

# **REAL-TIME CARBON NEUTRALITY MANAGEMENT AND OPTIMIZATION USING NATURAL LANGUAGE PROCESSING**

Project ID: 2022-175

Status Document 1

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13<sup>th</sup> May 2022

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# 1. GANTT CHART COMPARISON

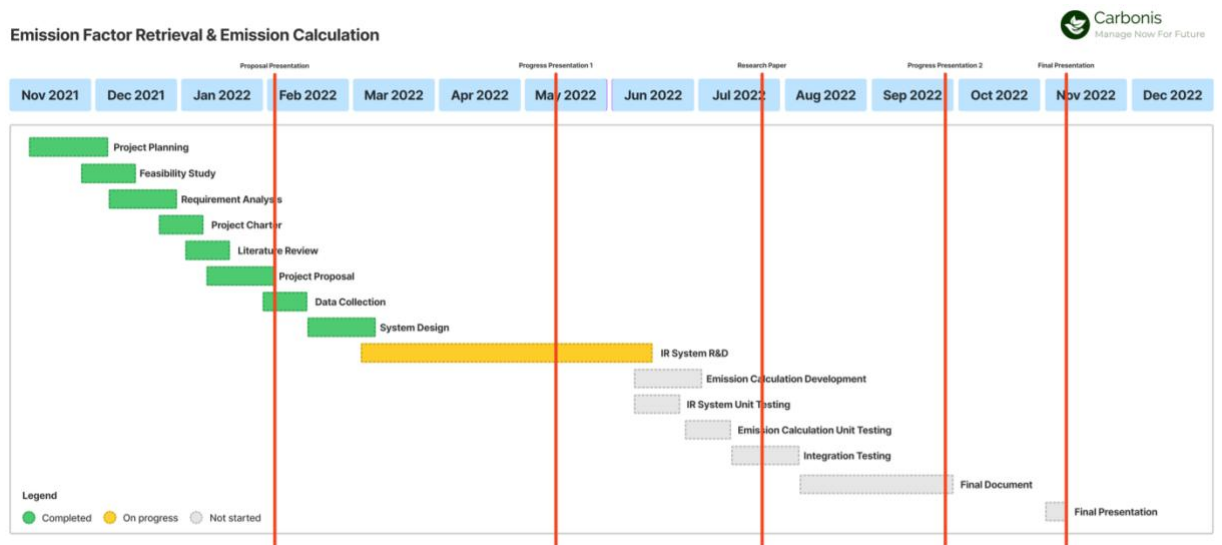


Figure 1.1: Gantt chart submitted with proposal report

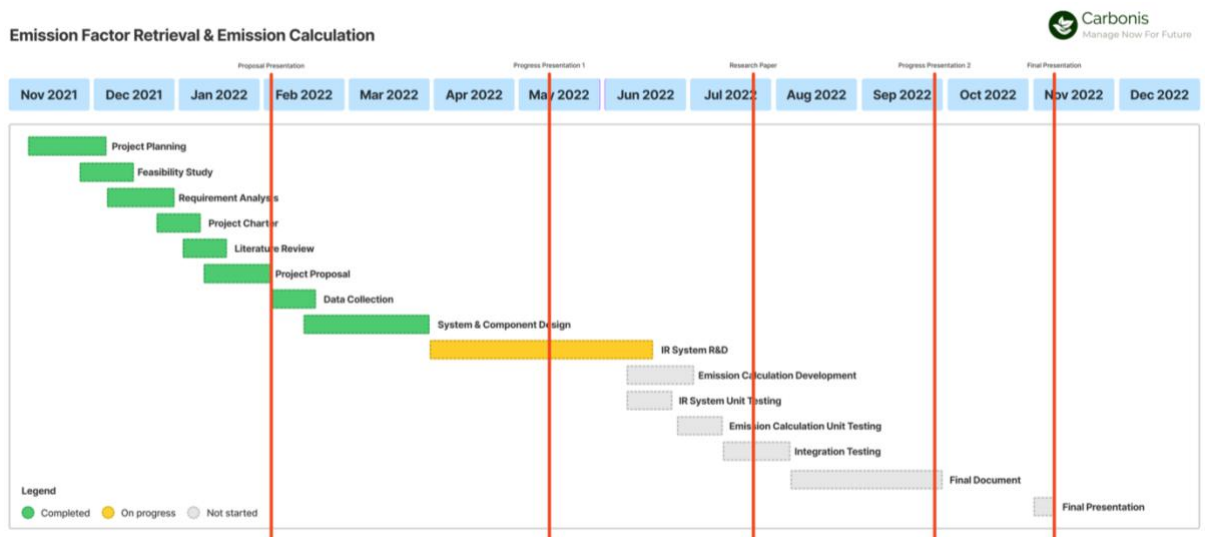


Figure 1.2: Updated Gantt chart

## 2. TIMELINE COMPARISON AND WORK ALLOCATION

When compared with the Gantt chart submitted with the proposal report (shown in Figure 1.1) to the current Gantt chart (shown in Figure 1.2), the following changes occurred,

1. Delay in the starting of the data collection phase

**Reasons:** Due to the time taken to study the emission factor standard and find resource persons, the beginning of this phase has been delayed.

2. Extension of the system design phase

**Reasons:** Due to the addition of component design (component architecture and component use case diagram) and unanticipated designs for system design (database physical diagram, API design, and cloud design) design phase got extended.

Following risk mitigation changes have been carried out to achieve the deadlines despite delays,

1. Increased the speed of the IR system research and development phase and reduced the time allocated for this phase. Can work more time daily to achieve the same deadline as there is no unforeseen delay observed in this phase.

