Group 2: Bump Boat Game Groups

GitHub link
https://github.com/ernmri/UMAsoftwareEngineeringGroupProject

Members

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Introduction

Dragon Boat Race is a single-player game that leverages advanced game engine technology to deliver a dynamic and immersive experience. The game features multiple choices of boats with different specs, fatigue simulation and obstacles to avoid.

The goal of the game is to win boat races throughout your ability, that will increase while playing, as well as the characteristics of the boat, that you will be able to upgrade temporarily between one race and another, thanks to the featured minigame.

Roles

Developers:

- Gonzalo García Rojas
- Eron Imeri
- Daniil Gumeniuk
- Gianluca Nanni

Project managers:

- Youssef Merroun
- Alejandro Puerto Criado
- Francisco Galisteo Guzmán

Graphic designers:

- Alejandro Puerto Criado
- Gonzalo García Rojas
- Pablo Garcia Moreno
- Eron Imeri

Testers:

- Gianluca Nanni
- Youssef Merroun
- Pablo García Moreno
- Francisco Galisteo Guzmán

Scrum masters:

- Daniil Gumeniuk

Product Owner:

- Gonzalo García Rojas

Possible risks

RISK	TYPE	PROBABILITY	EFFECTS	SOLUTION
Underestimation of the complexity of the project	Estimation risk	Moderate probability	Serious effects	To mitigate this risk, our teams must plan each of the steps of the project before starting them and have good communication between all of the members in order to know if we are advancing according to our deadlines.
Quality risk at the end of the project	Requirements risk	High probability	Catastrophic effects	To mitigate this risk, we should check the quality of everything we implement in the software, just after implementing it. In order to do it, some of us will have the role of 'tester', so that is their duty to test the code and the

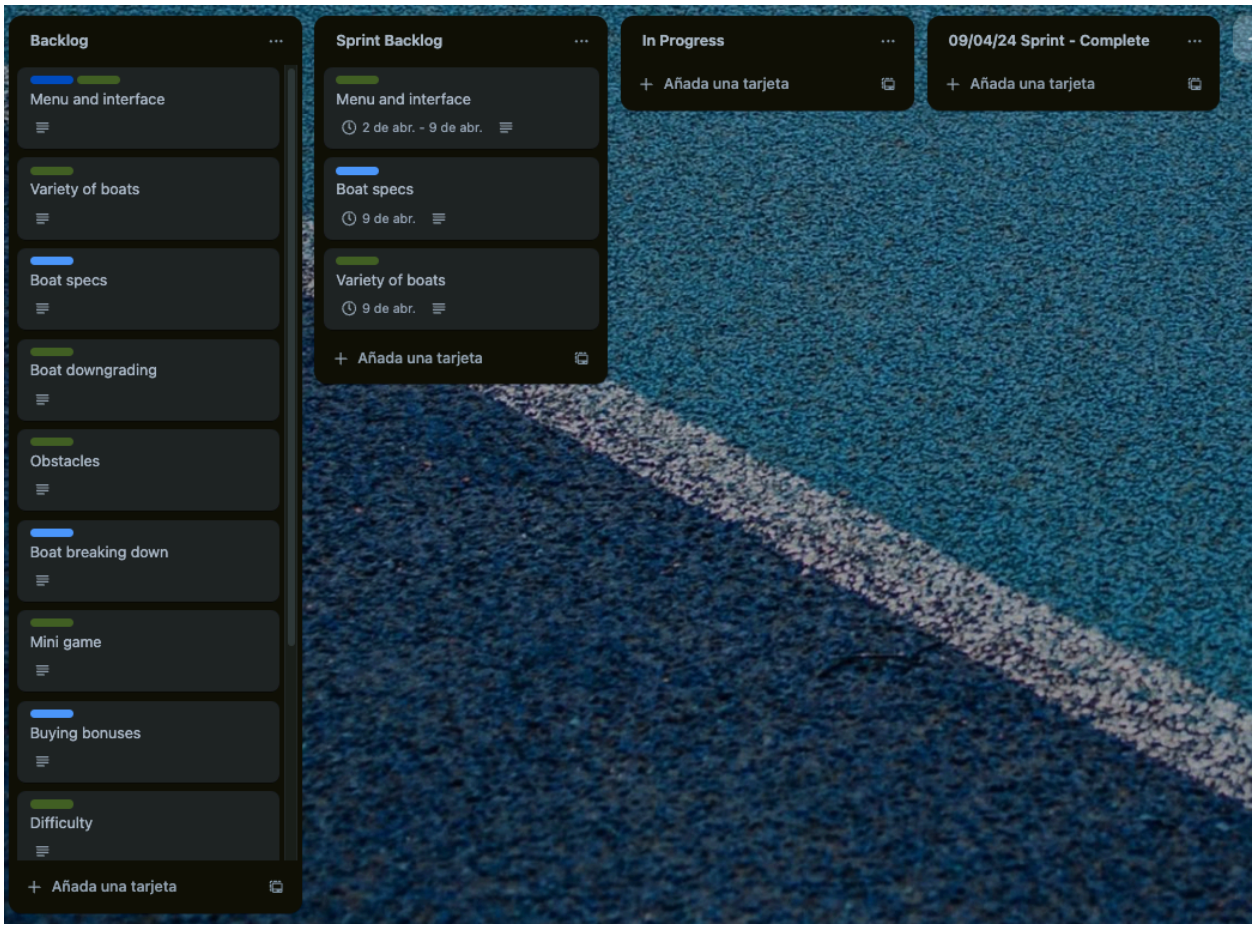
				other parts of the project.
Insufficient qualifications to complete the project	Personnel risk	Moderate probability	Tolerable effect	To mitigate this risk we will apply research online and we will apply a well-thought of understanding of the tools we will need so that the research takes less time; we will also work and be dependent on each other as a team so that we can combine the skills each of us has.
Dependency between team members	Personnel risk	Low probability	Serious effect	To mitigate this risk, we should have a contingency plan to divide the work of a team member if they are not available for major reasons, for example, disease.
Lack of time	Estimation risk	High probability	Catastrophic effects	To mitigate this risk, we should have a good planification and communication between all the members.

