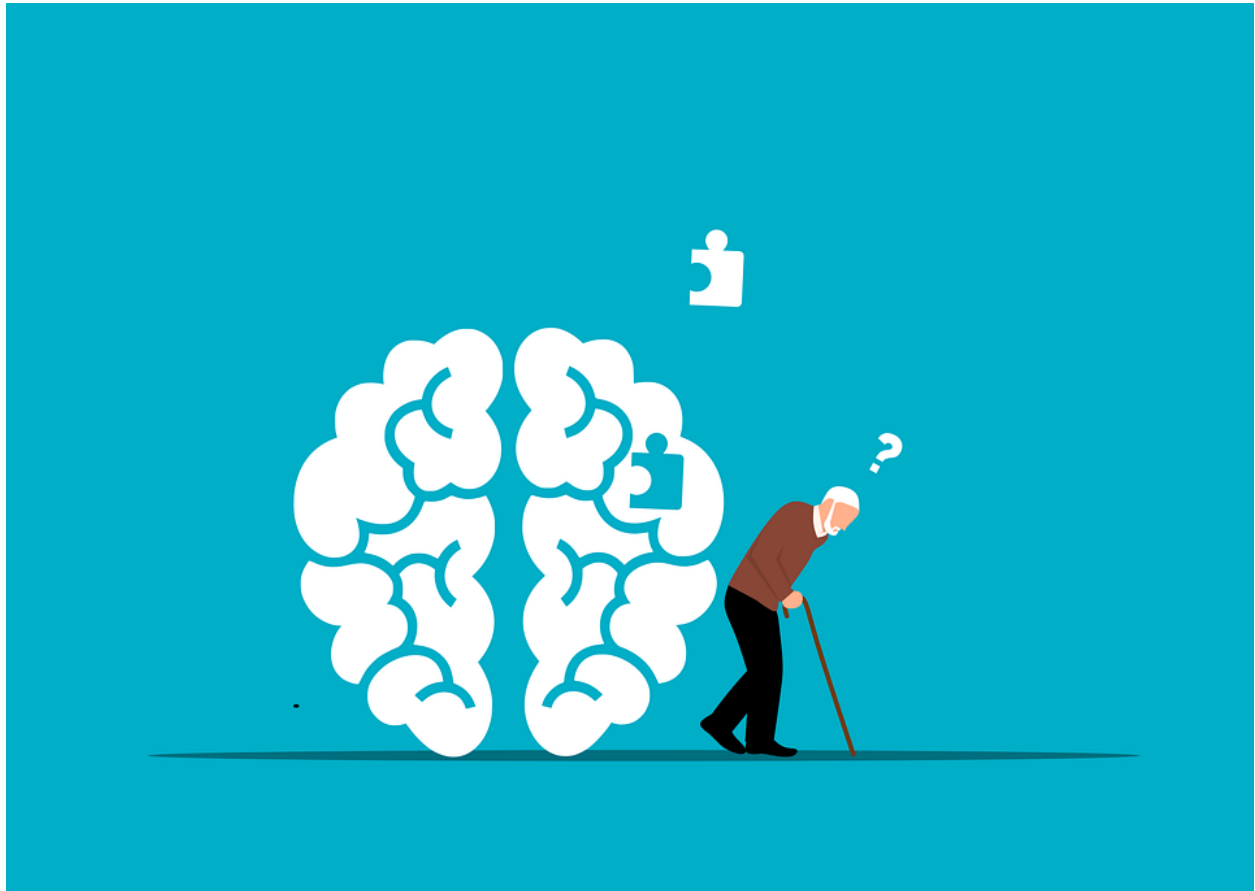


Alzheimer's Awareness Crypto Game



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for use in CS 440
at the
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I Project Description

1 Project Overview

Our application, Alzheimer's Awareness Crypto Game, will be a video game that brings awareness to Alzheimer's and Dementia. This will benefit the non-profit Alzheimer's Association and support its mission to cure/treat people suffering from Alzheimer's or Dementia by accelerating research, driving risk reduction and early detection, and maximizing quality care and support.

The Application will consist of 3 parts. An Alzheimer's Simulation Game where the user will experience what it is like to have Alzheimer's disease. An Alzheimer's Learning Mode where the user can learn about Alzheimer's and the latest research into this disease. A Cryptocurrency Mining Mode where the user (with their permission) can generate crypto that will be donated to support the Alzheimer's Association.

2 The Purpose of the Project

The main purpose of this project is to help grow awareness and donations for the Alzheimer's Association. While raising awareness does help the Alzheimer's Association become more well-known and therefore bringing it to the attention of more potential donors, we believe that giving everyday users the option to generate funds for Alzheimer's research would make a significant impact on donations given.

2a The User Business or Background of the Project Effort

The Alzheimer's Association is working towards finding a way to end Alzheimer's and other dementias through research and early detection, while also seeking to give quality care and support to patients and families. One aspect of the agency is its awareness initiatives. Early detection is very important and easier when more people know the signs of the disease.