### 3. FINALIZED WORK ALLOCATION

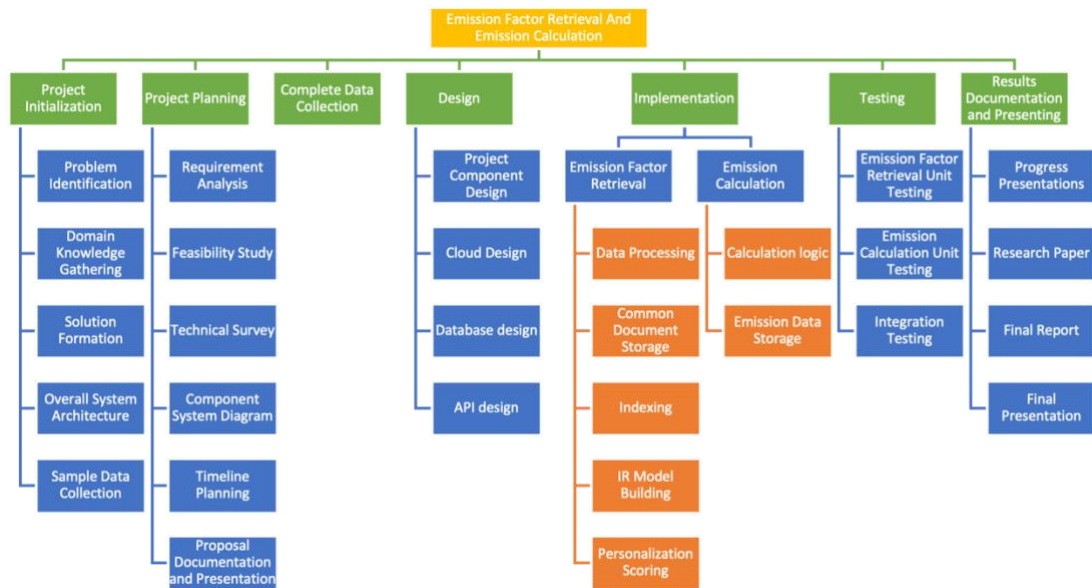


Figure 3.1: Updated work breakdown structure

As shown in figure 1.2 updated Gantt chart and explained in chapter 2, the risk mitigation for occurring delays only applied to the reduction of days allocated for IR system research and development by increasing daily work hours. Finalized work allocation remains similar to the proposal for other parts as shown in figures 1.2 and figure 3.1.

## 4. PROJECT MANAGEMENT TOOLS REPORTS

### 4.1. Planner Reports

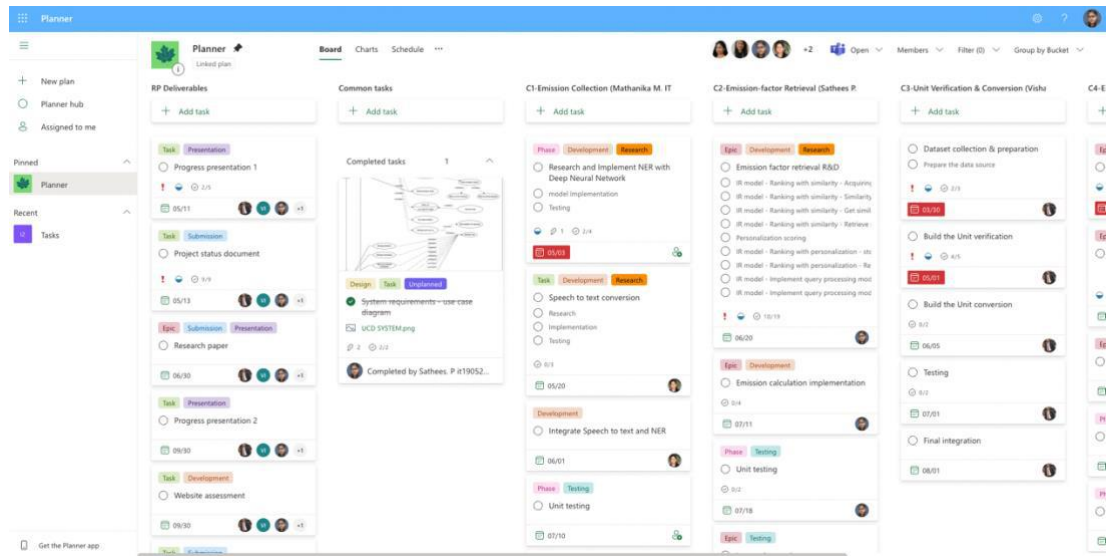


Figure 4.1: Full view of the project management tool (Planner)

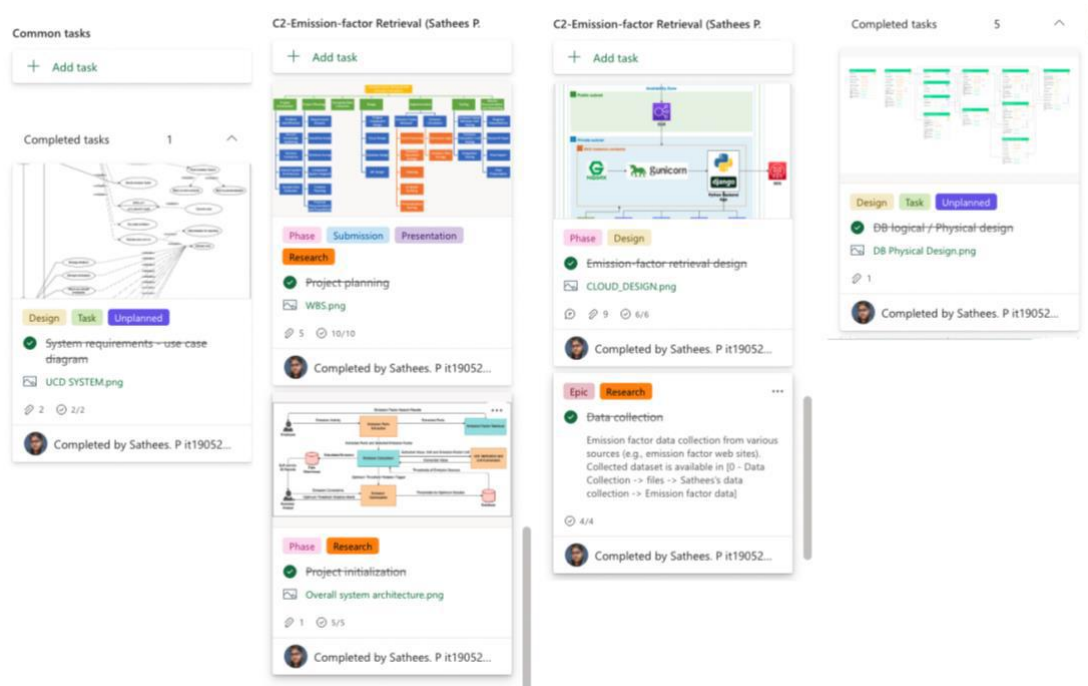


Figure 4.2: Tasks completed by me until now

Microsoft Planner was used to manage project tasks and work allocations (shown in figure 4.1). Figure 4.2 shows the phases and tasks completed by me until now. Figure 4.3 shows the remaining phases and tasks that must be completed before project completion.



