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VIA University College

Process Report
IT-SEP-X-A18

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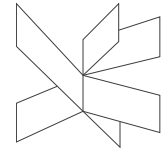
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Kasper Knop Rasmussen

34,010

ICT Engineering

4th semester

24th August 2018

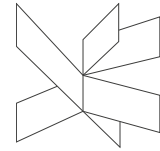**Table of content**

Appendices

1   Introduction

During last three weeks our project work has been based in three parts. First part of the project, which took place on the first week of the project, was based on developing as many as possible ideas to improve our game. At the beginning we were not sure if we want to continue our old project or create a new one, but after a positive feedback from the professors and allowance to work on the old one, we decided that we will keep it.

In the first part we have been meeting every day for the couple of hours to discuss new ideas and it has been decided that the game will have a completely new design, new level, the camera transition in the main menu should have a different logic, teleportation button and game controls. Most of these things are supposed to be done in the first week, together with the meeting summaries.

Second part took place on the second week. In the second part of the project we have been dealing with the minor things we had left from the previous week. We brought new ideas including the new quiz, customization shop, some code reorganizing, quit button, scene improvements and the new level development. At the end of the second week, we managed to finish all the things we were supposed to, except level 2, which after talking with our supervisor we decided to leave out.

Third part took place on the third week of the project period. All that was left, was a high score and finalization of the reports. Since it is only 2 of us, after finishing the game development we both put all our effort in finishing the reports.

2   Group Description

Our group consists of two members. Andrei-Mihai Surueanu and Josip Drinovac.

My name is Andrei-Mihai Surueanu and I am originally from Bucharest Romania. The profile of my high school was mathematics-informatics, so what I did high school was somewhat related to my choice of moving to Danmark and following the ICT Engineering bachelor degree courses. My main previous experience with projects, prior to this one, are the two semester projects and the project during the innovation weeks, all being part of my education at VIA University college. The first semester project was a single user system for booking rooms in a hotel, the second semester project was a system with a client/server architecture about a centralized platform for posting and applying for internships, and the innovation week project was about improving the quality and the speed of the final inspection for the Velux vinduer.

My name is Josip Drinovac I am Croatian who was born in town in Bosnia and Herzegovina, called Mostar. I am coming from the traditional Christian family. Through the whole life I was always enjoying doing sports and videogames. I attended elementary school of Ilija Jakovljevic, and Gymnasium Mostar high school. Before coming to Denmark and taking ICT Engineering, I barely had any experience with Software Development. So, first semester was really challenging. Before this project I have been working on the SEP1 and SEP2 and INO. SEP1 project was based on developing a java application that would support bus renting system for tours. SEP2 project was based on developing java application that would enable two users to chat in a chat room. INO, or innovation week was based on developing the new ideas for adapting new IOT systems to the old structures without ruining them.
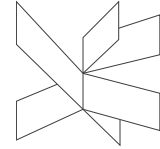
3   Project Initiation

During the starting period, we were focused on further developing our idea. We didn't know if we were able to continue working on our previos project or we have to make a new one, but we decided to brainstorm about the things we could change or use in our old project. We found out that after not working on the project for some time, we needed to revise and explore it so we could deeply understand what can we change and how can we effectively adapt our program to the new rules, so it looked authentic.

First mission was to set rules for the new project period. We decided that we will meet each day for a couple of hours, where we would work on our project. Since it was only 2 of us in the group it was easy to organise the meetings. Time and duration of the meetings was flexible and it was depending on the things we needed to do each day, but we decided that we will meet each day for the minimum of three hours.

We figured out that the best way to start would be by changing the interface. The UI needed to be different than what we had from before. Menu screen, joystick, all the buttons needed the new look and this was our first mission. The next goal was to make as many things as we could to look the same on the game, but different in the coding part. First thing that came on our mind for this is the camera transition in the main menu. We realised that instead of using our old copied script, we could make our camera move with the fixed values, which would make it more simpler, but with same effect.