Furthermore, as a non-profit organization, they are always seeking donations to drive their research and patient support. Unlike other companies, they are very open about where their dollars are being spent, and they have pledged to work with ethical companies and maintain their independence by not allowing other agencies or donors to sway any sort of the decision-making process.

2b Goals of the Project

We want to provide a convenient way for the average person to donate to the association without having to delve into their own pockets. Another goal of ours is to bring awareness to Alzheimer's Disease and make learning about it and the warning signs easier and more enjoyable to learn.

2c Measurement

On the website for the association and also in the game, we would like to show a ticker displaying the amount of crypto and dollars raised throughout the year. As well as a public Budget sheet to see how that currency was spent by the Alzheimer's Association.

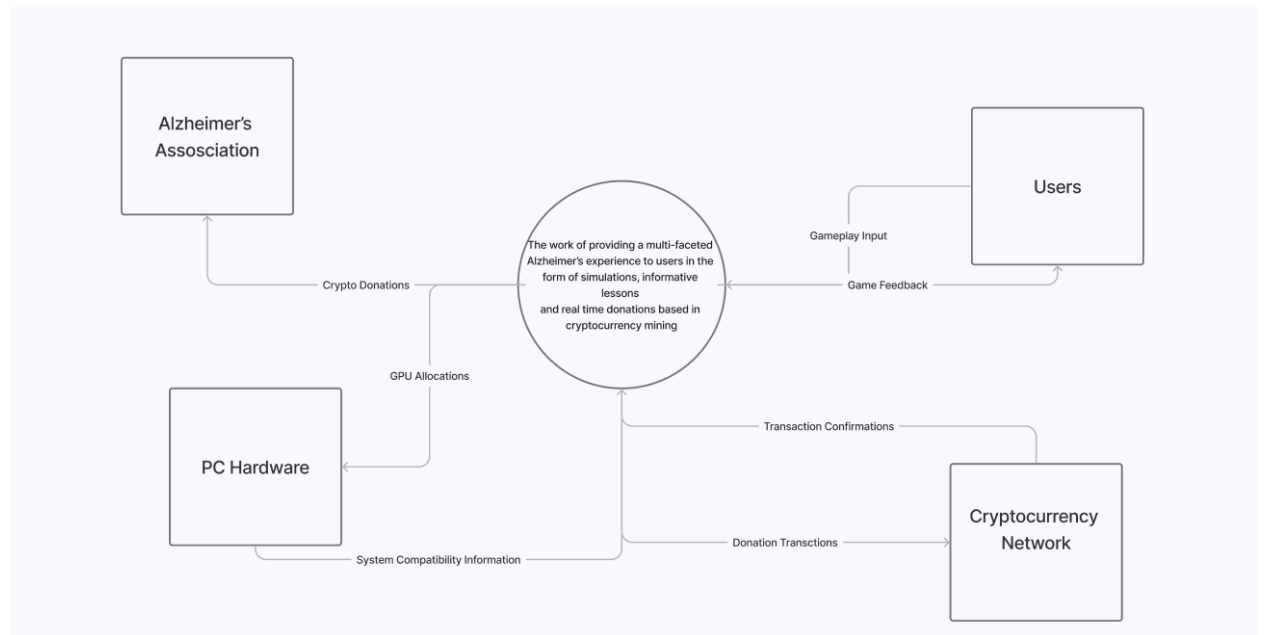
3 The Scope of the Work

The work would be described as community outreach and education with a hassle-free way to seek donations as well.

3a The Current Situation

Currently, the client is conducting this work through their website, alz.org, utilizing reading and fact pages as well as YouTube videos.

3b The Context of the Work



3c Work Partitioning

<i>EVENT NAME</i>	<i>INPUT/OUTPUT</i>	<i>SUMMARY</i>
User selects simulation	User selection (in), Sim environment (out)	Load selected simulation
User completes lesson	Completion Data (in), Updated dashboard (out)	Update user “XP” and show harder lessons
User mines crypto	Wallet fund increase (out)	Update total crypto mined
User donates crypto	Transfer funds from user wallet (out)	User wallet funds routed to beneficiary wallet
User defined duration to mine crypto is reached	Terminate mining process (in/out)	Synopsis of Mining session displayed (total crypto mined, estimated electricity bill, etc.)
User schedules automatic donations	Transfer funds from user wallet at scheduled time (in/out)	User wallet funds routed to beneficiary wallet at regular intervals
User fails task in simulation mode	Task result (in)	Provide feedback and options

Table 1 - Work Partitioning

3d Competing Products

As far as we are aware there aren’t any products that compete with ours at all. The only other games we can find are made for patients themselves to help with their cognitive decline.

4 The Scope of the Product

The work to be handled by the proposed product is the Simulation Mode, Learning Mode, and Mining Mode. The Simulation Mode will be a simulation of what it is like to live with Alzheimer’s disease, the Learning Mode will be an area for users to develop their understanding of Alzheimer’s disease and topics surrounding it, and the Mining Mode will allow users to generate funds for the Alzheimer’s Association as donations.

