IMMI Project Interim Presentation

Rosie, Barry, Charles

Reminder of Project Objectives

1. Cycle prediction based on user input

2. Prediction visualization on a calendar

3. Syncing with local calendar

4. Local data storage

5. User customization of the webpage and calendar in terms of appearance, notes, emojis, etc

Progress

Rosie

- Design a visually accessible information page.

- Research in how to store data locally

- Started looking into using similar design techniques for the data and diary page

Barry

- Develop the software framework

- Set template for Home, Diary, and Setting Page

- Research on LLM Prompting

- Started looking into how to sync local data with the calendar

Charles

- Fully comprehended IMMI's code

- Reimplemented prediction algorithm in Python

- Research into various alternative prediction algorithms and how methods of adaptation

Excel interface with menus: 文件 开始 插入 页面布局 公式 数据 审阅 视图 自动执行 开发工具 帮助 批注 共享

Visual Basic | 宏 | Excel 加载项 | COM 加载项 | 属性 | 查看代码 | 运行对话框 | 映射属性 | 扩展包 | 导入 | 导出 | 刷新数据

代码 | 加载项 | 控件 | XML

Spreadsheet content:

algo version 5

timekeeping
date   02/12/2024
today
-    +

memory
history   0   0   0   0   0   0
position   0
event_date   1900/1/0

operations
reset   <-- resets memory
0   <-- day of cycle (1..n)
event

A New Day Begins...

config
max_cycle_length
default_cycle_length
average_min
average_max
end_of_cycle_alert_days
regular_cycle_range_min
regular_cycle_range_max
fertile_window_start
fertile_window_end
beep_alert_on
beep_alert_off
average_window

Sheet1

VBA Editor:

工程 - VBAProject
VBAProject (
  Microsoft I
    Sheet1
    ThisWork
  模块
    Module1

属性 - Sheet1
Sheet1 Worksheet
按字母序 按分类序
(名称)   Sheet1
DisplayPag False
DisplayRig False
EnableAutc False
EnableCalc True
EnableForm True
EnableOut1 False
EnablePiv False
EnableSele 0 - xlNoR
Name   Sheet1
ScrollArea
StandardWi 8.09
Visible   -1 - xlSh