The next step was chaning the actual game. After a brainstorm we figured out as many as we could things that we could change in our game. Some of the thigs that we came up are: oposite directions for the joystick movement, teleportation button which teleports the player on the starting point, adding a new level, chaning the skybox, adding the swipe buttons in the screen instead of sliding the finger, making a completely new quiz game. With this new set of ideas we had, project was ready to kick off.
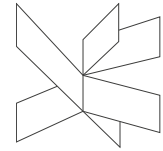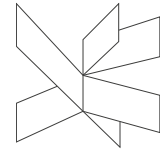
For our project planning we were using Facebook mostly. It was a good way of communication for us, if we needed to send some long texts about reports, pasteIt was the best way of sending them.
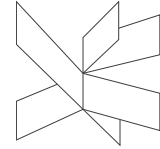
4   Project Description

After getting feedback from our professors and permission to work on our old project, we decided that we will not have a new project description phase, since we do not have enough time for it, but rather reuse what we have learned from the previous project description.

Before bringing the solution to the problem we were first trying to define our true problem. We asked ourselves a question: "How can we train our memory and get also some experience with it ". Working on the Memory Palace technique seemed like the best platform for our question. At the beginning our goal was not so clear. We had struggles with defining it. We were not sure in which way can we even use this technique since it is based only on imagining something and putting things inside of your imagination. For the first goal we had two ideas with low standards. We wanted to make the game where you have different kind of recipes which you have to remember or making the game where you are placed in 3D world and you have character that has access to some panel where you can write some things that you have to remember. But not any of those had further goal and outcome. So, project description phase ended up badly for us. We didn't manage to get the good idea for our project, so we entered project period while still have problems with defining our goals and ways of implementing the game. Since we spent so much time on the development of the idea itself in the first period, that helped us now, since we knew our end goals, so we just needed to find out the different way to reach them.
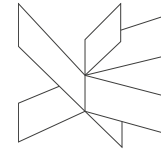
5   Project Execution

The execution of our project turned more or less as expected. On the first few days we were decining on organisation of our meetings and some of the things that needed some kind of a change. As we were working with the ideas we had in at the time, we were comming up with new sort of ideas which we were writing down and reusing them later. In the same time, we tried to keep up our process and project report. We were writing each day what we have done the previous day and after each day we had a text to fit the corresponding day in our Process Report.

After the first week, we a fair amount of ideas and things that we could change in our project. We also decided that we will add a new level, with some extra things, which we would not have in the first level. It would be in closed space, with some interactable objects. Design, camera transition, teleport button, filed meetings, start of a new level and some minor changes to the scene in level_1 were the things we did before entering the second week.

Before starting to work on the new week, we tested our project and found out that we have a minor bugs in the scene of our game. The issue was with the walls, the player was able to go through the wall and the certain spots and some textures were not so nice.

Second week brought new things and a new problems. More or less half of our work was based on figuring out how to reimplement something that we already did but in a different way, so we were doing a lot of research to better understand the certain topics. We started week two with the new brainstorming and we decided what are new things that needed a change. First in a row was a quiz part. We decided that we will make it from the beggining with a different logic and instead of a couple of answers, player will have to chose between two possible answers which are „True" and „False". Second week also brought meeting with the Kasper and with the feedback from him we better understood how to do certain things in a different way, what we needed to change, and we got a more or less positive feedback about our previous work, which helped us to keep it up. We figured out that our code was messy from the previous period so we took some time for cleaning it.

We started the third week with the new things. First was adding a shop, where the player would be able to choose between the different skins which would affect his character in the game. The second thing was adding a highscore, which saves player highest score from one scene to another, and a button to it to reset it if necessary. With finishing this we decided that last thing that was left for the game itself is to make it look more organised, we edited some names and connected the whole project a bit better, so all that was left was to work on our decriptions.

Product backlog

User story	Points estimated	Priority
1. Menu design	7	High
2. As a player I should have access to the new level	3	Medium
3. Level 2 development	8	Low
4. Different menu camera transition	5	Medium
5. Joystick opposite controls	3	Low
6. As a player I should be able to teleport to the starting point	4	High
7. Skybox	2	Low
8. Multiple level UI	4	Medium
9. In-game camera angle transition	5	Medium
10. Scene improvements	6	Medium
11. As a player I should be able to quit the game	3	Medium
12. Quiz remake	9	High
13. Organise code	5	High
14. As a player I should be able to see the score	5	High
15. As a player I should be able to see the highest score	8	High
16. Highest score saves on scene change	5	Medium
17. As a player I should be able to reset the score	4	Low
18. As a player I should have access to the customization shop	6	Medium
19. Shop values save on scene change	8	Medium
20. As a player I should hear background music	4	Low
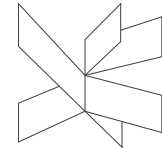
The table above shows our product backlog with all the stories, which should be implemented. Product owner assigned points for each task and development team decided what and when will be implemented. We decided that we will have 3 sprints, one for each week.