4a Scenario Diagram(s)

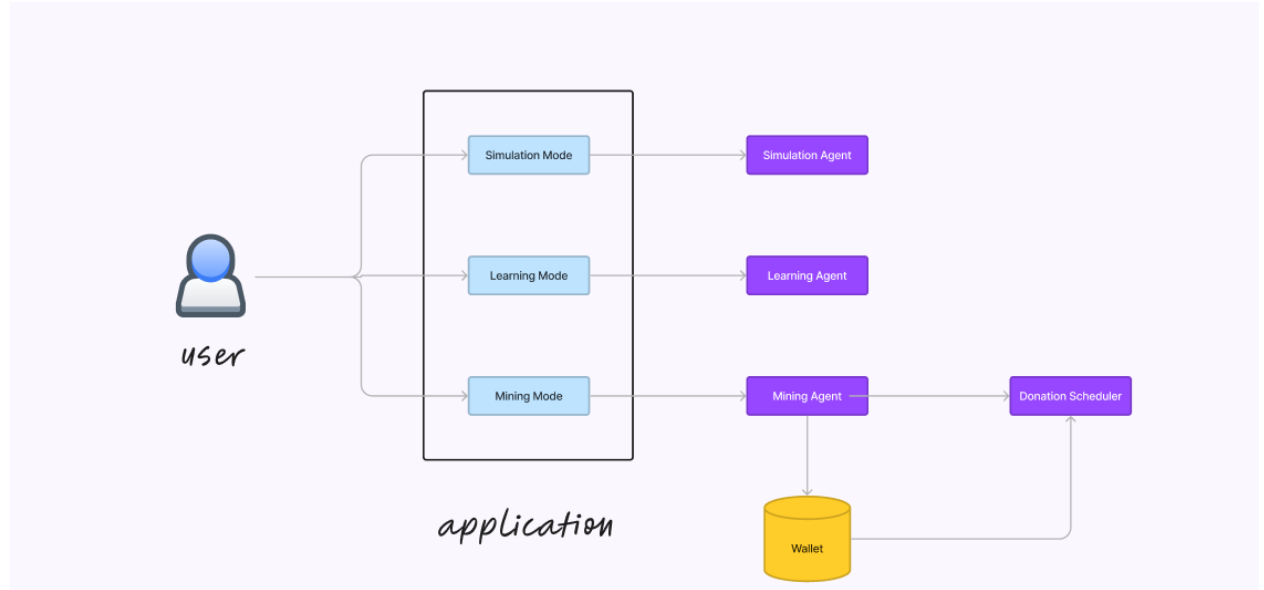


Figure 2: Scenario Diagram

4b Product Scenario List

<i>Scenario Name</i>	<i>Participating Actors</i>
<i>Alzheimer's Simulation Mode</i>	<i>Alzheimer's Awareness Crypto Game users</i>
<i>Alzheimer's Learning Mode</i>	<i>Alzheimer's Awareness Crypto Game users</i>
<i>Crypto Mining Mode</i>	<i>Alzheimer's Awareness Crypto Game users</i>

Table 2 - Product Scenario List

4c Individual Product Scenarios

- Alzheimer's Simulation Mode: The player initiates this mode by selecting it from the main menu. The system explains what this mode is about and instructions on how to navigate the simulation. After the player has understood the instructions, they will be able to navigate the simulation via keyboard/controller input and be able to interact with the game world environment.
- Alzheimer's Learning Mode: The system displays an opening screen explaining the educational purposes of this mode to the player. The player can navigate through different sections such as: "What is Alzheimer's?", "How to support someone with Alzheimer's?", etc.

- **Crypto Mining Mode:** Upon entering this mode, the system explains that any mined currency will automatically be donated. The user can then select how many GPUs they want to use, how long they want the miner to run, and other settings. The system starts the mining process, displaying a counter of the amount mined.

5 Stakeholders

5a The Client

The client for this application will be the Alzheimer's Association. They'll work closely with the developer team to ensure that their guidelines are met with the final product. With the cooperation of this non-profit organization, their goals of spreading awareness of the disease will be met.

5b The Customer

Upon completion of the application, the customers will be any Online Video Game Distributors such as Steam, Epic Games Store, iOS App Store, or Google Play Store. With the application being on these Game Distribution platforms, the entire product will be seen by more users.

5c Hands-On Users of the Product

The users of this application could be anyone with an applicable machine and access to Steam or another gaming client as well as anyone with an interest and a smartphone. The target demographic is ideally every human on earth so that education on the topic can be as widespread as possible.

5d Maintenance Users and Service Technicians

Installation of the game will be handled by the user themselves. Maintenance will be handled by the updates team who will handle server upkeep and any changes to what crypto is being mined as requested by the client.

5e Other Stakeholders

Other stakeholders that this application would need to include would be:

- **Testers**
 - Testers will be needed in being in the place of the user during development. They will need skills in debugging and test cases to provide technical feedback with the developing application.
- **Marketing**
 - To ensure the application brings more Awareness to Alzheimer's, a team of individuals with experience in advertising or who have high influence on the market will be needed to accomplish this goal. They will need to be proficient in using Social Media and other Marketing tools.

