Team No. 17

Team Members: Angel Guerrero Urbina, Max Johnson, Ian Penrod, Garrett Wolfe, Dalton Yoder

Project Name: PointClickLearn

Project Synopsis:

A computer video game designed for younger children, to encourage learning and imagination at a developmental phase in their life.

Project Description:

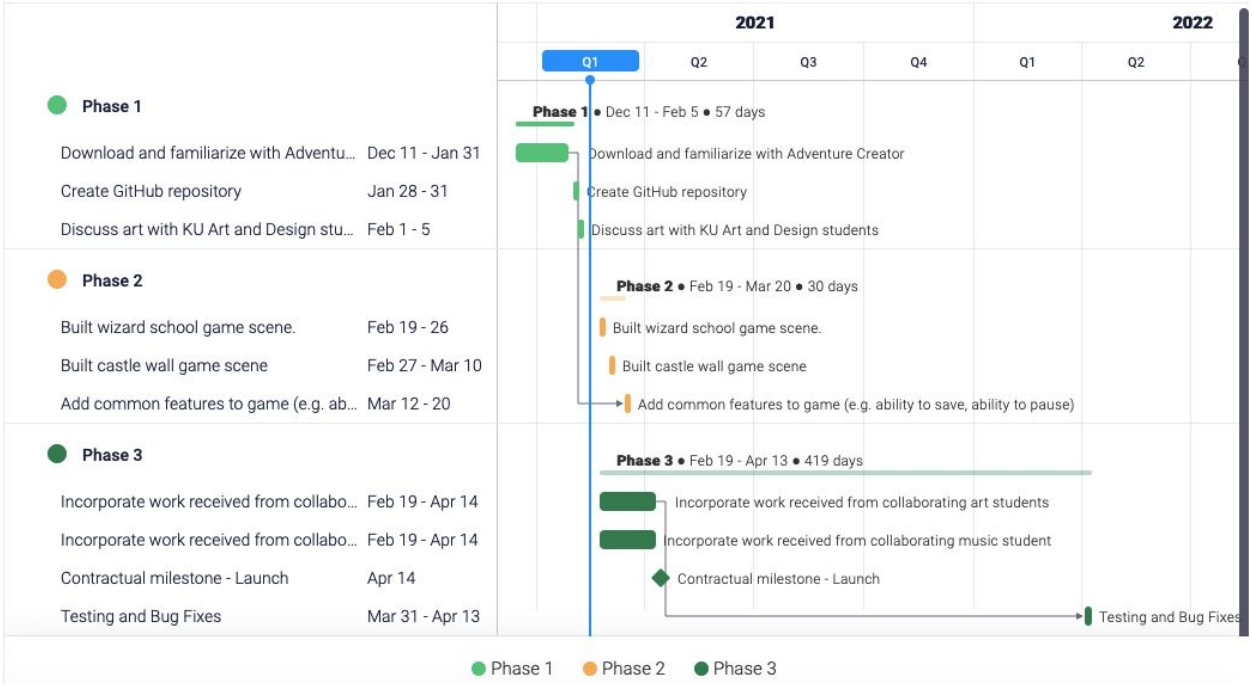
Many of the computer-based young children's games on the market today offer a handful of features that make the gaming experience easier and more enjoyable for children, but many still have flaws that severely detract from the experience for both children and their parents. Several games have difficult to maneuver controls which are further compounded by the fact that mice and keyboards were not designed for children, who notably have little to no experience with these devices. Several of these games are also old and have very low-quality graphics, which makes them less appealing than other flashy (and often not so kid friendly) games. Of those games with simplistic designs and good graphics, many make heavy use of combat/violence. Because of all of these issues present across various children's games, there is a need for a modern one with close attention to detail. With this project we seek to create a quality children's video game that parents would approve of, that is easy for children to play, and that offers a modern feel.

Project Milestones:

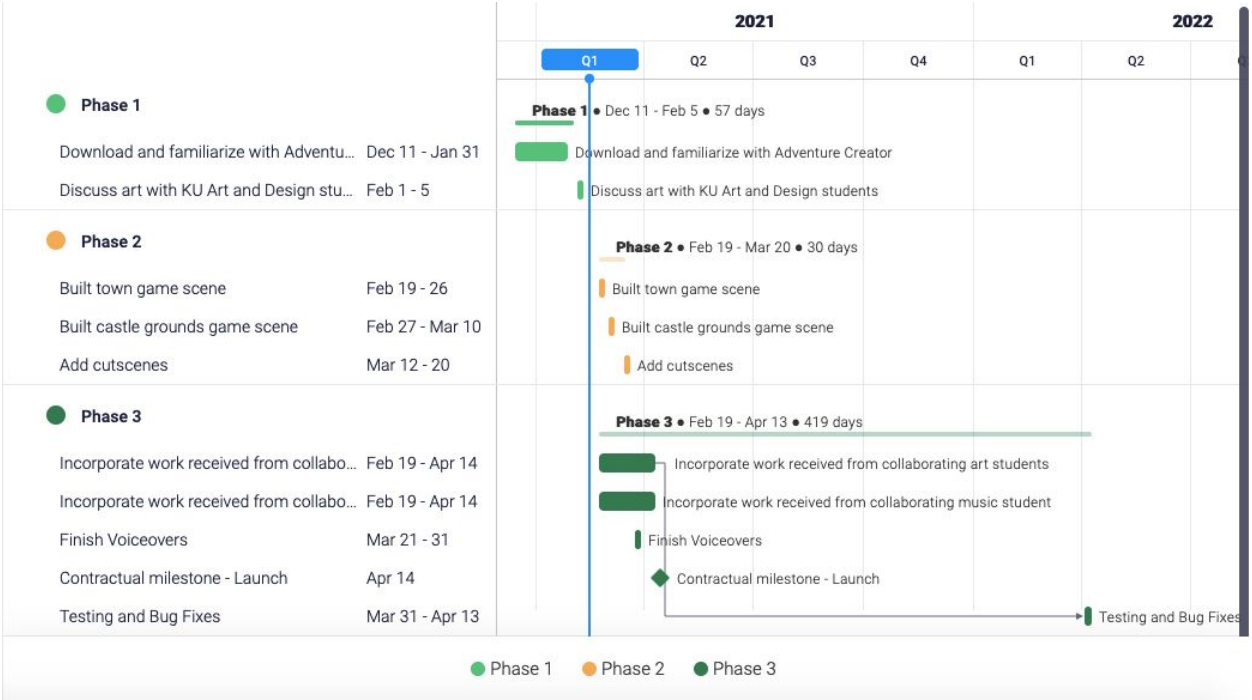
- Fall Semester
    - Game Story Complete - Late October 2020
    - Train on New Software - Early November 2020
    - Initial Project Presentation Complete - November 13th, 2020
    - Game Framework in Place - December 2020
- Spring Semester
    - Finalize Game Processes - February through mid March 2021
    - Establish communication and collaboration with artists - February 2021
    - Working Demo - Mid March 2021
    - Finish Voiceovers - March 2021
    - Testing and Bug Fixing - April 2021

The following images are every team member’s Gantt Chart

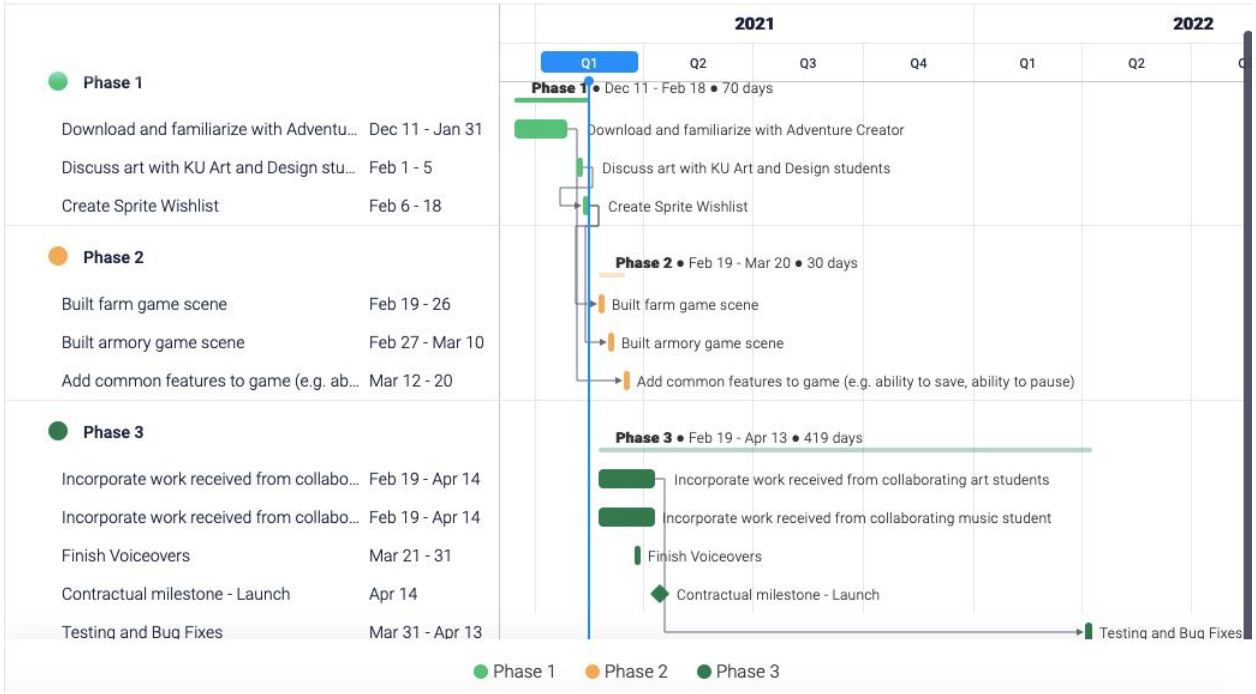
Angel’s Gantt Chart:



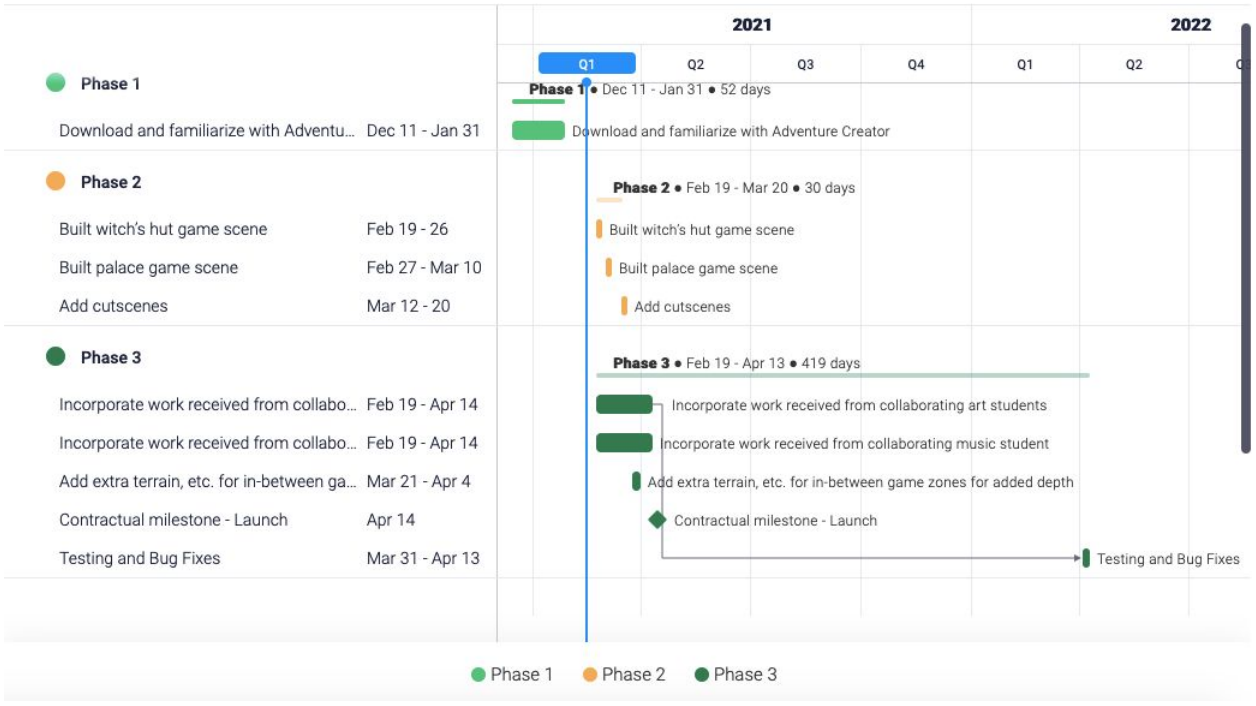
Garrett's Gantt Chart:



Ian’s Gantt Chart:



Dalton’s Chart:



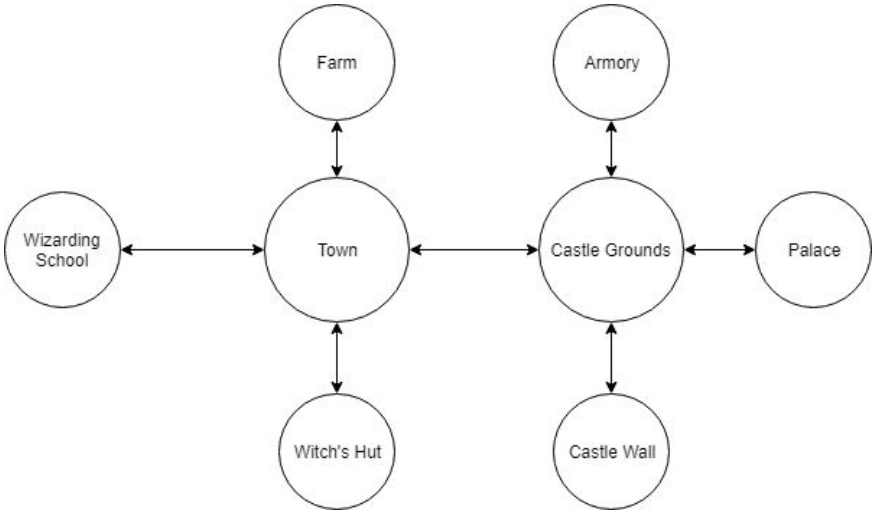
Project Budget:

- Unity
    - Unity is free to use, but additional features such as group collaboration are accessible for a monthly fee.
- Adventure Creator - $80/team members ($400 total)
    - Runs off the Unity platform.
    - Streamlines several in-game processes such as walking, targeting items, etc.
- Our team will need to familiarize with C#, as that is the language that Unity runs on

Final Project Design:

We are designing the gameplay of our project based around the need for a quality children's game and the Unity platform with the Adventure Creator plugin. We have decided to use Adventure Creator because it is a fully-featured Unity tool-kit designed specifically for creating adventure games that support the point and click modality that we will use for the gameplay of our project.

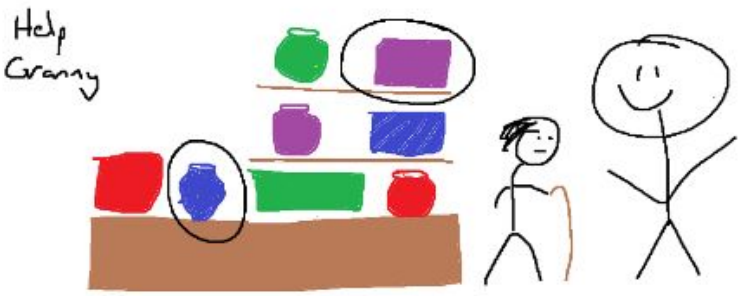
Regarding the technical functionality of the game, some challenges we will face include animation (there are several different techniques that we can use) as well as working in collaborative work from art and music students from other KU schools To address the animation issue and simplify the art collaboration, we have decided to use sprite sheet animations for animation. This technique loops through a series of still sprite images in repetition to create the illusion of movement, and with enough sprites this technique can be fairly convincing. Further, this technique will simplify what we need to ask of the art students and will make it easier to work in parallel.



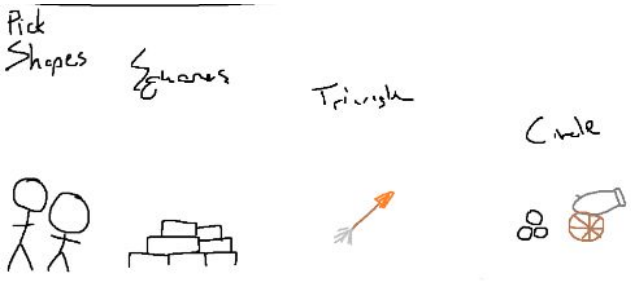
We have also thoroughly discussed the design of our game and come up with the story-line, the world and navigational system, etc. The core functionality of the game will have the user in a 2.5D horizontal perspective that is similar to the popular game Mario, but with an interactable background. The user will be able to move around by pointing

and clicking the mouse on arrow symbols that will be strategically placed at the edge of each side of the screen, corresponding to traversable paths. Once the player clicks an arrow, the player's character will independently navigate across the scene. Our hope is to have the map move around the player rather than having the player move around the map. The decision to do this is based on the fact that it will make the game easier to navigate for the young target audience. Additionally, the player will be able to further interact with the game world by pointing and clicking at interactable objects put in the background. Since the target audience is young children, the gameplay will include minimal reading and instead will incorporate symbols and audio that will make the navigation as smooth as possible. The game will maintain an object inventory system that the main player will collect by completing required tasks that they will discover as they progress through the game's storyline, and once all of the objects are found, the player will win. Other features that the game will include are: the ability to pause the game, save his/her progress, turn the volume up or down, and customize the main character. Our decision to include these features is not all-encompassing and absolute, so we may add more features in the final version if time permits.