**Sprint Review**

Sprint 1

6 Aug 2018

We had the SEP Re-exam facilitating session from 9 o'clock in the morning to 11:30. During the day we had short brief presentations held by Poul Væggemose and Marianne Lippert and during the whole event we were supervised by Mona Wendel Andersen.

During this SEP Re-exam facilitating session we had a period of time for a little brainstorming session, where we were thinking about what we should do with our project beginning from now on, for the next three weeks. We decided that we should continue with our project that we had so far. This still means that we would have to change some things. We thought about touching a little bit on the interface and the design and the overall aspect of the game. We considered adding some new levels, at least one, and we also planned to change some specific aspects of the game and inside the game as follows:

- Design in photoshop – This means that we were thinking to change the design and the aspect of the main menu frame, the buttons and the joystick.
- The transition in the main menu to a different direction, for example instead of going from left to right when you press the select level button, we were thinking to change it to go from the bottom to the top, so instead of a horizontal transition we were thinking to change it to a vertical transition.
- Change the controls of the joystick in such a way that right is switched with left, just so to make it a little more counter intuitive and to increase a little bit the difficulty of maneuvering the character.

Also, during this brainstorming session, we made a schedule for the next 6 days. The plan goes as follows: the 7th, 8th and 9th of August we would meet from 9 o'clock in the morning for about 2 to 3 hours, and for the 10th, 13th and 14th we would meet from 11 o'clock in the morning for the same 2 to 3 hours.

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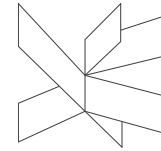
7ᵗʰ August

On Tuesday we decided to meet at 10 instead of 9 o'clock in the morning. In the beginning of the day we started revising our previous project to get a better understanding of what we did so far, what could have been done and what is left to do from now on. We took a look at the documentation and re-read the majority of the process report and bits of the project report in order to identify the bits, parts and elements that could be re-used in the second project, and find what has to be redone in correlation with the current, new project, that will be a revised version of the previous one, with many changes, additions and potentially a shift in the overall experience of the player.
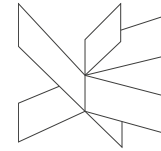
After going through the old process report we decided that we will redo the introduction for the new process report, so that it matches the new game and describes the process of the creation and the development of the new product. We will use the group description section from the previous report, in its entirety, inside the new process report. Also, we agreed that we will change the personal reflections section and the conclusions section in concordance with the new report. The project execution section will be done from scratch because it varies from project to project and it's different for every project. The two remaining sections, project initiation and project description, will be altered as much as necessary to suit the new project. There might be a change in the overall structure of the process report. Some sections might disappear while others might be introduced. During this working day we also started writing for the process report. We started by describing the first day of our project period work, stating the process of our thinking, the steps that we had in our discussions and our work during that day and the outcome of those discussions.

We also took a look at the tutorials that the teachers pointed out to us and warned us about. Doing so our plan was to see which parts of our project that were matching the tutorial could be changed, so that either a piece of logic could do the same thing but be done in another way, or to change the functionality of the piece of logic and make something more simple, so that in the end the result would be that the game would do essentially the same thing but in a simplified manner and in a simplified version.
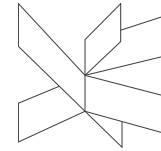
During this working session we also researched a bit on the topic of diagrams, so we can refresh our memory and potentially gain some new knowledge. We are both struggling with diagrams and we considered that spending a little bit of time on this topic would be very helpful. We have a hard time corelating the elements of code with the design and architecture aspects of the product (the game itself). In the previous project we started by sketching and doing some diagrams in the first week, but as we went along with the implementation phase and coding the actual game, we realized afterwards that it does no longer match our original diagrams that we did, so we had to completely redo them from the beginning, being unsure that it will correctly visually represent the code that we wrote. We deleted the original diagrams due to an impulse that came from frustration, not realizing in that moment that those wrong diagrams might serve us as a way to show the process that we went through when creating and designing our product.