5f User Participation

Users can participate in various alpha/beta tests of the game if enough of the application has been implemented so as to be playable. Upon their participation, they can provide feedback and criticism to the application before the final product is pushed out.

5g Priorities Assigned to Users

The key users for this application will be younger avid video game players who want to support the Alzheimer's Association or learn more about Alzheimer's and how detrimental the disease is. The secondary users will be other video game players who are just looking for a new game to play. They may or may not care about the cause, but with their help, they are still able to support it via the Crypto Miner. The unimportant users will be people who do not play/like video games or are not skilled in Computers/Technology. This application is more tailored to the user group that enjoys playing video games.

6 Mandated Constraints

6a Solution Constraints

Description: The final product will be a desktop application that can run on a PC as well as a mobile application.

Rationale: The crypto miner will need to be run on a robust system more advanced than a mobile device, however, a slimmed-down version of the game being available for mobile users will allow a wider audience to be reached.

Fit Criterion: The game must be available for download online or from other game clients such as Steam as well on the Apple App Store and Google Play.

Description: The crypto miner needs to take precedence over other processes on the machine.

Rationale: The bread and butter of the system is the crypto miner, without that client will be missing out on valuable donations. If the game will only run on extremely robust machines then the education of as many people as possible will be hindered.

Fit Criterion: Playing the game modes can't be too taxing on the system so as to take away from the crypto miner, or too demanding overall so that users with average pc specs are prohibited from playing.

Description: Wallet security concerns.

Rationale: If a hacker gains access to the crypto wallet or otherwise diverts the crypto from ending up in the correct place, half of the client's expectation from the application will be unfulfilled.

Fit Criterion: Security experts will need to be hired along with special clearance for devs working on specific aspects of the application.

6b Implementation Environment of the Current System

The product will be designed to work as a desktop application catering to PC users as well as a slimmed-down version for mobile users. The product will run on all major PC operating systems as well as all major mobile platforms.

6c Partner or Collaborative Applications

This product must be compatible with the current Unity Engine.

6d Off-the-Shelf Software

There is no commercial off-the-shelf (COTS) software that must be included in the final product.

6e Anticipated Workplace Environment

Content

The product is designed to be used anywhere a PC or mobile device can be used.

Motivation

The client wants as widespread use of the application as possible so constraints on ability of use must be minimalized as much as possible.

Examples

Power consumption might be greater due to the miner and needs to be explained to the user.

6f Schedule Constraints

There are not any deadlines unless given by the client.

6g Budget Constraints

Since the product will essentially be handling money it will be in the team's best interest to create a high-quality product using skilled security experts. The only budget constraint would be the expected salary of the development team for the expected development timeframe.

7 Naming Conventions and Definitions

7a Definitions of Key Terms

Alzheimer's: A progressive neurodegenerative disorder characterized by a decline in cognitive functions.

Cryptocurrency: A digital currency in which transactions are verified and records maintained by a decentralized system.

Coins: A digital currency native to its blockchain, storing value and acting as a medium of exchange.

Blockchain: A decentralized and public ledger which is used to record transactions between different computers.

Mining: the process used to generate new cryptocurrency coins and verify new transactions.

7b UML and Other Notation Used in This Document

The Report follows the Version 2.0 OMG UML standard, as described in, M. Fowler, UML Distilled, Third Edition, Boston: Pearson Education, 2004. Exceptions are noted in their given cases.

7c Data Dictionary for Any Included Models

Due to the nature of this application being a video game, there are no included models needed at the moment.

8 Relevant Facts and Assumptions

8a Facts

6.7 million Americans are living with Alzheimer's and that number is expected to increase to 13 million by 2050.

Alzheimer's and other dementias will cost the US \$345 billion in 2023 rising to \$ 1 trillion by 2050.

8b Assumptions

Assuming users have basic computer proficiency.

Assuming developers will be able to code in necessary environments.

Assuming the cryptocurrency is still available to mine.

Assuming users will have devices that meet our minimum requirements.

