



---

# Instant Messaging

software for

# Engineers

---

## Member

高毅澧、黃知盈、李天志、徐晟耀、李仲翊、劉峻豪、黃地裕、(甯芝確)

## Teacher

李允中 教授

---

106 SE Course Group2

# OUTLINE

01

Introduction

02

Project Execution

03

Requirement & Design

04

Testing & Demo

# Introduction

- **Member**
- **Work Process**
- **IM Survey**

# Introduction - Member

## Background

Name	Department	Grade	Note
高毅澧	生物系統環境工程研究所	博二	Leader
黃知盈	資訊工程研究所	碩一	
徐晟耀	資訊工程研究所	碩一	
劉峻豪	電機工程研究所	碩一	
黃地裕	資訊工程研究所	碩一	法國交換生
李仲翊	電機工程學系	大四	
李天志	資訊工程學系	大四	西班牙交換生
甯芝薩	資訊工程學系	大三	停修

# Introduction - Member

## Coding Language

Name	C++	Java	Javascript	Python	Other
高毅豐			V		C#
黃知盈	V				PHP
徐晟耀	V				PHP
劉峻豪	V	V		V	
黃地裕		V	V	V	PHP
李仲翊	V		V	V	
李天志		V	V		Objective-C
甯芝蔭	V		V	V	

# Introduction - Member

## Attendance & Contribution

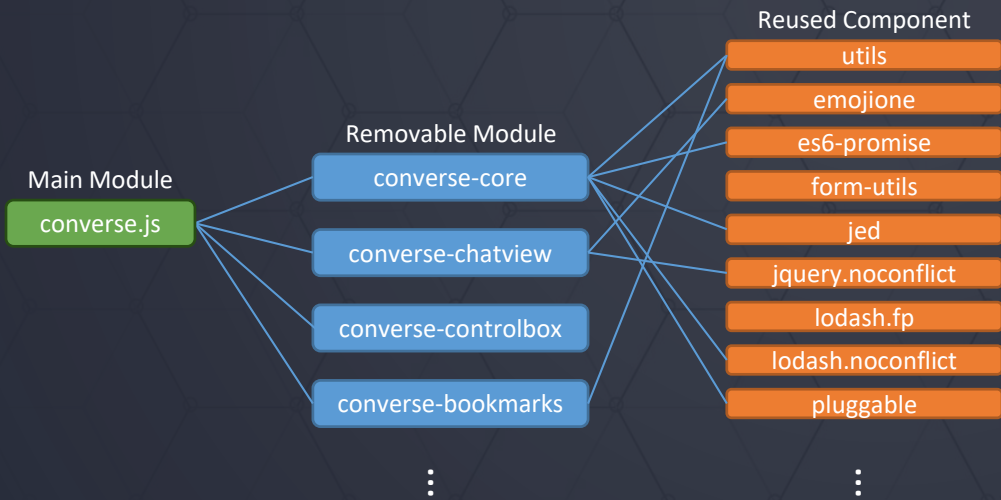
Name	Attendance	Survey IM	Write doc.	Make test data	Design IM	Coding	Testing
高毅灃	21 / 21	V	V	V	V	V	V
黃知盈	19 / 21	V	V	V	V		V
徐晟耀	20 / 21	V	V	V	V		V
劉峻豪	18 / 21	V	V		V		
黃地裕	20 / 21	V	V		V	V	
李仲翊	18 / 21	V	V		V	V	V
李天志	21 / 21	V	V		V	V	
甯芝蔭	11 / 21	V	V		V		

# Introduction - Work Process

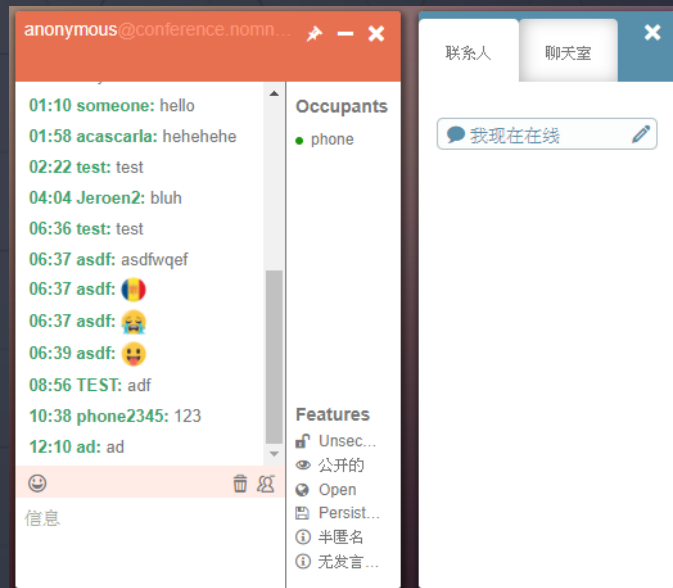


# Introduction - IM Survey

- An XMPP Client written in **Javascript** that runs in your browser.
- Main Features
  1. Chatroom with multi-user
  2. Supports anonymous logins
  3. Plugin Architecture
- Structure



## CONVERSE.JS





# Introduction - IM Survey

- Expanded API



An image sharing platform



A video sharing platform



A Javascript Markdown to HTML converter

- Free, Google Cloud Platform use it.



Ephemeral file sharing. Convenient, anonymous and secure.

- Upload 5GB per file for free
- Only one time download

# Project Execution

- **Work Breakdown Structure**
- **Planning Timeline**
- **Milestone**
- **Risk Management**

# Project Execution - Work Breakdown Structure

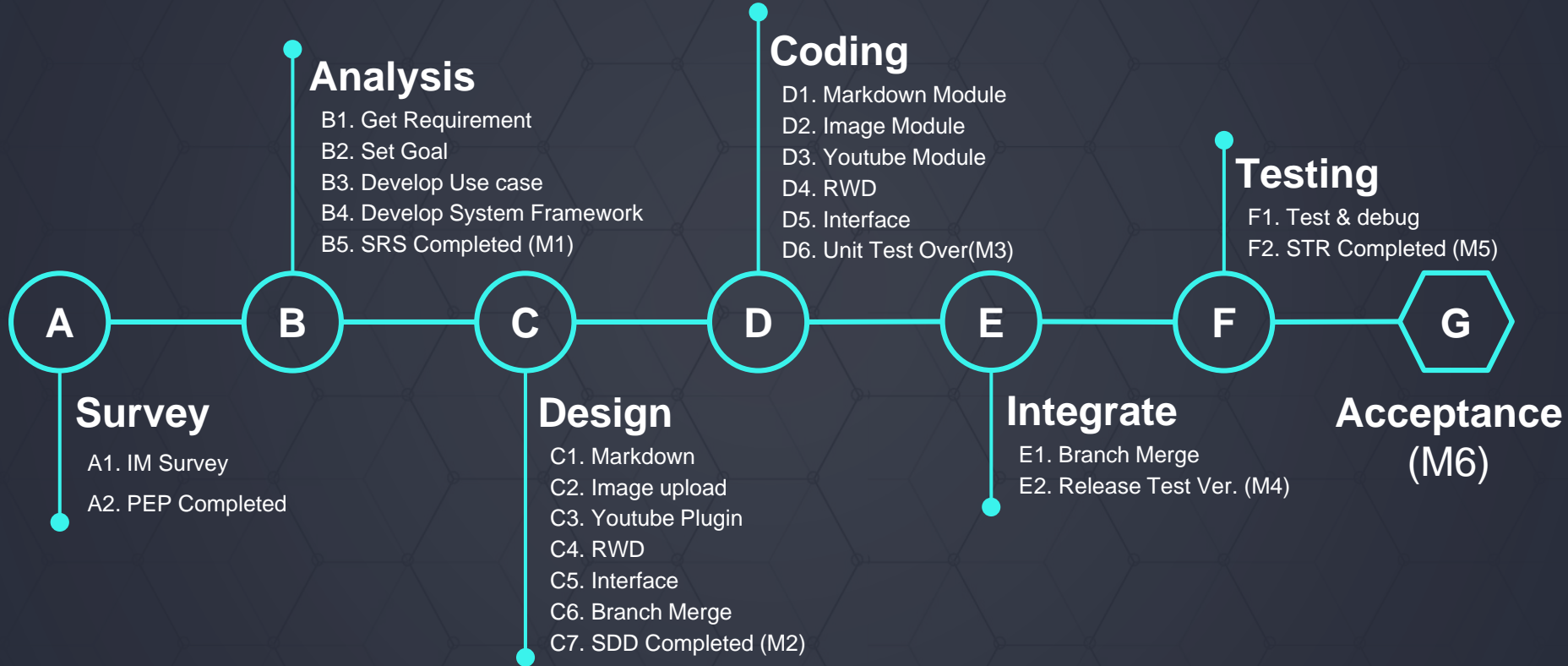
- Main table

Item	Best Case	Worst Case	Most Likely Case	Expected Case	Standard Deviation	Variance	Resources Manpower	Start Date	Complete	Actual Complete	Actual 含假日	MRE
A	20	56	28.57	36.29	15.65	244.84	4	17/10/03	17/10/18	17/11/01	116	0.69
B	8	28	18.29	19.81	8.69	75.57	4	17/10/18	17/10/22	17/11/10	92	0.78
C	24	168	72.00	96.00	62.59	3917.47	8	17/10/18	17/11/19	17/12/05	384	0.75
D	48	160	107.43	115.05	48.68	2369.83	8	17/11/12	17/12/03	17/12/18	288	0.60
E	24	112	62.86	72.76	38.25	1463.01	8	17/11/26	17/12/13	17/12/25	232	0.69
F	16	112	41.14	60.55	41.73	1741.10	8	17/12/06	18/01/02	17/12/29	184	0.67