Towards the end of the working session we had a brief brainstorming session that ended up with us deciding that we want to add a new functionality to the game. We thought of adding a teleport button into the game, that whenever pressed it will reset the position of our character to the original position. The idea existed ever since our fist, initial project, but it was not implemented due to the priority and the lack of time. It has to be stated that even though the idea of having a way in the game to reposition the character to an initial position, previously existed it has not been part of any of our list of tasks, versions of product backlog, sprint backlogs, or any documented way. It has been though subject of matter for our brainstorming sessions discussions. During this brainstorming session though, we also thought of adding certain elements in the game, certain objects that upon interaction would teleport the character to the initial position. We agreed in the end that the version in which we would have a button on the screen that would function as a teleport button, would be the best option because it would be more efficient, easier to implement and in this case, it would give the freedom to the player to choose whenever he wants to press the button and be teleported. In the same day we ended up implementing this functionality. We created the button and attached the functionality of resetting the position of the character to the original position that it had in the beginning of the game, at any time before the counter hits 0.

At the end of the day we had set up the schedule for the upcoming days and we agreed that from now on we would meet constantly from 10 for about 3 hours. So that Wednesday the 8th, Thursday the 9th and Friday the 10th of August 2018 we would meet at 10 o'clock in the morning until somewhere around 13 and then after that continue again normally from Monday the 13th.

8th August

On Wednesday we began by looking at the set of tasks that we made on Monday and we started with the first item on the list which is design. What we had in our head about the design was that we wanted to change the way the buttons were looking like, and the same goes for the joystick and the frames that we used. In the beginning of the game, the very first scene and screen that we see contains a background that represents the sky (or the skybox in game terms), and in that background we have a frame. That is exactly the specific frame that we wanted to change. The same frame is used for the style and the shape that represents the "Level Selection" button. The difference between the frame used in the button and the frame that surrounds the button is that the latter is more transparent while the former is opaque. The frame is also used in the next scene, where you have to select the level that you want to play. The frame surrounds the thumbnails of the levels and the back button. And finally, the last place where we find the frame is in the actual game when you are playing. By pressing the pause button in the game, the same frame appears that represents the pause menu frame, and each button in this frame uses the same frame for the style and the shape of the button as explained previously. Unlike previous frames in the first scene (the main menu) and the second scene (the level selection), all these frames used in the pause menu are opaque.

So now establishing the frames that we wanted to change the style of, together with all the buttons (pause, back, jump) and the joystick, we tried to ask for help. We knew that we wanted to change the design of these things using Photoshop, but we have little to no knowledge about the program and how to use it. We knew though that it is a powerful tool and it can accomplish the result that we wanted. So, we started by asking one of Andrei's friend that he knew was using Photoshop. After a little bit of texting back and forward and some calls, and after an initial positive response,
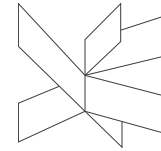
saying that he could do it, he ended up by saying that he is not able to do it and it's beyond his knowledge and competencies. The next step that we took was to try to find a way and to try to do it by ourselves, but we didn't consider designing them in Photoshop, because it would have been too much of a tedious process and it would have taken, unnecessarily, too much of our time. So, we tried to do it with the tools that we had and the ones that we knew how to use them, such as paint and word, but after some trials we did not like the result. Finally, we asked for the help of Josip's father, Josip remembered that his father was working with Photoshop and he knew how to use it. After some texting and some calls Josip said that his father is able to help and later that day we received the frame, together with the buttons and the joystick. At that point the task concerning the design was checked and we then inserted them into the game.

The next element that we changed in the game during that day was the transition in the main menu. Before the change, when you where pressing the "Level Selection" button, the camera was rotating to the right-hand side, in order to display the level selection menu. Now after the change, the camera is no longer sliding to the right, but instead is looking upwards, towards the sky. This was fairly simple to achieve because the camera was actuated by a script and the script was simply using an object as a point of reference (a target), that the camera would look at. So, all that was needed was to move the level selection menu, in the scene, above the main menu, in order to obtain the desired result and effect.