II Requirements

1 Product Use Cases

1a Use Case Diagrams

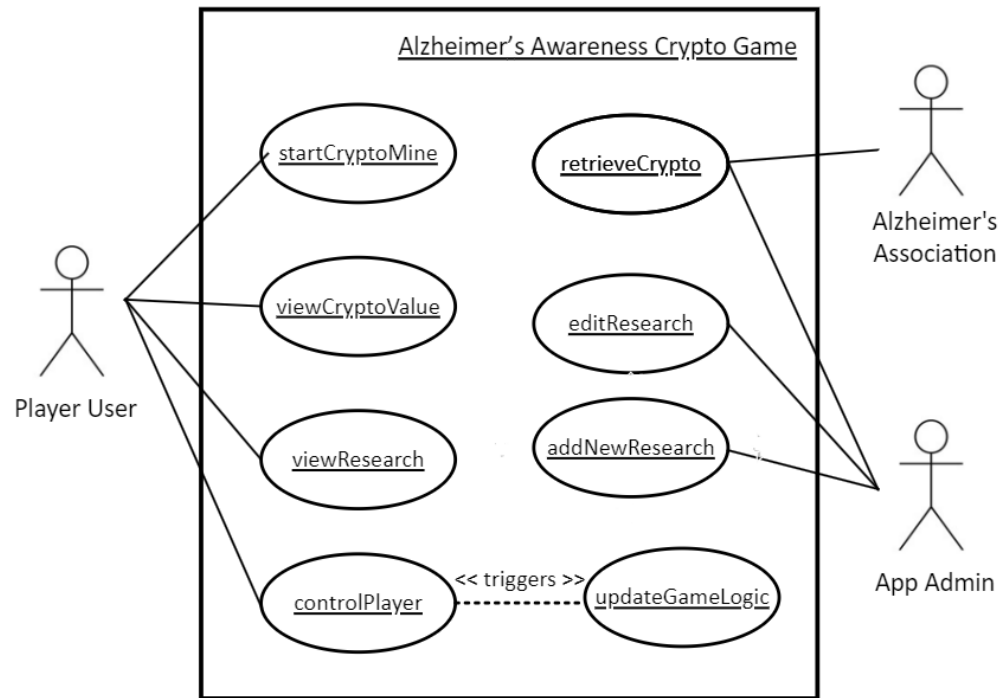


Figure 3 - Use Case Diagram of Alzheimer's Awareness Crypto Game

1b Product Use Case List

Use Case Name	Description	Participating Actors
controlPlayer	This case is to host the inputs associated with the game section of the game.	Player User
updateGameLogic	This case is triggered by the controlPlayer case, where it updates the game logic/environment to reflect the user's choices.	Player User (indirect)
viewResearch	This case is to host all different research articles and information on Alzheimer's that is held in the system's database.	Player User
startCryptoMine	This case is to inform the user about the Crypto Mining and to start the mining on their personal computer.	Player User
viewCryptoMine	This case is to visually show how much crypto was mined on their computer and was donated to the Organization.	Player User
retrieveCrypto	This case is to direct all crypto that was generated by User's computer to a ledge for the Alzheimer's Association.	App Admin, Alzheimer's Association
editResearch	This case is to allow the Admin to delete or edit existing research articles that are currently on the system's database.	App Admin
addNewResearch	This case is to allow the Admin to add new research articles into the app's database for the User to see in the viewResearch.	App Admin

Table 3 - Use Case List of Alzheimer's Awareness Crypto Game

1c Individual Product Use Cases

- controlPlayer
- updateGameLogic
- viewResearch
- editResearch
- addNewResearch
- viewCryptoMine
- startCryptoMine
- retrieveCrypto

Use case ID: 001

Name: controlPlayer

pre-conditions: The Player User selects 'Play Game' Button.

post-conditions: NA

Initiated by: Player User

Triggering Event: updateGameLogic

Additional Actors: NA

Sequence of Events:

1. Player User moves the character to initiated the game logic
2. System gives a task for the Player User to complete.
3. Player User will move in the environment, interacting with the objects
4. System response will have various negative effects on the Player simulating Alzheimer's disease.
5. Player User will continue playing until they complete the task or select the give up button.
6. System will display whether the user succeeded or not, and prompt them to play again.

Alternatives: NA

Exceptions: The user will be familiar with the general inputs of the game system.

Figure 4 - Individual Product Use Case of controlPlayer

2 Functional Requirements

ID#001 - Game Interaction

Description: This covers the game's interface allowing the user to actually play.

Rationale: Without a functioning playable game the application loses purpose.

Fit Criterion: Does the game run correctly without crashing or unexpected behavior.

Acceptance Tests: Game State.

ID#002 - Viewing Research

Description: Shows the user what research the Institute is currently working on.

Rationale: Gives a face to what the user is helping the Institute with by playing the game therefore giving meaning to the applications usage.

Fit Criterion: Is the research being displayed the most updated information?

Acceptance Tests: Institute Test.

ID#003 - Start/View Crypto Mining

Description: Shows the user if the miner is running.

Rationale: If the miner isn't running then the application's purpose is reduced in the eyes of the Institute.

Fit Criterion: Is the miner actually running and updating information?

Acceptance Tests: Miner Running.

3 Data Requirements

ID#004 - Crypto Address

Description: The address where all the cryptocurrency will be deposited to.

Rationale: There needs to be an address stored in order to have somewhere to put the mined currency.

Fit Criterion: Must be a valid address for mining the cryptocurrency.

Acceptance Tests: Address Format.

4 Performance Requirements

4a Speed and Latency Requirements

ID#005 - Game section

Description: The smoothness of the game as a user plays it.

Rationale: We need a standard playability level to the game portion so users feel satisfied.

Fit Criterion: Must be able to run at least 60 frames per second on medium settings.

Acceptance Tests: Game Smoothness.

4b Precision or Accuracy Requirements

ID#006 - Alzheimers Game

Description: How precise the game is to simulate Alzheimer's disease.

