

Initial Plan

Kaoss Pad Type iPad Application for Real-time
Audio and MIDI Control

Supervisor: D Marshall

Moderator: K Sidorov

Steffan Walters

CM0343 - 40 credits

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Project Description

This project is based around the idea of creating a musical application for Apple's iPad tablet which will have real-time audio effect control and MIDI control built into it. The application will seek to emulate some features that are included on the Korg KAOSS pad, which is an audio and MIDI controller with a unique touch based control pad. However, this application is not only limited to trying to emulate the Korg KAOSS pad. The application could also try and emulate other related iPad applications such as: the Yamaha Tenori emulation, Simplemidipad, Beatwave, Soundgrid, Lemur and the TC-11 Multi-Touch Synthesizer for iPad/ iPhone.

This project will look into implementing some of the following features: real-time controllable audio effects, controlling the audio effects by using different gestures (such as two finger press or three finger press), the ability to deal with MIDI and other controller events, an onboard iPad beat / drum generator and an onboard iPad sampler.

Due to the technical nature of this project, a good understanding of the Objective-C programming language will be required, along with the Core Audio/MIDI and Pure Data aspects of it. Testing will require an Apple iPad tablet to ensure that all functionality of the application works efficiently and effectively.

Project Aims and Objectives

The overall aims and objectives for the project are:

- ❖ Create a tactile music application for the iPad
 - Music creator
 - Backing Drums and MIDI Accompany
 - Real-time audio controllable effects
 - MIDI control for the iPad

The aims and objective for the interim report are:

- ❖ Research into similar devices
- ❖ Research into the technologies required (e.g. gesture control)
- ❖ Implement the ability to input MIDI events to the iPad via a keyboard
 - Change the volume using the iPad
 - Add different effects to the MIDI input
 - Record input and play it back

The aims and objectives for the final report are:

- ❖ Implement the drum/beat generator
 - Create a drum generator based on an x,y grid
 - Each point x,y would have some option to allow the drum to be played at that point if required
 - Implement a way to have different volumes for each different drum
 - Create a drum track with either 4 or 8 beats with a time signature of 4/4
 - Save the drum beat
 - Play the saved drum beat while recording/inputting MIDI via a keyboard
- ❖ Add effects to the MIDI input using different gesture controls e.g. two finger swipe, three finger press
- ❖ Implement additional features, such as some from the devices listed in the project description above if there is time