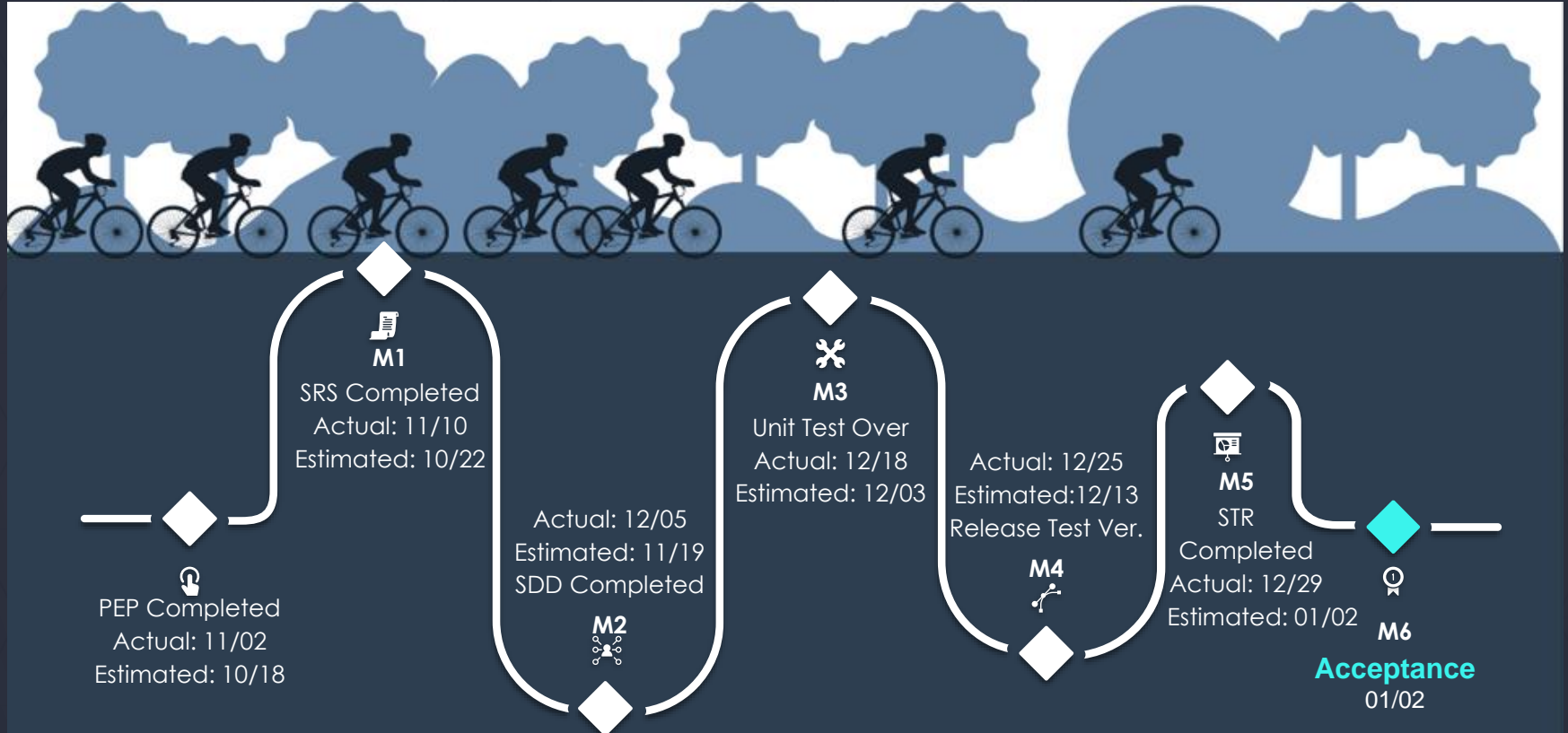
parameter & estimated value

Total VAR	9881.81	Z	1.15
Total Expected Effort	400.48	Divisor	2.30
Percentage Confidence	75%	Percentage Confident Effort	467.29
		Actual	1056

# Project Execution - Planning Timeline



# Project Execution - Milestone



# Project Execution - Risk Management

- Risk list & solution

風險項目	影響程度	發生機率	解決方式
實際進度預期不同	高	高	加開會議，討論是否變更進度
需求擷取模糊、不完善	高	中	學習相關領域知識以及參考現有系統
開發技術不熟悉	高	中	規劃教育訓練
Coding能力不一致	中	高	加強學習以及分配匹配能力的工作
Coding標準不一致，難以維護	中	高	訂定並遵從Coding Standard
開發文件管理不易	中	中	使用網路共筆系統： 1.Google drive + document 2.GitBook
會議時間、地點沒有共識	低	低	使用Hangouts進行視訊會議

- Progress management

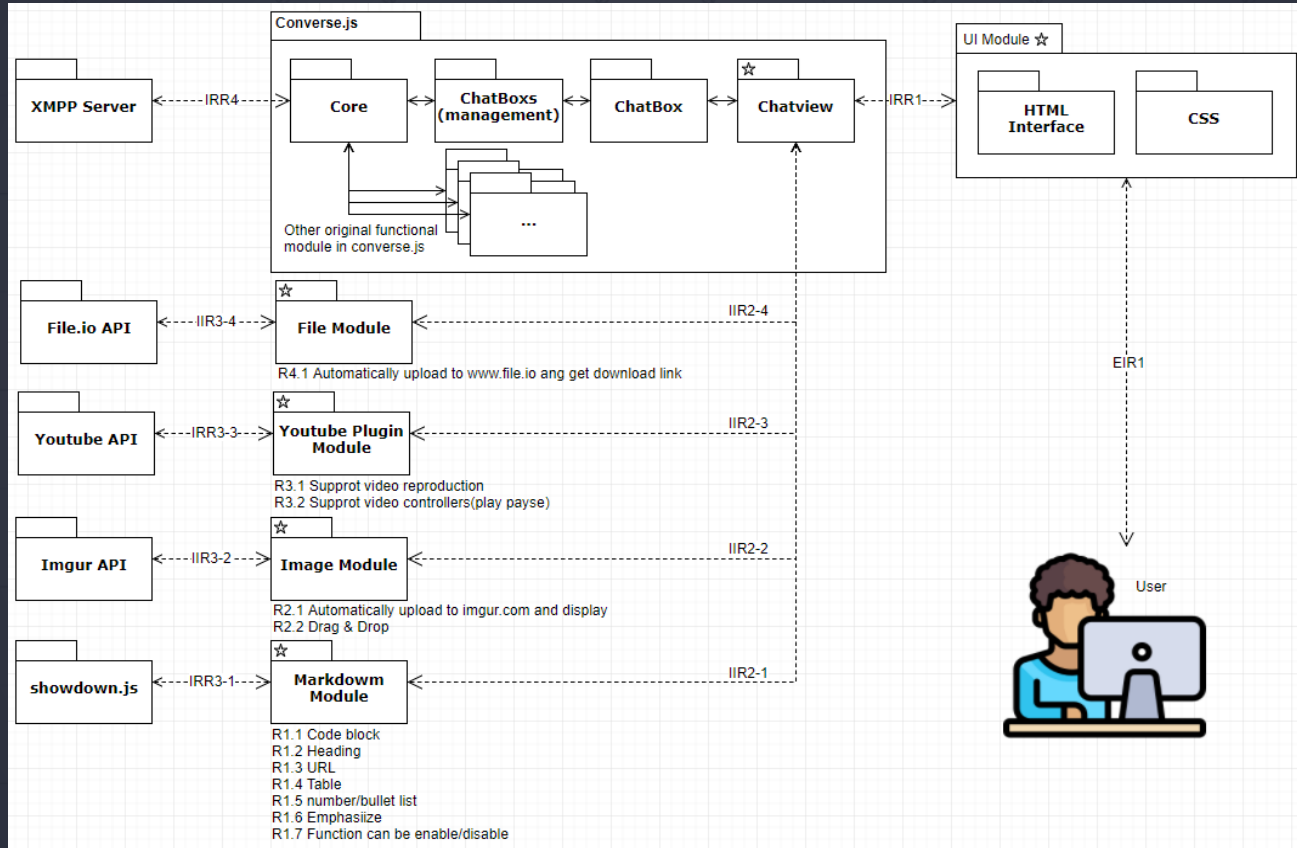
$$\text{Progress (\%)} = \frac{\text{Sum of real progress value}}{\text{Sum of scheduled progress value}}$$

※If us behind the schedule more than 5% ~ 10% → Open an **emergency meeting** to discuss it.