行 1, 列 1

```vba
Dim max_cycle_length         As Integer
Dim default_cycle_length     As Integer
Dim average_min              As Integer
Dim average_max              As Integer
Dim end_of_cycle_alert_days  As Integer
Dim regular_cycle_range_min  As Integer
Dim regular_cycle_range_max  As Integer
Dim fertile_window_start     As Integer
Dim fertile_window_end       As Integer
Dim beep_alert_on            As Integer
Dim beep_alert_off           As Integer
Dim average_window           As Integer

Sub config_load()
max_cycle_length = Range("Q14").Value
default_cycle_length = Range("Q15").Value
average_min = Range("Q16").Value
average_max = Range("Q17").Value
end_of_cycle_alert_days = Range("Q18").Value
regular_cycle_range_min = Range("Q19").Value
regular_cycle_range_max = Range("Q20").Value
fertile_window_start = Range("Q21").Value
fertile_window_end = Range("Q22").Value
beep_alert_on = Range("Q23").Value
beep_alert_off = Range("Q24").Value
average_window = Range("Q25").Value
End Sub

Sub button_day_inc()
With Range("H8")
.NumberFormat = "dd/mm/yyyy"
.Value = Range("H8").Value + 1
End With
End Sub

Sub button_day_dec()
With Range("H8")
