

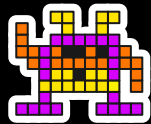
1 UP 25000



2 UP 003200

# RTX Gamification Classroom

## Design Review 3



**GAMING ED.**  
CAPSTONE 2022

# The Team



Grace Hsieh  
B.S. in Computer Science



Brett Lewerke  
B.S. in Software Engineering



Chayson Spigarelli  
B.S. in Computer Science

# The Sponsor



- Civil and Environmental Engineering Professor
- Northern Arizona University
- Came up with the idea of the RTX Gamification Classroom System

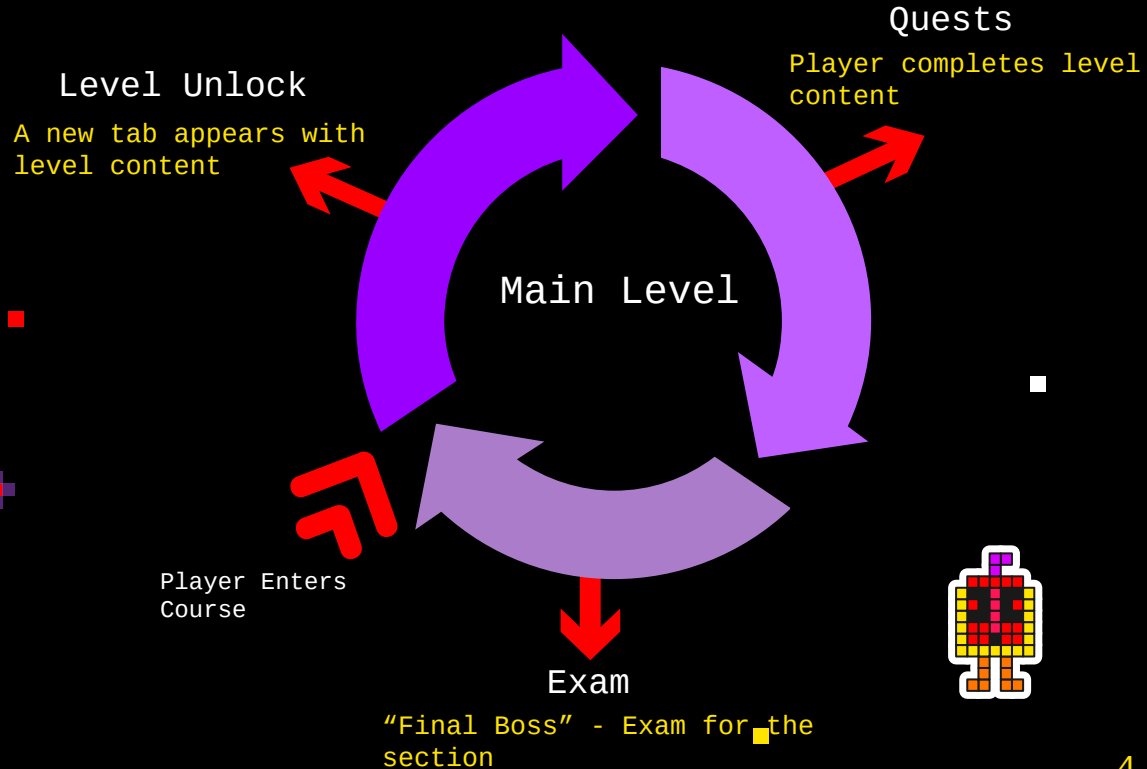
Professor Terry E. Baxter