# Requirement

- **System Architecture**
- **Function & Interface**
- **Use Case**
- **Traceability Matrix**

# Requirement - System Architecture





# Requirement - Function

- Markdown Module

R1.1	Code block
R1.2	Heading
R1.3	URL
R1.4	Table
R1.5	Numbered list and Bulleted list
R1.6	Emphasize
R1.7	Function can be enabled or disabled

# Requirement - Function

- Image Module

R2.1	Automatically upload to Imgur.com and display
R2.2	Drag & Drop

- Youtube Module

R3.1	Support video reproduction
R3.2	Support video controllers (play,pause)

- File Module

R4.1	Automatically upload to File.io and display
R4.2	Drag & Drop

# Requirement - Interface

- External Interface Requirements

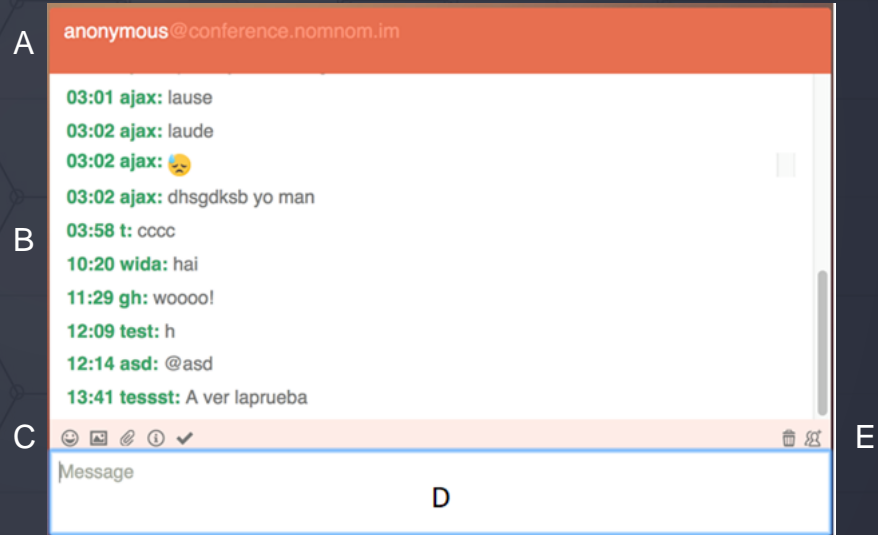
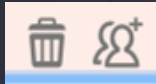
EIR1	UI module and user
------	--------------------

- UI Introduction:

- A. Chatroom title
- B. Message window
- C. Control button



- A. Message inputing area
- B. Control button



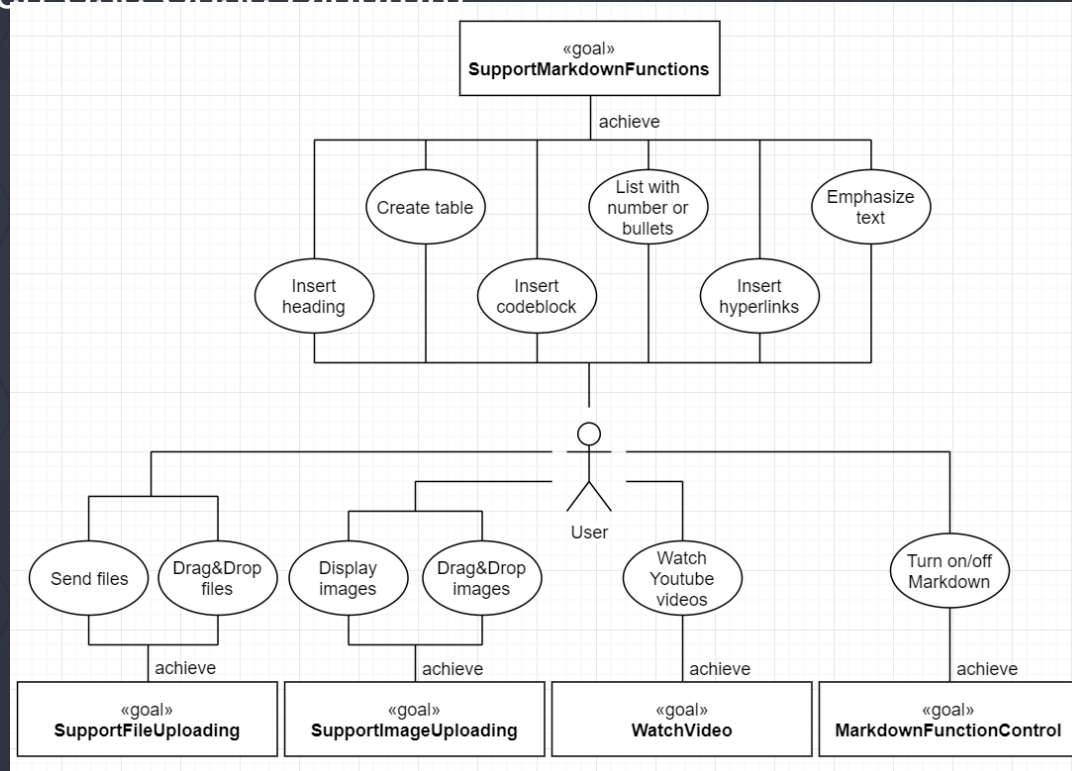
# Requirement - Interface

- Internal Interface Requirements

IIR1	UI module and chatview module
IIR2-1	Chatview module and markdown module
IIR2-2	Chatview module and Image module
IIR2-3	Chatview module and Youtube plugin modules
IIR2-4	Chatview module and File module modules
IIR3-1	Markdown Module and showdown.js
IIR3-2	Image module and Imgur API
IIR3-3	Youtube plugin module and Youtube API
IIR3-4	File module and File.io API
IIR4	Chatbox module and server

# Requirement - Use Case

- Goal-driven Use Case Diagram



# Requirement - Use Case

- Actor : Users who use Converse.js
- Use Case:

UC-R1.1	UC-R2.1
UC-R1.2	UC-R2.2
UC-R1.3	UC-R3
UC-R1.4	UC-R4.1
UC-R1.5	UC-R4.2
UC-R1.6	
UC-R1.7	

Use Case ID	UC-R1.1
Use Case Name	使用Markdown中的Code block功能
Goal	包含特定格式的輸入內容成功轉換為Code block
Requirement	R1.1.1 Code block Inline R1.1.2 Code block in a black
Description	<p>使用者輸入 It is 'Hello, World!' The first program.'</p> <p>並送出訊息，視窗以Code block形式顯示訊息。使用者再輸入</p> <pre>#include &lt;iostream&gt; using namespace std; int main() {     cout &lt;&lt; "Hello, world!" &lt;&lt; endl;     return 0; }</pre> <p>並送出訊息，視窗以Code block形式顯示訊息。</p>
Actor	user
Assumptions	
Constraints	
Priority	
Pre-Conditions	Code block功能為enable狀態
Post-Conditions	
Basic Flow	同Description
Alternative Flows	輸出使用者輸入的內容，不做任何修改
Exceptional Flows	輸出使用者輸入的內容，不做任何修改
Use Use Case	
Extends Use Case	
Business Rules	
Special Requirements	
Artifacts	
Use Case Glossary	

# Requirement - Traceability Matrix

- Traceability Matrix of Requirements V.S Requirements

需求	R 1.1	R 1.2	R 1.3	R 1.4	R 1.5	R 1.6	R 1.7	R 2.1	R 2.2	R 3.1	R 3.2	R 4.1	R 4.2
R1.1	--						v						
R1.2		--					v						
R1.3			--				v						
R1.4				--			v						
R1.5					--		v						
R1.6						--	v						
R1.7	v	v	v	v	v	v	--						
R2.1								--					
R2.2									--				
R3.1										--			
R3.2											--		
R4.1												--	
R4.2													--