.NumberFormat = "dd/mm/yyyy"
If .Value > 1 Then .Value = .Value - 1
End With
End Sub

Sub button_day_now()
With Range("H8")
```
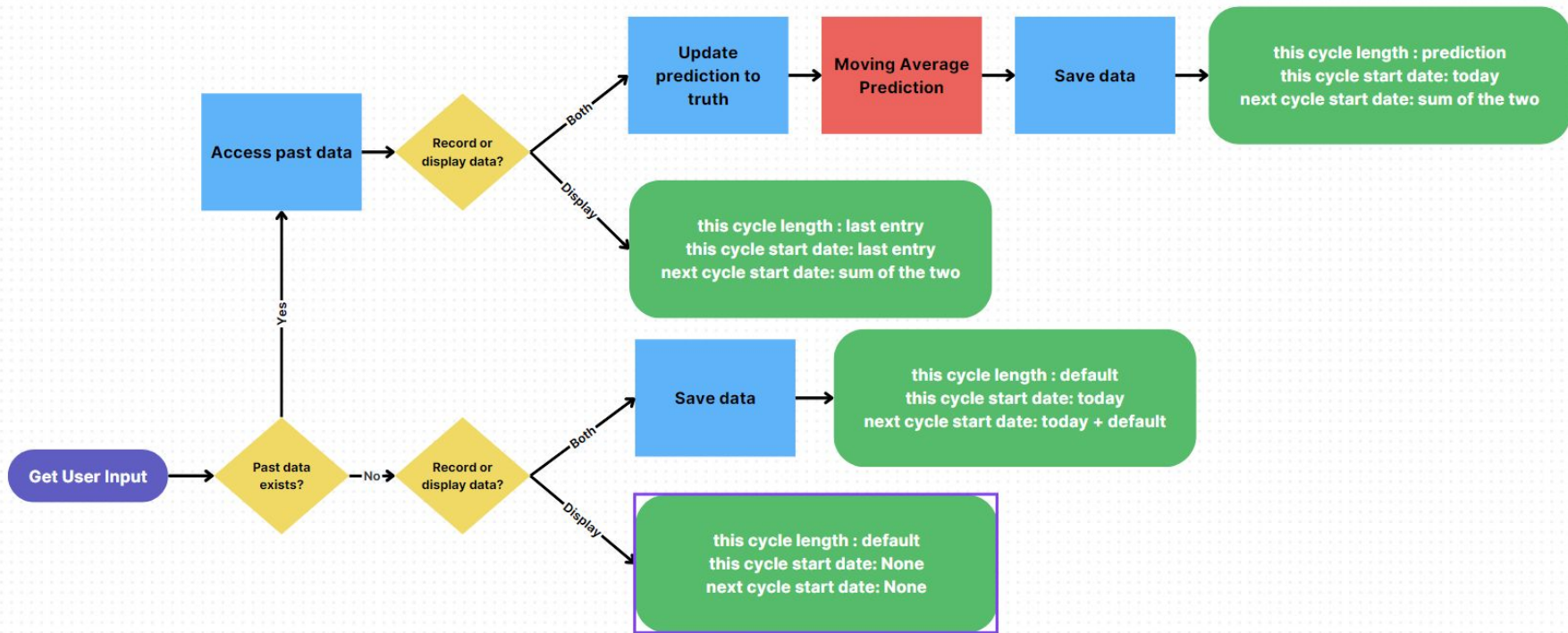
web_app > prediction_algorithm > main.py > main   web_app > prediction_algorithm > configs.yaml
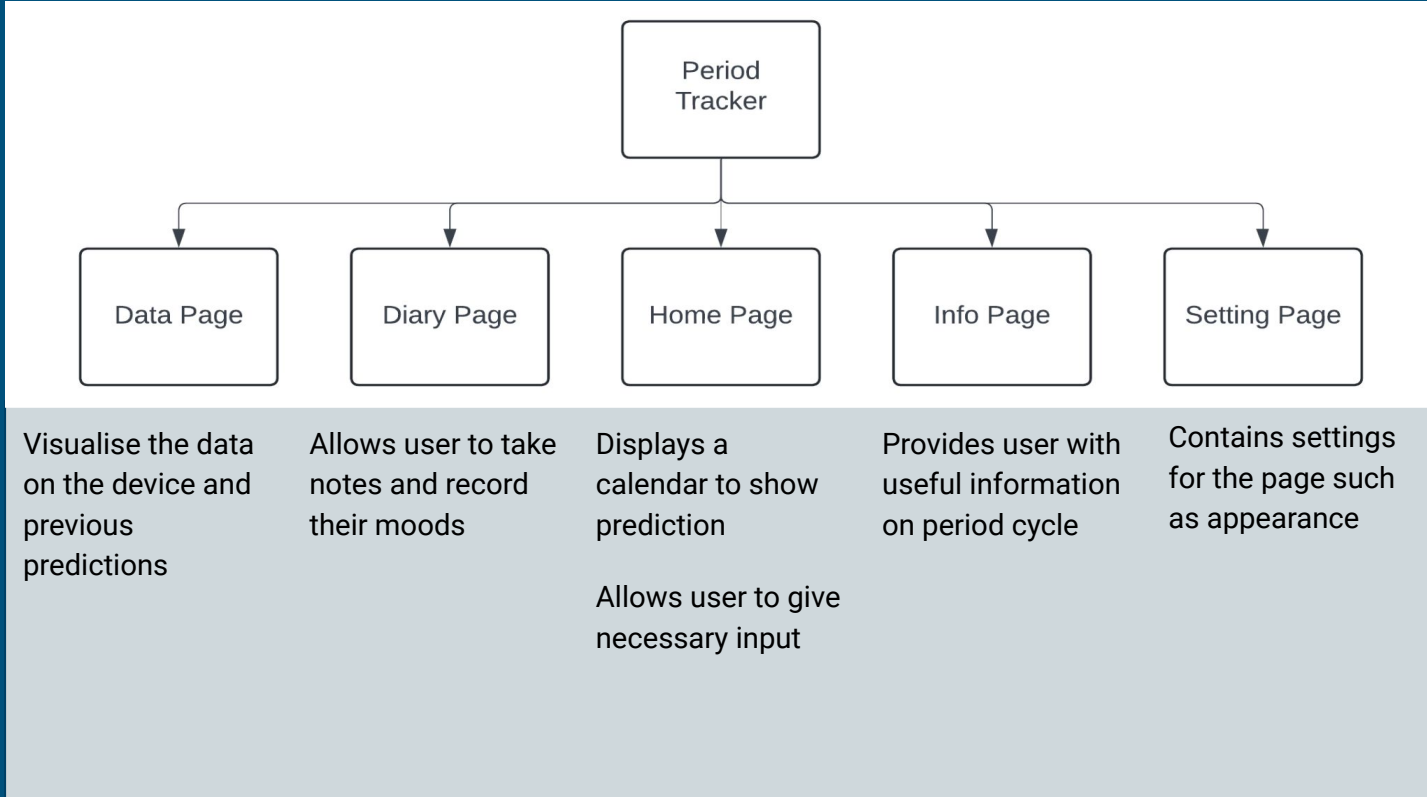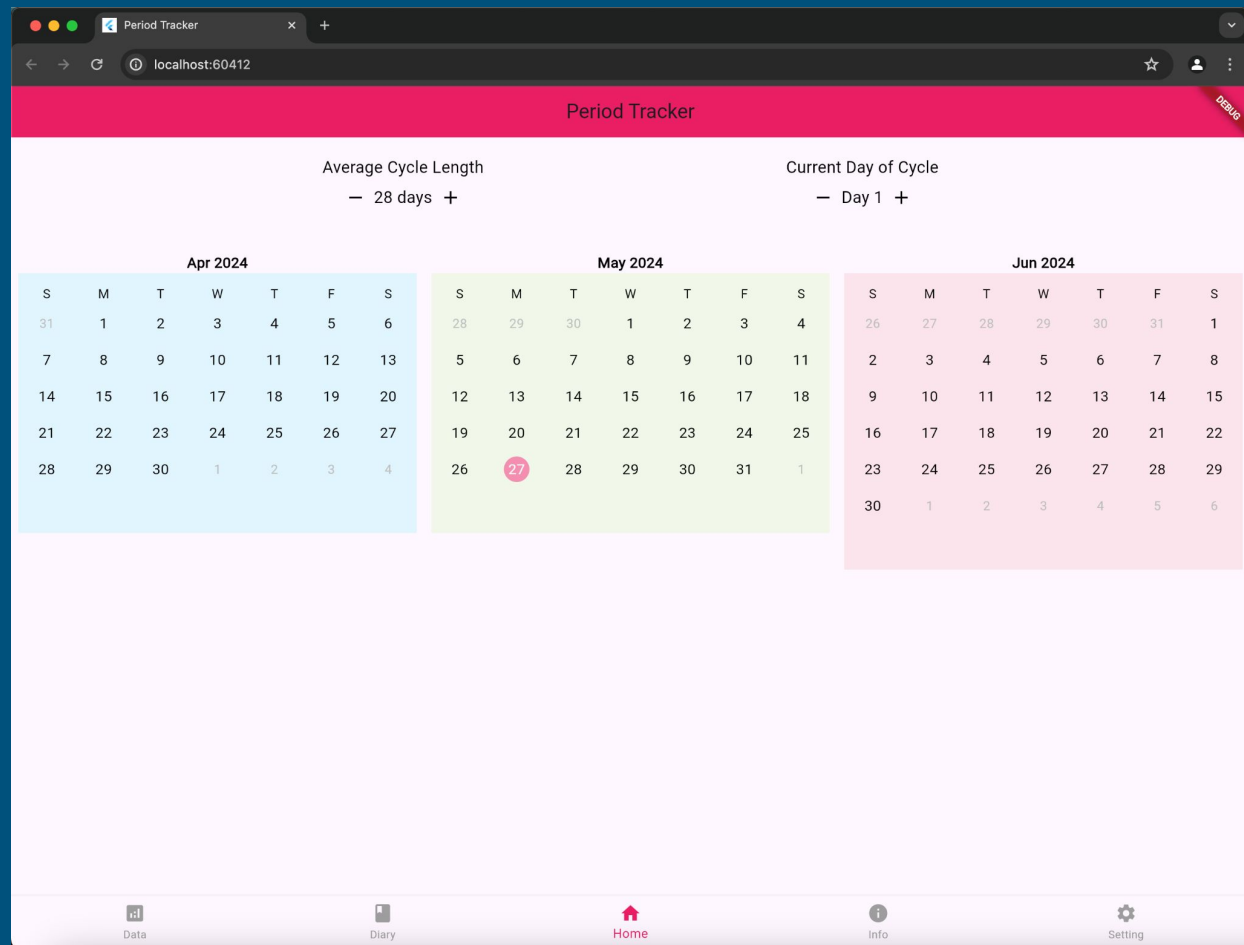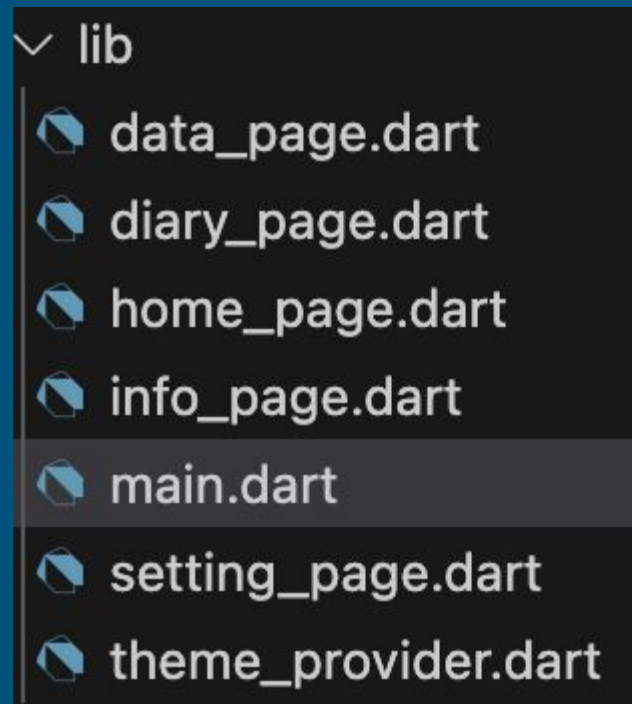
```python
 8  def predict_cycle_length(past_cycle_lengths: list, default: int, ma_window: int):
 9
10          # Moving average prediction
11          if len(past_cycle_lengths) == 0:
12              return default
13          elif len(past_cycle_lengths) < ma_window:
14              return int(np.average(past_cycle_lengths))
15          else:
16              return int(np.average(past_cycle_lengths[-ma_window:]))
17
18
19  def main(args):
20
21          if args.reset:
22              reset(args.save_path, args.save_file_name)
23              return
24
25          current_date = datetime.datetime.today().date()          # Get current date
26          memory = get_past_data(args.save_path, args.save_file_name)          # Get stored data
27
28          last_cycle_start = None
29          last_cycle_length = None
30          if len(memory['past_event_dates']) != 0:
31              last_cycle_start = memory['past_event_dates'][-1]
32              last_cycle_length = memory['past_cycle_lengths'][-1]
33
34          # First time use
35          if last_cycle_length is None or last_cycle_start is None:
36              # Display data and record event
37              if args.record_new_cycle:
38                  this_cycle_start = (current_date + datetime.timedelta(days=-(args.day_of_cyc
39
```

```yaml
 1  # User Actions
 2  record_new_cycle: 1          # 0 -> False/1 -> True
 3  day_of_cycle: 1
 4  reset: 0                     # 0 -> False/1 -> True
 5
 6  # Model Params
 7  max_cycle_length: 99
 8  default_cycle_length: 28
 9  average_min: 21
10  average_max: 39
11  end_of_cycle_alert_days: 3
12  regular_cycle_range_min: 26
13  regular_cycle_range_max: 32
14  fertile_window_start: 8
15  fertile_window_end: 19
16  beep_alert_on: 8
17  beep_alert_off: 20
18  average_window: 3
19
20  # Save Data
21  save_path: C:\flutter_dev\2024-IMMI\web_app\pr
22  save_file_name: cycle_data.txt
```

