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**Project Proposal**

**TP3 Updates**

Here is a list of the final changes I ended up making to my original design proposal:

1. There is no walking animation for the in-game mode. There is, however, a walking animation for the cave mode.
2. I ended up adding an additional fishing mini-game, which can be played at the river.
3. I implemented character customization.
4. I also implemented a menu feature that lets the user exit the window, restart the game, and save the game progress, which was not listed as a feature in the original proposal.

All the updates made in TP2 remains unchanged.

**TP2 Updates**

Since the first TP meeting, there are a few changes I was thinking of making to my game, and they are listed below:

1. There is no longer a minmum of supplies needed to enter the cave. Instead, when the player wants to enter, there is a warning saying that the more supplies available, the better, because conditions are dangerous. Should the player continue, they have a higher chance of dying if they have less supplies.
2. Once they enter the cave, there will be a minigame, similar to the one on Google Chrome with the dinosaurs when there is no internet available. The player will have to jump over and dodge obstacles (which are the rocks and bats in the cave) until they reach the end. This depletes hunger and thirst, which can be replenished with supplies. If they hit an obstacle, their health depletes. The player can die while in the minigame. Once they reach the end of the minigame/cave, then they are faced with the dead body I was planning on implementing beforehand.
3. I limited the number of objects that the player can interact with in the game to a few limited ones: water, berries, traps, the cave, grass, and trees. I was considering adding stones, but decided not to.

**Project Description**

The name of this term project is “Stay Alive,” and will be a wilderness survival, one-player type of game. The player will be able to control a character via mouse clicks through an environment (the wilderness) and try to survive and fetch help.

Multiple challenges are present throughout the gameplay, including keeping track of the character’s status throughout (hunger, thirst, health) and keeping them within the healthy range by performing tasks such as scavenging for food, drinking water, and making clothes. Multiple things can affect the character’s status, such as moving around more would mean that the hunger depletes more quickly. There are two possible endings: the character successfully contacts help, or the character dies from deprivation and exposure.

In order to successfully escape, the character will need to stock up enough supplies to go spelunking in a cave, which will result in them uncovering a dead body. Several items needs to be prepared before going into the cave, such as enough torches, food supplies, and warm clothes. On the dead body, the character finds that there is a compass and pieces of maps. The character must then piece together the map and utilize the compass to escape. The endgame escape will be a minigame in itself.

**Competitive Analysis**

Wilderness survival is a genre of games that has been tackled before by other developers. A notable one would be Don’t Starve. The overall format of my game, as well as its controls, is similar to that of Poptropica, which is where I took my inspiration from. I combine the two ideas, however, in order to create a game that still follows the general wilderness survival idea, but one that implements the controls and format of Poptropica, with the idea of a game dependent on mouse clicks.

The gameplay also lasts for a shorter time than for Poptropica and Don’t Starve, both of which can take days or weeks to make progress and advance towards endgame, depending on player ability and knowledge of how the world works. Furthermore, there is no true endgame in sight for Don’t Starve, as the player can technically scale forever, depending on available resources. My game, however, will progress more speedily than either of those, and there will be an option for hints should the player request. Therefore, the time commitment will be less. Overall, the logistics of the game will be different as well, with a different plotline and resolution and different methods of survival. For Poptropica, you do not need to worry about survival or anything of the type, and for Don’t Starve, you only need to keep track of hunger and health. Some highlights of features between projects are outlined in the graph below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Controls** | **Length of Gameplay** | **Plot** | **Character Appearance** | **Environment** |
| Don’t Starve | mouse clicks | weeks-months, infinite scaling | Wilderness survival and manipulating | Limited options for charcters | Aerial view |
| Poptropica | mouse clicks | multiple hours-days | Solving mysteries | Highly customizable | 2D view from side |
| My TP | mouse clicks | less than an hour | Wilderness survival | Minimally customizable | 2D view from side |

**Structural Plan**

My game interface will consist of different types of screens. There will be a start screen, in which the title is displayed, an instructions screen, a customizing screen, in which the user can enter their name and customize their character, and then the “in-game” screen, where all the gameplay occurs. The in-game screen is then divided into different visual modes as well. There is the forest environment, where the majority of the gameplay happens, the inventory screen where the player can see their collected resources, a build screen where the user can see which items they can build using the resources they have. Items built will be added to the inventory automatically. Furthermore, there is the endgame screen, where the character explores the cave and ultimately finds the dead body.

