Name: David Fodor
Student Code: B00796884
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Project Charter

Project Title: Kart Racing Videogame
Date of Authorization: 4th October
Project Start Date: 4th October **Project Finish Date:** 13th April

Key Schedule Milestones:

- Have first prototype ready by 1st November
- Have second prototype ready by 29th November
- Get a presentation ready for the Project Stand-up Review by 13rd December
- Have third prototype ready by 27th December
- Have fourth prototype ready by 25th January
- Have fifth prototype ready by 22nd February
- Have the whole project, including documentation ready by 13th April

Budget Information: £6 000 has been allocated for this project. More funds are available, if needed.

Project Manager: David Fodor, fodor-d@ulster.ac.uk

Project Objectives: The objective for this project is to result in a multiplayer video game, which can be sold on the market, make profit, and make the public place their trust in the development team regarding their future endeavours.

Main Project Success Criteria: The software needs to adhere to each of its functional and non-functional requirements that were set out, the software needs to be delivered by the indicated project finish date.

Approach:

- Declare project aims and objectives, choose a project management methodology, gather requirements, and gather hardware and software resources to be used for the project, within the first month.
- Prioritise the requirements, make a Gantt chart and a Work Breakdown Structure, assess risks, and declare version/change management strategy within the first 2 months.
- Conduct sprints that last 4 weeks each, with each sprint containing a sprint backlog, sprint development, testing, and sprint review.
- Follow along with a documentation, for the entirety of the project.
- By the end of sprint 5 in February, determine if there are new features needed to be added, or old features to be refined
- Continue to add optional features until the indicated project finish date

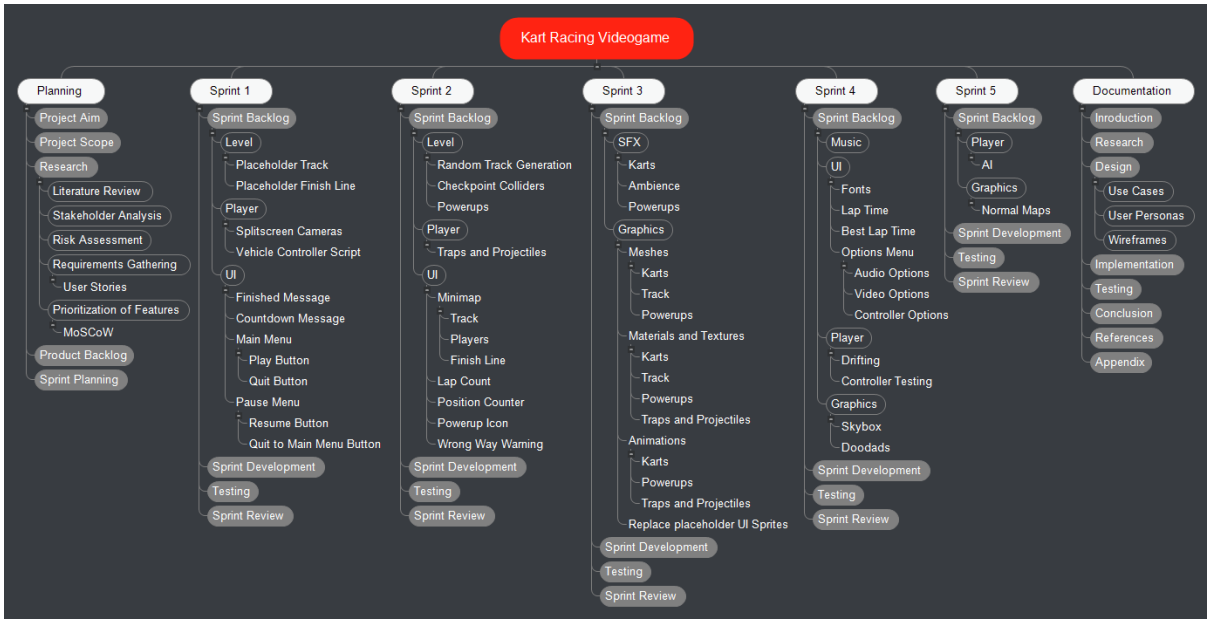
ROLES AND RESPONSIBILITIES

Name	Role	Position	Contact Information
Tendai Mhlanga	Supervisor	N/A	Tendai.Mhlanga@qa.com
David Fodor	Project Manager	Programmer	Fodor-d@ulster.ac.uk