Also, regarding design constraints, a major constraint that will be present throughout the development of our project is the fact that our game is being designed to be played by kids ages three- to seven-years-old.



Because of this, the complexity of interactions, features, and the like that we implement is severely limited. Features that are too complicated can lead to the player getting confused, which may frustrate them and make the game experience very unpleasant. We need to design a game that is family friendly, easy to navigate, with a sufficiently linear storyline, and educational. To deal with this large constraint, we came up with a game design that is easy to navigate and a plot that fulfills the need for entertainment and educational value. In the gameplay, we will include tasks that are simple and appropriately challenging for the intended audience, with the hope of making the experience fun and entertaining. The game will also be designed in such a way that individual tasks, with very few exceptions, can be completed independent of each other. This will lead to less confusion and will add some replayability to the game.



The plot of the game is centered around a young wizard who has accidentally turned his/her friend into a frog. In order to save the wizard's friend, our player must go on an adventure to find the ingredients, tools, and other important materials that are required to help turn this friend back into a human. As this is our overarching theme, the scope of what we can include in the game must stay within these bounds, making the game world much easier to understand and will not risk disorienting our player as easily. An example of this includes the player helping a townsman in order to receive requisite materials that can be used to help his/her friend, as opposed to the player going off to perform side-tasks that will have no bearing on the main objective. We as a team do not want to confuse any younger player who is trying our game, as this is not ethical as well, as discussed below.

That being said, the plot is not the only design constraint we are dealing with. We also have to consider technical and business constraints. In the case of technical constraints, we will be constrained by the virtual environment in which we will develop the game. Having picked the Adventure Creator tool-kit and Unity as the game development framework, we are limited by the resources available in this technology.

Regarding the business constraints, there are a few issues that can arise inside our team. For starters, we are all full time students, with many of us working part-time or full-time jobs, and have lives outside of the engineering complex at KU. This readily leads to scheduling constraints. In order to overcome this, we are making arrangements that work with our ever-changing schedules. For example, we have found that Tuesdays are a great time for everyone to meet during the fall semester and Mondays are great during the Spring semester, so we have been taking advantage of that since the teams were formed. We also work to meet as a team outside of regular school hours to plan and code our game. In regards to our team composition, we are equal in the fact that, initially, none of us had used Adventure Creator or Unity before; so we are all able to learn at the same time and adapt our processes in real-time. As challenging as this may be, we are ready for this challenge, and look forward to working toward our combined goal of creating a fun and educational game.

Ethical Issues:

As a video game, especially geared toward a younger audience, we as a team are maintaining strong ethical bounds within our game. For us, we will maintain ACM codes 2.1 and 2.2, which means that we will hold ourselves to a high standard while making this game. For our audience, we will keep a large emphasis on codes 1.1, 1.6, and 1.7. For starters, we will be contributing to society by providing a fun and educational environment for children. We will also not be taking any personal information in, and with that we will not be asking for anything confidential. There should be no information gathering involved with our game, as it is just an educational atmosphere for whoever plays our game.

Intellectual Property Issues:

As we are using Unity, the issue of Intellectual Property can arise as a problem. However, we are taking steps to make this game our own. For starters, anything we make in Adventure Creator is our own, but we will still credit the software for helping us in our game. Another issue that can arise is art and music assets. We plan on working with other KU schools for these assets and will give credit to the appropriate collaborators for their work. You might even see some of our drawings in the game. Overall, we will be smart with what we use.

Change Log:

- Updated budget for Adventure Creator
- Added more information regarding the utility of Adventure Creator
- Changed training on new technology to early November to reflect time constraints with getting access to the aforementioned technology
- Added an initial project presentation milestone to the timeline
- Added a section on Ethical Issues we may run into as we continue coding
- Added a section about Intellectual Property Issues
- Added a Project Description section, which includes illustrations that demonstrate some elements of our game project
- Updated project milestones for Spring 2021 semester according to the current development process.
- Added Grant chart demonstrating the work done and planned for the remainder of the semester.
- Updated timelines for project milestones.
- Adjusted language in the project description section, which was initially unsure about technical constraints surrounding the use of Unity with the Adventure Creator tool-kit. Now that we have some experience with the design software, we were able to offer some concrete examples of considerations that we have discussed and planned for.
- Updated intellectual property issues section to reflect a surety to collaborate with art and music students from other KU schools. Previously we indicated that we may or may not be able to do this, but we are in communication with the art students now and have begun communication with music students.