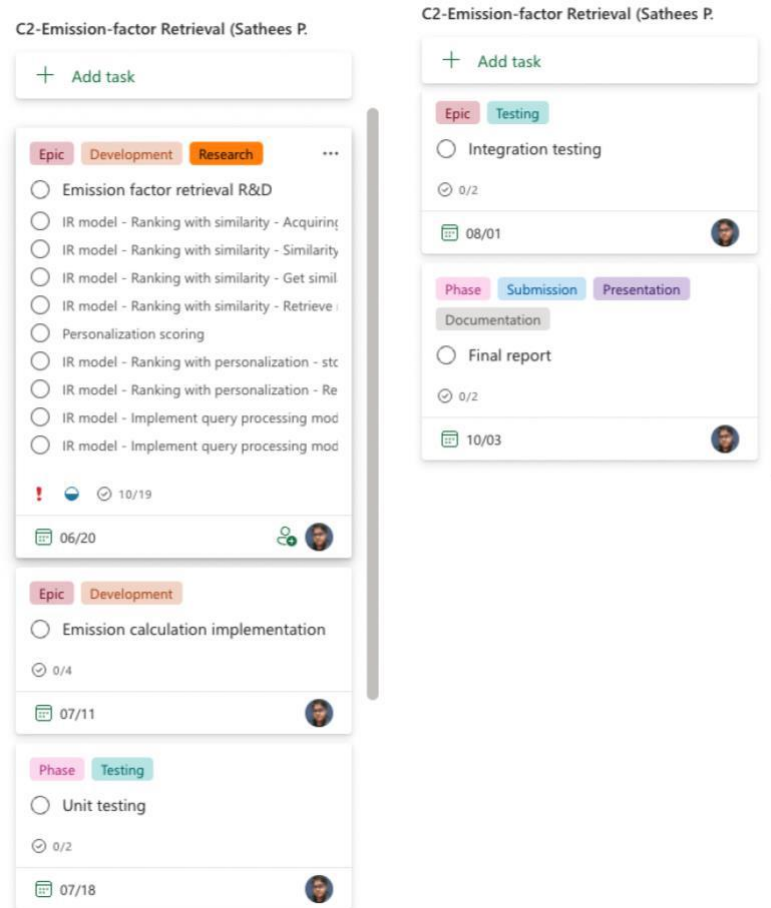


Figure 4.3: Ongoing and remaining tasks

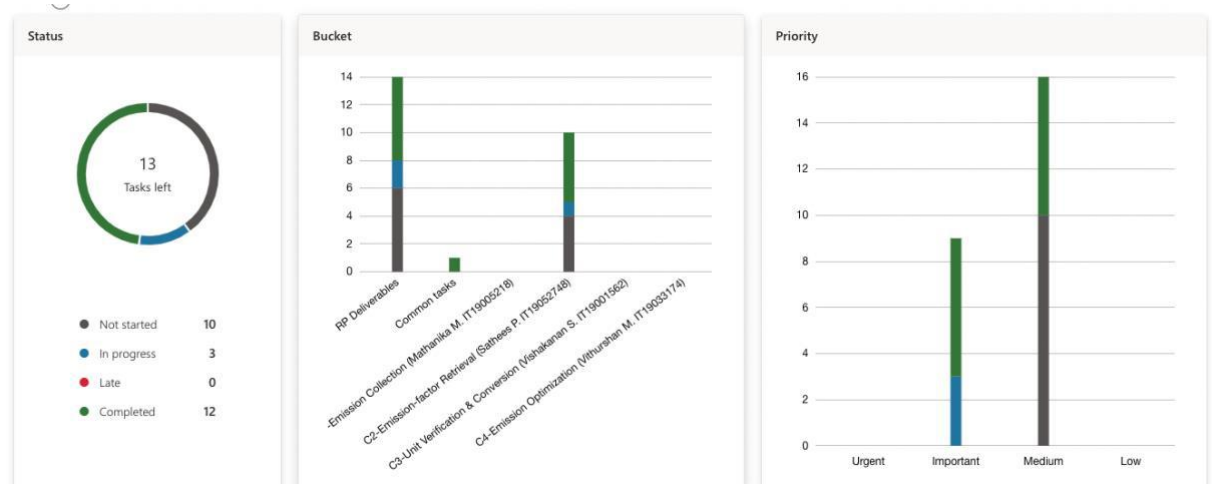


Figure 4.4: Planner report generated for my component, common tasks, and project deliverables part

Figures 4.4 and 4.5 show the reports generated by the planner for my contribution and progress status at the current moment.



