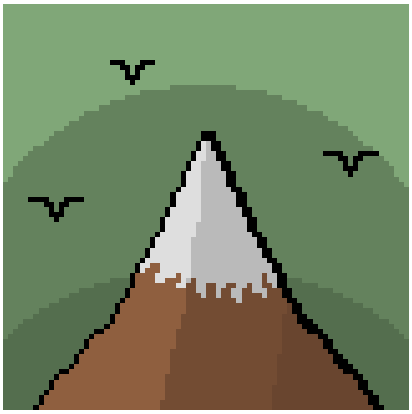
Peak Adventure Experiences



Requirements Document

Date: 11/26/2025
Team Members: Makaela Crookes, Yahir Espinoza, Alonso Garcia, Jack Morris
Project Sponsor: Paddy McGarry
Team Mentor: Ogonna Eli

Accepted as baseline requirements for the project:

Team

Client

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I. INTRODUCTION

Relocating to a new city is one of the most consequential decisions individuals and families make, often involving major financial and emotional commitments. In 2024, nearly 70% of Americans reported regrets about their relocation decisions, with 21% seeking a change in lifestyle and 18% pursuing a better quality of life [1]. These statistics reveal the widespread difficulty of making confident, informed relocation choices.

The relocation industry encompasses a wide range of services designed to assist movers, including real estate agencies, moving companies, and digital relocation platforms. The U.S. relocation market is valued at over $20 billion annually, supported by millions of domestic moves each year. Within this industry, decision-making tools such as cost-of-living calculators and city-ranking websites help users compare destinations but often fail to capture the full lifestyle experience that drives satisfaction after a move.

Our project sponsor, Paddy, is the owner of The Scouting Party, a Flagstaff-based business specializing in guided relocation tours. The Scouting Party helps prospective residents explore the city firsthand, experience different neighborhoods, and learn about local amenities and community culture before committing to a move. This approach provides a valuable "try-before-you-buy" experience that traditional relocation services rarely offer. However, like many businesses in this space, The Scouting Party faces challenges in scalability and accessibility, which many potential clients cannot easily travel for in-person tours.

To extend this experience beyond physical limitations, our project seeks to design a virtual relocation experience that captures the immersive, personal feel of an in-person city tour. This system will serve as a bridge between data-driven decision tools and real-world experience, providing users with a more holistic understanding of what it's like to live in Flagstaff.

II. PROBLEM STATEMENT

Moving forward, this section will discuss the problem that our client, The Scouting Party has within their market.

The Scouting Party's core business workflow relies on providing in-person relocation tours for prospective residents. Clients typically contact the company through its website or referrals, schedule guided visits to different neighborhoods, and receive personalized insights about local amenities, lifestyle, and community fit. This model delivers high-quality, customized experiences. However, it depends heavily on physical presence and scheduling availability.

Several key limitations hinder this workflow:

- **Limited accessibility**
  Clients outside Arizona often cannot justify the time or cost of traveling for exploratory tours.

- **Seasonal constraints**
  Weather and tourism cycles restrict when tours can be conducted effectively.

- **Scalability challenges**
  In-person experiences require staff time and cannot easily serve a growing client base.

- **Limited engagement tools**
  The Scouting Party's current online presence lacks interactive elements that capture the experiential richness of its tours.

These issues reduce the business's reach and limit its ability to serve clients during early decision-making stages.

To overcome these challenges, our team is developing an interactive, gamified relocation platform that allows users to explore Flagstaff virtually. Through mini-games, non-playable characters (NPCs), and interactive environments, users will experience the city's weather, culture, and community highlights in a dynamic, engaging way. This platform aims to make relocation planning more informed, accessible, and enjoyable, which enhances client confidence while expanding The Scouting Party's business potential.

III. SOLUTION VISION

Next, this section will discuss how The Scouting Party's problems can be solved to ensure they can succeed in their market of providing relocation confidence to their customers.