The next thing that we changed was the game controls. As stated before we wanted to switch the controls in such a way that right is switched with left and left is switched with right and when the player is pointing the joystick to the left, the character would move to the right, and when the player is pointing the joystick to the right, the character would move to the left. This behaviour was achieved by changing the sign of x, from positive to negative, for the "input Direction" variable in the "On Drag" method in the "Virtual Joystick" script. After making this change we realized that the joystick image was not behaving as intended. The joystick image would go in the same direction as the ball, which is opposite to the direction where the dragging motion was pointing towards. Instead of this we wanted that the joystick image would go in the same direction where the player was dragging, and the ball would go in the opposite
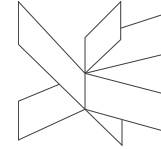
direction. This issue was fixed by changing the sign of the x axis for the anchored position of the joystick image in the "On Drag" method in the "Virtual Joystick" script.
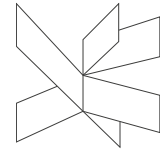
In the same day we also changed the skybox in the main menu scene and in the quiz section. We did so because we considered that with the new design of the frames and the buttons, the previous skybox was no longer suited for our game and it was no longer matching the colour scheme of the two parts, the main menu with the level selection and the quiz game.

After these tasks were done we focused on the process report and we started by writing the general overview of the previous day, describing the tasks that we tackled, the issues that we had to deal with, our process of thinking and the outcome of the work that we did during that day. We also decided that we should start writing in the process report about the SCRUM methodology and how we used it, and we wanted to begin by creating the Product Backlog. We had a few missing bits and pieces in terms of knowledge when it comes to SCRUM methodology and Product Backlog, so we started by doing a little bit of research on this topic before we actually began writing the Product Backlog.

At the end of the day we decided that we should also start to make the second level even if we won't make a great deal of it. We started by creating a new scene, creating a plane that would serve as the ground for the game, and starting to make the house, by creating cubes and resizing them to look like walls. Finally, we decided that for the next day we should consider taking a look at the code and start changing it in such a way that some functionalities might be done in a different way and it would require a different kind of code or simplify some functionalities so that it uses code that we are able to do it ourselves.

9th August

This working session was started by describing in the process report the elements that were changed or added to the game in the previous day, afterwards it was continued by taking a look at our code and trying to identify which elements could be changed. First, we took a look at the camera in the main menu and the transition that it has when it goes to the level selection frame. We started thinking if there is another way in which we can achieve the same result or if we can make something
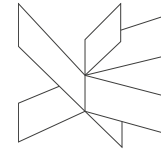
more simple out of it and after some time we came up with the idea of simplifying the transition of the camera and to make it in a more mechanical way than it previously was and to make it independent of the object that is looking at. So, we decided that we would make this change by using the "Rotate" function for the transform component and rotate it at a fixed angle every time, instead of how it was before, where we would have a game object as a reference, so that the camera would know where to look at. Doing this change we had to remove some bit of code that we had before, that would have been unnecessary given the new mechanism for rotating the camera.

Next, we also considered that the scrolling mechanism for picking the level, is a bit irrelevant given the fact that we do not have so many levels that this would be a problem, and we only considered making a new one in this new project. Because of this reason we decided to remove the scrolling feature and make fixed thumbnails for the two levels that we currently have.

At the end of the meeting we continued doing the house in the second level by making the walls and the division between the rooms and adding a celling to the rooms. We also made some openings in the walls in-between the rooms that would make up for the doors, but before we did that we had to do a little bit of research. The research took a very long time, because we wanted to make some holes in the cube game objects and we couldn't find a proper way to do it. Either we found some options where they would say something about some shaders and making custom shaders or they would tell us to make the hole out of several cubes. We also thought that maybe there's a way to play around with the mesh renderer, so you could create the visual effect of a hole in the wall, but we didn't want to be only a visual effect, but also to have a collider around the hole, so that the character wouldn't be able to go through the wall. In the end we decided to use the easiest but also the most time-consuming way, which is to make the openings (the holes) out of multiple blocks.

10th August

On Friday we started to test the game, to test the functionalities and its behaviour and we noticed some little bugs and misbehaviours. In the environment around the castle there are some invisible walls that would act as barriers. We noticed

that there are some breaches in the walls in some spots, so we had to fix that, to align properly and to resize the walls.

After these little things were fixed we had a little discussion about the way that we were looking around in the environment when we play the game. Swiping on the screen to change the camera angle was a little bit difficult to do in our opinion, during gameplay when you were in the same time manoeuvring the character. We started thinking how we can make this a little bit easier to control, and we came up with the solution of introducing some buttons on the screen that would serve this purpose. So, we started implementing this change and we added two buttons on the screen, left and right, that would switch the camera angle when they are pressed.
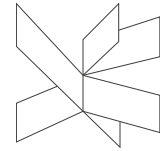
At the end of the meeting we added to the process report the summary of what we did during the previous day.

