

Decrementor

Software Engineering COMP 4110
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Project Overview

Decrementor is a roguelike card game that allows players to fight enemies by forming valid equations.

Motivation:

A good foundation in math is very important. Our game aims to solidify that foundation.

Overview of Features

Unlimited Game Play

Creation of equations with PEMDAS

Deck Building With Customization

Score and Leaderboard

Unique Random Enemies

Domain Research

Looked into other educational games.

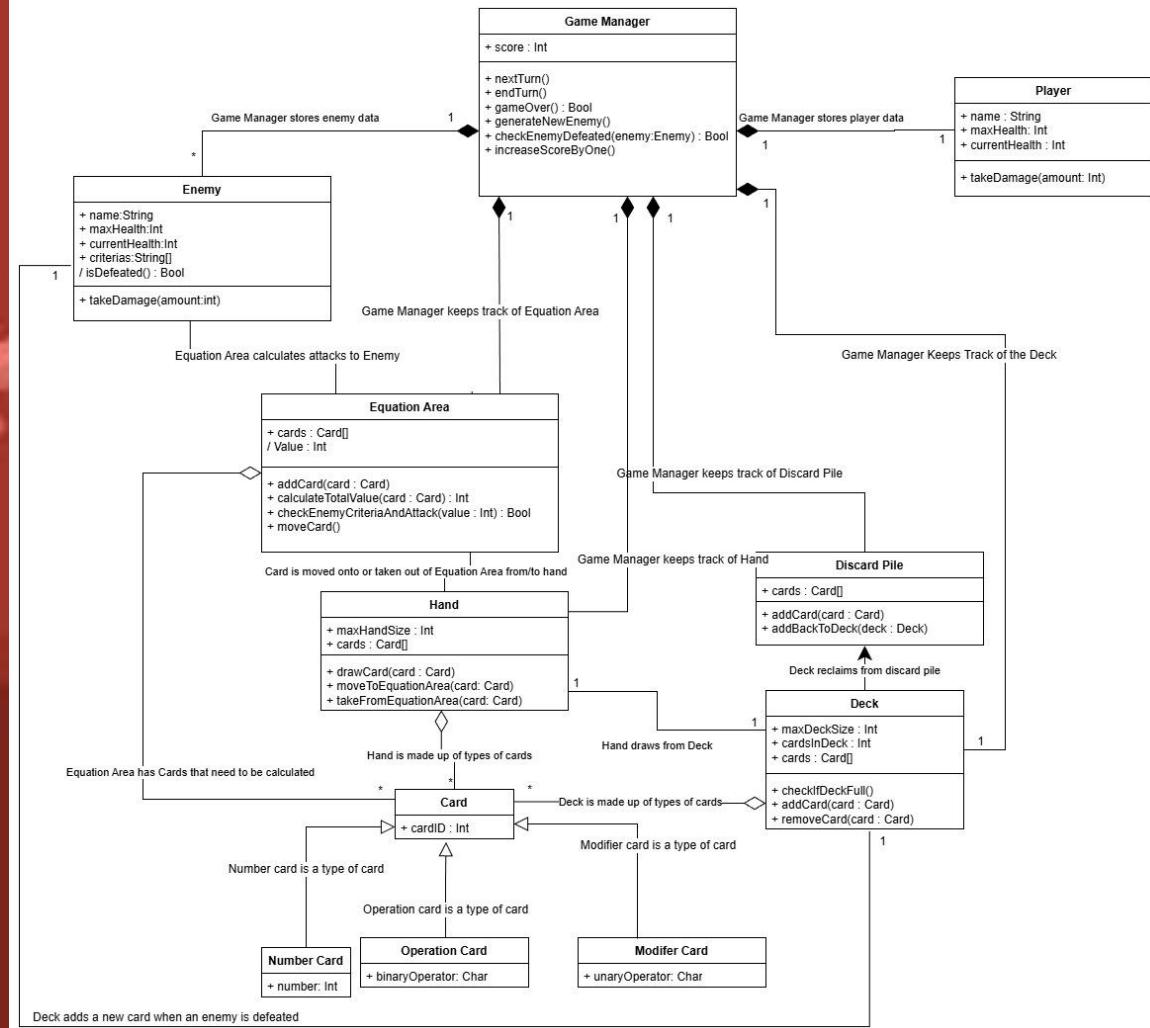
We needed to find a way to balance fun with education

Project Constraints from Massachusetts Mathematics
Common Core standards

- Age appropriate & accessible.
- Educational on a 4th grade level.
- Team knowledge of tools

Class Diagram

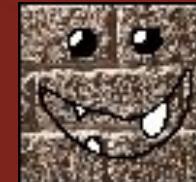
- Object oriented design
- Composition over inheritance



Demonstration



DECREMENTOR



Main Menu Screen

DECREMENTOR

Play

Settings

Leaderboards

Settings Screen

<<<

Volume: ——•————

Leaderboard Screen

Position	Name	Score
1	Senny	18000.0
2	Guy Below Me Kinda Sucks	15000.0
3	Nicholas Johnson	15000.0
4	Bill	12000.0
5	Nicholas Johnson 2	12000.0
6	Abhiram Garre	11000.0

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Game Play Screen

HP:



Your turn

Level: 1

SCORE: 00000000

50.0



Less than 25 (+10)(x1.2)

Is Prime (x2)

The two text above are requirements that apply a multiplier to damage. The orange requirement is mandatory to damage enemy, while green is not.



Equation Area

Equate

Pull card here



Game Play Screen

HP:

Your turn

SCORE:00000000

Level: 1

50.0

Multiple of 5 (+10)(x1.5)

Multiple of 3 (x1.5)



+



Equate



Pause Menu Screen

HP:



Your turn

SCORE: 00000000

Level: 1

20.0

Multiple of 5 (+10)(x1.5) Multiple of 3 (x1.5)

PAUSED



Resume

Settings

Main Menu

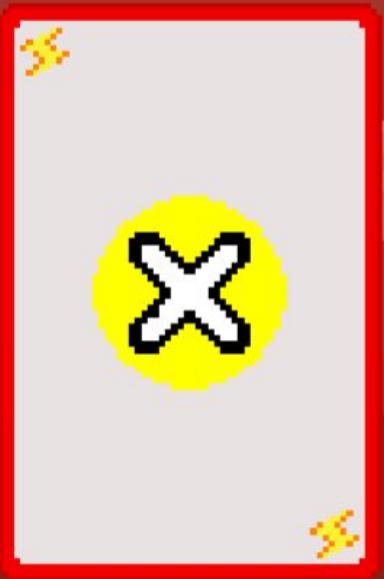
Equate



Adding Cards Screen



Pick A Card To Add To Your Deck



SKIP

Losing Screen

You Died!

Score: 2000

Name : Robert

Submit

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Live Demo



Improvements + Future Features

- More Requirements
- Requirement Balancing
- More Variety In Levels
- Formal Tutorial Level
- Increase in Variety of Cards

Acknowledgements

We gratefully acknowledge and appreciate the participation of our Professor, Dr. James Daly from University of Massachusetts at Lowell

Questions?



DECREMENTOR