# What Professor Baxter Made

## Additional Content

- Optional Learning Material
- Minigames
- Marketplace

## Current Workflow



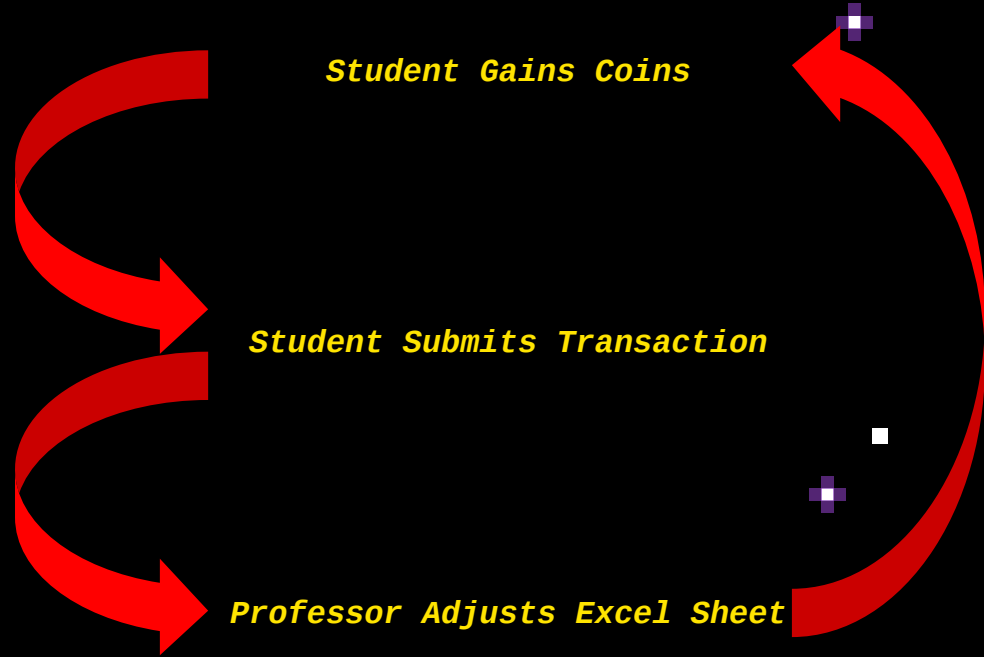
# Unsustainable Workflow

## Currency

- Incentivises success
- Obtained after certain completed quests

## Marketplace Transactions

- Buy avatars
- Extra information
- Formula Sheets
- Gifting Coins
- More...



# Solution Overview

## The Core

- A gamified way to create and take classes
- Ability to automate marketplace transactions