Technologies employed	Technology risk	Moderate probability	Serious effects	To mitigate this risk, we should always check the correct functioning of the technologies employed, and don’t get them overused

Planning

We have selected Scrum as our software process model due to its facilitation of effective communication among team members, encourages everyone's participation throughout all stages, aligns us towards common goals, allows for project changes and its efficacy in time optimization. We have planned to organize our meetings to check the advancements on the project and to see if anyone is having difficulties with their part of the job once a week. Our scrum master (that is the leader of the team who also must assure that we follow the scrum method) is Daniil Gumeniuk and the product owner (the person in charge of making sure that requirements are fulfilled and that the quality of the final product is the best possible) is Gonzalo García Rojas.

Trello boards:



Burndown Chart for first sprint


Charts - Trello Agile Sprint Board Template
Settings
Viewing
Burndown Chart
Edit Chart Data
Share
Currently 6 hours remaining
50
40
30
20
10
0
April 2, 2024
April 3, 2024
April 4, 2024
April 5, 2024
April 6, 2024
April 7, 2024
April 8, 2024
6:00 PM
Hours Remaining
Hours Completed
Ideal Burndown
Cards Completed
0/15 (0%)
Hours Completed
0/0 (NaN%)
Days Worked
0/8 (0%)
Average Daily Burndown
0 (est.) Hours
Estimated Completion Date
2024-04-09

Software tools used during project's realization

- Collaborative work:
  - Github: Code updating.
  - Trello: Tracking progress.
  - Visual Studio Code : IDE.
  - Visual Paradigm: creating diagrams to describe and organize the project.

- Communication:
  - Discord: Meetings to work on common tasks.
  - Whatsapp: Documents and ideas sharing, with setting-up meetings.

- Document Elaboration:
  - Google Documents: project description and specification, admits group-working on the same document
  - PDF online converter : To convert .docx into .pdf in order to submit.

Requirements

ID	REQUIREMENT	PRIORITY	LINKS
FR1	There must be a start menu and a graphic interface to indicate different aspects of the game	**High**	
FR2	Players can choose between boats with different specs to compete in the leg	**Medium**	**FR1, NFR1**
NFR1	These boats are differentiated by four specs: speed, acceleration, maneuverability and robustness.	**High**	
FR3	Speed, acceleration and maneuverability decrease	**High**	