Peak Adventure Experiences is developing Virtual Flagstaff to address many if not all of the issues The Scouting Party currently faces when it comes to showing off Flagstaff to prospective residents. Virtual Flagstaff will be a 2D, top-down, web application game that allows players to explore Flagstaff online. Flagstaff's history will be explained through NPCs and interactive environments, mini-games will help users visualize the exciting activities Flagstaff has to offer and the dynamic weather system will show users what they can expect climate-wise throughout the year.

Key Features Include:

- **Accessibility**

  Provides the option for prospective residents to explore Flagstaff online as they would in person.

- **Zero seasonal constraints**

  Virtual Flagstaff will lift any and all seasonal constraints placed on clients as the web app will be available at any time/date and through any weather.

- **Scalability**

  An online web application such as this requires much less labor than that of an in person touring operation. Expanding the web app could be a simpler process than scaling in-person tours.

- **Engagement tools**

  Having most of Flagstaff's key experiences and features included in Virtual Flagstaff allows clients to see how much the city has to offer before they experience it in person.

Virtual Flagstaff aims to respect users' privacy, the clients that choose to play Virtual Flagstaff may play as guests and not commit any personal data. However players will also be able to log in, by doing so users can maintain game progress between sessions and optionally receive promotional emails about Flagstaff Tours/Events. Upon signing up the data that will be committed to the system includes:

- **User Information**:

  Username and password, user email, and a boolean (T/F) value signalling whether the user has agreed to receive promotional emails. This data is collected from the input on the sign up form.

- **Gameplay Data (collected and generated)**:

  Player location, mini-game scores, quest progress, real-time weather data, historical/modern facts and more. This data is collected from gameplay, APIs (exterior software that provides data), and credible information sources (museum/government websites, non-fiction

books, etc.).

- **Data Used to**:
  Send consenting users events and tours, share reliable information and facts, show user's progress, and feed the necessary data to the main computational processes.

- **Main Computational Processes**:
  Save/Load players' progress, trigger in-game events given a specific location or action, and generate real-time Flagstaff weather that is reflected in-game.

Our system will change the way our sponsor works for the better. By developing Virtual Flagstaff, clients of The Scouting Party will have more options for learning about Flagstaff before relocating. This will promote the business by offering a deeper understanding of Flagstaff so clients can confidently participate in tours or commit to relocating. This extended accessibility will also pull more traffic to The Scouting Party since it is something new and exciting that other relocation/touring parties do not offer.

The trade-offs of building Virtual Flagstaff over expanding in-person touring services lies mostly in the initial work load. The development of Virtual Flagstaff will take time and effort, however, once completed the application will require little maintenance. The web application will also require less work and resources than in-person tours would for scaling to other locations. Once the original application is built, scaling should be simpler since it only needs to build on top of an already established framework.

The alternative to Virtual Flagstaff was to continue with and expand on in-person touring services. Paddy decided to proceed with Virtual Flagstaff because it offers easier scaling for The Scouting Party business, it also provides more accessibility and experiences for the players.

Our web application can change how moving operates completely. Instead of physically demanding in-person tours or blind moves, prospective residents are able to explore cities online in any location. By touring through the game people are able to revisit locations and information on demand, they can also do a deeper dive into the area since they can spread their exploration across multiple days/weeks/months with no physical constraints on where and when they can visit.

Virtual Flagstaff addresses the problems that come up with in-person tours by providing accessibility to users and limiting seasonal constraints through easy and constant access. It manages scalability challenges by creating an easily scalable project rather than a complex physical in-person operation. Finally it allows for limitless engagement tools, whenever an idea for a tool comes up it can be implemented into the game.