Figure 4.5: Planner overall contribution report generated

## 4.2. Milestones Completion

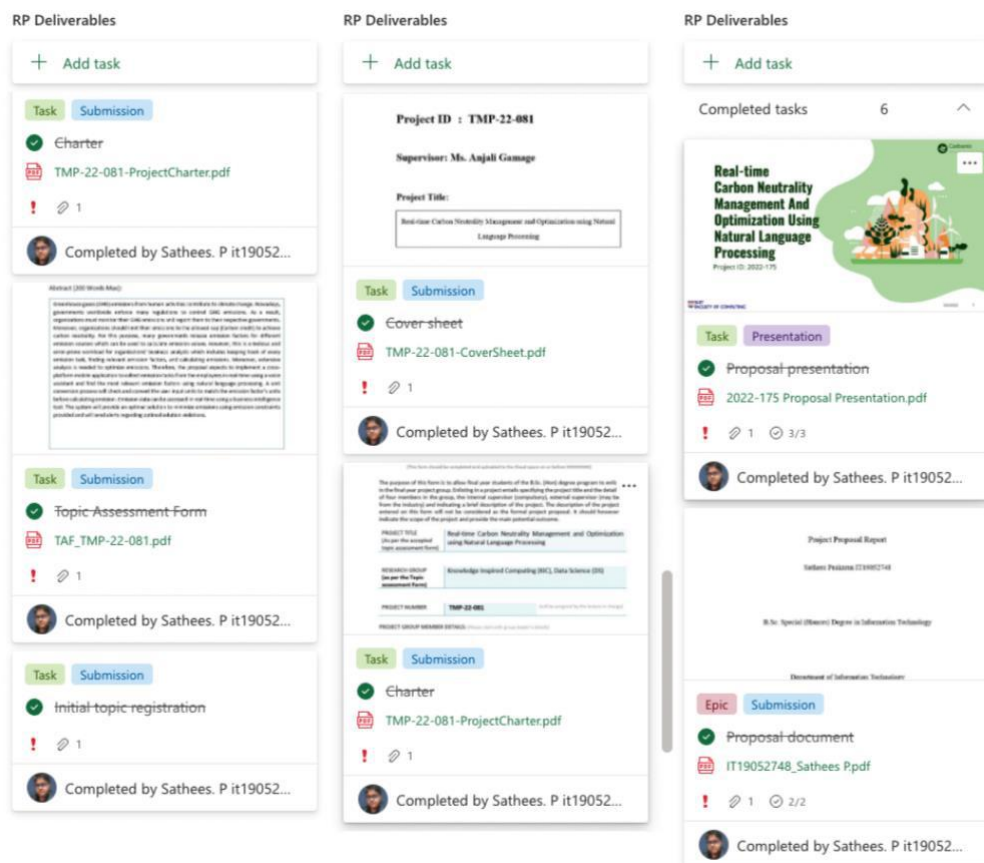


Figure 4.6: Milestones completed or contributed

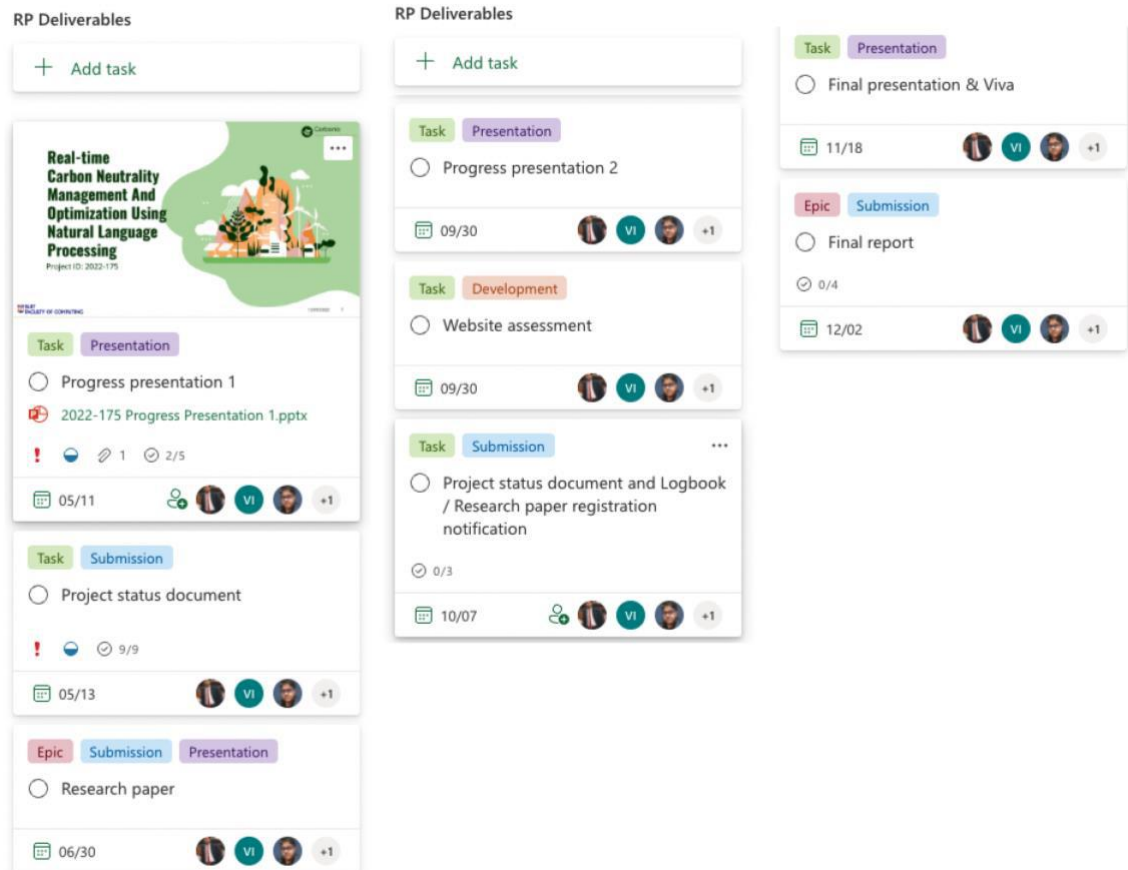


Figure 4.7: Ongoing and remaining milestones

### 4.3. Sample Output

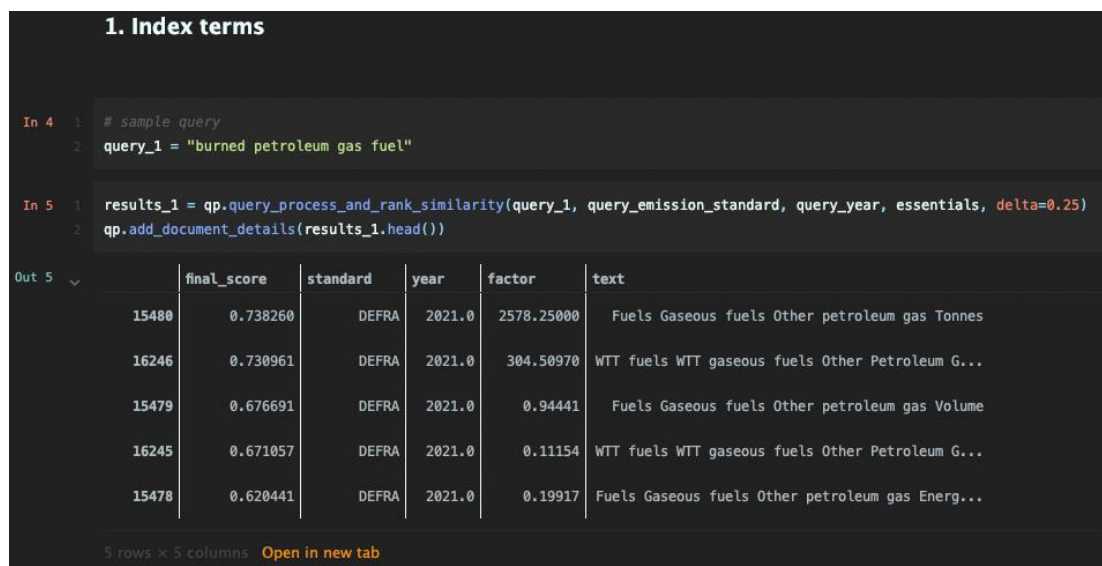


Figure 4.8: Sample output 1

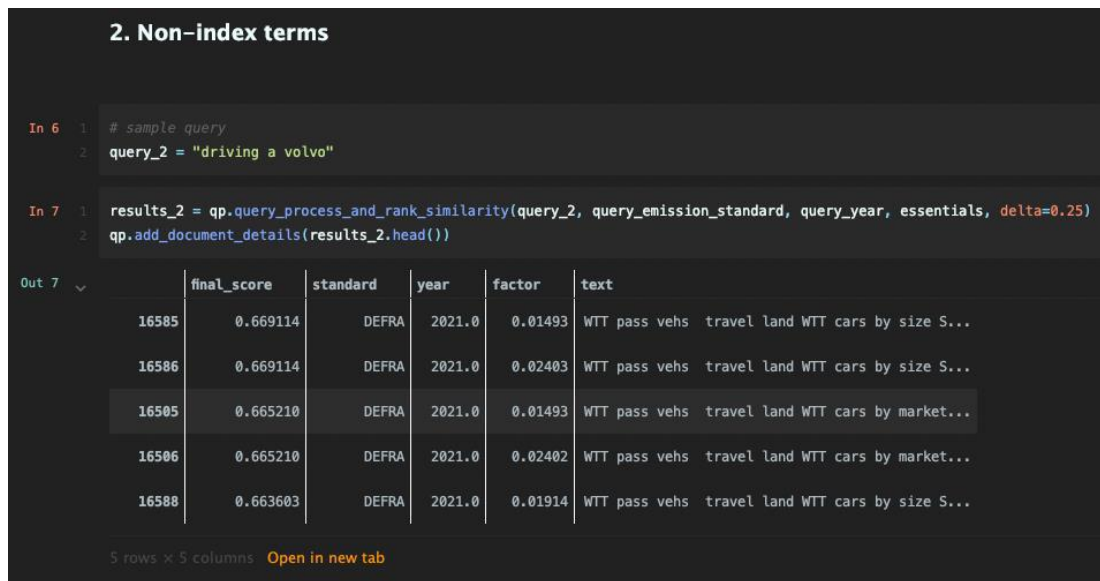


Figure 4.9: Sample output 2

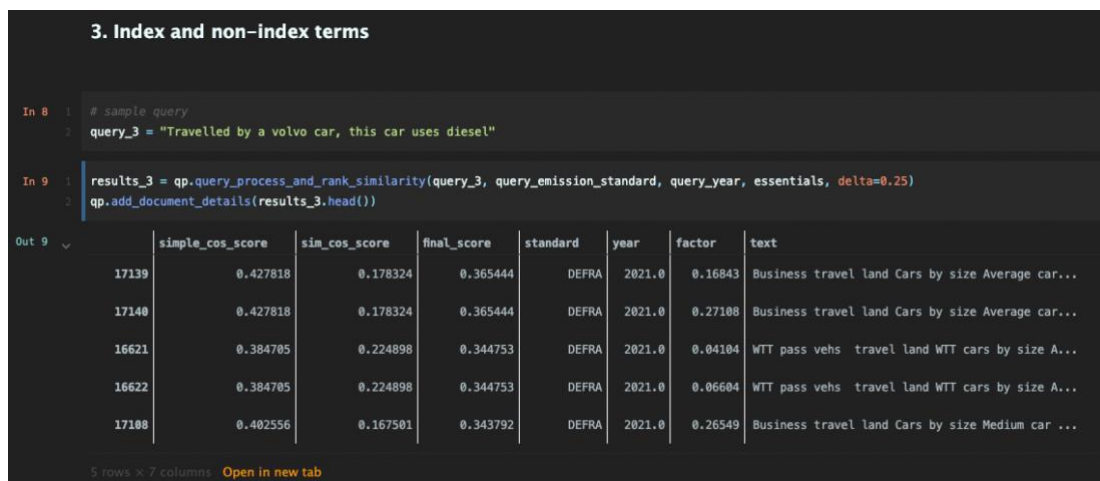


Figure 4.10: Sample output 3

## 4.4. Task Allocation

Since all allocated tasks for this component can be completed within the provided deadlines, there was no need to reallocate tasks to other members currently. However, project wise app development was separated as follows,

1. Backend API development and deployment: **Sathees P. (IT19052748)**, Mathanika M. (IT19005218), and Vishakanan S. (IT19001562)
2. Frontend mobile app development: Vithurshan M. (IT19033174)

#### 4.5. Documentation Works

Until now I have contributed to the following documentation works,

1. Initial topic registration
2. Topic assessment form
3. Charter
4. Project proposal (individual)
5. Proposal presentation
  - a. Introduction
  - b. My component
  - c. Commercialization
  - d. Wrap-up
6. Meeting logbooks
7. Progress presentation 1
  - a. Introduction
  - b. My component
  - c. Commercialization – Business model canvas
  - d. Wrap-up
8. Status document 1 (individual)

#### 4.6. Meeting Logs and Proofs

*Table 4.1: Group meeting logs*

Date	Time	Platform	Sathees	Discussions	Conclusions
2021-11-20	8:00 PM	Zoom	Present	Component separation, supervisor selection	Chosen topic 1 as the priority idea Started working on component separation
2021-11-21	1:00 PM	Zoom	Present		
2021-11-22	1:00 PM	Zoom	Present	Finalize supervisor document Send mail to the supervisor Responsive and informing prior Journal task allocation Slack usage	
2021-11-23	8:00 AM	Zoom	Present	Informing prior about attendance Meeting time (in the morning) Slack usage	
2021-11-24	8:00 AM	Zoom	Present		