Sign-off: (Signatures of all the above stakeholders)

Comments: (Handwritten or typed comments from above stakeholders, if applicable)
"I am going to work hard in order for this project to turn out as something that I can be proud of." – David Fodor

Work Breakdown Structure



Gantt Chart

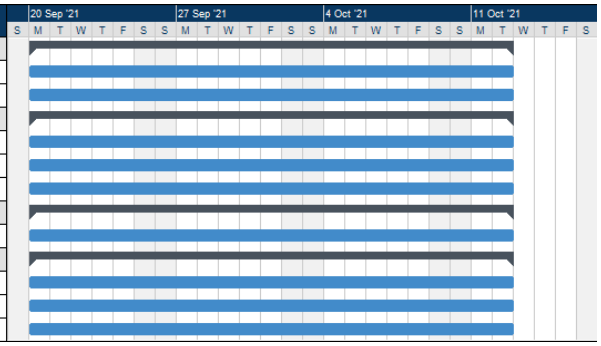
Brief version:

	Task Name	Duration	Start	End
1	Kart Racing Videoga...	148 days?	20/09/2021	13/04/2022
2	Planning	17 days?	20/09/2021	12/10/2021
3	Project Aim	17 days?	20/09/2021	12/10/2021
4	Project Scope	17 days?	20/09/2021	12/10/2021
5	Research	17 days?	20/09/2021	12/10/2021
13	Product Backlog	17 days?	20/09/2021	12/10/2021
14	Sprint Planning	17 days?	20/09/2021	12/10/2021
15	Sprint 1	14 days?	13/10/2021	01/11/2021
16	Sprint Backlog	13 days?	13/10/2021	29/10/2021
32	Sprint Development	13 days?	13/10/2021	29/10/2021
33	Testing	13 days?	13/10/2021	29/10/2021
34	Sprint Review	1 day?	01/11/2021	01/11/2021
35	Sprint 2	21 days?	01/11/2021	29/11/2021
36	Sprint Backlog	20 days?	01/11/2021	26/11/2021
52	Sprint Development	20 days?	01/11/2021	26/11/2021
53	Testing	20 days?	01/11/2021	26/11/2021
54	Sprint Review	1 day?	29/11/2021	29/11/2021
55	Sprint 3	21 days?	29/11/2021	27/12/2021
56	Sprint Backlog	20 days?	29/11/2021	24/12/2021
76	Sprint Development	20 days?	29/11/2021	24/12/2021
77	Testing	20 days?	29/11/2021	24/12/2021
78	Sprint Review	1 day?	27/12/2021	27/12/2021
79	Sprint 4	21 days?	27/12/2021	24/01/2022
80	Sprint Backlog	21 days?	27/12/2021	24/01/2022
96	Sprint Development	21 days?	27/12/2021	24/01/2022
97	Testing	21 days?	27/12/2021	24/01/2022
98	Sprint Review	1 day?	24/01/2022	24/01/2022
99	Sprint 5	20 days?	25/01/2022	21/02/2022
100	Sprint Backlog	20 days?	25/01/2022	21/02/2022
105	Sprint Development	20 days?	25/01/2022	21/02/2022
106	Testing	20 days?	25/01/2022	21/02/2022
107	Sprint Review	1 day?	21/02/2022	21/02/2022
108	Documentation	138 days?	04/10/2021	13/04/2022
109	Introduction	138 days?	04/10/2021	13/04/2022
110	Research	138 days?	04/10/2021	13/04/2022
111	Design	138 days?	04/10/2021	13/04/2022
115	Implementation	138 days?	04/10/2021	13/04/2022
116	Testing	138 days?	04/10/2021	13/04/2022
117	Conclusion	138 days?	04/10/2021	13/04/2022
118	References	138 days?	04/10/2021	13/04/2022
119	Appendix	138 days?	04/10/2021	13/04/2022

Detailed view by each chunk:

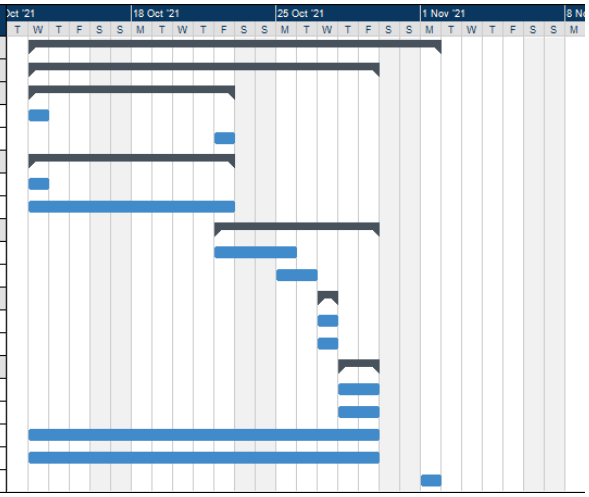
1. Planning

	Task Name	Duration	Start	End
2	**Planning**	**17 days?**	**20/09/2021**	**12/10/2021**
3	Project Aim	17 days?	20/09/2021	12/10/2021
4	Project Scope	17 days?	20/09/2021	12/10/2021
5	**Research**	**17 days?**	**20/09/2021**	**12/10/2021**
6	Literature Review	17 days?	20/09/2021	12/10/2021
7	Stakeholder Analysis	17 days?	20/09/2021	12/10/2021
8	Risk Assessment	17 days?	20/09/2021	12/10/2021
9	**Requirements Gathering**	**17 days?**	**20/09/2021**	**12/10/2021**
10	User Stories	17 days?	20/09/2021	12/10/2021
11	**Prioritization of Features**	**17 days?**	**20/09/2021**	**12/10/2021**
12	MoSCoW	17 days?	20/09/2021	12/10/2021
13	Product Backlog	17 days?	20/09/2021	12/10/2021
14	Sprint Planning	17 days?	20/09/2021	12/10/2021



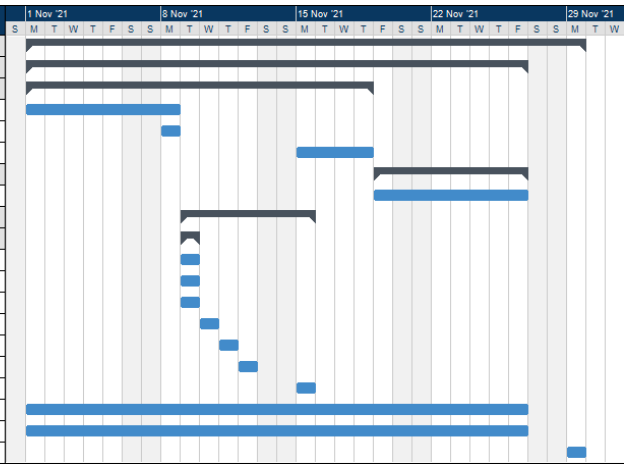
2. Sprint 1

	Task Name	Duration	Start	End
15	**Sprint 1**	**14 days?**	**13/10/2021**	**01/11/2021**
16	**Sprint Backlog**	**13 days?**	**13/10/2021**	**29/10/2021**
17	**Level**	**8 days?**	**13/10/2021**	**22/10/2021**
18	Placeholder Track	1 day?	13/10/2021	13/10/2021
19	Placeholder Finish Line	1 day?	22/10/2021	22/10/2021
20	**Player**	**8 days?**	**13/10/2021**	**22/10/2021**
21	Splitscreen Cameras	1 day?	13/10/2021	13/10/2021
22	Vehicle Controller Script	8 days?	13/10/2021	22/10/2021
23	**UI**	**6 days?**	**22/10/2021**	**29/10/2021**
24	Finished Message	2 days?	22/10/2021	25/10/2021
25	Countdown Message	2 days?	25/10/2021	26/10/2021
26	**Main Menu**	**1 day?**	**27/10/2021**	**27/10/2021**
27	Play Button	1 day?	27/10/2021	27/10/2021
28	Quit Button	1 day?	27/10/2021	27/10/2021
29	**Pause Menu**	**2 days?**	**28/10/2021**	**29/10/2021**
30	Resume Button	2 days?	28/10/2021	29/10/2021
31	Quit to Main Menu Button	2 days?	28/10/2021	29/10/2021
32	Sprint Development	13 days?	13/10/2021	29/10/2021
33	Testing	13 days?	13/10/2021	29/10/2021
34	Sprint Review	1 day?	01/11/2021	01/11/2021