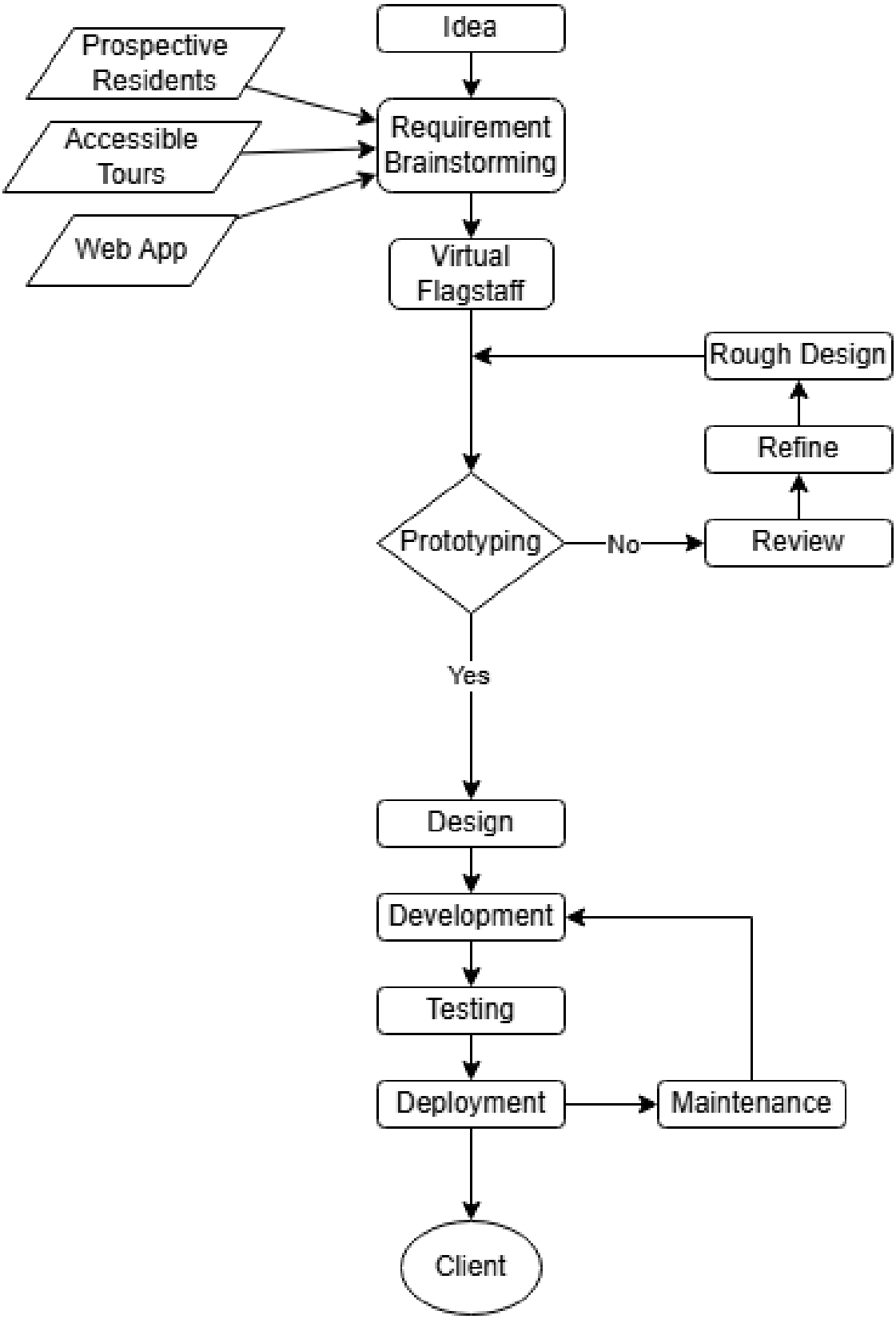


Figure 1: Work flow of the web application

IV. PROJECT REQUIREMENTS

This section will discuss the requirements of this project that will fulfill the solution vision that The Scouting Party would like to use to succeed in their market. Each subsection will discuss their respective requirements that can help determine the implementations of this project.

A. Domain-Level Requirements

This subsection will discuss the domain requirements of this project, where it can be generalized to see the big picture of the project.

The system is an interactive educational web application that helps users learn about Flagstaff's environment and culture through a weather-based, gamified interface. The application combines real-time data visualization with game mechanics and user persistence to promote engagement.