Rationale: It's important for the game to give a mostly realistic simulation to how Alzheimers feels.

Fit Criterion: Must be approved by an expert in Alzheimer's disease.

Acceptance Tests: Game Pass/Fail.

4c Capacity Requirements

ID#007 - Simultaneous Users

Description: How many users this product can handle simultaneously.

Rationale: We don't need to keep track of simultaneous users as each instance of the product is local.

Fit Criterion: The product must be able to support 1 user locally on a machine.

Acceptance Tests: Single User Operate.

5 Dependability Requirements

5a Reliability Requirements

ID#008 - Cryptomining

Description: How reliably a user can mine cryptocurrency.

Rationale: A user must be able to mine reliably so that maximum donations go to the Alzheimer's Association.

Fit Criterion: A user must be able to mine 99% of the time without interruption.

Acceptance Tests: Miner Reliability.

5b Availability Requirements

ID#009 - Availability of Product

Description: Can the user use the product?

Rationale: The user must be able to use the product so they can learn and donate.

Fit Criterion: The user must be able to operate the product reliably 99% of the time they open it.

Acceptance Tests: Product Availability.

5c Robustness or Fault-Tolerance Requirements

ID#010 - Cryptocurrency service down

Description: This describes if for any reason mining cryptocurrency fails.

Rationale: There are more parts to our product than just cryptocurrency so we can use the other parts.

Fit Criterion: Must be able to play the game and use the learning section while mining cryptocurrency is unavailable.

Acceptance Tests: Non-Miner Functionality.

5d Safety-Critical Requirements

ID#011 - Mining Safety

Description: Make sure that the user's machine is protected while mining cryptocurrency.

Rationale: We don't want mining cryptocurrency for Alzheimer's to be a risk to the user's machine.

Fit Criterion: Cannot overheat or create vulnerabilities in the user's machine.

Acceptance Tests: Temperature Test , Vulnerability Test Suite.

6 Maintainability and Supportability Requirements

6a Maintenance Requirements

ID#012 - Updates

Description: How updates will be handled moving in the future.

Rationale: It's important to think about how we are going to improve the product through updates in the future.

Fit Criterion: It must be easily updated through a service like Steam.

Acceptance Tests: Update Test.

6b Supportability Requirements

ID#013 - Discord Server

Description: The discord server will be a place for users to join for free and ask questions or get support.

Rationale: Discord is a free to use service that will lower our operating costs and also allow us to build a closer connection with our community.

Fit Criterion: Must be a functioning discord server where users can get help with their problems.

Acceptance Tests: Discord Server Test.

6c Adaptability Requirements

ID#014 - PC

Description: The product must be able to be played on PCs.

Rationale: It is most common to mine cryptocurrency on PCs and it is unknown if there will be future problems if we use a console to mine cryptocurrency.

Fit Criterion: Must be playable on any PCs.

Acceptance Tests: PC Spec Test.

6d Scalability or Extensibility Requirements

ID#015 - Scalability

Description: How big do we need to scale this product?

Rationale: This product only needs to be available to run locally and how many users there are does not affect the product.

Fit Criterion: The product must be able to run on PCs locally.

Acceptance Tests: Scalability Test.

6e Longevity Requirements

ID#016 - Alzheimers Game

Description: How accurate the facts and relevant information are.

Rationale: As time progresses so does understanding of diseases, meaning eventually there will be more to learn about Alzheimer's disease.

Fit Criterion: Must be the most up to date facts about Alzheimer's disease at the time of updates.

Acceptance Tests: Information Test.

7 Security Requirements

7a Access Requirements

ID#017 - Access to Product

Description: Who can access the product and what sections.

Rationale: Any user can access any part of the product as it is made to be available for all ages.

Fit Criterion: The product must be available for all ages.

Acceptance Tests: Access Test.

7b Integrity Requirements

ID#018 - Cryptocurrency Wallet

Description: Where the mined cryptocurrency is stored.

Rationale: We need to protect the address so that the mined currency is always being sent to the right location.

Fit Criterion: Protect the cryptocurrency address in a file and backup file.

Acceptance Tests: Address Recovery Test.

7c Privacy Requirements

ID#019 - User Privacy

Description: How we handle the user's privacy data.

Rationale: We do not ask the user for any personal information so we have nothing to protect.

Fit Criterion: Make sure that the user does not provide any personal information to be stored.

Acceptance Tests: Privacy Test.

7d Audit Requirements

ID#020 - Cryptocurrency Mined

Description: A count of how much cryptocurrency is mined by the user.

Rationale: For the user's reference it is good to keep track of how much was donated to the cryptocurrency wallet.

Fit Criterion: Make sure that the count is working properly locally for the user's discretion.

Acceptance Tests: Currency Count Test.

7e Immunity Requirements

ID#021 - Vulnerability Resistance

Description: How our product will protect against malicious actors.

Rationale: We need to make sure that the product does not open doors for malicious actors to gain access to the user's machine.

Fit Criterion: Make sure no vulnerabilities can be exploited to gain access to the user's computer.