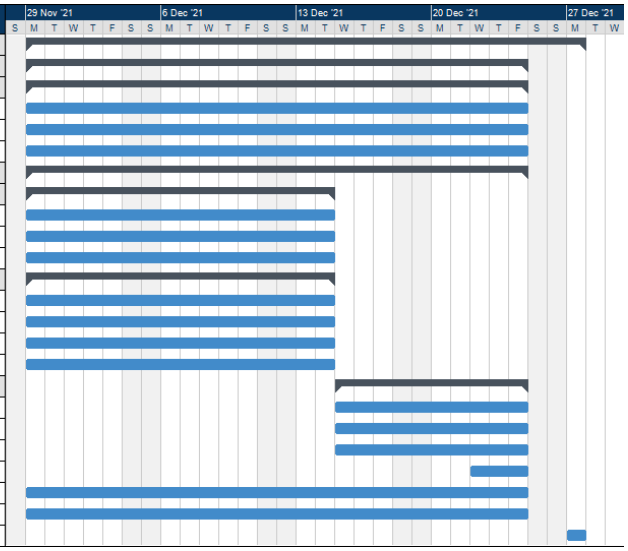
3. Sprint 2

	Task Name	Duration	Start	End
35	**Sprint 2**	**21 days?**	**01/11/2021**	**29/11/2021**
36	**Sprint Backlog**	**20 days?**	**01/11/2021**	**26/11/2021**
37	**Level**	**14 days?**	**01/11/2021**	**18/11/2021**
38	Random Track Generation	6 days?	01/11/2021	08/11/2021
39	Checkpoint Colliders	1 day?	08/11/2021	08/11/2021
40	Powerups	4 days?	15/11/2021	18/11/2021
41	**Player**	**6 days?**	**19/11/2021**	**26/11/2021**
42	Traps and Projectiles	6 days?	19/11/2021	26/11/2021
43	**UI**	**5 days?**	**09/11/2021**	**15/11/2021**
44	**Minimap**	**1 day?**	**09/11/2021**	**09/11/2021**
45	Track	1 day?	09/11/2021	09/11/2021
46	Players	1 day?	09/11/2021	09/11/2021
47	Finish Line	1 day?	09/11/2021	09/11/2021
48	Lap Count	1 day?	10/11/2021	10/11/2021
49	Position Counter	1 day?	11/11/2021	11/11/2021
50	Powerup Icon	1 day?	12/11/2021	12/11/2021
51	Wrong Way Warning	1 day?	15/11/2021	15/11/2021
52	Sprint Development	20 days?	01/11/2021	26/11/2021
53	Testing	20 days?	01/11/2021	26/11/2021
54	Sprint Review	1 day?	29/11/2021	29/11/2021