Domain-Level Requirements (DLRs):

- **DLR1:** The system shall provide real-time weather information for the Flagstaff area and visualize it interactively on a map.
- **DLR2:** The system shall include a playable, educational game centered on learning about Flagstaff.
- **DLR3:** The system shall support user accounts to enable personalized access and data storage.
- **DLR4:** The system shall save and restore user progress, ensuring continuous gameplay across sessions.
- **DLR5:** The system shall provide a smooth and responsive experience in gameplay and data visualization.

B. Functional Requirements

This subsection will discuss the technical requirements as some will display implementations of planned features of the project. The functional requirements are organized according to the MoSCoW prioritization method.

<u>Must Haves:</u>

- **US1: Gameplay**

As a user I would like to be able to have a fun and smooth gameplay experience while learning about Flagstaff.

Figure 2: Prototype of the gameplay

US1: The player character is moving with a confined space made of blocks in our Phaser game. Moving towards the blocks will eventually result in them colliding and the player will be unable to move any further.

- **US2: User Sign Up**

As a user, I would like to be able to sign up for a website to access personalized content and use features only accessible with an account.

Figure 3: Prototype of user sign up screen

US2: A screen pop up labeled “Sign Up” with user input for an email and a password. Pressing the button labeled “Create Account” will store the user's information into a database.

- **US3: Game Progress**

As a user, I want to be able to stop playing the game and resume whenever, so that I won't have to restart my progress each time.

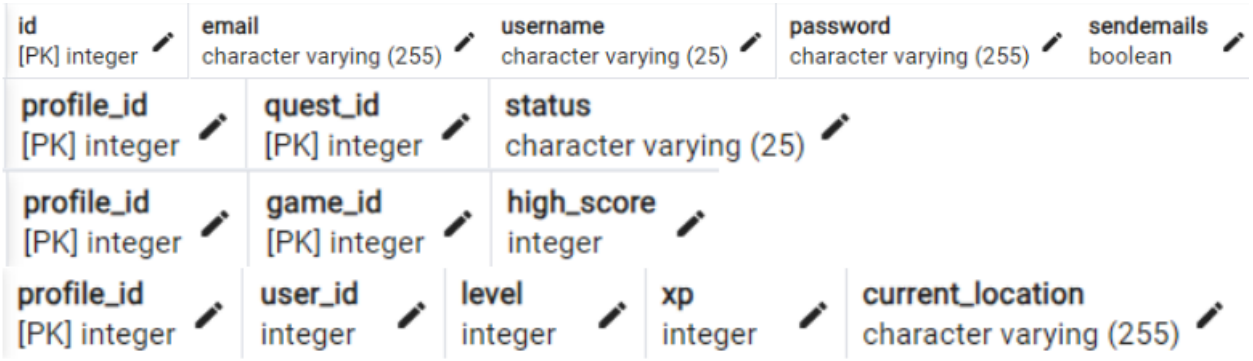
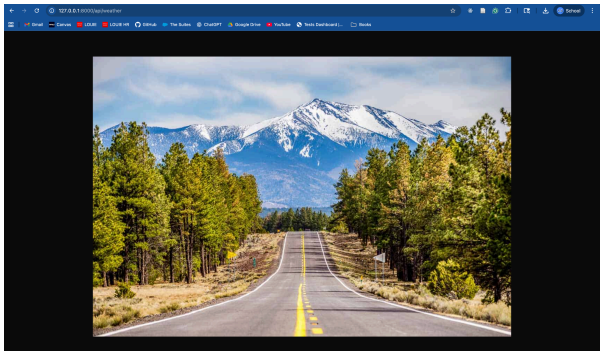


Figure 4: Prototype of tables that hold user's progress and info

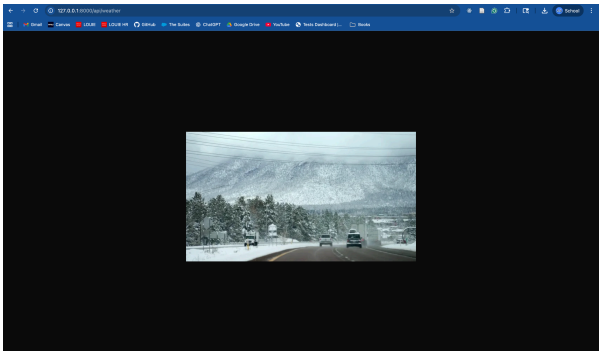
US3: Four tables in PGAdmin showing the data each table will hold. The data will be referenced to check player progress.