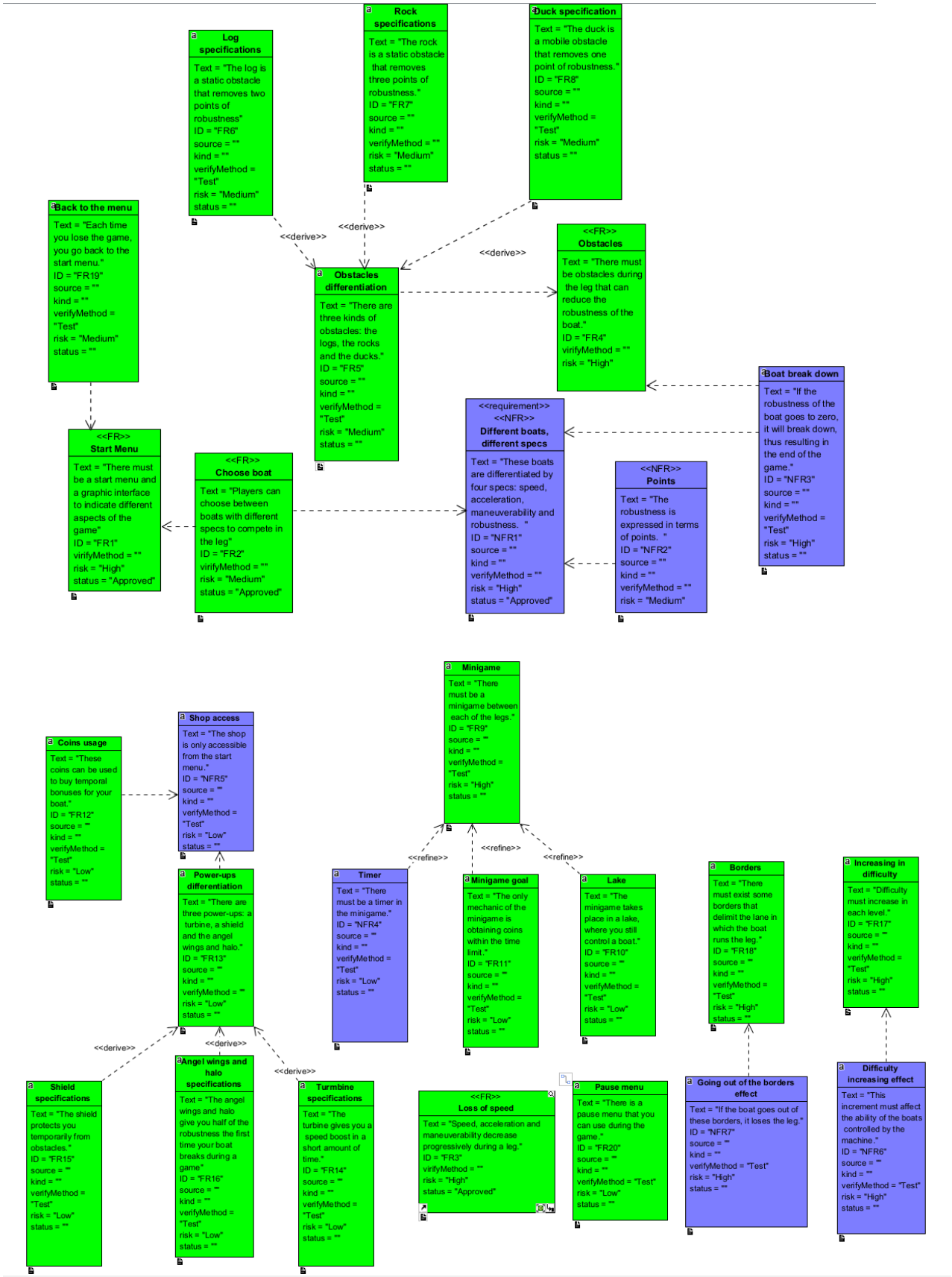
	progressively during a leg.		
NFR2	The robustness is expressed in terms of points.	**Medium**	**NFR1**
FR4	There must be obstacles during the leg that can reduce the robustness of the boat.	**High**	
FR5	There are three kinds of obstacles: the logs, the rocks and the ducks.	**Medium**	**FR4**
FR6	The log is a static obstacle that removes two points of robustness	**Medium**	**FR5**
FR7	The rock is a static obstacle that removes three points of robustness.	**Medium**	**FR5**
FR8	The duck is a mobile obstacle	**Medium**	**FR5**

	that removes one point of robustness.		
NFR3	If the robustness of the boat goes to zero, it will break down, thus resulting in the end of the game.	**High**	**NFR1, FR4**
FR9	There must be a minigame between each of the legs.	**High**	
NFR4	There must be a timer in the minigame.	**Low**	**FR9**
FR10	The minigame takes place in a lake, where you still control a boat.	**Low**	**FR9**
FR11	The only mechanic of the minigame is obtaining coins within the time limit.	**Low**	**FR9**
FR12	These coins can be used to buy temporal bonuses for your boat.	**Low**	**NFR5**

NFR5	The shop is only accessible from the start menu.	**Low**	
FR13	There are three power-ups: a turbine, a shield and the angel wings and halo.	**Low**	**NFR5**
FR14	The turbine gives you a speed boost in a short amount of time.	**Low**	**FR13**
FR15	The shield protects you temporarily from obstacles.	**Low**	**FR13**
FR16	The angel wings and halo give you half of the robustness the first time your boat breaks during a game.	**Low**	**FR13**
FR17	Difficulty must increase in each level.	**High**	

NFR6	This increment must affect the ability of the boats controlled by the machine.	**High**	**FR17**
FR18	There must exist some borders that delimit the lane in which the boat runs the leg.	**High**	
NFR7	If the boat goes out of these borders, it loses the leg.	**High**	**FR18**
FR19	Each time you lose the game, you go back to the start menu.	**Medium**	**FR1**
FR20	There is a pause menu that you can use during the game.	**Low**	