Sprint backlog

Story ID	Story name	Status	Story points	Sprint
1	Menu design	Done	7	1
2	As a player I should have access to the new level	Done	3	1
4	Different menu camera transition	Done	5	1
5	Joystick opposite controls	Done	3	1
6	As a player I should be able to teleport to the starting point	Done	4	1
7	Skybox	Done	2	1
3	Development on Level 2	Incomplete	2	1
10	Scene improvements	Done	2	1
9	In-game camera angle transition	Done	5	1
8	Multiple level choice	done	4	1

Expected points: 37

Realized points: 37

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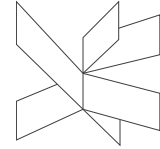VIA University College

Sprint 2

13th August

On Monday we started by doing a little brainstorming session to see if we can come up with more ways of changing the game or if we can add more things to it. The result of this brainstorming session was that we would try to change the quiz game and try to do it in a different manner and also that we would add a quit button in the main menu as well as the pause menu during gameplay. The first thing that we started to do was to add the quit button in the main menu as well as in the pause menu and after that we started researching for a way to change the quiz game. The research process took a long time and at the end we considered a way of doing it but we both agreed that it would be best suited if we would start implementing this change beginning from tomorrow.

At the end of the working session we added, as we did each day, the summary of the previous day to the process report.

14th August

At the beginning of the day we started by tackling the issue of the quiz game. Previously the quiz game was made with the aid of a unity tutorial, which was fairly complicated for the level of our knowledge and even though we understood it, during this day when we revised it, it was quite hard for us to remember the details and the functionality of it off the top of our head and it would have been difficult for us also if later we would have to describe and explain how it was working without taking a second and look through the whole thing. So, because of this we decided that we should change the structure of the quiz game and make it in another way. Based on the research that we did during the previous day we came up with an idea. The idea is to create the game objects already from the beginning, the game objects that would represent the questions. This idea came from the fact that previously the quiz game would have a script, among other scripts, that would create each question at runtime and we thought that if they would already exist when the quiz starts it would be easier

to use them. There is also another element that we changed in the quiz game, previously the questions would have a different number of answers and this element would also be handled by a script and we changed it so that each question has true or false option choices. After all the changes have been made is quiz game is now made from several panels that would activate and deactivate in order, each one at a time, through the aid of a script.
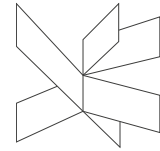
15th August

On Wednesday, after previously implementing the quiz game, we started testing the quiz game, to see its behaviour and its functionality. We noticed that there was a little bit of misbehaviour with the game, so we spent a little bit of time on solving these issues. The problem was that in the code one of the methods was pointing to a different question than the intended one and this would create a weird misbehaviour where two or more questions would overlap one on top of each other, creating an indecipherable text on the screen.

After this issue was solved a great deal of the day was spent writing the summary for the previous two days as a consequence of not writing anything the previous day, because the previous day was solely designated to recreating the quiz game.

16th August

On Thursday we had a meeting with Kasper to get some feedback on our project so far and to ask some questions. We got a decent feedback on the project and we asked questions about the code of our project to see how far we are with creating a different project, one that would be enough to be considered our own and original. We also asked questions about the documentation and we found out that we should definitely have a class diagram and it should contain all the game objects that have a script attached to it and to create a different class diagram for each scene in which the functionality and structure differs from one to another. We also understood that among other things, one of the most important thig for the exam is to create a product, create a game, that it would be yours and made by you, because the important thing is to write code, by yourself, that you are able to understand and explain, instead of making a
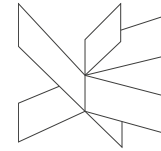
very complicated game, with many features and functionalities, because in the end you have to show that you are able to do a project from scratch and show that you are able to think all the functionalities and features that are making up the project and how it all combines.

