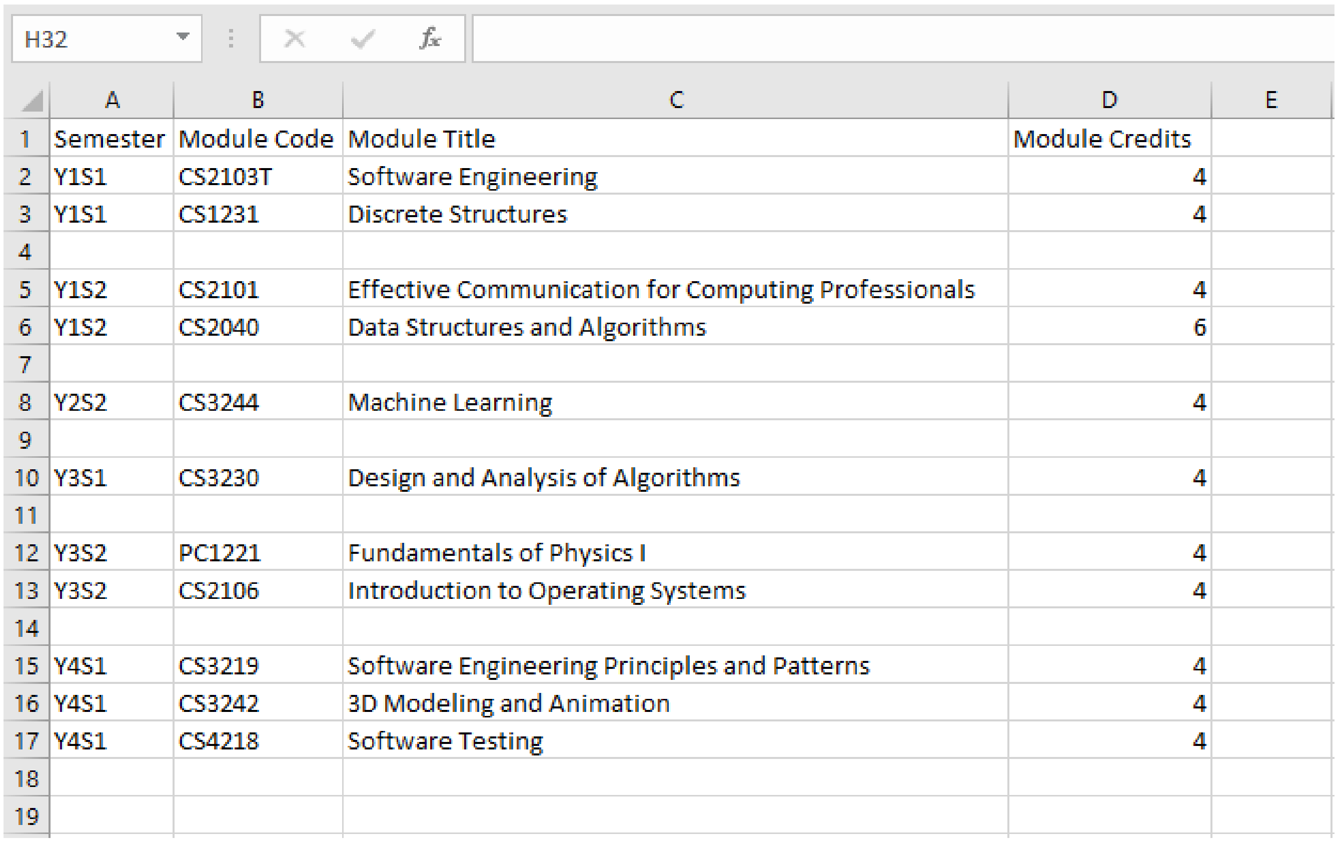
This command exports your data to a comma-separated values (.csv) file. This file can then be submitted to the relevant administration for processing of Leave of Absence (LOA), exchange programmes or internship applications.

Table 37. Export Quick Reference

Purpose	Exports your data to a .csv file
Syntax	`export`
Example	`export`

How it Works

We write your data to a .csv file *study_plan.csv* using the modules you have added and include the fields `MODULE_CODE`, `MODULE_TITLE`, `SEMESTER` and `CREDITS`.



H32

	A	B	C	D	E
1	Semester	Module Code	Module Title	Module Credits	
2	Y1S1	CS2103T	Software Engineering	4	
3	Y1S1	CS1231	Discrete Structures	4	
4					
5	Y1S2	CS2101	Effective Communication for Computing Professionals	4	
6	Y1S2	CS2040	Data Structures and Algorithms	6	
7					
8	Y2S2	CS3244	Machine Learning	4	
9					
10	Y3S1	CS3230	Design and Analysis of Algorithms	4	
11					
12	Y3S2	PC1221	Fundamentals of Physics I	4	
13	Y3S2	CS2106	Introduction to Operating Systems	4	
14					
15	Y4S1	CS3219	Software Engineering Principles and Patterns	4	
16	Y4S1	CS3242	3D Modeling and Animation	4	
17	Y4S1	CS4218	Software Testing	4	
18					
19					

Figure 31. Study Plan Example CSV

Modules that have not been tagged with a semester will not be written

After issuing the command, you will be able to find the file in the same folder as the app's executable.