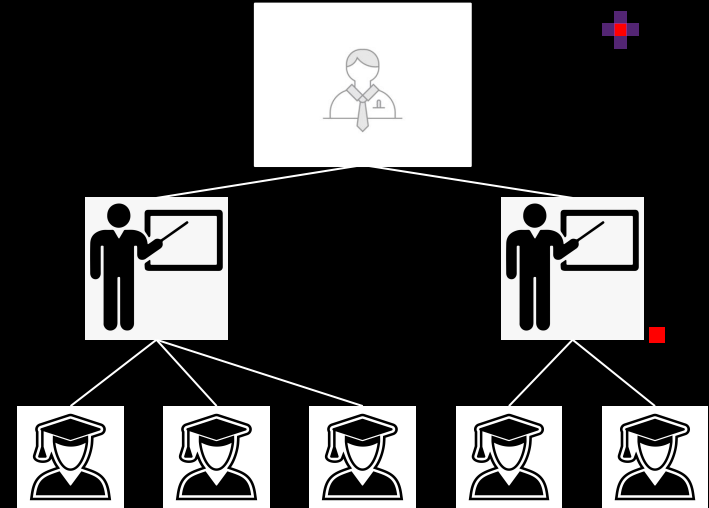
Professors -> Administrators

Students -> Players

# Requirements Review

## Major Requirements

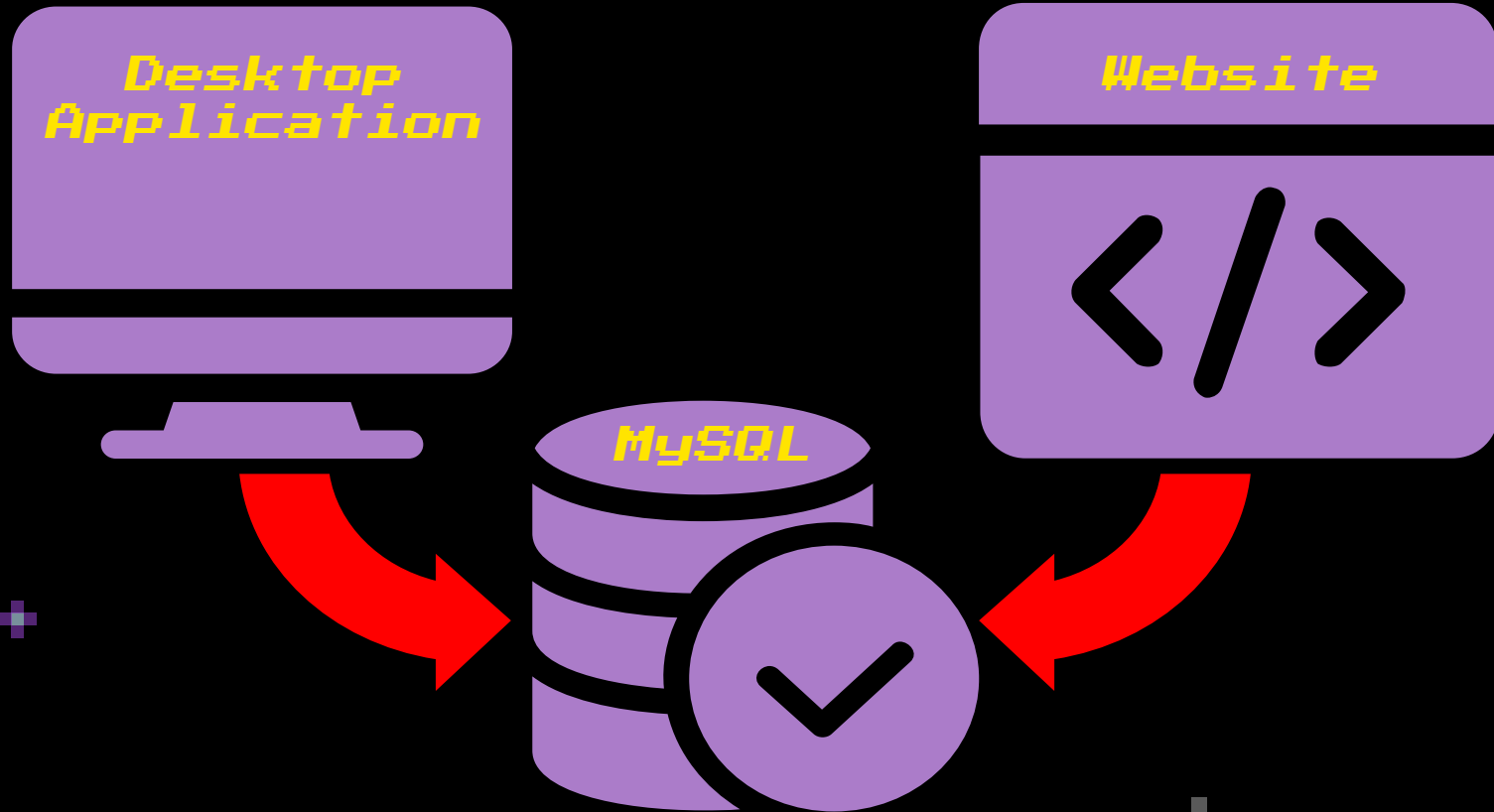
- SuperAdmin manages admins
  - Delete/add/manage admins
- Admins manage other players
  - Manage player accounts
  - View player information
  - Manage/create courses
- Player Interaction
  - Complete quests/exams
  - Marketplace to aid course
  - View gradebook