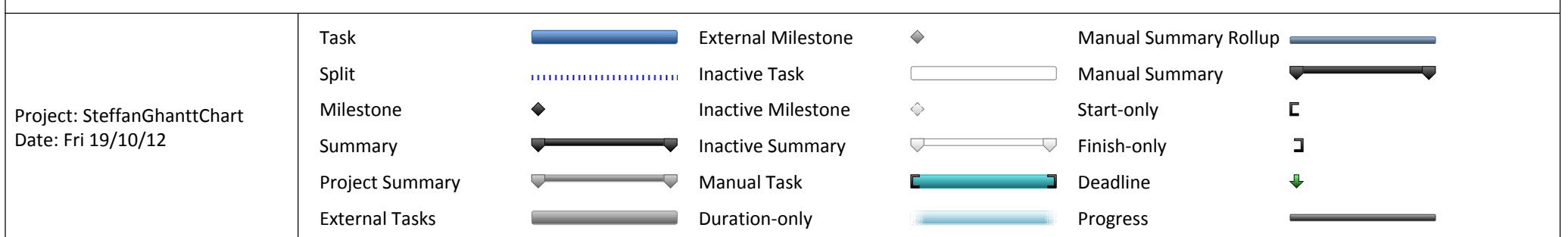
Time Plan / Work Plan

Week Beginning	Task / Aim for the Week	Comments
08/10/2012	Draft time plan and aims and objectives	Meet with supervisor to discuss the draft report
15/10/2012	Initial plan write up	
19/10/2012	Initial Plan	Submission Deadline
22/10/2012	Background research on Core Audio/ Core MIDI/ Pure Data/ Objective-C and Gesture Control	Research into technology required to complete the project
29/10/2012	Background research on Core Audio/ Core MIDI/ Pure Data/ Objective-C and Gesture Control	Research into technology required to complete the project
05/11/2012	Implement the ability to input MIDI to the iPad via a keyboard	
12/11/2012	Implement a record and playback function	
19/11/2012	Add different MIDI effects	
26/11/2012	Overrun period	Spare time in case task implementation overruns
03/12/2012	Interim report	Gather information required for the interim report
10/12/2012	Interim report write up	Complete interim report

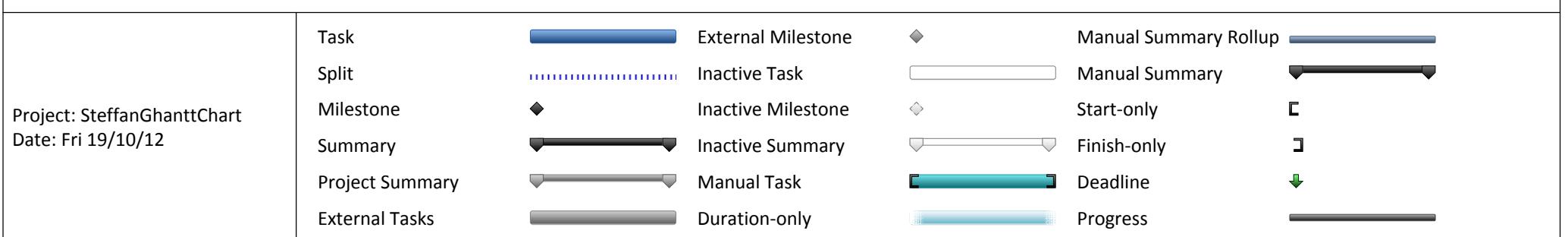
		according to the specification
14/12/2012	Interim Report	Submission Deadline
17/12/2012	Christmas holiday	If time permits, continue with implementation of the next phase
24/12/2012	Christmas holiday	If time permits, continue with implementation of the next phase
31/12/2012	Christmas holiday	If time permits, continue with implementation of the next phase
07/01/2013	Exams + Revision period	Limited scope for work during examination period
14/01/2013	Exams + Revision period	Limited scope for work during examination period
21/01/2013	Exams + Revision period	Limited scope for work during examination period
28/01/2013	Start the implementation of the drum generator	Start by creating the x,y grid
04/02/2013	Generate drum noises	Take a mixture of different drum for sampling
11/02/2013	Implement the separate volume feature for each drum. Also implement the feature to chose the number of beats to use	Create the drum piece using a 4/4 time signature. Include the ability to create drum tracks using either 4 or 8 beats
18/02/2013	Implement the save feature for the drum generator	
25/02/2013	Implement the ability to add the drum track created to the MIDI section	MIDI will be able to be inputted while the drums are played
04/03/2013	Implement the ability to add effects to the input using different gestures.	
11/03/2013	Extra feature period / Overrun period	Use this time to complete the features specified or to add extra features if there is no other work to be done
18/03/2013	Extra feature period / Overrun period	Use this time to complete the features specified or to add extra features if there is no other work to be done
25/03/2013	Easter	If time permits, add extra features if there is no other work to be done
01/04/2013	Easter	If time permits, add extra

		features if there is no other work to be done
08/04/2013	Easter	If time permits, add extra features if there is no other work to be done
15/04/2013	Evaluation / Final report	Gather information required for the final report, also evaluate how well the implementation of the application was
22/04/2013	Final report	Write up the final report
29/04/2013	Final report	Write up the final report
03/05/2013	Final Report	Submission Deadline

