**DOKUZ EYLUL UNIVERSITY**

**ENGINEERING FACULTY**

**DEPARTMENT OF COMPUTER ENGINEERING**

**CME1252 PROJECT BASED LEARNING – II**

**PROGRESS REPORT**

**PROJECT – II**

**Gravity Game**

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**CHAPTER ONE**

**PROGRESS SUMMARY**

* 1. **Work Done**

YASSAMIN VALISHARIATPANAHI

After using the Enigma library, by creating classes of Main, Game, Player, Robots, Status, Stack, CircularQueue starting to write the code for necessary variables and their methods. So our teammate are going to use these classes to add the methods for the upcoming weeks in our schedule. For Player class I have added the constructor that randomly generates the player’s position on an empty space on the field. Then the playerMovement() method that controls the movement of (left-right-up-down) on the keyboard and it will not allow the player to go on the walls. Controlling the number of teleport that has been left so it randomly teleports on the field on an empty space or earth element place when space key has been pressed. For Status class it shows the status of the game that holds information of time, score, teleport, backpack and inputs on console. Also by giving the characters of the game color made the game a bit easier to see where are the elements on the field. The placement of the walls, earths, empty spaces, boulders, treasures of 1-2-3 before I created a class for each of them but we changed that and we written it on the Game class by the help o our instructor.

MUHARREM PEHLEVAN

I completed the game screen and input queue, and made dynamic additions and deletions to the game screen as needed. Additionally, I provided assistance to my friends in debugging.

BARIŞ OLÇAY

At first, we had difficulties as we did not communicate much with our friends and did not distribute tasks, but then we distributed tasks. First of all, I undertook the task of pushing the boulder. After completing this task, I helped my friend in the input queue. After that part was over, we debugged the code together with our friends and solved the errors by exchanging ideas.

AHMED PATEL

The first stage of the project has begun with adapting to the usage and understanding of the enigma, followed by creating the ideal play screen, creating the map and movement of the player.

After the status bar of Teleport, Time and score has been created I have adjusted the time to the game flow and created the eligible score earnings for the player and eventually created the backpack and how it can be properly printed to the screen.

* 1. **Work in Progress**

YASSAMIN VALISHARIATPANAHI

Althought I have already finished the coding for controlling the movement of the robots and placed 7 of them on the game field, still needs debugging that it works in any conditions.

MUHARREM PEHLEVAN

I am working on the movements and elimination of enemies.

BARIŞ OLÇAY

In the rest, I did not distribute tasks with my friends, but from the remaining parts, I can handle the part of the computer that beats the player. Apart from that, I deal with the video production part.

AHMED PATEL

Support my teammates on their tasks and do testing/debugging on the project until the project is advanced to the stage of gravity of boulders and game over conditions

* 1. **Work to Be Done**

YASSAMIN VALISHARIATPANAHI

Controlling If the Player’s and Robot’s position are the same the game will be over.

MUHARREM PEHLEVAN

The movements of newly added enemies need to be corrected.

BARIŞ OLÇAY

We haven't done a full distribution of tasks yet, I don't know clearly what to do.

AHMED PATEL

Fall of the boulders

**CHAPTER TWO**

**ALGORITHMS AND SOLUTION STRATEGIES**

YASSAMIN VALISHARIATPANAHI

Before I have written a Wall class which had 2 methods of interior and outter (written by Ahmed) walls that if the 2D where empty it added the ‘#’ walls into it so no other element can be generated there but as our instructed suggested the class had been deleted and written in the Game class which will directly show it on the console and save it in a 2D array map. Also we did the same thing for the earth, empty spaces, boulder and 1,2,3 treasures.

For the Player class, I’ve written the code for needed attributes for keyabord, the coordination, backpack, teleport, score and the map 2D char array and console. In the constructor i used the given code by the instructors that were in the Game class which was for the player’s movement type and written it in Player class because the player is going to use keyboard for playing this game. Then giving the first initializing variables a stack backpack for 8 size, having 3 teleports, 0 score at the beginning of the game and player’s random position on the field while the place is empty and gibing the player the color of yellow. In addition to that I’ve written the methods for getters and setters also. Then by writing the playerMovement() method it will control the movements of the player. In the keyboard it controls the range of movement by left, right, up and down; also it won’t allow the player to go over the walls. It also saves the color pf the player after the movement. When the space key has been pressed on the keyboard it will control the teleportation that how many has been left. If the player has teleport by saving the previous location of the player we teleport to a random place with the current location if that place is an empty space or earth element ’:’ then remove the previous location of the player and then show it on the console.

In the Game class it has a option for the player if he/she wants to play with keyboard or the mouse. For showing the colors while printing the map by using the if condition gave each characters of the game a color.

MUHARREM PEHLEVAN

After determining the screen dimensions while creating the game screen, I placed the walls and filled the areas without walls with earth. Then, I randomly replaced empty spaces with empty spaces, treasures, boulders, and enemies instead of earth. For the input queue, I first created a for loop with the specified number and filled my circular queue with game elements according to the specified ratios. Then, within my main game loop, I added and removed elements from my circular queue every three seconds. I assigned the generation element from the circular loop to a random area within my main game array.

BARIŞ OLÇAY

In the algorithm part, I will explain what kind of algorithm I used in the part I did. In the Boulder push section, I first checked whether the character in the place we are going to is 'O', if not, the movement can continue as it should. If it's 'O' I'm looking behind the boulder if ' ' I move the boulder to that point and advance P to its destination.

AHMED PATEL

The backpack Stack is push() ed once the player lands on one of the treasures, the condition of player landing on a treasure is checked from a 2D Char Array which is created by my teammates, where in the index of contains a specific treasure the backpack receives the treasure.

The player collects treasures one by one and if the peek() of the backpack corresponds to the one to be collected, then the player receives the appropriate point or teleport and then the last element is popped without adding the new one to the bag and the treasure is deleted from the charArray and deleted from the screen.  
To print the backpack to the screen, the peek() is stored to a temp stack while backpack is not empty and then restored to the backpack as the game runs

**CHAPTER THREE**

**PROBLEMS ENCOUNTERED**

YASSAMIN VALISHARIATPANAHI

When adding Robots on the field the program seemed not to work when the Robots couldn’t move because they were imprisoned by the earth elements ‘:’ which I added a while to control which side of the Robots are full if every side are full the program will continued. Had problem showing the colors on the game while printing which I handled them by using if conditions.

MUHARREM PEHLEVAN

In the first weeks, we had problems communicating with our friends. In addition, we had big problems while merging the code, because the console was printing from several different classes.

BARIŞ OLÇAY

I generally had no problems with the boulder push. It was the only place I had trouble with, and I handled it without much difficulty. The tricky part was the printing part. The part printed with Array was not working harmoniously. Since it was not compatible, even though I went over the earth char behind the rock and destroyed it, it counted as if it existed and restricted the movement of the boulder. I solved this problem by fixing a few things in the printing part.

AHMED PATEL

During the creation of the Backpack, the peek() often returned a null variable which broke the program most of the times, or printing the backpack on the correct spot on the screen while maintaining the best cosmetic often took several retries until the best result was met.