## Other Requirements

- Ease of use
- Works on any computer
- Offline use-Unity

# Architecture Overview





# Desktop Application

## Unity Game Engine

- Creates the UI for the user
- C# handles the data and makes requests



## PHP

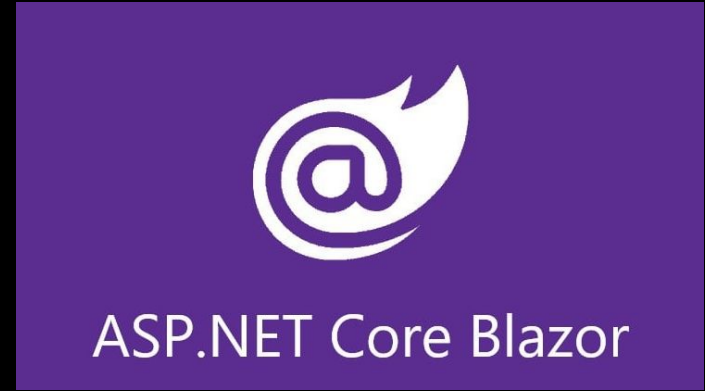
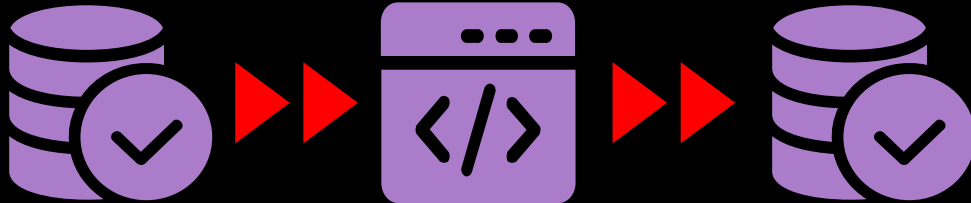
- Communicates with MySQL database



# Website Application

## .Net Framework

- C# handles dynamic pages
- REST API built in
- Razor pages instead of html
- Libraries for every popular database



```
<table class="table">
  <thead>
    <tr>
      <th>@Html.DisplayNameFor(model => model.Name)</th>
      <th>@Html.DisplayNameFor(model => model.PhoneNumber)</th>
      <th>@Html.DisplayNameFor(model => model.Email)</th>
    </tr>
  </thead>
  <tbody>
    @foreach (var item in Model) {
      <tr>
        <td>@Html.DisplayFor(modelItem => item.Name)</td>
        <td>@Html.DisplayFor(modelItem => item.PhoneNumber)</td>
        <td>@Html.DisplayFor(modelItem => item.Email)</td>
      </tr>
    }
  </tbody>
</table>
```

# *Website Walkthrough*



# Choosing an Avatar

## Step One: Navigate to Account

Welcome, test [Home](#) [Classes](#) [Account](#) [Logout](#)

### Home

You are signed in as: test

Welcome to the RTX Gamification Learning Management System... take a look around!



# Choosing an Avatar

Step Two: Click "Change Avatar"

## Account

### test's Account Information

(Course 1) Course 1

IGN: TavDefaultName | Coins: 1064



(Course 2) Course 2



# Choosing an Avatar

Step Three: Click "Change"





# Earn Coins

## Step One: Navigate to Classes

Welcome, test [Home](#) [Classes](#) [Account](#) [Logout](#)

### Home

You are signed in as: test

Welcome to the RTX Gamification Learning Management System... take a look around!



# Earn Coins

## Step Two: Navigate to Specific Course

### Classes

#### Currently Enrolled Classes

Course 1

Course 2

Join a Class





# Earn Coins

## Step Three: Navigate to any Level

Welcome, test [Home](#) [Classes](#) [Account](#) [Logout](#)

### [Course 1] Course 1

Course Professor Email: Yup.Gmail

[Marketplace](#)

[Discussion](#)

[Grades](#)

[Level 1 | Level 1 Description Here](#)

[Level 2 | Level 2 Description Here](#)



# Earn Coins

## Step Four: Navigate to an Activity

### Level 1

Level 1 Description Here

Quiz 1

Quiz 2

Quiz 3

Exam 1

Quiz 4



# Earn Coins

## Step Five: Submit Activity

### Quiz 1

1) How many inches in a foot?

Answer:

2) What is  $9 \times 9$ ?

Answer:

3) What is  $12 \times 12$ ?

Answer:



# Earn Coins

## Step Six: View Results

### Assessment Results

Your Score: 6 out of 6

Coins Earned: 6

Correct Answers

-----

1. How many inches in a foot?

Answer: 12

2. What is  $9 \times 9$ ?

Answer: 81

# Purchase Item from Course Marketplace



## Step One: Navigate to Classes

Welcome, test [Home](#) [Classes](#) [Account](#) [Logout](#)

### Home

You are signed in as: test

Welcome to the RTX Gamification Learning Management System... take a look around!