# Requirement - Traceability Matrix

- Traceability Matrix of Requirements V.S Use Case

需求	UC-R 1.1	UC-R 1.2	UC-R 1.3	UC-R 1.4	UC-R 1.5	UC-R 1.6	UC-R 1.7	UC-R 2.1	UC-R 1.2	UC-R 3	UC-R 4.1	UC-R 4.2
R1.1	v						v					
R1.2		v					v					
R1.3			v				v					
R1.4				v			v					
R1.5					v		v					
R1.6						v	v					
R1.7	v	v	v	v	v	v	v					
R2.1								v				
R2.2									v			
R3.1										v		
R3.2										v		
R4.1											v	
R4.2												v



# Requirement - Traceability Matrix

- Traceability Matrix of Requirements V.S subsystem function

需求	Markdown Module	Image Upload Module	Youtube Plugin Module	File Module
R1.1	v			
R1.2	v			
R1.3	v			
R1.4	v			
R1.5	v			
R1.6	v			
R1.7	v			
R2.1		v		
R2.2		v		
R3.1			v	
R3.2			v	
R4.1				v
R4.2				v

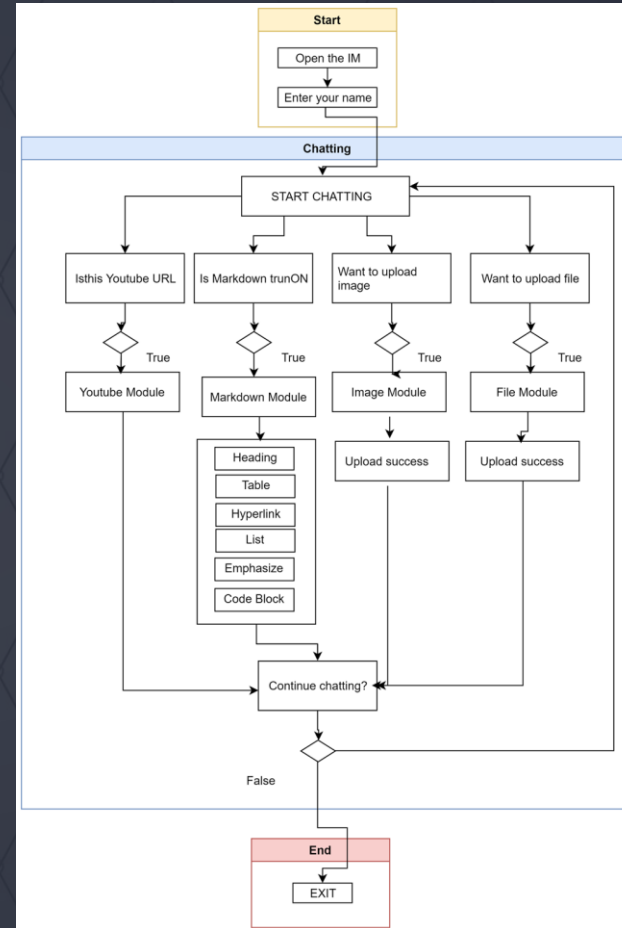
# Design

- **Process Diagram**
- **Class Diagram**
- **Sequence Diagram**
- **Data Table**

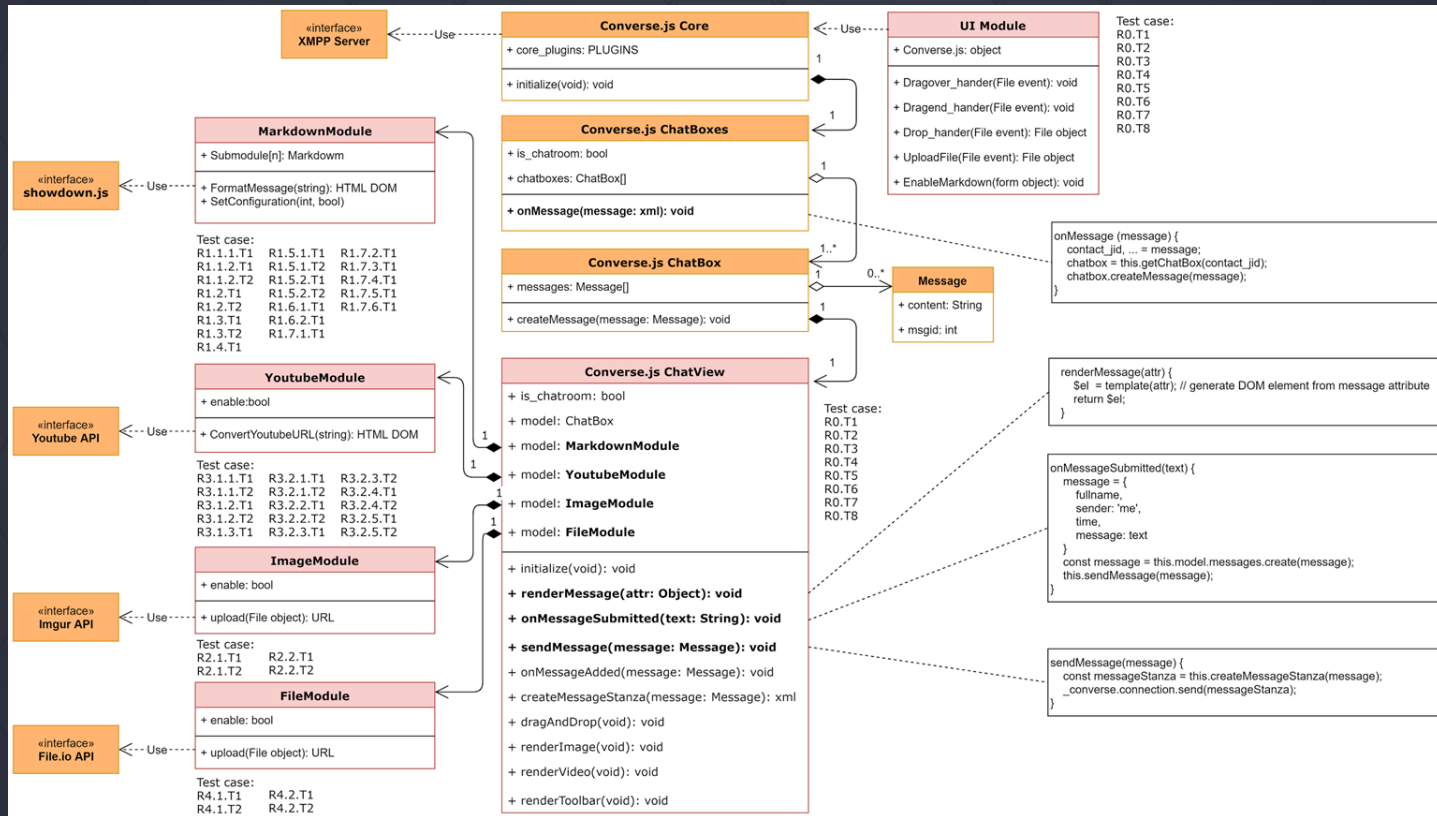
# Design - Process Diagram

## Main Function

- R0 Send / get message
- R1 Markdown
- R2 Upload image
- R3 Watch Youtube
- R4 Upload file