17th August

Friday, we started by re-evaluating a bit our project based on the feedback that we got the previous day. So, because two thirds of the project period have passed, and the time is no longer in our favour, we decided that we should start polishing our game and start doing the project report and the rest of the documentation, so we will be ready for the hand-in date. Because of that we decided that it does not make sense any longer to continue with the second level, because it would take a lot of unnecessary time, since we understood that is does not matter how many levels we do in our game or how visually appealing it is, but it's more important to make the core functionalities by ourselves and to have them done correctly.

During this day we started reorganizing the project folders, removing the waste or the things that we no longer need in our project. We also started cleaning the code a little bit, we renamed the things that had irrelevant or inadequate names. At the end we had a more organized project with a cleaner code and a version of our project that was closer to the final one which would be ready for hand-in.

After this process took place we were discussing the possibility of introducing another menu in the main menu, one that would serve the purpose of a shop. We would name it a shop, but what it would essentially do would be that it would give the player the possibility of customizing the character that is used to play with. So, the rest of the day was used to create the shop functionality, creating the materials for the different ball designs and passing this information to the next scene, where the game is played.

Sprint backlog

Story ID	Story name	Status	Story points	Sprint
12	Quiz remake	Done	9	2
13	Organize code	Done	5	2
11	As a player I should be able to quit the game	Done	3	2
18	As a player I should have access to the customization shop	Done	7	2
19	Shop values save on scene change	Done	7	2
10	Scene improvements	Done	2	2
3	Level 2 development	Incomplete	1	2

Expected points: 34

Realized points: 34

Sprint 3

20th August

On Monday, after comprehending that we are running out of the time, we decided to put lower effort in meeting documentation. We set our goals for the upcoming week, which would include the high score and finalization of the reports. After dealing with the shop, we already had knowledge about usage of the PlayerPrefs so high score wasn't giving us bigger problems.

Later, during the same day, when we finished the high score, we realized in order to show off that it is working, we will need a new button which would reset the score. Upon finishing this all that was left were reports.

21st August

Tuesday brought new challenges. The game was done, but we still had many things to do with the documentation. We decided that we will split one report for each person, where Andrei was working on the Project report and Josip was working on Process report. This gave us a bit of the boost, because
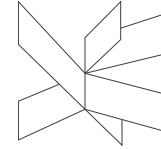
we were not depending on each other anymore, and every each of us could focus on his thing. As expected, Class diagram gave us a bit of problems. We knew it will be hard to connect all the things, because they are not really connected in the game, but we handled it well.

22nd August

After realizing it was already Wednesday, we decided to work more in order to finish the game. After class diagram was done, we had nothing to slow us down anymore, so from here our progress went smoothly. Project and Process report development went proportionally, and we saw that project is coming close to an end. From here we had minor things to finish so our project is supposed to be ready at Thursday night.

23rd August

According to our plan, Thursday is the final day of our project period. We had to finish both reports, upload a video to YouTube and put all the things together, so the project is ready for the hand-in. We realized that we never added any sounds to our game, but at this point it was irrelevant. Level 2 and the sounds were the things that we didn't complete so our Burdown Chart never reaches 0. While we were filming the video for YouTube, we realized when we were cleaning our folders we deleted 3 materials that we used in the shop, so their color will be set to white, but since it doesn't affect any other aspect of the game, we found it irrelevant.

Story ID	Story name	Status	Story points	Sprint
12	As a player I should be able to see the score	Done	8	3
13	As a player I should be able to see the highest score	Done	6	3
14	Highest score saves on scene change	Done	4	3
15	As a player I should be able to reset the score	Incomplete	5	3

Process Report - VIA Engineering
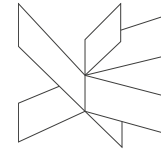
16	As a player I should be able to hear the music	Incomplete	5	3
17	Level 2 development	Incomplete	0	3