# Purchase Item from Course Marketplace



## Step Two: Navigate to Specific Course

Welcome, test [Home](#) [Classes](#) [Account](#) [Logout](#)

### Classes

#### Currently Enrolled Classes

Course 1

Course 2

Join a Class

# Purchase Item from Course Marketplace



## Step Three: Navigate to Course Marketplace

Welcome, test [Home](#) [Classes](#) [Account](#) [Logout](#)

### [Course 1] Course 1

Course Professor Email: Yup.Gmail

**Marketplace**

**Discussion**

**Grades**

Level 1 | Level 1 Description Here

Level 2 | Level 2 Description Here

# Purchase Item from Course Marketplace



## Step Four: Choose Category of Item to be Purchased

Welcome, test [Home](#) [Classes](#) [Account](#) [Logout](#)

### Market

TavDefaultName's Total Coins: 1064

[Purchase Avatars](#)

[Purchase New Attempts](#)

[Exemption Medals](#)



# Purchase Item from Course Marketplace



## Step Five: Click "Purchase"

Welcome, test [Home](#) [Classes](#) [Account](#) [Logout](#)

### Market

Your Coins: 1064



Kaya | 100 Coins

Purchase

# *Desktop App Walkthrough*

# New Course Creation

Welcome to RTX Course Creator!

[View Courses](#)

[New Course](#)

# New Course Creation

Back

Course Tag:

Course Name:

Would you like a market place  
implemented?:  YES

Join Key:

(This needs be unique,  
treat this like a password)

Create Course

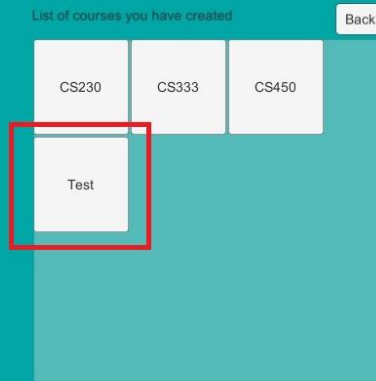
# Editing Course

Welcome to RTX Course Creator!

[View Courses](#)

[New Course](#)

# Editing the Course



# Editing the Course

Click HERE to edit the course

Students in: Test

Back

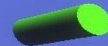
Player Name	Player IGN	Player Coins	Player Grade
test	TavDefaultName1158		A
Drake	MrWorldWide	1000	C
BruceWayne	Batman	1500	B
ClarkKent	Superman	300	A

# Editing the Course

Test

[View Course](#)

Upload:





# Quiz/Test Management



# Quiz/Test Management

Save

Back

Name of Assessment:

Due Date:

New Question

Question 1

Question 2

Question 3

# Quiz/Test Management

Save Back

Name of Assessment: Quiz1: Zebras

Due Date: 11/22/1995

Question: Multiple Choice Question Back

what are the color of zebras? Save

20 20 20 white with black stripes  Correct

+ Question 3 -

20 20 20 Black with white stripes  Correct

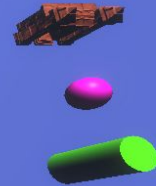
+ -

# Assignment Management

Test

[View Course](#)

Upload:



# Assignment Management

[View Course](#)

Upload:

Edit



Delete

# Assignment Management

Name of Assignment:

Due Date:

Points:

Coins Earned:

Attempts:

Description: (optional)

You are going to write an essay about zebra eating patterns

# View Individual Course Information

[Click HERE to edit the course](#)

## Students in: Test

[Back](#)

Player Name	Player IGN	Player Coins	Player Grade
test	TavDefaultName1158		A
Drake	MrWorldWide	1000	C
BruceWayne	Batman	1500	B
ClarkKent	Superman	300	A

--->

--->

--->

--->

# View Individual Course Information

[Back](#)

Student Username: BruceWayne

[Change](#) StudentIGN: Batman

Student Password: notBatman

Coins: 1500

Completed Assignments:

Title	Due Date	Desc	
Draw A Zebra	11/22/1996	Draw a zebra from memory	<a href="#">View</a>