PROBLEMS   16   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

```
+----------------------+-------------+
|        Name          |    Value    |
+----------------------+-------------+
|  this cycle length   |     28      |
| this cycle start date | 2024/05/26 |
| next cycle start date | 2024/06/23 |
+----------------------+-------------+
```

Framework

Period Tracker

Data Page	Diary Page	Home Page	Info Page	Setting Page
Visualise the data on the device and previous predictions	Allows user to take notes and record their moods	Displays a calendar to show prediction Allows user to give necessary input	Provides user with useful information on period cycle	Contains settings for the page such as appearance

GPT Copilot

- Model: ChatGPT 4o

- Easy to start with

- GPT code sometimes getting errors

- LLM Hallucination is noticeable

- Capable of self-correcting

- Chain of Thought Prompting to be implemented for complicated tasks

Issues and Steps to Solution

Prediction algorithm development

1. Research into popular algorithms -> hard to implement in a short time frame
2. Develop a basic time series predictor -> time-consuming
3. Building based on IMMI's work instead of reinventing the wheel, reimplementation in a familiar language -> better code understanding and easier domain transfer

Framework Development

1. Develop an accessible software platform -> Need for a multi-platform development tool
2. Look into software development platform -> hard to learn within a limited timeframe
3. Develop the software framework in flutter, which is accessible on all platforms, with GPT Copilot -> Simplifies the initial development and later implementation

Issues and Steps to Solution

Software design

1. Look into different design methods including making the web pages scrollable -> time-consuming
2. Develop accessible and informative web pages -> time-consuming
3. Lots of helpful websites and youtube videos explaining how to implement these methods into the web design -> better understanding of the flutter code helping when looking at the other pages

Team Development

- Collaboration:
    - Repository management, code merging and formatting for easier maintenance, and keeping commits frequent and documented in case of error.
    - Better understanding of how individual strengths can be paired with tasks.

- Time Management
    - Include delays and rework into planning (e.g. IMMI does not respond immediately).
    - Identify tasks that can be completed in parallel.
    - Prioritize tasks that are associated with primary objectives and wider impact.

Individual Development

Rosie

- Learned dart.