- **US4: Weather display**

As a user, I want to see the map's weather based on real-time weather in Flagstaff, so that I can see what the climate is like in Flagstaff.



(a) Sunny day in Flagstaff map



(b) Snowy day in Flagstaff map

Figure 5: Prototype of the map's weather based on "real-time" data in Flagstaff

US4: A map showing the current weather in Flagstaff. The weather should be displayed clearly.

<u>Should Haves:</u>

- **Main Quests**

Quests should be implemented for users to have a storyline and something to guide them through the game.

- **Contact Option**

There should be an option for users to accept receiving promotional emails from the Scouting Party as this allows our Client to approach new customers.

- **Game Scores**

Virtual Flagstaff should have game scores that users are able to view and improve on as this is a feature users expect from games.

- **Audio**

There should be audio in the game as this is another feature that players expect when playing a game.

- **New Zones**

Virtual Flagstaff should have new zones for players to explore in order to avoid players running out of locations to experience.

Could Haves:

- **Character Classes**

Virtual Flagstaff could have different classes that players can select to have a more personalized experience.

- **Side Quests**

Side quests could potentially be implemented into the game to allow the players to have more content to experience.

Won't Haves:

- **Required Log-in**

There will not be a requirement for users to log in as our client and team believe this may make some players avoid playing the game.

C. Performance (Non-Functional) Requirements

This subsection will discuss the performance requirements of the project to ensure we provide a smooth experience for future users.

- **PR1:** The map and weather data must update within 2 seconds of API data retrieval.
- **PR2:** Gameplay frame rate shall remain above 30 FPS during normal operation.
- **PR3:** User login and data retrieval operations must complete in under 1 second.
- **PR4:** The system should support at least 10 concurrent users without noticeable lag.
- **PR5:** The application interface shall be learnable within 5 minutes for a new user.

D. Environmental Requirements

This subsection will discuss the environment requirements of the project as it will help define a strong architecture of the project.

- **ER1:** The system shall be implemented using JavaScript (Phaser) for the game, PostgreSQL for data storage, and FastAPI (Python) for backend communication.

- **ER2:** The application shall be deployed on a web platform accessible via modern browsers (Chrome, Firefox, Edge).

- **ER3:** The system must use OpenWeatherMap API for real-time weather data.

- **ER4:** The development environment will use PGAdmin for database management.

- **ER5:** The system must comply with FERPA-like data protection policies for storing user accounts.

V. POTENTIAL RISKS

This section will discuss the potential risks of this project as a way for Peak Adventure Experiences to mitigate these for The Scouting Party to succeed within its market.

While developing Virtual Flagstaff, we understand that there are potential risks that can affect functionality, user trust, and overall success of the project. The potential risks associated with Virtual Flagstaff primarily involve user experience, data management, information reliability, and competition. Being able to assess these risks early can allow the team to plan mitigation strategies that will maintain user confidentiality while ensuring the system fulfills its purpose of helping potential customers make informed relocation decisions through engaging, accurate, and accessible experiences. To better understand and assess these risks we must look at the following potential risks:

- **Excessive Requests for User Information**

  Risk: Excessive requests for the users information may lead to concerns about privacy and security which may leave users feeling discouraged from engaging.

  Impact: Creating hesitancy could result in a reduction of overall participation, privacy conscious users may avoid account creation altogether.

  Mitigation: Focus on essential data such as username, email, and consent preference. Offer a guest mode and make privacy policies clear to the user about what data is being collected and how it is being used.

- **Overuse of Advertisements**

  Risk: Frequent or excessive placement of advertisements could break immersion and make the platform feel commercial rather than informative.