ID	Task Mode	Task Name	Duration	Start	Finish	08 Oct '12							15 Oct '12							22 Oct '12							
						S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
1		Draft time plan and aims and objectives	6 days	Mon 08/10/12	Mon 15/10/12																						
2		Initial plan write up	5 days	Mon 15/10/12	Fri 19/10/12																						
3		Initial Plan Deadline	1 day	Fri 19/10/12	Fri 19/10/12																						
4		Background research on iPad technologies (Core Audio/MIDI, Pure Data, Objective-C and Gesture Control)	12 days	Fri 19/10/12	Sun 04/11/12																						
5		MIDI controller implementation	21 days	Mon 05/11/12	Sun 02/12/12																						
6		Implement the ability to input MIDI to the iPad using a keyboard	6 days	Mon 05/11/12	Sun 11/11/12																						
7		Implement a record and playback function	6 days	Mon 12/11/12	Sun 18/11/12																						
8		Implement MIDI effects	6 days	Mon 19/11/12	Sun 25/11/12																						
9		Overrun period for MIDI controller implementation	6 days	Mon 26/11/12	Sun 02/12/12																						
10		Interim report - information gathering	6 days	Mon 03/12/12	Sun 09/12/12																						
11		Interim report - write up	5 days	Mon 10/12/12	Fri 14/12/12																						
12		Interim Report Deadline	1 day	Fri 14/12/12	Fri 14/12/12																						
13		Christmas Holiday	17 days	Sat 15/12/12	Sun 06/01/13																						