# Admin Management

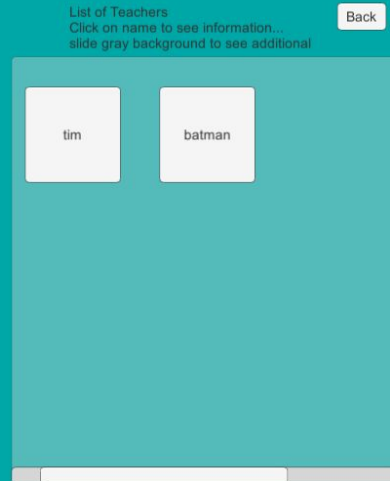
Super Admin Home Screen

Register a new teacher

View Teachers

Logout

# Admin Management



# Admin Management

Super Admin Home Screen

Register a new teacher

View Teachers

Logout

# Registering New Adminns

Register an admin account

[Back](#)

Username

Password

# Challenges

Frameworks, Software & Languages

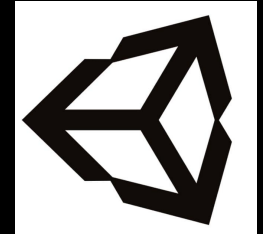
Requirement Creep & Illness

# Challenges

## Frameworks, Software & Languages

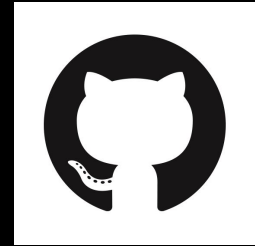
### Frameworks

MySQL (Workbench)



.Net Framework Blazor Pages

Unity Game Engine



### Software

Unity Game Engine, Visual Studio, GitHub

### Languages

SQL, C#, PHP, HTML/CSS



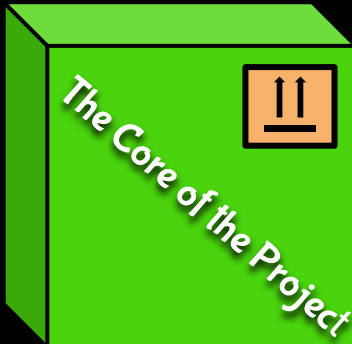
# Challenges

## Requirement Creep & Illness

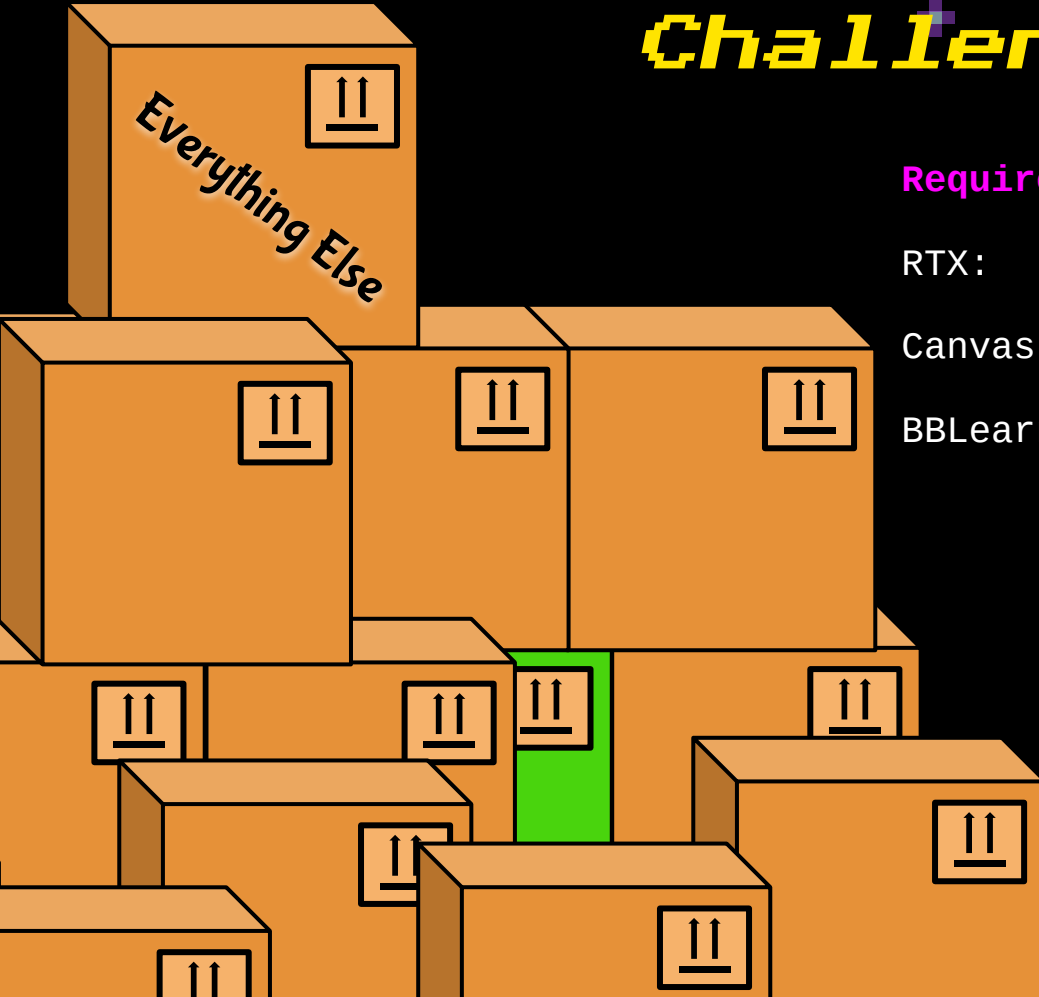
RTX: 3 People & .66 Years (2022)