  Impact: Users who are seeking genuine relocation information may be driven away by what seems like a marketing gimmick rather than a helpful exploration tool.

  Mitigation: Integrate promotional content sparingly and in the right setting, such as through option NPC dialogue encounters in order to maintain a balance between engagement and advertisement.

- **Too Many Forced NPC or Other Interactions**

  Risk: Forcing players to engage with too many non-optional interactions may cause frustration and reduce replayability

  Impact: Forced interactions make the application feel restrictive and limits the players freedom for exploration.

Mitigation: Give the player the option to skip dialogue where needed and allow the player to explore alternative paths.

- **Providing Users with False or Outdated Information**

Risk: Providing the user with inaccurate or outdated information about Flagstaff's weather, neighborhoods, and community resources may mislead the user's decision to relocate to Flagstaff.

Impact: May lead to negative impact on The Scouting Party's credibility and user trust. Incorrect information may also lead to customer dissatisfaction or negative public feedback

Mitigation: Regularly update APIs and data sources. Ensure information is cross verified with reputable sources and assign content review responsibilities to a specific team member.

- **Lack of Player Engagement**

Risk: If the game design fails to capture player interest whether that be through poor visuals, unresponsive controls, or unappealing gameplay, the project may fail to fulfill its goal of engaging the user

Impact: A lack of engagement would cause fewer people to use the platform and make it less effective as a marketing tool

Mitigation: Conduct early user testing and collect user feedback. Improve on any existing design elements such as reward systems, interactive environments, and storytelling.

- **Overemphasis on Mini Games**

Risk: If users spend too much time on playing mini games, more focus may go into entertainment then learning more about Flagstaff. We want users to gravitate towards the project's educational intent rather than the entertainment aspect.

Impact: May potentially shift the project;s purpose away from relocation guidance towards pure entertainment.

Mitigation: Find the right balance between gameplay and information delivery. Incorporate educational aspects within mini games that reflect real Flagstaff experiences.

These risks reflect how Virtual Flagstaff must balance creativity with reliability. Some issues such as user engagement and data privacy are expected when developing an interactive web application, however identifying these problems early allows the team to plan for prevention rather than reacting to them later. The team can build trust with the user and ensure the platform fulfills its purpose by making relocation planning accessible, informative, and engaging.

VI. PROJECT PLAN

This section will discuss how Peak Adventure Experiences will work through these deliverables to create a working and sufficient product for The Scouting Party.