For example, if the app is stored in your Desktop folder, the file *study_plan.csv* will be created in the Desktop folder as well

Table 38, “Export Error Reference” lists the errors you might encounter after issuing this command:

Table 38. Export Error Reference

Name	Message	Explanation	Solution
Write Error	Unable to write to file	Sorry, I was unable to export data to CSV file. Please ensure that you do not have the file 'study_plan.csv' open	Close the file and try again
Data Not Found Error	Sorry, I couldn’t find any modules that are tagged to a semester! I can only export modules that are tagged with a semester.	You do not have any modules tagged with a semester	Tag at least one module with a semester and try again

7.7. Exit

Section by: Wayne

This command assists you in exiting the program.

Table 39. Exit Quick Reference

Purpose	Exits the program
Syntax	`exit`
Example	`exit`

Additional Information

You can also exit the program by clicking the close icon on the top right hand corner of the application’s window.

8. Version 2.0

Section by: Wayne

This sections details features that would be packaged with the next release

8.1. Module Suggester

Section by: Wayne

Using tried and tested recommendation algorithms such as collborative filtering, we would be able to automatically suggest to you what modules to take next.

Table 40. Suggest Quick Reference

Purpose	Suggests modules to take
Syntax	`suggest NUMBER_OF_MODULES`
Example	`suggest 4`

8.2. Integration with NUSMods

Section by: Wayne

We plan to integrate with popular timetabling application NUSMods so that you can manage all aspects of your academics in one place.

9. FAQs

I’m not an NUS student. Can I still use iGrad?

As long as your university follows a similar hierachical structure! However, we will be unable to provide features such as validation from NUSMods.

Do I require an online connection to use iGrad?

Nope! iGrad may be used offline. However, our validation feature which utilises NUSMods would be unavailable, and you’ll have to key in your module details manually.

Where can I get the icons for the avatars?

The avatar icons were obtained from Freepik. All credits go to the original creator.

10. Cheat Sheet

Section by: Daryl

This segment contains a consolidated view of all the commands utilised in `iGrad`. Commands are split into the following categories:

- Essential Commands
- Course Commands
- Requirement Commands
- Module Commands

10.1. Essential Commands

Table 41. Essential Commands

Description	Command
Open the help window	`help`
Undo last command	`undo`
Export data	`export`
Exit the application	`exit`

10.2. Course Commands

Table 42. Course Commands

Description	Command
Add a `Course`	`course set n/COURSE_NAME s/TOTAL_SEMESTERS`
Edit the `Course`	`course edit n/COURSE_NAME s/TOTAL_SEMESTERS`
Delete the `Course`	`course delete`
Find out `CAP` required per semester for desired `CAP`	`course achieve c/DESIRED_CAP s/SEMESTERS_LEFT`

10.3. Requirement Commands

Table 43. Requirement Commands

Description	Command
Add a `Requirement`	`requirement add t/REQUIREMENT_TITLE u/MCS_REQUIRED`
Edit a `Requirement`	`requirement edit REQUIREMENT_CODE u/MCS_REQUIRED`
Delete a `Requirement`	`requirement delete REQUIREMENT_CODE`
Assigns the `Module`(s) under the requirement.	`requirement assign REQUIREMENT_CODE [n/MODULE_CODE…]`

10.4. Module Commands

Table 44. Module Commands

Description	Command
Add a `Module`	`module add n/MODULE_CODE t/MODULE_TITLE u/MCs [n/DESCRIPTION] [s/SEMESTER] [g/GRADE] [m/MEMO_NOTES]`
Edit a `Module`	`module edit MODULE_CODE [n/MODULE_CODE] [t/MODULE_TITLE] [u/MCs] [s/SEMESTER] [g/GRADE]`
Delete a `Module`	`module delete MODULE_CODE`
Mark a `Module` as done. Counts the modular credits towards academic progress.	`module done MODULE_CODE [g/GRADE] [s/SEMESTER]`

11. Glossary

Terms	Definition
Course	A course is the entire programme of studies required to complete a university degree
Graduation requirement	Requirements specified by the university in order for a student to graduate
Module	Each module of study has a unique module code consisting of a two- or three-letter prefix that generally denotes the discipline, and four digits, the first of which indicates the level of the module
Cumulative Average Point (CAP)	The Cumulative Average Point (CAP) is the weighted average grade point of the letter grades of all the modules taken by the students.
Semester	A semester is a part of the academic year. Each semester typically lasts 13 weeks in NUS.
Modular Credits (MCs)	A modular credit (MC) is a unit of the effort, stated in terms of time, expected of a typical student in managing his/her workload.
NUSMods	A timetabling application built for NUS students, by NUS students. Much like this iGrad!