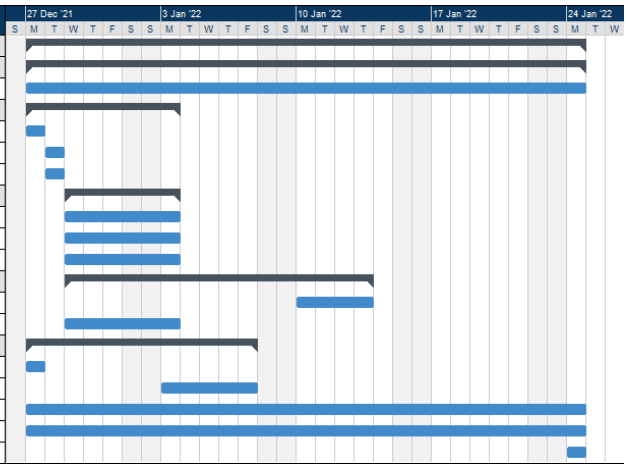
4. Sprint 3

	Task Name	Duration	Start	End
55	**Sprint 3**	**21 days?**	**29/11/2021**	**27/12/2021**
56	**Sprint Backlog**	**20 days?**	**29/11/2021**	**24/12/2021**
57	**SFX**	**20 days?**	**29/11/2021**	**24/12/2021**
58	Karts	20 days?	29/11/2021	24/12/2021
59	Ambience	20 days?	29/11/2021	24/12/2021
60	Powerups	20 days?	29/11/2021	24/12/2021
61	**Graphics**	**20 days?**	**29/11/2021**	**24/12/2021**
62	**Meshes**	**12 days?**	**29/11/2021**	**14/12/2021**
63	Karts	12 days?	29/11/2021	14/12/2021
64	Track	12 days?	29/11/2021	14/12/2021
65	Powerups	12 days?	29/11/2021	14/12/2021
66	**Materials and Textures**	**12 days?**	**29/11/2021**	**14/12/2021**
67	Karts	12 days?	29/11/2021	14/12/2021
68	Track	12 days?	29/11/2021	14/12/2021
69	Powerups	12 days?	29/11/2021	14/12/2021
70	Traps and Projectiles	12 days?	29/11/2021	14/12/2021
71	**Animations**	**8 days?**	**15/12/2021**	**24/12/2021**
72	Karts	8 days?	15/12/2021	24/12/2021
73	Powerups	8 days?	15/12/2021	24/12/2021
74	Traps and Projectiles	8 days?	15/12/2021	24/12/2021
75	Replace placeholder UI Sprites	3 days?	22/12/2021	24/12/2021
76	Sprint Development	20 days?	29/11/2021	24/12/2021
77	Testing	20 days?	29/11/2021	24/12/2021
78	Sprint Review	1 day?	27/12/2021	27/12/2021



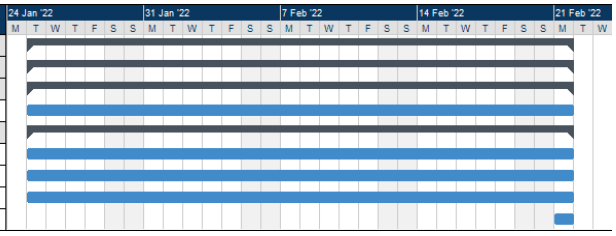
5. Sprint 4

	Task Name	Duration	Start	End
79	**Sprint 4**	**21 days?**	**27/12/2021**	**24/01/2022**
80	**Sprint Backlog**	**21 days?**	**27/12/2021**	**24/01/2022**
81	Music	21 days?	27/12/2021	24/01/2022
82	**UI**	**6 days?**	**27/12/2021**	**03/01/2022**
83	Fonts	1 day?	27/12/2021	27/12/2021
84	Lap Time	1 day?	28/12/2021	28/12/2021
85	Best Lap Time	1 day?	28/12/2021	28/12/2021
86	**Options Menu**	**4 days?**	**29/12/2021**	**03/01/2022**
87	Audio Options	4 days?	29/12/2021	03/01/2022
88	Video Options	4 days?	29/12/2021	03/01/2022
89	Controller Options	4 days?	29/12/2021	03/01/2022
90	**Player**	**12 days?**	**29/12/2021**	**13/01/2022**
91	Drifting	4 days?	10/01/2022	13/01/2022
92	Controller Testing	4 days?	29/12/2021	03/01/2022
93	**Graphics**	**10 days?**	**27/12/2021**	**07/01/2022**
94	Skybox	1 day?	27/12/2021	27/12/2021
95	Doodads	5 days?	03/01/2022	07/01/2022
96	Sprint Development	21 days?	27/12/2021	24/01/2022
97	Testing	21 days?	27/12/2021	24/01/2022
98	Sprint Review	1 day?	24/01/2022	24/01/2022



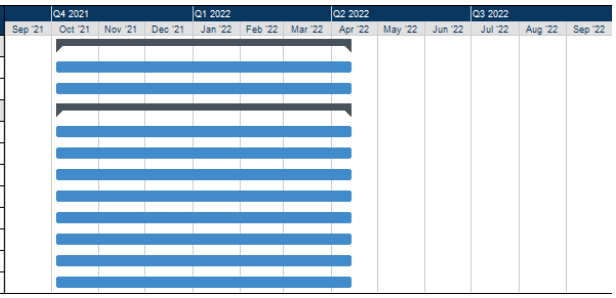
6. Sprint 5

	Task Name	Duration	Start	End
99	**Sprint 5**	**20 days?**	**25/01/2022**	**21/02/2022**
100	**Sprint Backlog**	**20 days?**	**25/01/2022**	**21/02/2022**
101	**Player**	**20 days?**	**25/01/2022**	**21/02/2022**
102	AI	20 days?	25/01/2022	21/02/2022
103	**Graphics**	**20 days?**	**25/01/2022**	**21/02/2022**
104	Normal Maps	20 days?	25/01/2022	21/02/2022
105	Sprint Development	20 days?	25/01/2022	21/02/2022
106	Testing	20 days?	25/01/2022	21/02/2022
107	Sprint Review	1 day?	21/02/2022	21/02/2022