Requirements diagram:


Rock specifications
Text = "The rock is a static obstacle that removes three points of robustness."
ID = "FR7"
source = ""
kind = ""
verifyMethod = ""
risk = "Medium"
status = ""
Duck specification
Text = "The duck is a mobile obstacle that removes one point of robustness."
ID = "FR8"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Medium"
status = ""
Log specifications
Text = "The log is a static obstacle that removes two points of robustness"
ID = "FR6"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Medium"
status = ""
Back to the menu
Text = "Each time you lose the game, you go back to the start menu."
ID = "FR19"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Medium"
status = ""
<<derive>>
<<derive>>
<<derive>>
Obstacles differentiation
Text = "There are three kinds of obstacles: the logs, the rocks and the ducks."
ID = "FR5"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Medium"
status = ""
<<FR>>
Obstacles
Text = "There must be obstacles during the leg that can reduce the robustness of the boat."
ID = "FR4"
virifyMethod = ""
risk = "High"
Boat break down
Text = "If the robustness of the boat goes to zero, it will break down, thus resulting in the end of the game."
ID = "NFR3"
source = ""
kind = ""
verifyMethod = "Test"
risk = "High"
status = ""
<<FR>>
Start Menu
Text = "There must be a start menu and a graphic interface to indicate different aspects of the game"
ID = "FR1"
virifyMethod = ""
risk = "High"
status = "Approved"
<<FR>>
Choose boat
Text = "Players can choose between boats with different specs to compete in the leg"
ID = "FR2"
virifyMethod = ""
risk = "Medium"
status = "Approved"
<<requirement>>
<<NFR>>
Different boats, different specs
Text = "These boats are differentiated by four specs: speed, acceleration, maneuverability and robustness. "
ID = "NFR1"
source = ""
kind = ""
verifyMethod = ""
risk = "High"
status = "Approved"
<<NFR>>
Points
Text = "The robustness is expressed in terms of points. "
ID = "NFR2"
source = ""
kind = ""
verifyMethod = ""
risk = "Medium"
Minigame
Text = "There must be a minigame between each of the legs."
ID = "FR9"
source = ""
kind = ""
verifyMethod = "Test"
risk = "High"
status = ""
Shop access
Text = "The shop is only accessible from the start menu."
ID = "NFR5"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Low"
status = ""
Coins usage
Text = "These coins can be used to buy temporal bonuses for your boat."
ID = "FR12"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Low"
status = ""
<<refine>>
<<refine>>
<<refine>>
Timer
Text = "There must be a timer in the minigame."
ID = "NFR4"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Low"
status = ""
Minigame goal
Text = "The only mechanic of the minigame is obtaining coins within the time limit."
ID = "FR11"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Low"
status = ""
Lake
Text = "The minigame takes place in a lake, where you still control a boat."
ID = "FR10"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Low"
status = ""
Borders
Text = "There must exist some borders that delimit the lane in which the boat runs the leg."
ID = "FR18"
source = ""
kind = ""
verifyMethod = "Test"
risk = "High"
status = ""
Increasing in difficulty
Text = "Difficulty must increase in each level."
ID = "FR17"
source = ""
kind = ""
verifyMethod = "Test"
risk = "High"
status = ""
Power-ups differentiation
Text = "There are three power-ups: a turbine, a shield and the angel wings and halo."
ID = "FR13"
source = ""
kind = ""
verifyMethod = ""
risk = "Low"
status = ""
<<derive>>
<<derive>>
<<derive>>
Shield specifications
Text = "The shield protects you temporarily from obstacles."
ID = "FR15"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Low"
status = ""
Angel wings and halo specifications
Text = "The angel wings and halo give you half of the robustness the first time your boat breaks during a game"
ID = "FR16"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Low"
status = ""
Turmbine specifications
Text = "The turbine gives you a speed boost in a short amount of time."
ID = "FR14"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Low"
status = ""
<<FR>>
Loss of speed
Text = "Speed, acceleration and maneuverability decrease progressively during a leg."
ID = "FR3"
virifyMethod = ""
risk = "High"
status = "Approved"
Pause menu
Text = "There is a pause menu that you can use during the game."
ID = "FR20"
source = ""
kind = ""
verifyMethod = "Test"
risk = "Low"
status = ""
Going out of the borders effect
Text = "If the boat goes out of these borders, it loses the leg."
ID = "NFR7"
source = ""
kind = ""
verifyMethod = "Test"
risk = "High"
status = ""
Difficulty increasing effect
Text = "This increment must affect the ability of the boats controlled by the machine."
ID = "NFR6"
source = ""
kind = ""
verifyMethod = "Test"
risk = "High"
status = ""