Acceptance Tests: Vulnerability Test Suite.

8 Usability and Humanity Requirements

8a Ease of Use Requirements

ID#022 - Intuitive Interface

Description: The system must provide an intuitive interface with clear instructions and easily identifiable controls for all 3 application modes

Rationale: An intuitive interface will reduce the learning curve for users and enhance user satisfaction

Fit Criterion: 90% of users should be able to complete primary tasks without consulting the help guide or FAQ. The 10% that cannot should be able to after consulting the guides.

Acceptance Tests: Usability test

8b Personalization and Internationalization Requirements

ID#023 - Multi-Currency Support

Description: The system must allow users to select and display prices in their preferred currency. It should support real-time currency conversion and be able to fetch the latest exchange rates

Rationale: To cater to a global audience and allow users to make transactions in a currency they are familiar with. This fosters trust and increases user satisfaction.

Fit Criterion: The system should support at least ten major global currencies and reflect current exchange rates

Acceptance Tests: Conversion Check

8c Learning Requirements

ID#024 - Learnability

Description: The system should offer interactive tutorials for first-time users.

Rationale: Interactive tutorials will expedite the learning process and improve user retention.

Fit Criterion: New users should be able to complete a primary task within 10 minutes after going through the tutorial.

Acceptance Tests: Help Test

8d Understandability and Politeness Requirements

ID#025 - Clear Messages

Description: The system's messages, prompts, and notifications should be concise and easy to comprehend.

Rationale: Clear communication prevents user confusion and ensures they can use the system effectively.

Fit Criterion: There are no grammatical or wording issues with any text in the system.

Acceptance Tests: Message Test.

8e Accessibility Requirements

ID#026 - Cognitive Friendly Interface

Description: Although the app is not targeted directly to Alzheimer's patients as users, the system should incorporate design principles tailored for individuals with Alzheimer's, such as simple layouts, clear icons, large fonts, consistent navigation patterns, and easily distinguishable buttons.

Rationale: In case somebody with Alzheimer's decides to use this app to see what it is about, they should be able to have ease of use.

Fit Criterion: The majority of users with Alzheimer's should be able to perform basic tasks on the system without external assistance, and user testing should confirm an intuitive experience for this target group.

Acceptance Tests: Cognitive Test.

8f User Documentation Requirements

ID#027 - Comprehensive User Guide

Description: The system must come with a detailed user guide, explaining all features and functionalities.

Rationale: A user guide provides a reference for users and reduces the need for customer support interventions.

Fit Criterion: The guide should cover 100% of the system's functionalities.

Acceptance Tests: Usability Test

8g Training Requirements

ID#028 - Video Tutorials

Description: The system should offer video tutorials covering the crypto wallets/donations.

Rationale: Video tutorials can visually guide users, making it easier for them to understand how the wallet works.

Fit Criterion: The video should go step-by-step on how the crypto wallet/donation works.

Acceptance Tests: Tutorial Test.

9 Look and Feel Requirements

9a Appearance Requirements

ID#029 - Control Feel

Description: The system must have smooth and user friendly controls so when the user interacts with the application they spend less time on learning and more time on playing the game.

Rationale: User's will likely stop playing a game if the controls are very odd and not easy to learn, and this must be avoided.

Fit Criterion: The application must be developed with controls that have been tested thoroughly by the developers and testers as well.

Acceptance Tests: Control Feel Test

9b Style Requirements

ID#030 - Color Imaging

Description: The system must have friendly color imaging throughout all sections of the application. These color imaging will be the contrast, saturation, and brightness of all assets in the application.

Rationale: All types of users are welcoming to the application. To better hit a wider audience the coloring must be associable and make game objectives clear.

Fit Criterion: The application is to maintain high contrast between objects that are interactable and that are not. Moreover, to make sure everything is readable and visually appealing.

Acceptance Tests: Color Test

10 Operational and Environmental Requirements

10a Expected Physical Environment

The product will be used by anyone with access to a desktop and digital distribution service like Steam. Strong wifi connection will be required for accessing the block chain, and large power capabilities as well.

ID#031 - Platforms

Description: The user can be anywhere with a desktop where downloading software is acceptable, generally their own home.

Rationale: The only socially acceptable place to download and play a game is the users home.

Fit Criterion: The user needs to download the application and use quite a bit of power to run the miner.

Acceptance Tests: Platform Test.

10b Requirements for Interfacing with Adjacent Systems

The application will need to interface with blockchain in order to mine while it is running. It will also need to connect with the Alzheimer's Institutes website in order to show what research is being done.

ID#032 - BlockChain

Description: The application will be compatible with the block chain.

Rationale: Without access to and compatibility with the block chain the application wouldn't be able to mine.

Fit Criterion: The block chain must be accessible at all times.

Acceptance Tests: BlockChain Test.

10c Productization Requirements

The product will be distributed by any digital storefront like Steam or Epic Games.

ID#033 - Steam

Description: Using the Steam client will allow users to download the Application by searching and then selecting the product.