- Learned how to better collaborate using git.

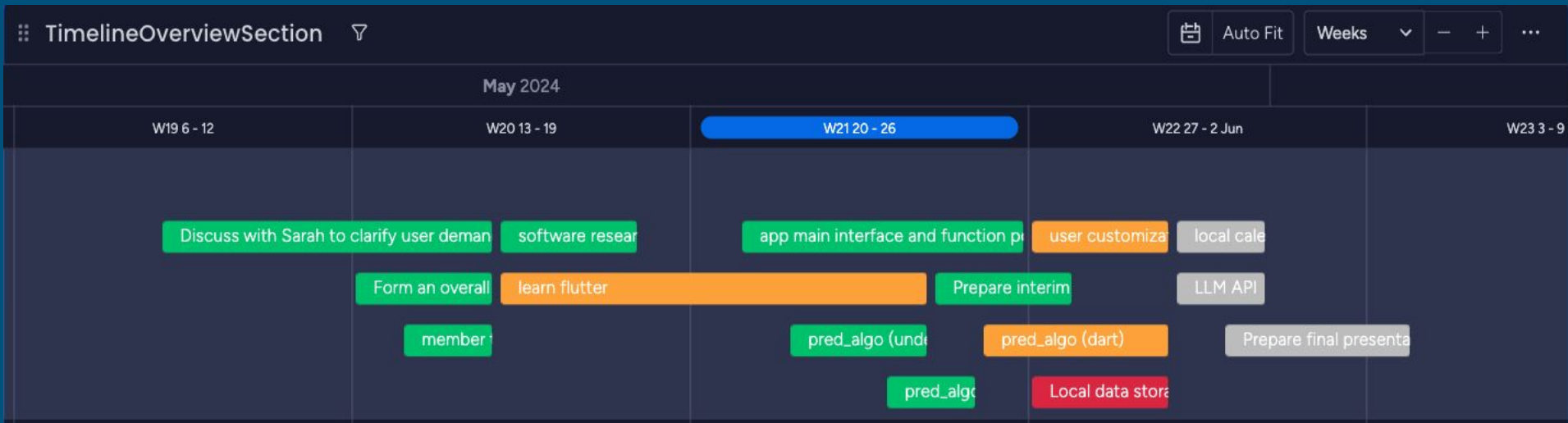- Learned more software design techniques.

Barry

- Learned dart.

- Learned better prompting with LLM.

- More insights into UI design to enhance user comfort while using the app.

Charles

- Learned dart.

- Learned excel macro/VBA.

- More insights into coding from a user's perspective and how to consider all deviations.

Updated Timeline

To-do

	Task		Due date	Priority	Timeline	People	Status
☐	Discuss with Sarah to clarif...		16 May	Low	9 - 15 May	All	Done
☐	Form an overall project pro...		16 May	High	13 - 15 May	All	Done
☐	member task assignment		17 May	Medium	14 - 15 May	All	Done
☐	software research			Medium	16 - 18 May	All	Done
☐	learn flutter			High	16 - 24 May	All	Working on it
☐	app main interface and fun...			High	21 - 26 May	Barry	Done
☐	pred_algo (understand IM...			High	22 - 24 May	Charles	Done
☐	pred_algo (python version)			High	24 - 25 May	Charles	Done
☐	Prepare interim presentation		27 May	High	25 - 27 May	All	Done
☐	pred_algo (dart)			High	26 - 29 May	Charles	Working on it
☐	user customization			Medium	27 - 29 May	Rosie	Working on it
☐	Local data storage			Medium	27 - 29 May	Rosie	Stuck
☐	local calender syncing			Low	30 - 31 May	Charles	
☐	LLM API			Low	30 - 31 May	Barry	
☐	Prepare final presentations		3 Jun	High	31 May - 3 Jun	All	

Prototype Demo

1. Cycle prediction based on user input

2. Prediction visualization on a calendar

3. Syncing with local calendar

4. Local data storage

5. User customization of the webpage and calendar in terms of appearance, notes, emojis, etc