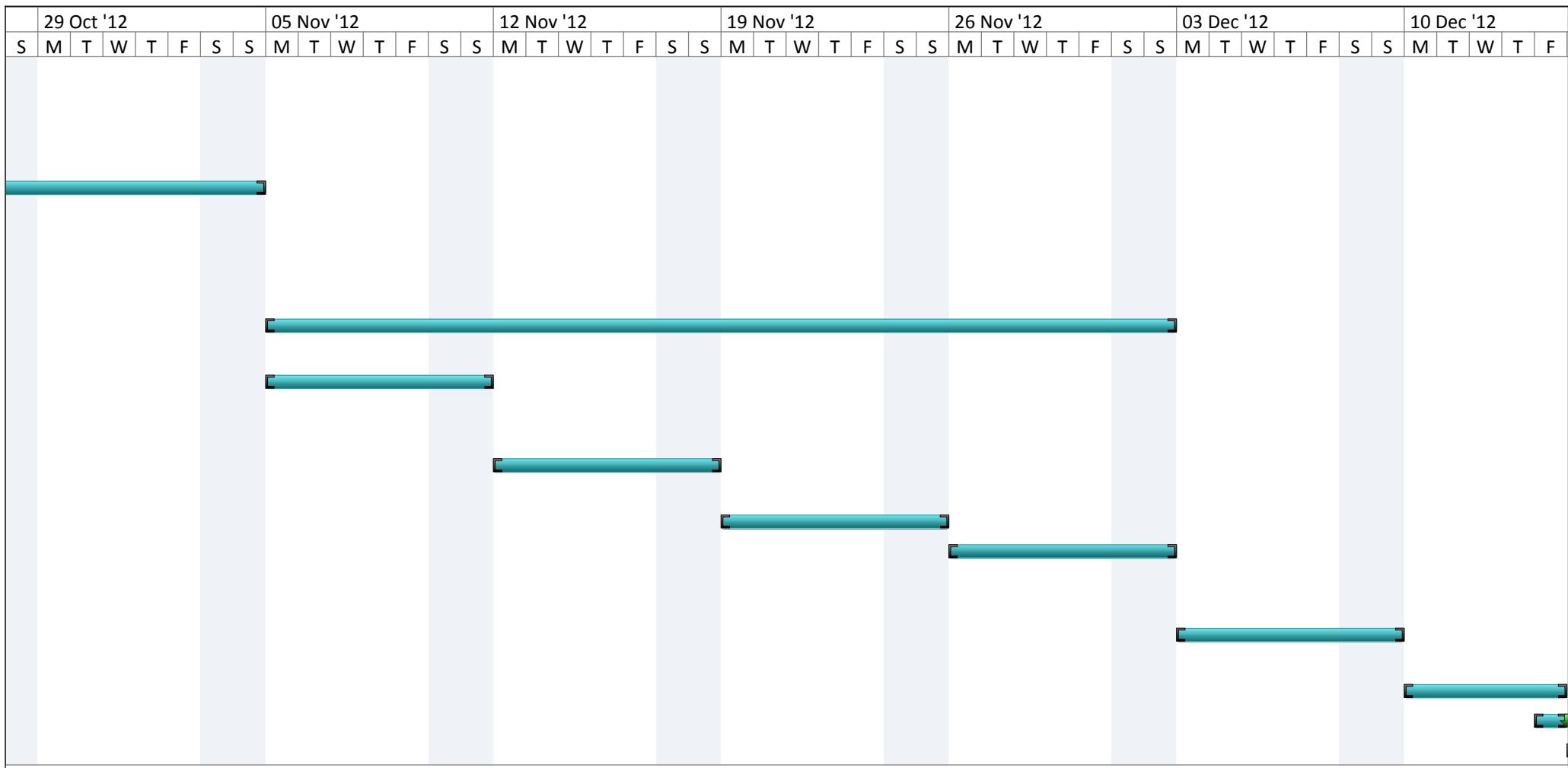


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14	●	Exam and Revision Period	15 days	Mon 07/01/13	Fri 25/01/13																						
15	●	Drum generator implementation	31 days	Mon 28/01/13	Sun 10/03/13																						
16	●	Implementation of dum generator GUI	6 days	Mon 28/01/13	Sun 03/02/13																						
17	●	Generate drum noises	6 days	Mon 04/02/13	Sun 10/02/13																						
18	●	Implement different volume for each drum	4 days	Mon 11/02/13	Thu 14/02/13																						
19	●	Implement choice for number of beats	1 day	Sun 17/02/13	Sun 17/02/13																						
20	●	Implement a save feature for the generator	6 days	Mon 18/02/13	Sun 24/02/13																						
21	●	Implement the ability to add the drum track to the MIDI section	6 days	Mon 25/02/13	Sun 03/03/13																						
22	●	Implement the ability to add effects to the MIDI input using differnet gestures	6 days	Mon 04/03/13	Sun 10/03/13																						
23	●	Extra feature period / Overrun period	11 days	Mon 11/03/13	Sun 24/03/13																						
24	●	Easter	16 days	Mon 25/03/13	Sun 14/04/13																						



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25		Evaluation / Final report - information gathering and evaluating of project	6 days	Mon 15/04/13	Sun 21/04/13																					
26		Final report - write up	10 days	Mon 22/04/13	Fri 03/05/13																					
27		Final Report Deadline	1 day	Fri 03/05/13	Fri 03/05/13																					