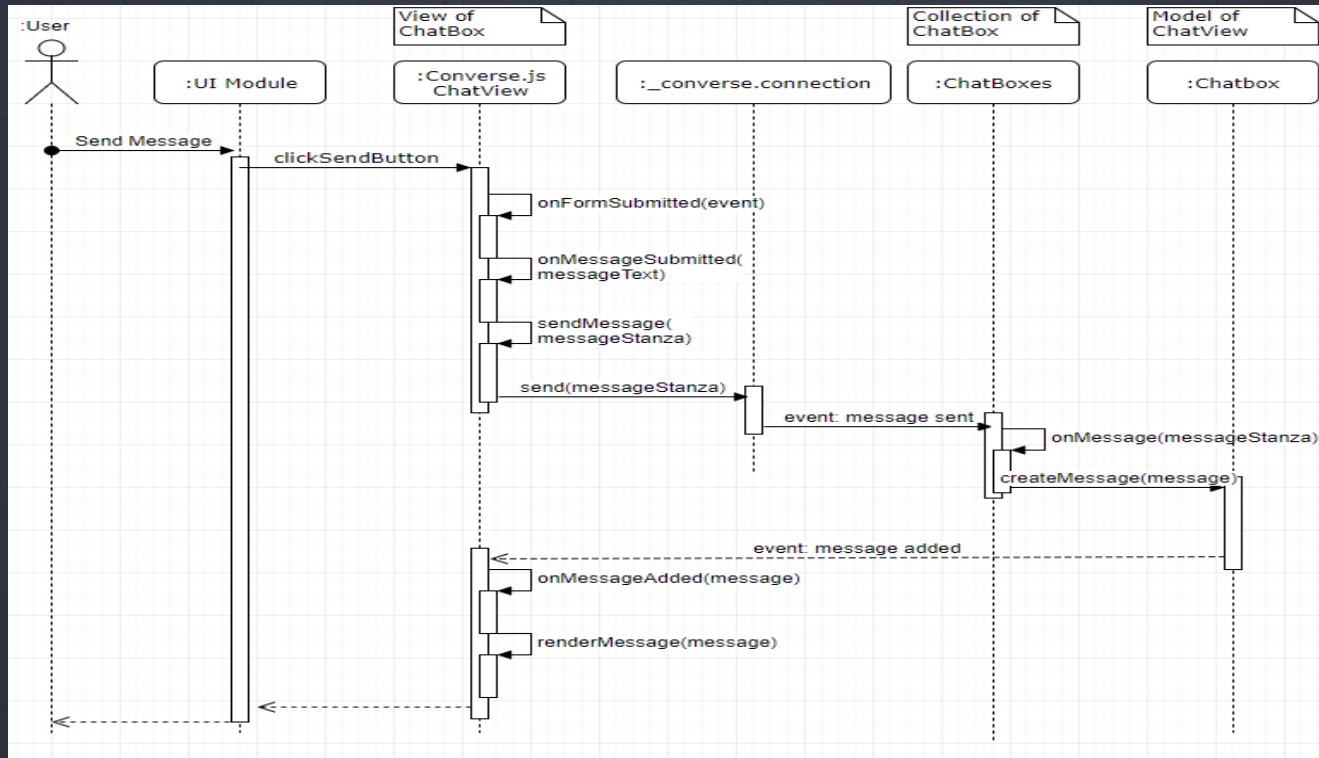


## Design - Class Diagram



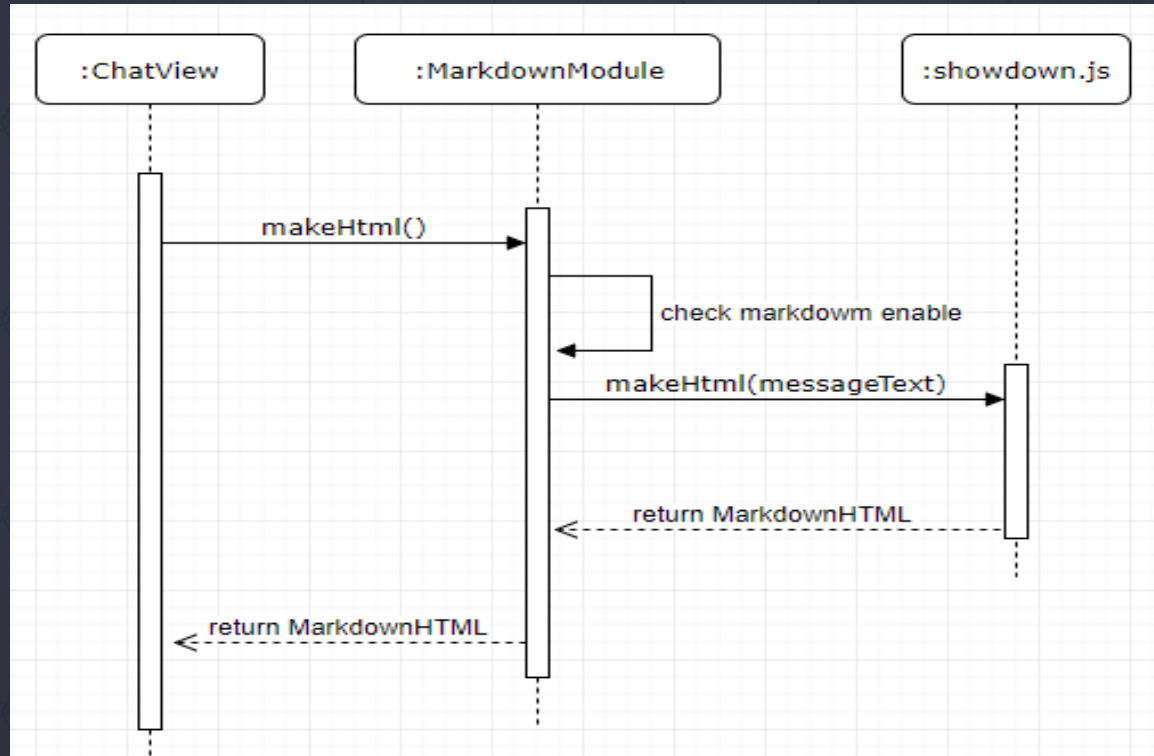
# Design - Sequence Diagram

UC-R0: User sends a message and gets a message



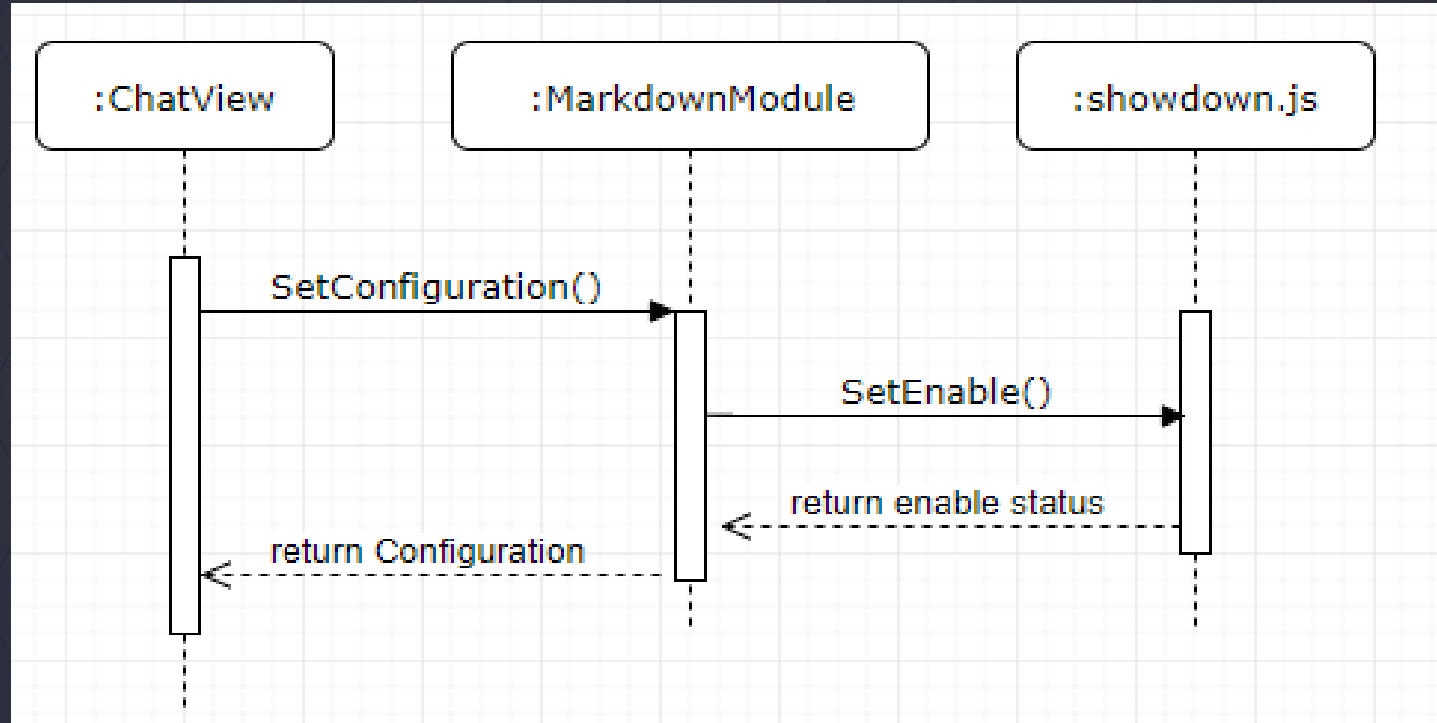
# Design - Sequence Diagram

UC-R1: Using markdown function



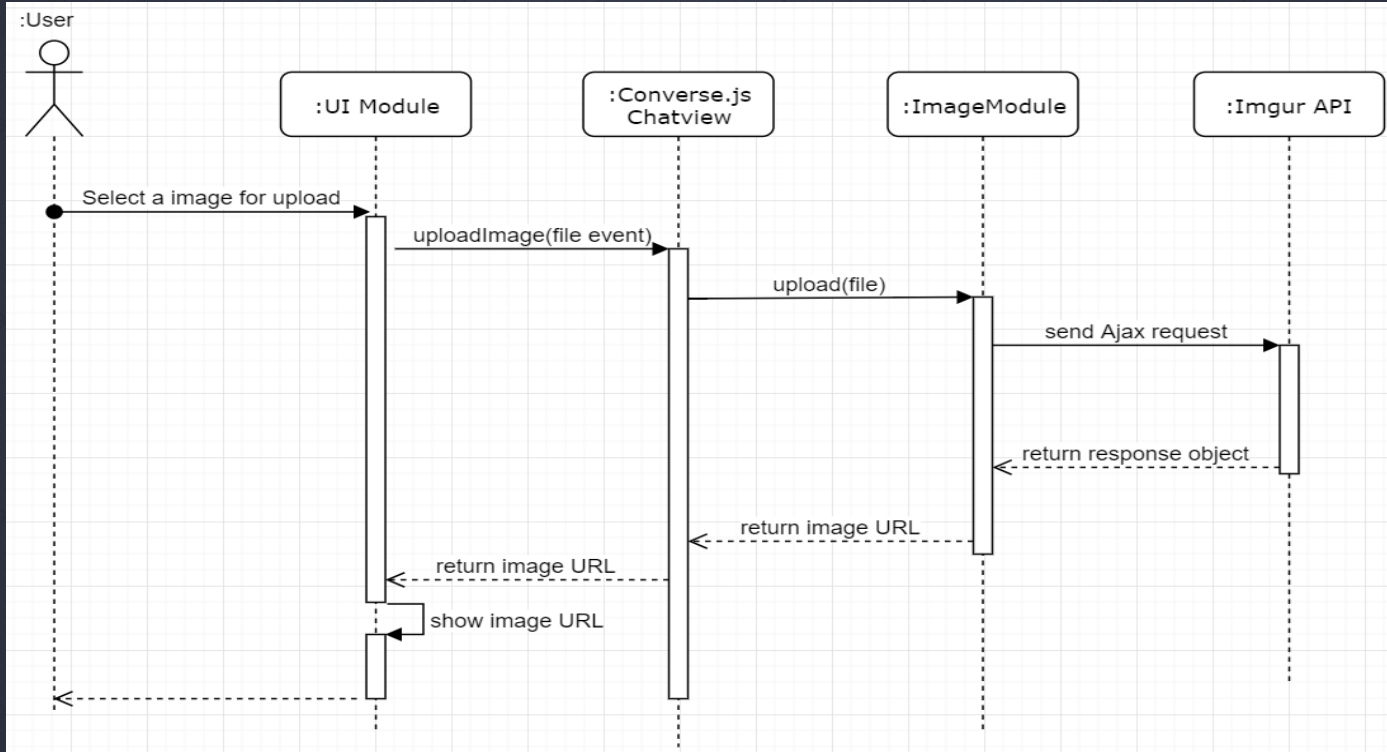
# Design - Sequence Diagram

UC-R1.7: Enable markdown function



# Design - Sequence Diagram

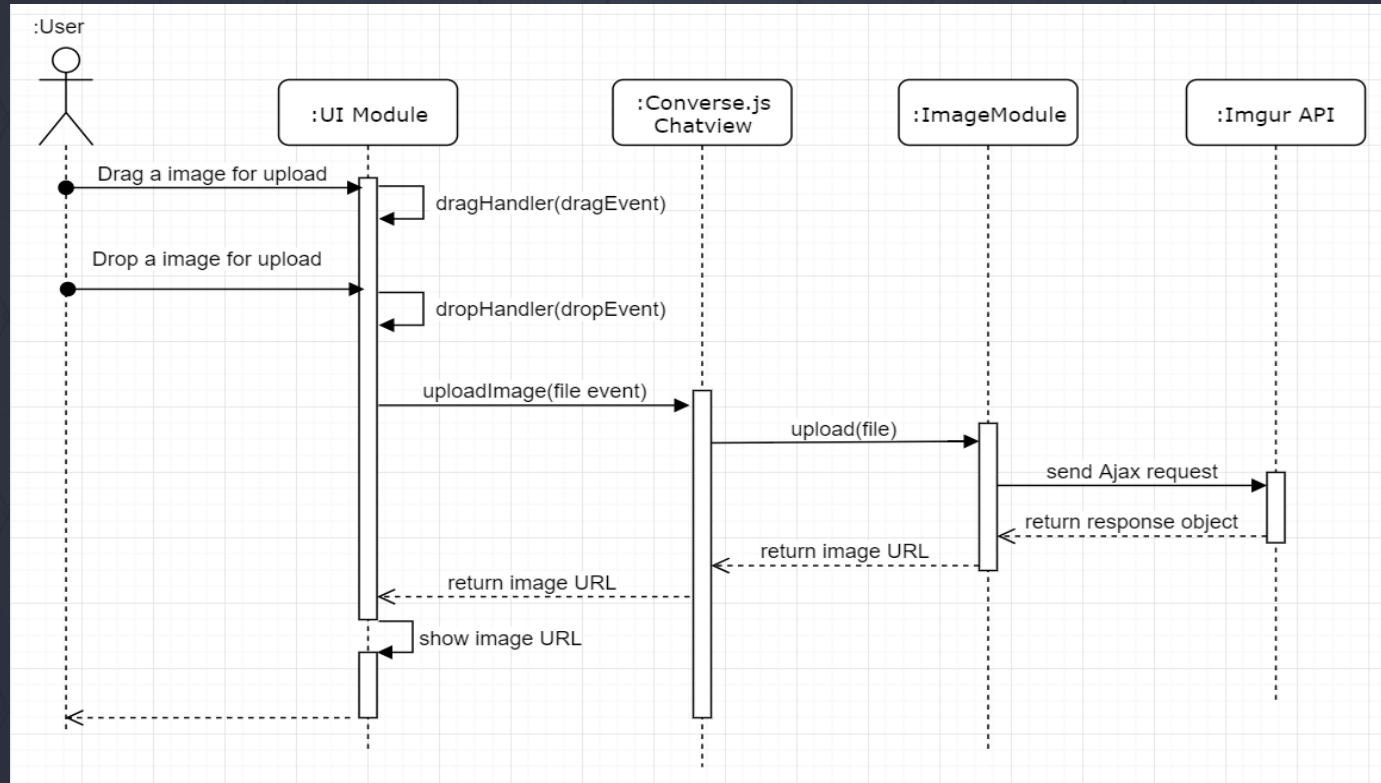
UC-R2.1: User uploads image





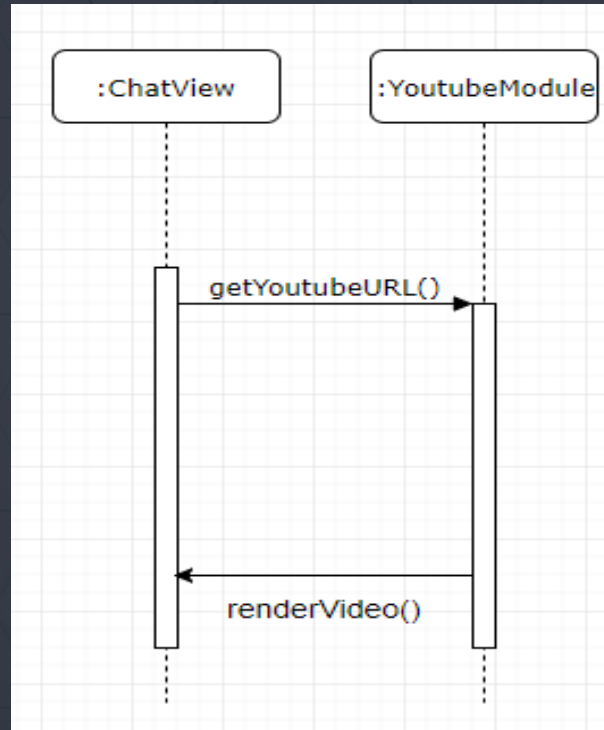
# Design - Sequence Diagram

UC-R2.2: User uploads image by using drag and drop



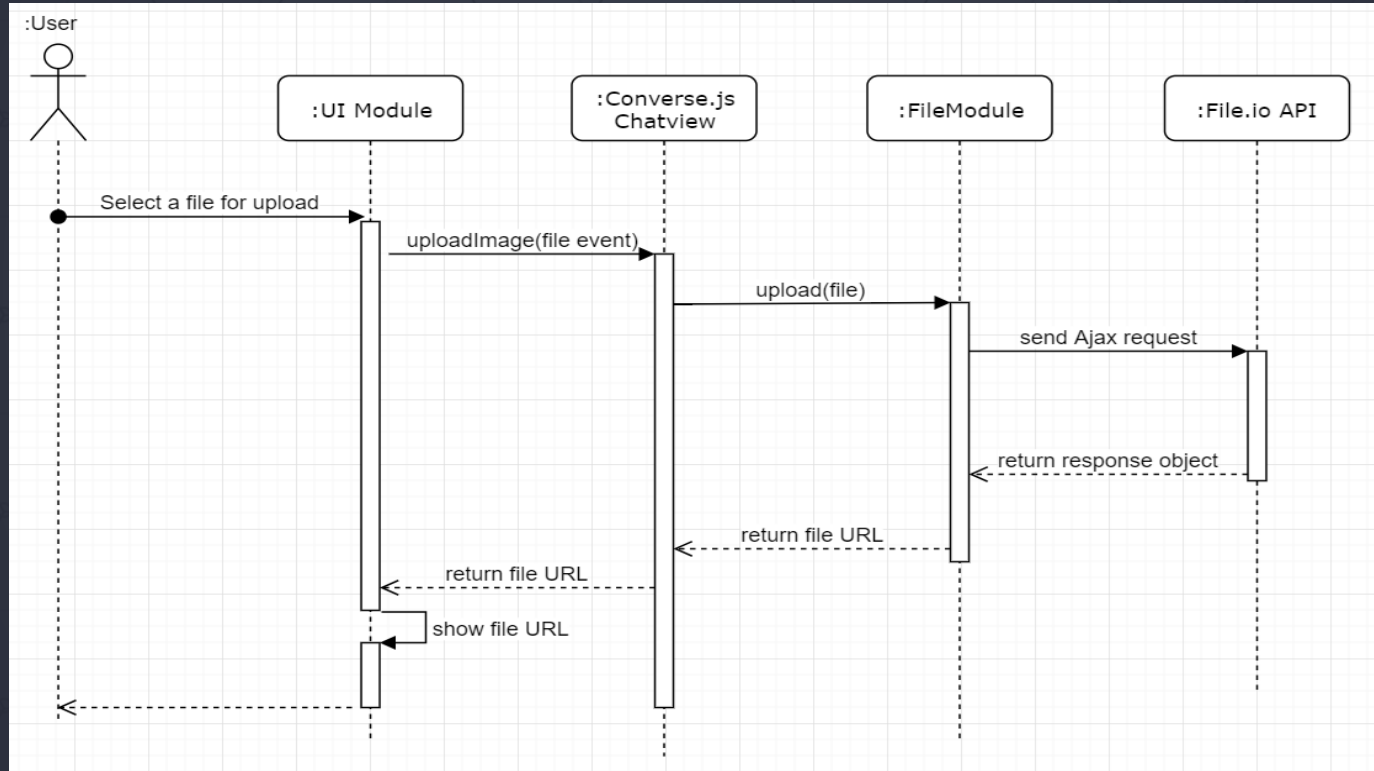
# Design - Sequence Diagram

UC-R3: Using youtube function