7. Documentation

	Task Name	Duration	Start	End
108	**Documentation**	**138 days?**	**04/10/2021**	**13/04/2022**
109	Inroduction	138 days?	04/10/2021	13/04/2022
110	Research	138 days?	04/10/2021	13/04/2022
111	**Design**	**138 days?**	**04/10/2021**	**13/04/2022**
112	Use Cases	138 days?	04/10/2021	13/04/2022
113	User Personas	138 days?	04/10/2021	13/04/2022
114	Wireframes	138 days?	04/10/2021	13/04/2022
115	Implementation	138 days?	04/10/2021	13/04/2022
116	Testing	138 days?	04/10/2021	13/04/2022
117	Conclusion	138 days?	04/10/2021	13/04/2022
118	References	138 days?	04/10/2021	13/04/2022
119	Appendix	138 days?	04/10/2021	13/04/2022



Five largest tasks

Tasks that were excluded

Technically, the largest tasks are those related to documentation. However, given that the nature of the documentation is to encompass the entire time the project is being worked on, the time allocated to the documentation wasn't estimated, but simply declared as ranging from the start to the end of the project. For this reason, I have excluded them from my current selection of my five largest tasks.

Similarly, the planning phase was ranging from the date the project idea was conceived, and the date it was authorized (plus one week approximately), so there was no estimation being done, as I only adhered to external dates given to me.

Each sprint has a testing task, which ranges from the start to the end of the sprint, since testing occurs side by side with the development. This means that testing is bound to last for as long as the sprint development does.

Lastly, tasks inside Sprint 5 are allocated more time that they will probably need. Once again, there was no estimation for them; since they are the last foreseeable features to be implemented during the project, they are allocated the standard length that is agreed upon for each sprint, which is 4 weeks.

These exclusions leave us with the following **five largest tasks**, for which time actually had to be estimated:

- Music (21 days)
- SFX (20 days)
- Meshes (12 days)
- Materials and Textures (12 days)
- Animation (8 days)

Reason

It is not a coincidence, that all of the largest tasks are of a creative nature. While other aspects of the project, such as writing code for a particular behaviour or function we want to achieve, are fairly straightforward and linear processes, creative tasks require a different approach.

Inspiration does not always come when it would be convenient for the schedule, and there are a lot of second guesses regarding the end results, depending on the mindset and mood that we are in, when we evaluate them. For this reason, it is important to not underestimate the time we will consume with these processes, even if they seem like they could be done quickly.

While there is a general order in which graphics-related processes are usually done (meshes first, then materials and textures, and then animation), there can be some back and forth, tweaking and retrying until we are satisfied with the end result. For this reason, these tasks have been depicted as sometimes being side by side on the Gantt chart. So even though they are the largest tasks, since they run in parallel, the total time they consume will be less than the sum of each of them.

Time estimate

The PERT (Program Evaluation and Review Technique) formula was used to estimate the time to be allocated to each of the aforementioned tasks:

$$PERT\ weighted\ average = \frac{optimistic\ time + 4 * most\ likely\ time + pessimistic\ time}{6}$$

This gives us the following results:

Task	Optimistic Time (Days)	Most Likely Time (Days)	Pessimistic Time (Days)	PERT Weighted Average (Days) - Rounded
Music	7	23	27	21
SFX (Sound Effects)	4	24	20	20
Meshes	6	12	20	12
Materials and Textures	6	12	20	12
Animation	4	8	14	8

References

- Brown, A. S. (2005). *The charter: selling your project.* Paper presented at PMI® Global Congress 2005—North America, Toronto, Ontario, Canada. Newtown Square, PA: Project Management Institute.
- ProjectManager.com, Inc. (2021). *The Ultimate Guide to… Work Breakdown Structure (WBS).* [online] Available at: https://www.projectmanager.com/work-breakdown-structure [Accessed 20 Nov. 2021].
- Gantt.com. (2021). *What is a Gantt Chart?* [online] Available at: https://www.gantt.com [Accessed 20 Nov. 2021].
- Asana, Inc. (2021*). PERT chart: What it is and how to create one (with examples)* [online] Available at: https://asana.com/resources/pert-chart [Accessed 17 Dec. 2021].