Canvas: 1200 People & 8 Years (2014)

BbLearn: 3000 People & 12 Years (2010)



# Challenges



## Requirement Creep & Illness

RTX: 3 People & .66 Years (2022)

Canvas: 1200 People & 8 Years (2014)

BBLearn: 3000 People & 12 Years (2010)



# Testing Plan



Website

Unity



*Usability Testing*

User experience of Functions

*Integration Testing*

Multiple Functions Together

*Unit Testing*

Individual Functions

# Website

- **Usability Testing:**

- Steps for Players to use

- **Integration Testing:**

- Logging in
- Taking course content
- Viewing gradebook
- Using Marketplace

- **Unit Testing:**

- POST/UPDATE/INSERT requests
- GET requests



# Unity



- **Usability Testing:**

- Steps for Administrators to use

- **Integration Testing:**

- Course Creation Page
- View Admin Page
- View Course Information

- **Unit Testing:**

- Assessment Page
- Assignment Page
- Local Saving

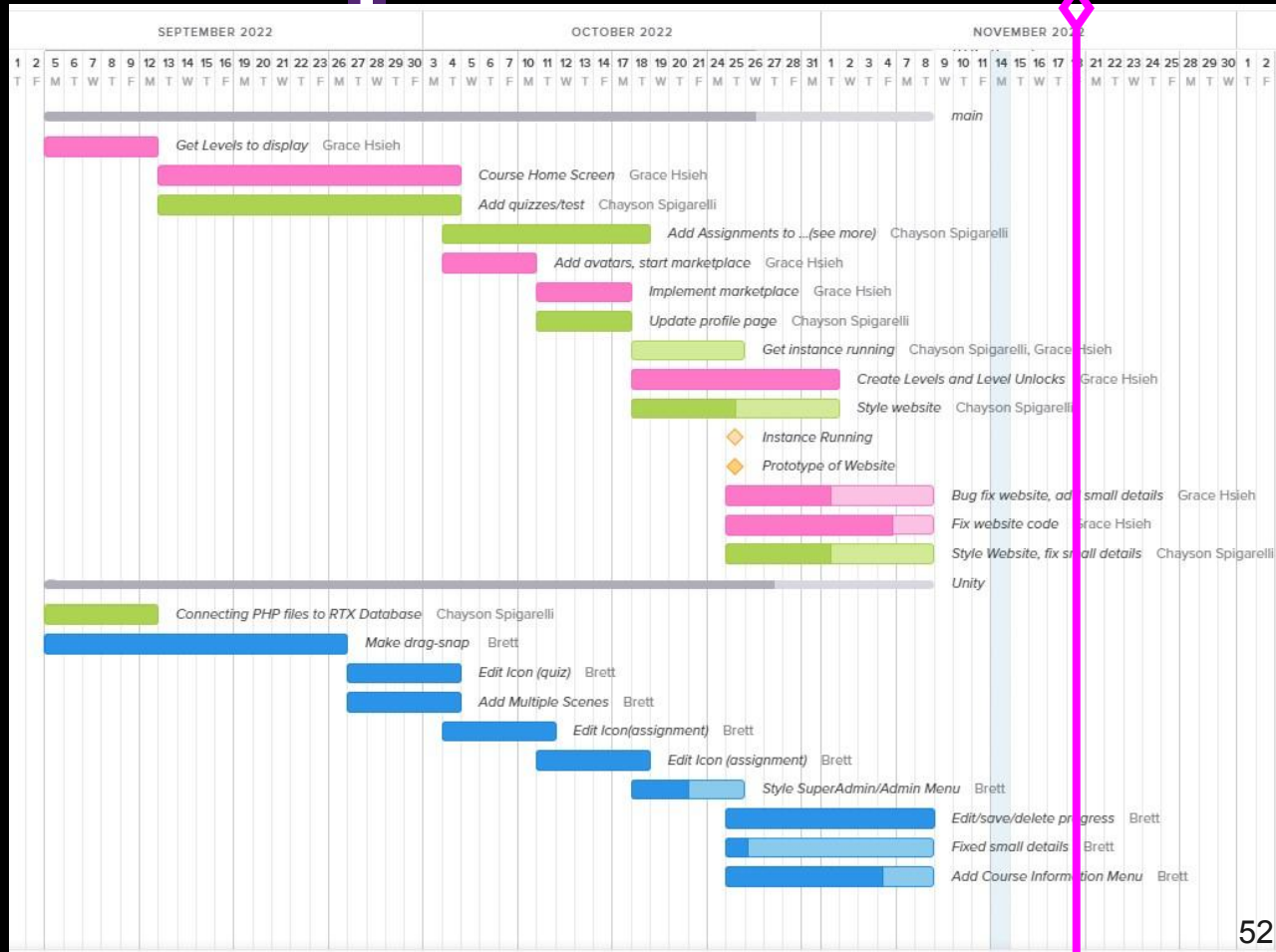


# Schedule

Today

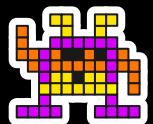
Website

Unity



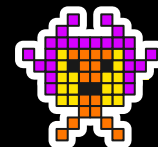
1 UP 25000

2 UP 003200



# THANKS!

DO YOU HAVE ANY QUESTIONS?



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CREDITS

# Slide Notes

- When? November 18th During Normal Class Time
- What to wear? Formal Attire!
- Time Requirements: Talk for 12 Minutes. Post-presentation comments will get us to 15 minutes total presentation time.

# Intro (Chayson)

- Team members names and roles
- Team name
- Client
- Faculty Mentor

# Problem Statement (Brett)

- Business Area Client is In
  - Introduce Area
  - Explain How it Works