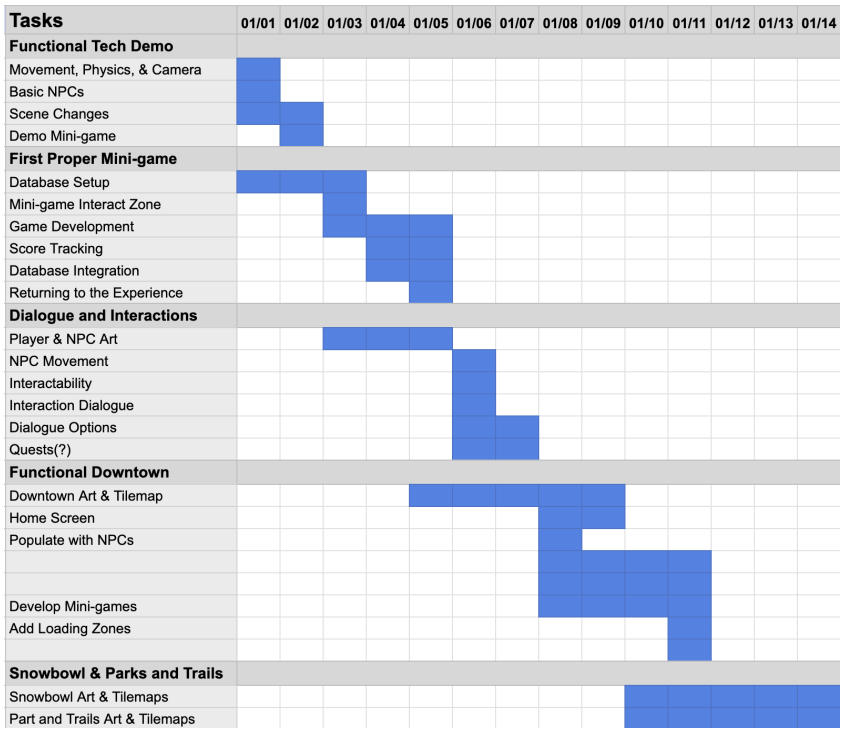


Figure 6: Gantt Chart

Here are our project's key milestones as we have identified them:

1) **Functional Tech Demo**

   This would include all the basic features such as movement, collision, NPCs, load zones, and a barebones basic minigame to prove that we can set up mini-games. This milestone proves the project's viability and allows us to continue without fear of catastrophic failure. Failure here means we have to go back and re-evaluate our technologies and goals.

2) **First Proper Mini-game**

   The first fully fledged mini-game will likely be the hardest, as we'll have to figure out a lot of functions we'll reuse for future mini-games such as: score tracking, leaderboard database integrations, rewards based on score, and scene switching.

3) **Dialogue and Interactions**

   During this phase we should develop the backbone of the experience, creating NPCs and the non-mini-game interactive parts of the game, such as NPC

dialogue. Here is also where finalized art should start being delivered, such as the Player and NPC art.

4) **Functional Downtown**

   Downtown represents what will likely be the biggest and most content dense area of our project. By now we should have a handful of min-games (3-5), fully interactive NPCs for players to interact with and learn from, and a large representative version of Flagstaff to roam and interact with. With this completed we should have confidence in our abilities to further expand downtown and to create the Snowbowl and Parks and Trails zones of the experience. The experience may be a little rough around the edges but should be mostly feature complete.

5) **Snowbowl & Parks and Trails**

   Snowbowl & Parks and Trails are the other two smaller sections of the experience, each of these zones should have 1-2 mini-games, creating a total range of 5-9 mini-games. These zones should be complete but still have some room for future expansion.

6) **Polished Experience**

   The last stretch of development here should be dedicated to polishing the experience and rigorously testing and debugging the total experience. By now the minimum viable product should be delivered and any content added should be to enrich the experience.

VII. CONCLUSION

In sum, relocating can be a stressful experience, especially considering the many factors that play into moving to a new location, that is why Virtual Flagstaff is such an important tool to build. Virtual Flagstaff allows people who want to relocate to establish confidence in their decisions and have as much information as they can before making their move.

Finding the time for touring and learning about a new place is hard and can be a commitment of its own on top of relocating. Our web application can solve this problem by offering a way to explore new locations without having to physically go there. There are many other problems besides accessibility that come up that Virtual Flagstaff is able to address, such as: the scalability of in-person operations, and the lack of engagement tools. An online web application such as this requires less labor and after the initial build offers a strong framework to build on top of when expanding. On top of that, Virtual Flagstaff allows for constant development of the required engagement tools into the game as users request them or developers find them necessary.

After this, we established the potential risks that come with the development of this project, doing so has helped us realize some of the things we need to do in order to mitigate these risks. Some of the risks included things like losing user interest, putting too much effort into one aspect of the game over another, providing poor quality information (false or outdated), and more. All of the listed risks can be avoided through diligent planning and development. Finally we came up with a project plan, doing so has allowed us to come up with a more structured plan for how we will proceed. We have identified some of the major features we want to develop along with when we want to have them developed by. Having set deadlines for certain features will allow us to develop efficiently and make sure we stay on track and can provide a well built product on time.

Now that our team has recognized some of the problems we might face during development as well as the risks that might arise after deployment, we are able to carry out our project with more care and mindfulness so that we can create the utmost quality build of Virtual Flagstaff that we are able to.

References

[1] J. Dunaway-Seale, “2025 data: 70% of Americans have regrets about moving,” Anytime Estimate, https://anytimeestimate.com/research/moving-trends-2025/.