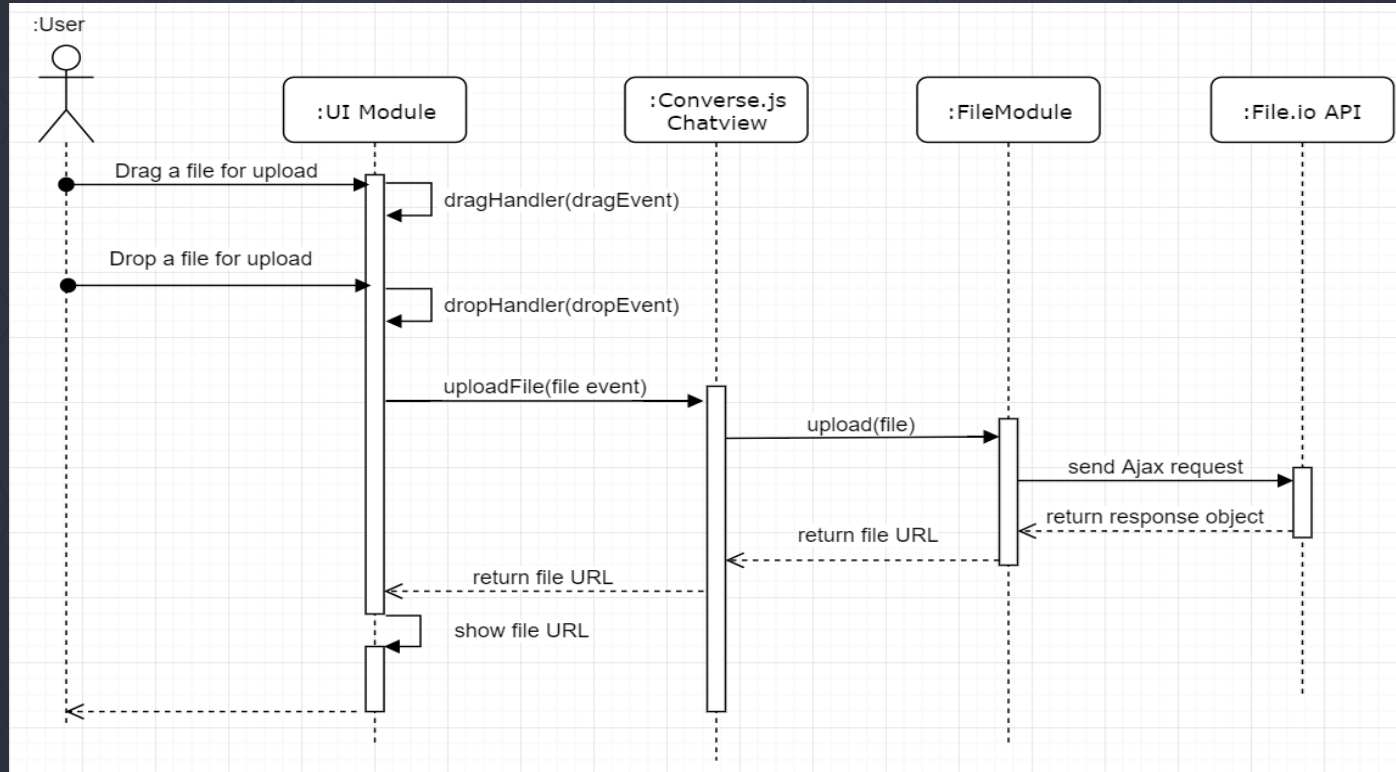
# Design - Sequence Diagram

UC-R4.1: User uploads file



# Design - Sequence Diagram

UC-R4.2: User uploads file by using drag and drop



# Design - Data Table

## Message

Variable Name	Type	Note
fullname	string	sender name
sender	string	a type of sender
time	datetime	
message	string	

# Testing

- **Environment**
- **Process**
- **Case and Goal**
- **Result**

# Testing - Environment

- 使用Google Chrome 63，啟用Javascript
- 測試程式存放於台大計算機中心個人網頁空間
- 測試電腦環境參數如下表：

	Windows	Mac
作業系統	Windows 10 企業版 1709版 組建16299.125	macOS High Sierra 10.13.1
網頁瀏覽器	Google Chrome 63.0.3239.108	Google Chrome 63.0.3239.108
瀏覽器設定	啟用javascript、啟用網頁訊息功能	啟用javascript、啟用網頁訊息功能
硬體	Surface pro 4	Macbook 2017
CPU	Intel i7-6650U	Intel Core m3