  - Motivating Info on Why It Is Important
  - How Does Our Client Work with This Area
    - What do they produce?
    - How does it fit into larger sector?
    - What is the Importance base of their part?
    - What is the process of our client?

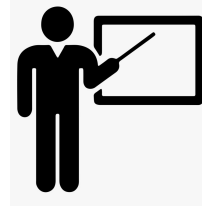


# Solution Overview (Chayson)

- How are we going to fix the problems outlined in the previous slide?
- Screenshots of application
- Discuss Screenshots
- Outcome of proposed solution

# Requirements/Specs Review (Brett)

- Discuss requirements acquisition from the last design review (Briefly, One Slide)



# Architecture and Implementation Review (Brett)

- Briefly Review Architecture
  - Frameworks
  - Other tools

# Prototype Review (?)

- This is the meat
  - Demo-Walk (Unity and Website)
    - Walk through the program
      - Include Screenshots of Product in Action
        - Screenshot should try to focus how we solved the clients problems

# Challenges and Resolution (Grace)

- Current Problems the Team is facing with project

# Testing Plan (Grace)

- Elements of Project
  - How they will be tested
  - What to expect from testing
- End with how the team will respond with outcomes

# Schedule (Grace)

- Include Gantt Chart
  - Where are we currently in the Gantt Chart?
  - What's left in the project
- What is Going Well or Is Going Behind Schedule?

# Conclusion (Chayson)

- Summary of Presentation (Bring it all together)
  - No Reviewing Details just overall what was talked about
- What the team will be focusing on in the next few weeks
- End on positive confident note