Project: SteffanGhanttChart Date: Fri 19/10/12	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
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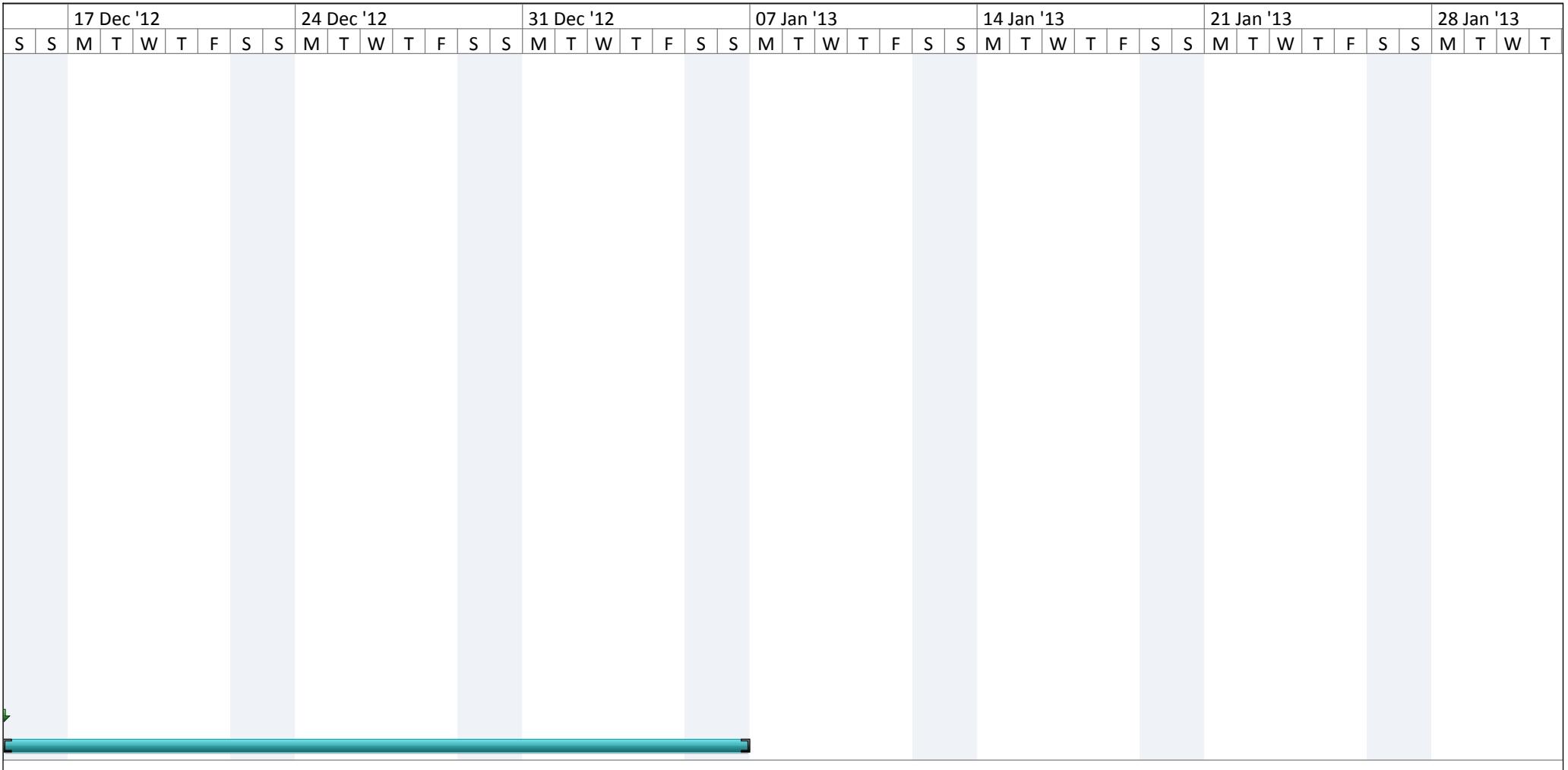
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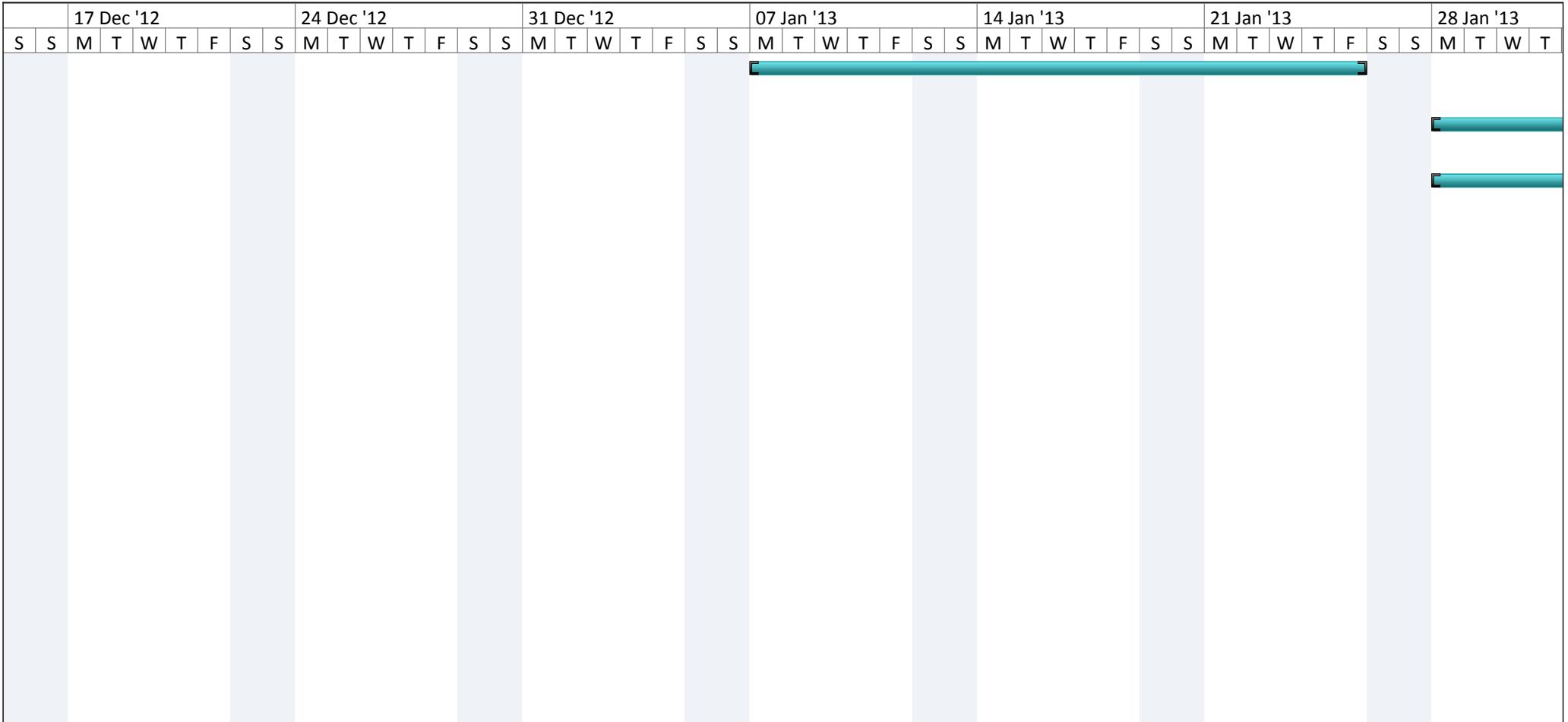