<b>2021-11-29</b>	10:00 AM	Zoom	Present	Identify unique research components Allocate sections	Decided to research each section
<b>2021-12-01</b>	8:00 AM	Zoom	Present	Research component search progress Supervisor issue	Decided to mail the supervisor for a meeting this Friday
<b>2021-12-02</b>	8:00 AM	Zoom	Present	New component separation Component allocation Courses System diagram Allocation of the time title submission form	Decided to send a mail to the supervisor requesting a meeting
<b>2021-12-03</b>	5:00 PM	Zoom	Present	Mail sent Tasks identified	
<b>2021-12-05</b>	8:00 AM	Zoom	Present	Tasks identified Supervisor status Form submissions	Decided to send a reminder mail to the supervisor for topic selection, supervising, and co-supervisor. Decided to conduct meetings every day from now.
<b>2021-12-06</b>	8:00 AM	Zoom	Present	Supervisor issue Dataset issue Sending a third mail	Decided to ask for a supervisor
<b>2021-12-06</b>	9:00 PM	Zoom	Present	Data and Topic issue	Sent mails to supervisors
<b>2021-12-07</b>	8:00 AM	Zoom	Present	Updates on mails Data science technologies	
<b>2021-12-07</b>	9:00 PM	Zoom	Present	Topic selection Co-supervisor selection Components Communications with supervisor (e.g. teams) External supervisor	Identify more relevant components for this bee idea Find a more novel idea
<b>2021-12-08</b>	8:00 AM	Zoom	Present	New idea formation Co-supervisor More resources for 1st idea	Decided to send documents of a new idea to the supervisor Asked for a co-supervisor
<b>2021-12-09</b>	8:00 AM	Zoom	Present	New components to the new idea	
<b>2021-12-09</b>	8:00 PM	Zoom	Present	Arranging a new meeting with the supervisor Concept of bee idea	Wait for the co-supervisor meeting

<b>2021-12-10</b>	8:00 PM	Zoom	Present	New ideas Feasibility of the ideas What to ask with co-supervisor	Decided to ask for a schedule with co-supervisor
<b>2021-12-11</b>	8:00 AM	Zoom	Present	What to discuss with co-supervisor Any new ideas	Go with the second idea
<b>2021-12-11</b>	8:00 PM	Zoom	Present	Identify topics Product name	
<b>2021-12-12</b>	8:00 AM	Zoom	Present	Forming topic Submitting the topic	
<b>2021-12-12</b>	8:00 PM	Zoom	Present	Literature review Technical side	No meeting on Monday morning
<b>2021-12-19</b>	8:00 PM	Zoom	Present	Task allocation New idea finding	
<b>2021-12-20</b>	8:00 PM	Zoom	Present	New ideas TAF rewrite Supervisor contact	Find a relevant component for Vithursan
<b>2021-12-21</b>	8:00 PM	Zoom	Present		
<b>2021-12-22</b>	8:00 PM	Zoom	Present		
<b>2021-12-23</b>	8:00 PM	Zoom	Present		
<b>2021-12-24</b>	8:00 PM	Zoom	Present		
<b>2021-12-27</b>	8:00 PM	Zoom	Present		
<b>2022-03-10</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-12</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-15</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-16</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-17</b>	19:00	MS Teams	Absent	Progress status	
<b>2022-03-19</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-21</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-22</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-23</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-24</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-26</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-29</b>	19:00	MS Teams	Present	Progress status	

<b>2022-03-30</b>	19:00	MS Teams	Present	Progress status	
<b>2022-03-31</b>	19:00	MS Teams	Present	Canceled due to connection issue	
<b>2022-04-02</b>	19:00	MS Teams	Absent	Canceled due to connection issue	
<b>2022-04-05</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-06</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-07</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-09</b>	19:00	MS Teams	Absent	Progress status	
<b>2022-04-12</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-13</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-14</b>	19:00	MS Teams	Absent	Canceled due to New year	
<b>2022-04-16</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-19</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-20</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-21</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-23</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-26</b>	19:00	MS Teams	Present	Progress status	
<b>2022-04-27</b>	7:00 PM	MS Teams	Present	Progress status, meeting journal	
<b>2022-04-28</b>	7:00 PM	MS Teams	Present	Progress status	
<b>2022-05-03</b>	7:00 PM	MS Teams	Present	Progress status, PP1 Marking Rubric discussion	



Discussion with supervisor																																		
<a href="#">Chat</a> <a href="#">Details</a> <a href="#">Scheduling Assistant</a> <a href="#">Attendance</a>				<a href="#">Join</a> <a href="#">Close</a>																														
Apr 26, 3:28:01 PM																																		
<div>Summary</div> <div> <div>5</div> <div>Attended participants</div> </div> <div> <div>3:28 PM - 4:12 PM</div> <div>Start and end time</div> </div> <div> <div>44m 43s</div> <div>Meeting duration</div> </div> <div> <div>32m 26s</div> <div>Average attendance time</div> </div>																																		
<div>Participants</div> <table> <tr> <th>Name</th><th>First join</th><th>Last leave</th><th>In-meeting duration</th><th>Role</th></tr> <tr> <td>Vithursan M. it19033174 it19033174@my.slit.lk</td><td>3:28 PM</td><td>4:12 PM</td><td>44m 36s</td><td>Presenter</td></tr> <tr> <td>Vishakanan S. it19001562 it19001562@my.slit.lk</td><td>3:28 PM</td><td>3:51 PM</td><td>23m 10s</td><td>Presenter</td></tr> <tr> <td>Sathees. P. it19052748 it19052748@my.slit.lk</td><td>3:28 PM</td><td>4:12 PM</td><td>44m 3s</td><td>Organizer</td></tr> <tr> <td>Mathanika M. it19005218 it19005218@my.slit.lk</td><td>3:29 PM</td><td>4:06 PM</td><td>36m 42s</td><td>Presenter</td></tr> <tr> <td>Anjali Gamage anjali.g@slit.lk</td><td>3:36 PM</td><td>3:50 PM</td><td>13m 40s</td><td>Presenter</td></tr> </table>					Name	First join	Last leave	In-meeting duration	Role	Vithursan M. it19033174 it19033174@my.slit.lk	3:28 PM	4:12 PM	44m 36s	Presenter	Vishakanan S. it19001562 it19001562@my.slit.lk	3:28 PM	3:51 PM	23m 10s	Presenter	Sathees. P. it19052748 it19052748@my.slit.lk	3:28 PM	4:12 PM	44m 3s	Organizer	Mathanika M. it19005218 it19005218@my.slit.lk	3:29 PM	4:06 PM	36m 42s	Presenter	Anjali Gamage anjali.g@slit.lk	3:36 PM	3:50 PM	13m 40s	Presenter
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Mathanika M. it19005218 it19005218@my.slit.lk	3:29 PM	4:06 PM	36m 42s	Presenter																														
Anjali Gamage anjali.g@slit.lk	3:36 PM	3:50 PM	13m 40s	Presenter																														