記憶體	8GB	8 GB
網路	台大Wifi網路環境	台大Wifi網路環境

# Testing - Process

1. 開啟瀏覽器新視窗
2. 輸入測試網址
3. 確認本次測試之案例編號
4. 根據測試內容逐步執行測試指令
5. 檢查執行結果是否與測試案例之預期結果
6. 註記測試結果與測試人員
7. 關閉瀏覽器



# Testing - Case and Goal

- 確認可達到使用者需求
- 包含5個類別，51個案例
- 測試結果紀錄表：

R1.2	Heading
T1	測試指令操作說明
程式版本： V1.0	輸入以下包含Markdown標記的訊息： ##### Big 5
系統： Windows	normal
檢核人：	## Big 2
高毅澧	normal
測試結果：	預期結果說明
通過	利用瀏覽器javascript除錯功能檢查網頁element是否如下結構：
備註：	<h5> Big 5</h5>
	normal 
	<h2> Big 2</h2>
	normal 

# Testing - Case and Goal

## R0: System Integration

- R0.T1: 連續發送5段訊息
- R0.T2: 連續發送5種Markdown訊息與1張圖片
- R0.T3: 上傳2檔案2圖片後發送1段訊息
- R0.T4: 接收R0.T1發送的訊息
- R0.T5: 接收R0.T2發送的訊息(Markdown: 開)
- R0.T6: 接收R0.T2發送的訊息(Markdown: 關)
- R0.T7: 接收R0.T3發送的訊息，下載2檔案
- R0.T8: 看Markdown說明，測試一段裡面的範例