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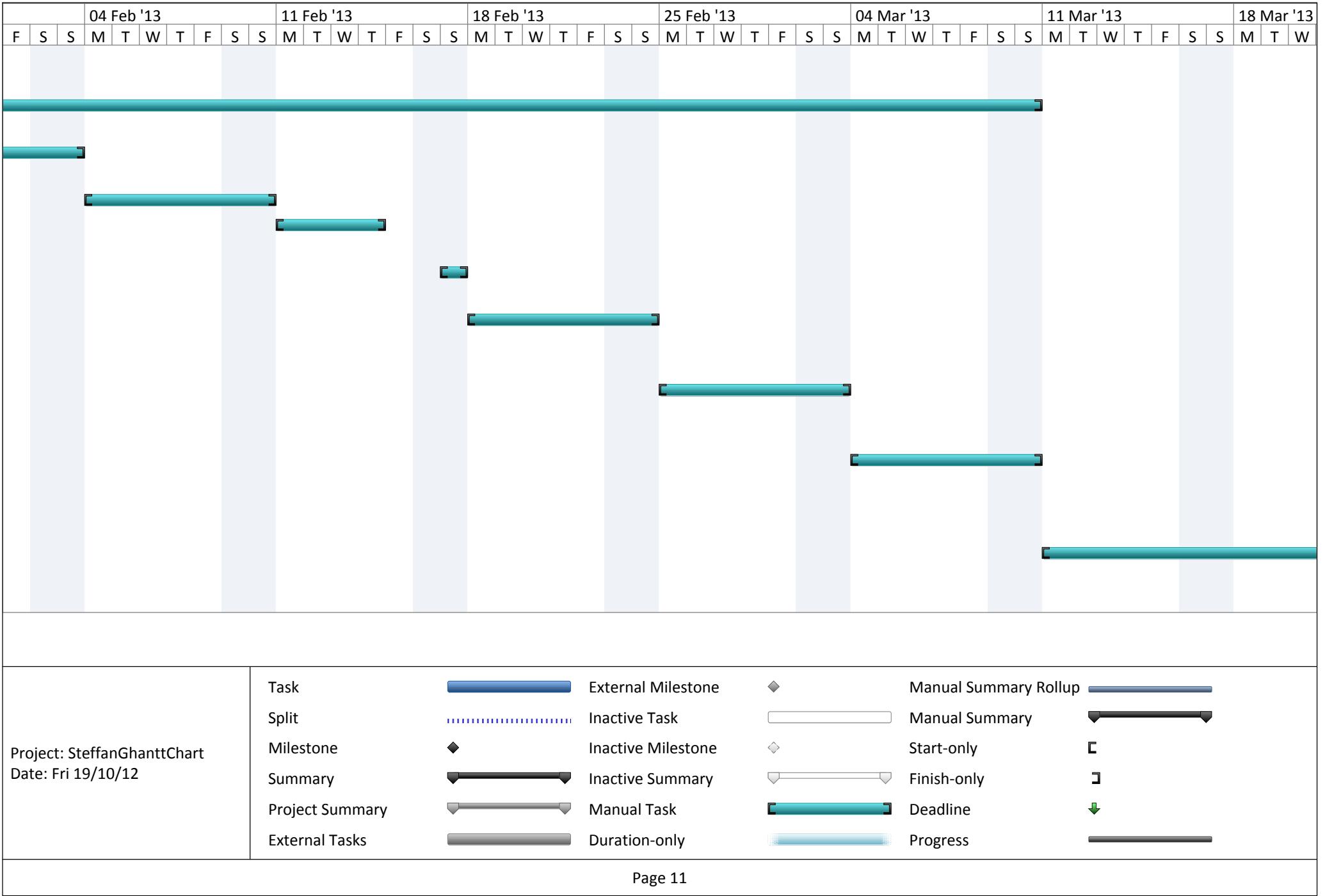
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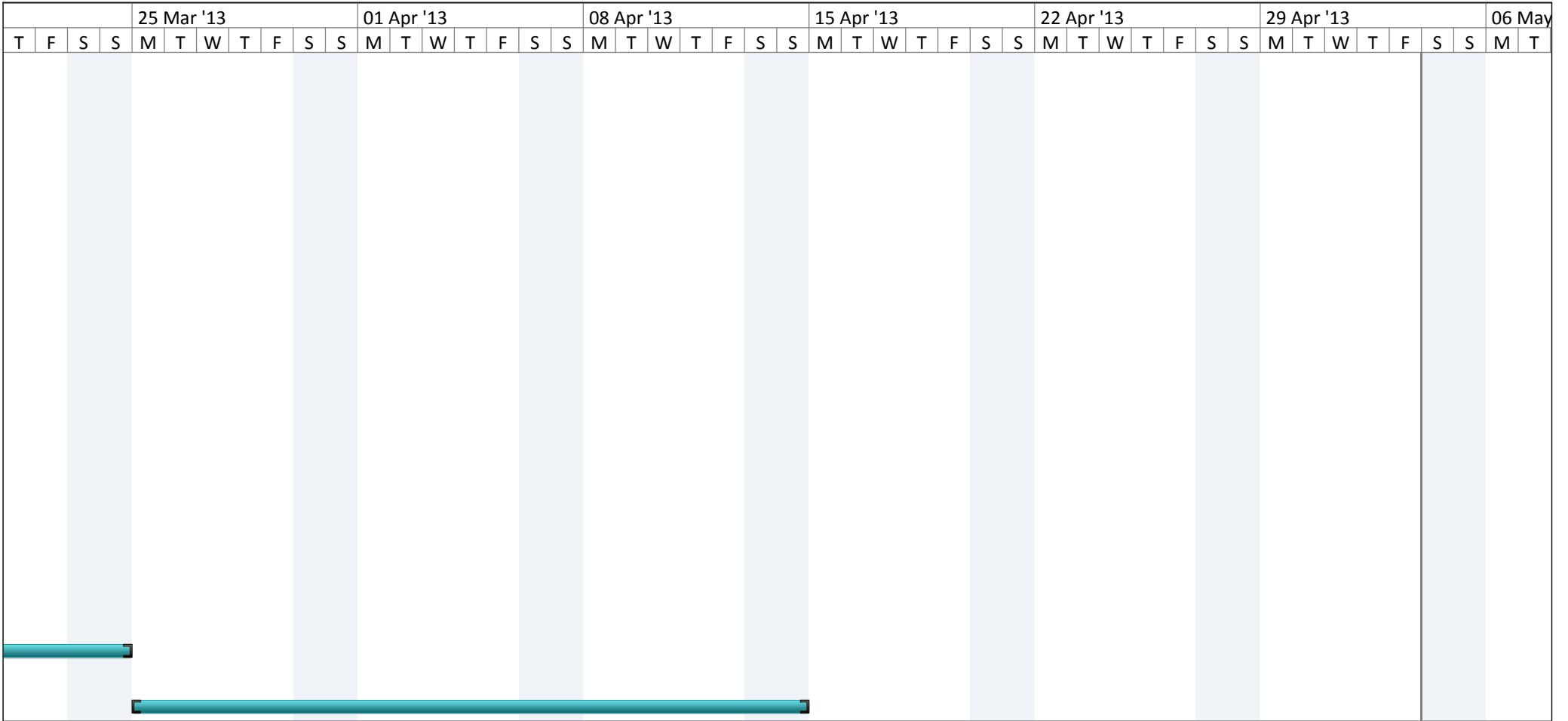


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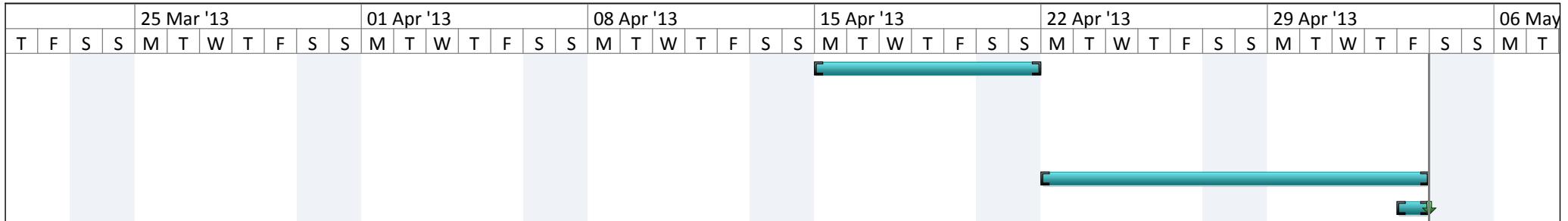
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