Figure 4.8: Supervisor meeting proof

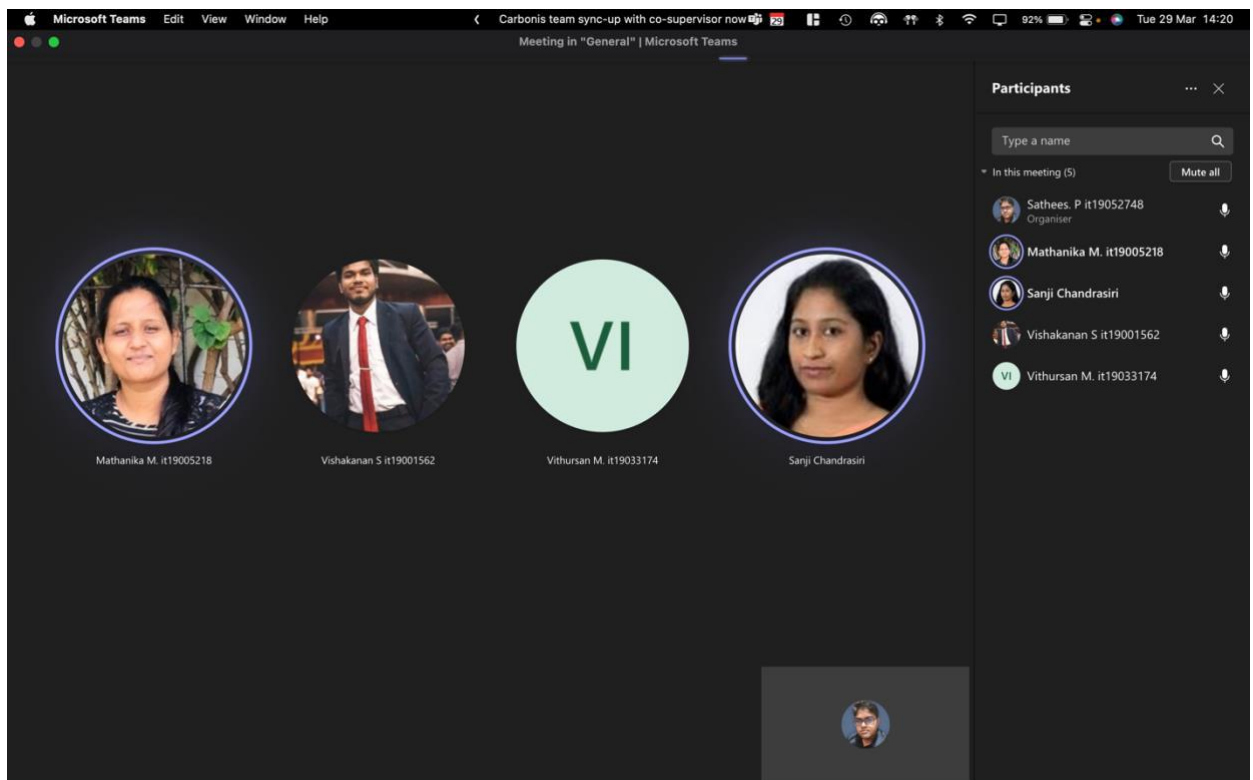


Figure 4.9: Co-supervisor meeting proof

## 5. APPENDICES

### 5.1. Appendix – A: Planner Schedule Screenshots till June 2022

< > October 2021							Week	Month
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		
26	27	28	29	30	1	2		
3	4	5	6	7	8	9		
10	11	12	13	14	15	16		
17	18	19	20	21	22	23		
24	25	26	27	28	29	30		
								Project Initialization

Figure 5.5.1: Planner scheduled for October 2021

< > November 2021							Week	Month
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		
31	1	2	3	4	5	6		
Project initialization								
7	8	9	10	11	12	13		
Project initialization	Project planning							
14	15	16	17	18	19	20		
Project planning								
21	22	23	24	25	26	27		
Project planning								
28	29	30	1	2	3	4		
Project planning								

Figure 5.5.2: Planner scheduled for November 2021

<div> <div>&lt;</div> <div>&gt;</div> <div>December 2021</div> <div>▼</div> </div> <div> <div>Week</div> <div>Month</div> </div>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	29	30	1	2	3	4
● Project planning						
5	6	7	8	9	10	11
● Project planning						
Project planning						
12	13	14	15	16	17	18
● Project planning						
● Initial topic registration						
19	20	21	22	23	24	25
● Project planning						
26	27	28	29	30	31	1
● Project planning						

Figure 5.5.3: Planner scheduled for December 2021

<div> <div>&lt;</div> <div>&gt;</div> <div>January 2022</div> <div>▼</div> </div> <div> <div>Week</div> <div>Month</div> </div>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
● Project planning						
2	3	4	5	6	7	8
● Project planning						
9	10	11	12	13	14	15
● Project planning						
● Charter						
+2 more						
16	17	18	19	20	21	22
● Project planning						
23	24	25	26	27	28	29
● Project planning						
30	31	1	2	3	4	5
● Project planning						
● Proposal presentation						
● Data collection						