Several objects are also needed for the game. The very obvious one is a Character object, which represents the main character that the user controls, whose attributes include health, hunger, body temperature, and thirst, which changed depending on outside factors and the environment. I will also need a Backpack object that acts much like the ‘data’ class in MVP animation. Its main purpose is to store and keep track of the items that the character has. Other classes will include Dead Body, Water, Weather (as a potential add-on), Plants, and Animals. These are all objects or parts of the environment that the character can affect. Additionally, I will strive to add the functionality of keeping track of time, therefore changing the day and night throughout, should time permit.

Each object will have its own file, and I will be keeping all of the images and clipart I use or draw in one folder. In the main file, I will have the run function for MVP, as well as all the major controls for the game. TimerFired will be busy, as much of the game is dependent on time (such as night and day, weather, etc).

**Algorithmic Plan**

The most algorithmically complex part of my game will be determining how the environment interacts with the user and vice versa, and then how that would look, visually. For example, the character will look different while it’s standing still versus walking versus jumping left and right, and those transitions will have to look relatively smooth given the limitations of tkinter. This will all be dependent on the user’s mouse clicks, and I envision I will have to draw several different images of the character that I will use as the character performs different actions. I will keep these images within a dictionary so that specific images are easier to reference using keys. Then, with each separate action, I will have a list that list the order of the images needed in proper order so that the action looks the way it should when drawn.



Additionally, another factor to take into account is that if the mouse clicks on an object that the user can interact with, the character will not be able to walk to the exact x-coordinate of the mouse click (because the object is there). Instead, the character will have to stand a little farther back, while if the mouse click is not on an object, then the character walks to that x-coordinate.

One other major thing to take into consideration is the development of time throughout the game. As the time drags on, multiple things will happen: hunger will go up, health will go down, body temperature will go down if the environment’s temperature is below a threshold, and day and night will change. A part of that is figuring out a good balance between when these things should occur and at how fast. I will have several cutoff values for timerFired that keep track of the rate at which these status amounts change.

**Timeline Plan**

By my TP1 meeting, I aim to have finished all necessary deliverables, a few images to later use as graphics (the character itself and the background). As for the code, I aim to have finished the start and instruction screen, as well as basic character movement.

By Wednesday, April 18th, I aim to have finished all my graphics (which I will draw myself, using a drawing tablet and an art program) finished, including the background, the character, animals, interactive features. By that date, I also aim to have finished implementing metrics such as body temperature and hunger. I also aim to finish coding the backpack and the build screen.

By Friday, April 20th, I aim to have finish allowing the character to collect food and stay warm and build more complicated objects.

By Monday, April 23rd, I will have finished the endgame scenario, with the user collecting enough resources to venture into the mysterious cave.

By TP2, I will have finished the basic gameplay with all the minimal features necessary and with the endgame ending at finding the compass and map pieces with the dead body. The minigame is an extra that will be added on if time permits as an additional bonus.

In the time between TP2 and TP3, I will work to resolve all the bugs and adding additional features that aren’t essential to fundamental gameplay, such as day and night cycles and weather and animal attacks. Additionally, I will create a minigame that, when succeeded, will signal that the user has successfully escaped the forest.

**Version Control Plan**

Following with my timeline plan, I will make a backup version of my project on those specified days when I finish the components that I noted (after TP1, after I finish body metrics, after coding the ability to build objects, etc). Overall, I anticipate making around 5-6 backup versions of my code up to TP2, and any additional versions would be if I finish an add-on feature as time permits after TP2.

**Module List**

No outside modules will be used for this project. The only one needed for this is Python’s built-in tkinter.

**List of Features**

**Necessary:**

1. The different splash screens (opening screen, instruction screen, gameplay screen, build screen, and inventory screen, etc)
2. Character’s hunger, health, and thirst levels (all decrease at different rates and depending on different circumstances. Performing actions can increase these levels or maintain them in healthy ranges, or have them drain faster)
3. Having materials in the environment that can be collected (water, wood/branches, berries, animals that can be hunted, grass, etc)
4. Being able to build advanced materials according to recipe (recipe will be provided for player. E.g. to build a campfire, the player needs a certain number of stones and a certain number of branches and logs)
5. Mysterious cave that the character can only enter when they have enough supplies stockpiled
6. Find a dead body in the caved of a previous explorer (plot twist, it’s the same character, but from a previous game that they have died in! This is not explicit though). Collect compass and map from them. Can then finally seek help and end the game successfully.

**Wanted:**

1. Night/day cycles: each day cycle is about 3 minutes of gameplay, while night is around 1-2.
2. Weather (rain and snow)
3. Animal attacks at night randomly. Have to build weapons to defend themselves.
4. Customize the character (have the user be able to select gender at the least, and then as extras, maybe hair color and clothes)

**Reach:**

1. After finding the map and compass on the dead body, it unlocks a special minigame that is like an aerial view of the forest, in which the player has to escape using arrow keys and map fragments.