Expected points: 33

Realized points: 28

Burndown Chart
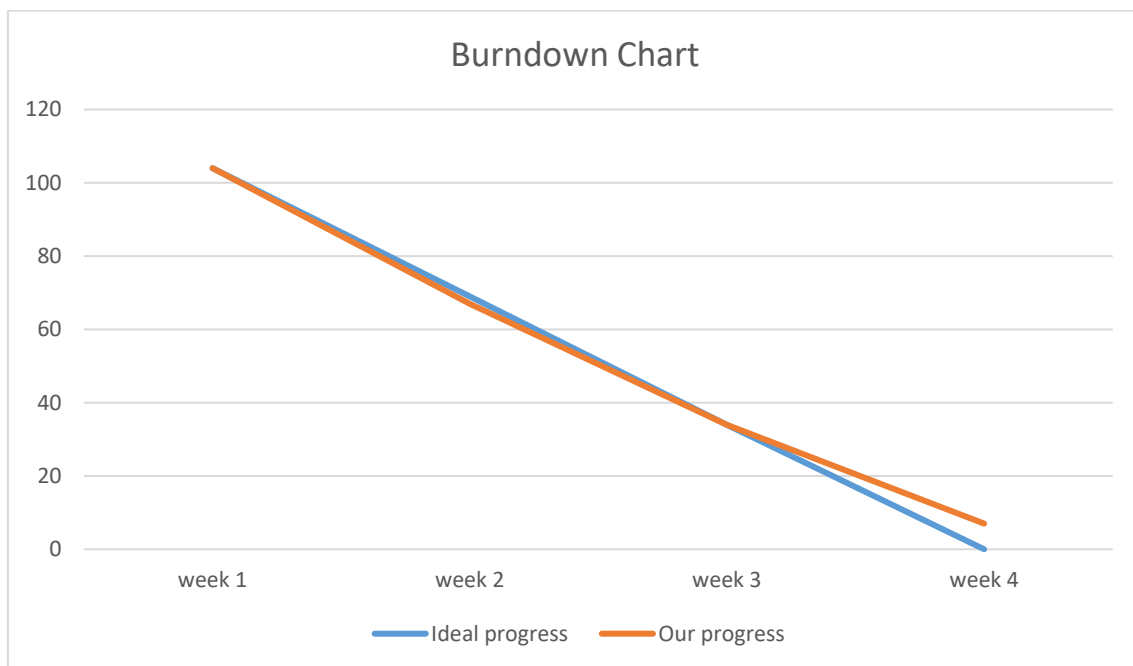
Figure 1 – Burndown Chart

| Points after each sprint			
Total points: 104			
	Sprint 1	Sprint 2	Sprint 3
Our progress	37	35	26
Ideal progress	35	35	34

Figure 2 – Sprint points

6 Personal Reflections

Andrei-Mihai Suruenau

My personal reflection regarding the group work and the organization and the way that the problem-based learning is structured is that overall the project was a success. It was fairly fun to make but of course there were also some problems and some difficulties along the way. Problems that may arise from a lack of knowledge, from a lack of experience, maybe from a poor organizational guidance or from all together combined. There can be difficulties to assess and guide so many groups individually when there are only two supervisors. A lower care offered to each group individually can result in a decrease of the group work performance and results. I find it rather difficult and counter-intuitive to let a group self-manage itself, and assess their progress and performance.

Josip Drinovac

I have been enjoying this project like never before. It has been 3 weeks of challenges, fun and dedication. During the process we had some problems with the knowledge and making game idea itself, which was a bit worrying, but we managed to solve it together, without any bigger problems. My personal reflection on our work is also positive. We never came unprepared for the meeting, everything we planned was done in time, only problem was the amount of time we need to spend on our project since we were only 2 group members. For the self-reflection I am satisfied with the work I have done. I learned many things through the process, and it were three productive weeks for both of us. My skills in Unity and scripting has improved greatly so I can say I am really satisfied with the work and the project
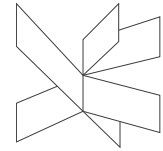
7 Conclusions

After ending this period of three weeks, we can say that we successfully completed our project. We split our work in three somewhat similar parts, which correspond to each week. Our main challenge was how to develop the game that is like ours but in a different way, in a way we could do it and it would be authentic. After not working with our project for some period, we had to re-watch some tutorials, for revising and better understanding. Afterwards, we could understand which parts we want to keep, which we could change and meanwhile we were trying to develop as many ideas as we could, so we can add as many things as we can to our project. Outcome of that would change the way game looks and behaves compared to the failed project. We had many trials and errors, but at the end we successfully completed pretty much everything we planned. After getting feedback from our tutor, we decided that we would leave out Level 2 and work on the things we have. Another problem was the number of students in the group. The progress was much slower than usual, but since we are only two members, we could organize and arrange our meeting as we liked, which helped us greatly. Overall, we learned our lesson, the game looks not so different now, but with much different behaviors and we did it, all by ourselves.