Figure 5.5.4: Planner scheduled for January 2022

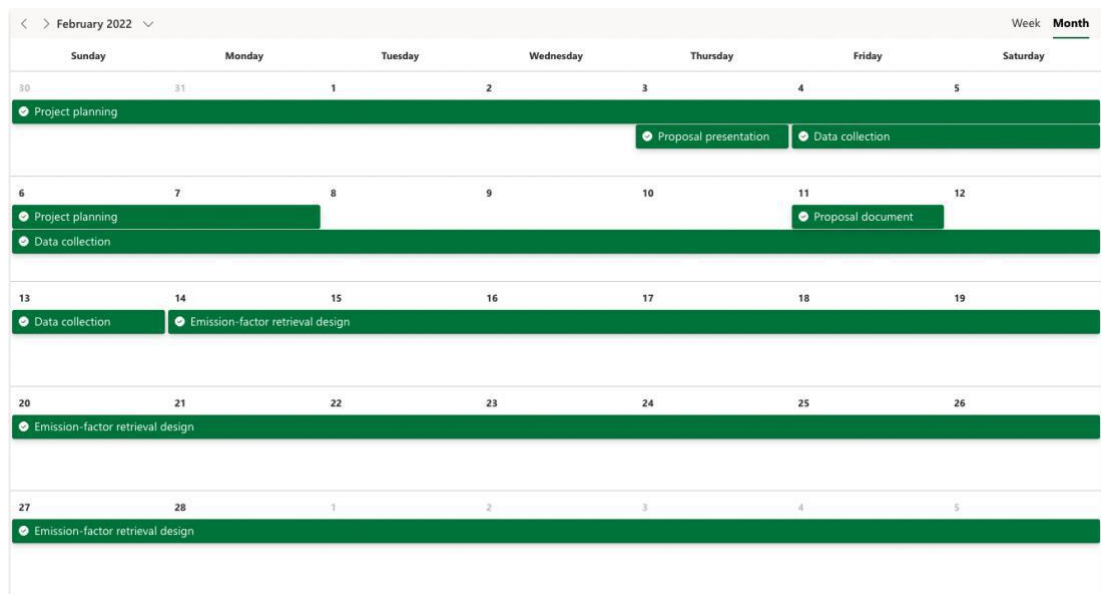


Figure 5.5.5: Planner schedule for February 2022

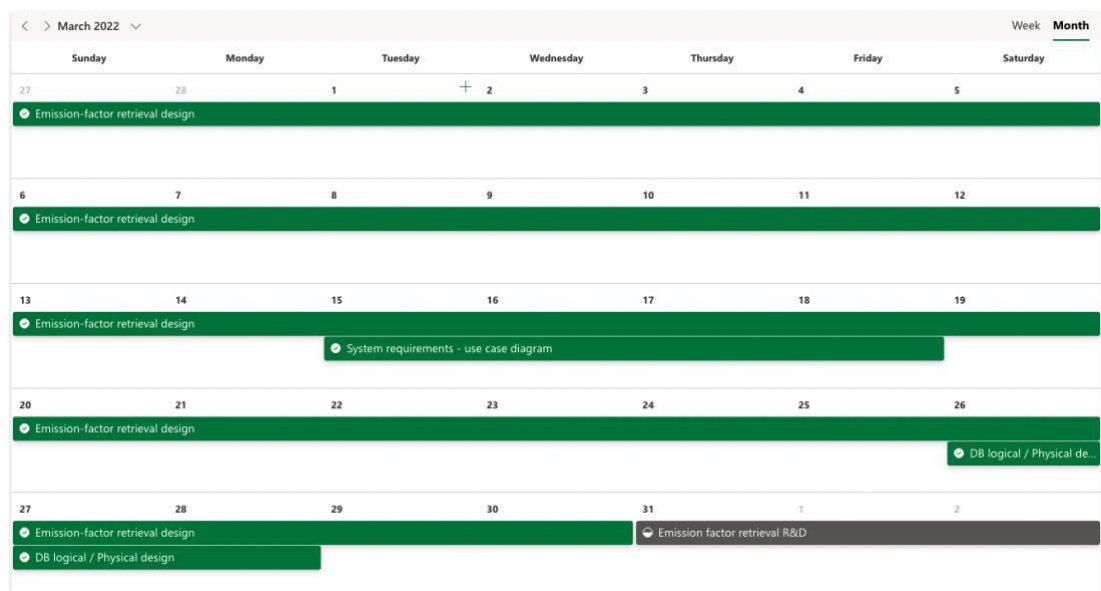


Figure 5.5.6: Planner scheduled for March 2022

April 2022							Week	Month
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		
27	28	29	30	31	1	2		
● Emission-factor retrieval design				● Emission factor retrieval R&D				
● DB logical / Physical design								
3	4	5	6	7	8	9		
● Emission factor retrieval R&D								
10	11	12	13	14	15	16		
● Emission factor retrieval R&D								
17	18	19	20	21	22	23		
● Emission factor retrieval R&D								
24	25	26	27	28	29	30		
● Emission factor retrieval R&D								

Figure 5.5.7: Planner scheduled for April 2022

May 2022							Week	Month
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		
1	2	3	4	5	6	7		
● Emission factor retrieval R&D								
8	9	10	11	12	13	14		
● Emission factor retrieval R&D								
			● Progress presentation 1		● Project status document			
15	16	17	18	19	20	21		
● Emission factor retrieval R&D								
22	23	24	25	26	27	28		
● Emission factor retrieval R&D								
29	30	31	1	2	3	4		
● Emission factor retrieval R&D								

Figure 5.5.8: Planner scheduled for May 2022

<div> <div>&lt;</div> <div>&gt;</div> <div>June 2022</div> <div> <div>Week</div> <div>Month</div> </div> </div>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	31	1	2	3	4
Emission factor retrieval R&D						
5	6	7	8	9	10	11
Emission factor retrieval R&D						
						Emission factor retrieval R&D
12	13	14	15	16	17	18
Emission factor retrieval R&D						
	Unit testing					
	Emission calculation implementation					
19	20	21	22	23	24	25
Emission factor retrieval R&D						
	Unit testing					
	Emission calculation implementation					
26	27	28	29	30	1	2
Unit testing						
Emission calculation implementation						
				Research paper		

Figure 5.5.9: Planner scheduled for June 2022