Decision Support System Guide N. Topaloglou-Mundy and A. Yang

The decision support tool organizes, chunks and delegates tasks before letting the user(s) make a simple choice on how they would like to organize themselves. Based on their choice, the computer then displays these tasks into an easy-to-read calendar. At the start of the program you must enter the number of people in your group, as well as the start date and final due date for your project, as seen in Figure 1. Next, a calendar must be created by pressing the "Create Calendar" button, Figure 1. The number of your teams must then be entered so that the decision support tool can delegate

\square	Α	В	С	D	
1					
2					
3					
4		[1] Click here to create	0 1 01		
5		your calendar 👉	Create Calend	dar	
6					
7					
8					
9					
10		[2] Input the start/end			
11		dates for your project			
12			Start Date:		
11 12 13 14 15 16 17			End Date:		
14					
15					
16		[3] Add the number			
17		of people in your			
18 19 20		team ∠テ	Number of Team members		
19					
20					

Figure 1:

Top: A button to be pressed by the user that creates a calendar.

Middle: The user must input the start and end dates in the two cells to the right.

Bottom: The user must then input the number of team members so the computer can help delegate.

4	Α	В	С	D			
2							
.3		[4] Input the	Task Name (String)				
4		necessary data	Duration (Integer)				
5		for your tasks 👍	Start Date (yyyy-mm-dd)				
6			Due Date (yyyy-mm-dd)				
7			Importance (Integer)				
8			Number of Chunks				
9							
0		[5] Add	A did to also				
1		your task to a list	Add tasks (addtolistbutton)	Done adding tasks			
2		of things to do 👍	(addionstbutton)				
3							
4		[6] Decide if	Delegate work evenly	Delegate work			
5	de	cide between the 2 buttons 👍	Delegate work evenly	unevenly			
6							
7							

Figure 2: Top: A table the user must fill out. Note that the required form of the input is between the brackets else the decision support tool may not function. Middle-bottom: There are 4 buttons, "Add tasks" adds a task to the tool's "to-do" list, "Done adding tasks" lets the tool know that it can begin to organize the information. The "delegate work evenly" button and "delegate work unevenly" button let the users see the potential delegation plan.

The user must then input the following information, as seen in Figure 2

- the task's name (string)
- the duration of the task (integer)
- the duration of the task (integer)
- the start and due dates of the task (yyyy-mm-dd)
- an importance rating from (integer from 1-10)
- the number of chunks desired by the user (integer)

After adding the tasks, the user must then click the "Add tasks" button. The computer will then add this onto a list of tasks to do (a "to-do" list). The user can add many tasks by replacing the information in the table with another task, over and over.

After the user has added as many tasks as they would like, they press the "Done adding tasks" button, leading to 2 copies of the "to-do" list. Both lists are sorted, prioritizing tasks coming up, an estimated long duration and a higher importance.

After, the tool then returns 2 different options: one where the work is delegated more evenly and another where it is not. The user can toggle between the two bottom buttons seen in Figure 2: "Delegate work evenly" and "Delegate work unevenly".

G	Н	1	J	K	L	М	N	0	Р	Q
			Group Member	Task Name	Due Date					
				Powerpoint - part 1 of 3	2019-11-09					
[7] add			Report - part 5 of 5	2019-11-17		,	[8] When satisfied, press the		ne	
	na	mes here		Activity Log/Status - part 1 of 2	2019-11-07		add to calendar	button to ad	d it to the cale	endar
		₽		Report - part 4 of 5	2019-11-15		add to caleridar	€`		
				Activity Log/Status - part 2 of 2	2019-11-09					
				Report - part 3 of 5	2019-11-13					
				Powerpoint - part 2 of 3	2019-11-12					
				Powerpoint - part 3 of 3	2019-11-15					
				Report - part 1 of 5	2019-11-09					
				Report - part 2 of 5	2019-11-11					

Figure 3: The table where tasks are presented to the user before being added to the calendar. Above shown is a sample delegation. Note, the tasks are delegated very evenly.

After the user considers the two possible delegations, they must make a choice; to delegate evenly or unevenly. They must then enter their group member's names into the column shown in Figure 3. The computer shows its recommended delegations by placing a thick line between different people's task

In Figure 3, for example, we can see that for a group of 5, one person would do the first third of the PowerPoint, and the ending/conclusion of the report, another person would do the first half of the activity log/status report and one part of the body paragraph of the report etc. This approach allows for the team to cover the most ground in a short period of time if everyone sticks to the plan and members do not slack off.

Finally, when the user is satisfied with the computer's delegation and their choices regarding team member delegation, they may press the "add to calendar" button, which adds the task across the calendars.

(
[8] When satisfied, press the button to add it to the calendar		

Figure 4 (above): Sample input on task delegation. Note that the user is not restricted by the decision support tool; the tool calculates a plan that may be better than the user's plan.

В	C	D	E	F	G	Н					
	Nov-19										
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday					
					1						
9	3 4	. 5	6	7	8						
				Activity Log/Status - part 1 of 2 - Ken		Activity Log/Status - part 2 of 2 - Giselle Report - part 1 of 5 - Mani					
						Report - part 1 of 3 - Main					
10	11	12	13	14	15						
	Report - part 2 of 5 - Mani	Powerpoint - part 2 of 3 - Melanie	Report - part 3 of 5 - Giselle		Report - part 4 of 5 - Ken						
					Powerpoint - part 3 of 3 - Melanie						
11	7 18	19	20	21	22						
Report - part 5 of 5 - Firas	18	19	Final Due Date	21	22						
24	4 25	26	27	28	29						

Figure 5 (above): After clicking the button in Figure 4, the tasks are then placed onto a calendar for the entire team to see. The red date on the calendar is the Final Due Date.

Some shortcomings of the decision support tool are the following:

- Error handling: When given invalid inputs, the tool either gives invalid outputs or crashes
- If the "Create Calendar" button is pressed twice, it will give an error because the tool will try to create calendar sheets with a names that already exists. This will also disrupt the functionality of the "Add Tasks" button
- Due to the size of the calendar a maximum of 5 tasks can be due on each day

Debugging the calendar portion required a considerable amount of work. However, it was rather simple. Most of the problems in this portion of the tool related to the days of the month. Two major problems while writing the code were making sure each month starts on the correct day of the week, and making sure that tasks were added to the correct date in the calendar. These

problems were due to code causing counters to behave incorrectly. A major strategy that was used to help make the testing and debugging process faster was to comment out large portions of the code so that the problems could be identified in each individual portion of the code.