# Testing - Case and Goal

## R1: Markdown

- R1.1.1.T1: 發送 Code block: Inline
- R1.1.2.T1: 發送 Code block: In a block
- R1.1.2.T2: 發送 Code block: In a block (單行)
- R1.2.T1: 發送 Heading (共2個)
- R1.2.T2: 發送 Heading (共6個)
- R1.3.T1: 發送 URL (Https )
- R1.3.T2: 發送 URL (FTP)
- R1.4.T1: 發送 Table (3x3)
- R1.5.1.T1: 發送 Numbered list (內容為文字)
- R1.5.1.T2: 發送 Numbered list (內容為數字)
- R1.5.2.T1: 發送Bulleted list (.)
- R1.5.2.T2: 發送Bulleted list (\*)
- R1.6.1.T1: 發送Emphasize ( \* & \_ )
- R1.6.2.T1: 發送Emphasize ( \*\* & \_\_ )
- R1.7.1.T1: 開啟/關閉Code block 功能
- R1.7.2.T1: 開啟/關閉Heading 功能
- R1.7.3.T1: 開啟/關閉URL 功能
- R1.7.4.T1: 開啟/關閉Table 功能
- R1.7.5.T1: 開啟/關閉list 功能
- R1.7.6.T1: 開啟/關閉送Emphasize功能

# Testing - Case and Goal

## R2: Image Upload

- R2.1.T1: 上傳1張圖片
- R2.1.T2: 上傳1個非圖片檔案
- R2.2.T1: 拖放上傳1張圖片
- R2.2.T2: 拖放上傳1個非圖片的檔案

# Testing - Case and Goal

## R3: Youtube

- R3.1.1.T1: 輸入Youtube連結
- R3.1.1.T2: 輸入Youtube短網址連結
- R3.1.2.T1: 影片一開始不自動撥放
- R3.1.2.T2: 影片一開始不自動撥放，按撥放後開始撥放
- R3.1.3.T1: 標題與Youtube Logo於撥放時隱藏
- R3.2.1.T1: 撥放後按暫停
- R3.2.1.T2: 暫停後按撥放

# Testing - Case and Goal

## R4: File Upload

- R4.1.T1: 上傳1個文字檔
- R4.1.T2: 上傳1個圖片檔案
- R4.2.T1: 拖放上傳1個文字檔
- R4.2.T2: 拖放上傳1個圖片檔案

# Testing - Result

- Windows

- Pass 47, Fail 4
- Fail list:

R1.4.1.T1	結果為純文字，未轉成表格
R1.7.4.T1	R.1.4.T1未通過，使本測試無法進行
R4.1.T1	顯示502 Bad Gateway
R4.2.T1	顯示502 Bad Gateway

- Mac

- Pass 49, Fail 2
- Fail list:

R1.4.1.T1	結果為純文字，未轉成表格
R1.7.4.T1	R.1.4.T1未通過，使本測試無法進行

測試編號	測試結果		測試編號	測試結果		測試編號	測試結果	
	Windows	Mac		Windows	Mac		Windows	Mac
R0.T1	通過	通過	R1.5.2.T1	通過	通過	R3.1.3.T1	通過	通過
R0.T2	通過	通過	R1.5.2.T2	通過	通過	R3.2.1.T1	通過	通過
R0.T3	通過	通過	R1.6.1.T1	通過	通過	R3.2.1.T2	通過	通過
R0.T4	通過	通過	R1.6.2.T1	通過	通過	R3.2.2.T1	通過	通過
R0.T5	通過	通過	R1.7.1.T1	通過	通過	R3.2.2.T2	通過	通過
R0.T6	通過	通過	R1.7.2.T1	通過	通過	R3.2.3.T1	通過	通過
R0.T7	通過	通過	R1.7.3.T1	通過	通過	R3.2.3.T2	通過	通過
R0.T8	通過	通過	R1.7.4.T1	未通過	未通過	R3.2.4.T1	通過	通過
R1.1.1.T1	通過	通過	R1.7.5.T1	通過	通過	R3.2.4.T2	通過	通過
R1.1.2.T1	通過	通過	R1.7.6.T1	通過	通過	R3.2.5.T1	通過	通過
R1.1.2.T2	通過	通過	R2.1.T1	通過	通過	R3.2.5.T2	通過	通過
R1.2.T1	通過	通過	R2.1.T2	通過	通過	R4.1.T1	未通過	通過
R1.2.T2	通過	通過	R2.2.T1	通過	通過	R4.1.T2	通過	通過
R1.3.T1	通過	通過	R2.2.T2	通過	通過	R4.2.T1	未通過	通過
R1.3.T2	通過	通過	R3.1.1.T1	通過	通過	R4.2.T2	通過	通過
R1.4.T1	未通過	未通過	R3.1.1.T2	通過	通過			
R1.5.1.T1	通過	通過	R3.1.2.T1	通過	通過			
R1.5.1.T2	通過	通過	R3.1.2.T2	通過	通過			

# Demo

- **Markdown Module**
- **Youtube Module**
- **Image Upload Module**
- **File Upload Module**



# Demo - Scenario

## Prelude

- Alice and Bob are software engineers in a tech company.
- They can use our converse.js extension to send formatted text, code, share programming language tutorials on Youtube, send files such as source codes, and send images such as screenshots.

# Demo - Scenario for Markdown Module

Alice wants to ask Bob some questions about the implementation details of their program.

Alice types the following messages:

```
Hi Bob, I would like to ask you how to fix this bug ... ..
```

```
code:
```

```
'''
```

```
a = "\u4e00-\u9fff" // this is unicode range of chinese
```

```
'''
```

```
error message:
```

```
'''
```

```
SyntaxError: (unicode error) 'unicodeescape' codec can't decode  
bytes in position 2-4: truncated \UXXXXXXXX escape (<pyshell#39>, line 1)
```

```
'''
```

**17:46 me:** Hi Bob, I would like to ask you how to  
fix this bug ... ..

code:

```
a = "\u4e00-\u9fff" // this is unicode  
range of chinese
```

error message:

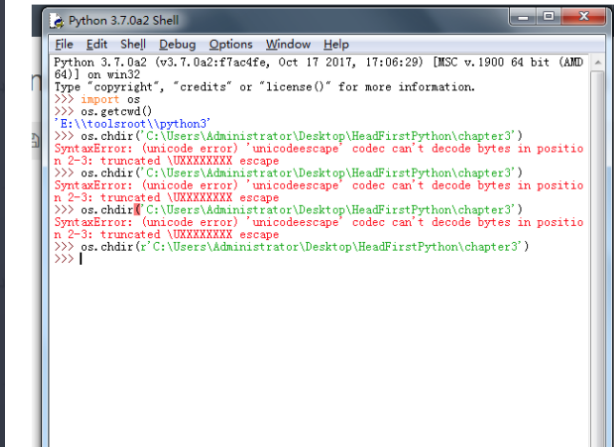
```
SyntaxError: (unicode error) 'unicode  
escape' codec can't decode bytes in p  
osition 2-4: truncated \UXXXXXXXX esc  
ape (<pyshell#39>, line 1)
```

# Scenario - Scenario for Image Upload Module

Alice wants to send Bob a screenshot of the error messages printed on her screen.

Alice can upload her screenshot through our converse.js extension by either clicking the image upload button or dragging her screenshot into the text area of our IM.

17:48 me:



```
Python 3.7.0a2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0a2 (v3.7.0a2:f7ac4fe, Oct 17 2017, 17:06:29) [MSC v.1900 64 bit (AMD
64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> import os
>>> os.getcwd()
'E:\toolsroot\python3'
>>> os.chdir('C:\Users\Administrator\Desktop\HeadFirstPython\chapter3')
SyntaxError: (unicode error) 'unicodeescape' codec can't decode bytes in positio
n 2-3: truncated \UXXXXXXXX escape
>>> os.chdir('C:\Users\Administrator\Desktop\HeadFirstPython\chapter3')
SyntaxError: (unicode error) 'unicodeescape' codec can't decode bytes in positio
n 2-3: truncated \UXXXXXXXX escape
>>> os.chdir('C:\Users\Administrator\Desktop\HeadFirstPython\chapter3')
SyntaxError: (unicode error) 'unicodeescape' codec can't decode bytes in positio
n 2-3: truncated \UXXXXXXXX escape
>>> os.chdir(r'C:\Users\Administrator\Desktop\HeadFirstPython\chapter3')
>>> |
```

## Scenario - Scenario for Youtube Module

Bob wants to ask Alice to watch a python tutorial video on Youtube discussing UnicodeError.

Bob can send a youtube url:

<https://www.youtube.com/watch?v=N4mEzFDjqtA>



## Scenario - Scenario for File Upload Module

Alice wants to send her source code to Bob and ask Bob to debug.

Alice can upload her source code file through our converse.js extension by either clicking the file upload button or dragging her source code file into the text area of our IM.

17:50 me: <https://file.io/JQa1gE>

# Thank You

Any questions?