Rationale: The steam website is easily accessible by anyone with internet connection, or by downloading the steam application.

Fit Criterion: This is the simplest way to distribute large scale games/applications.

Acceptance Tests: Steam Store Test.

10d Release Requirements

ID#034 - Biannual updates

Description: The Alzheimer's Awareness Crypto Game should be updated biannually, incorporating the latest research on Alzheimer's, improvements in the simulation, and enhancements to the cryptocurrency mining mode

Rationale: Continual updates ensure the information provided in the learning mode remains current, keeping users engaged with the latest findings about Alzheimer's. Additionally, technology and crypto algorithms evolve and regular updates would ensure optimal and secure performance.

Fit Criterion: Each release should include at least one significant feature addition or improvement in the Alzheimer's Simulation Game or Learning Mode. The Cryptocurrency Mining Mode must undergo compatibility and security checks to ensure it's using up-to-date and secure algorithms.

Acceptance Tests: Update Test.

11 Cultural and Political Requirements

11a Cultural Requirements

ID#035 - Culture Localization

Description: The system must take into consideration the culture and language of the country that the product is being used in. The application must be accessible to all groups of people from all different cultural backgrounds.

Rationale: Since video games are very popular around the world, a lot of the users will be from different countries and localization will be adhered to accomplish this.

Fit Criterion: There will be a localization team for all different regions of the world that will change text and inputs to fit the given region the product is being used in.

Acceptance Tests: Localization Test

11b Political Requirements

ID#036 - Political Friendliness

Description: The system must be aware of the political surrounding of the world before the release of the product. The application must be inoffensive to the user and the development team, and should be enjoyable.

Rationale: Considering the diversity of the user group, the user should be enjoying the application and not feel uncomfortable using it.

Fit Criterion: The development team must be accountable for being aware of the political environment of the world when developing the application.

Acceptance Tests: Political Test

12 Legal Requirements

12a Compliance Requirements

ID#037 - Fundraiser Needs

Description: The System's Cryptominer and all funds generated from the user's Computer must comply with the Illinois Charitable Trust Act in order to preserve the integrity and legality of the Alzheimer's Association.

Rationale: Users should be able to generate crypto that will be given to the Alzheimer's Association with no malicious intent hindering the user's wishes.

Fit Criterion: The persons that will be able to access the crypto funds will only be high standing in the Alzheimer's Association or the development team that is aware of the seriousness with these funds and the consequences with violations of the Charitable Trust Act.

Acceptance Tests: Fundraiser Test

12b Standards Requirements

ID#038 - Standards

Description: The standard that the system must follow for this project is to adhere to what the user expects from the application from the marketing of the product.

Rationale: When the user uses our product, they must understand what the application does before they download it onto their personal computer.

Fit Criterion: The functionality and the features of the application will be posted clearly during the marketing process of the product that doesn't have any areas of confusion of what the user is buying.

Acceptance Tests: Legal Standards Test

13 Requirements Acceptance Tests

13a Requirements – Test Correspondence Summary

Test	Requirements																																						
	Req 1	Req 2	Req 3	Req 4	Req 5	Req 6	Req 7	Req 8	Req 9	Req 10	Req 11	Req 12	Req 13	Req 14	Req 15	Req 16	Req 17	Req 18	Req 19	Req 20	Req 21	Req 22	Req 23	Req 24	Req 25	Req 26	Req 27	Req 28	Req 29	Req 30	Req 31	Req 32	Req 33	Req 34	Req 35	Req 36	Req 37	Req 38	
Test 1	X																																						
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Table 1 - Requirements - Acceptance Tests Correspondence

13b Acceptance Test Descriptions

ID #001 - Game State

Description: Tests to check if the game is running properly.

ID #002 - Institute Test

Description: Tests connection to the Institutes website.

ID #003 - Miner Running

Description: Tests to make sure the miner is running.

ID #004 - Address Format

Description: Check if address is formatted correctly and the correct length.

ID #005 - Game Smoothness

Description: Test game on medium settings on the recommended hardware for frames per second.

ID #006 - Game Pass/Fail

Description: Send the game to an Alzheimer's disease professional to get a fail or pass.

ID #007 - Single User Operate

Description: Test to see if a single user may operate the product on a machine.

ID #008 - Miner Reliability

Description: Test to see if a user can mine for 99% of the day

ID #009 - Product Availability

Description: Test to see if the user can access the product 99% of the time randomly throughout a week.

ID #010 - Non-Miner Functionality

Description: Test to see if game and learning sections work if cryptocurrency cannot be mined.

ID #011 - Temperature Test

Description: Test the machine temperature.

ID #012- Vulnerability Test Suite

Description: General vulnerability testing.

ID #013 - Update Test

Description: Test updating the game through a service like Steam.

ID #014 - Discord Server Test

Description: Test out using the discord server and example problems.

ID #015 - PC Spec Test

Description: Run the product in its entirety on a couple different PCs.

ID #016- Scalability Test

Description: Test if the PCs can run the game locally.

ID #017 - Information Test

Description: Have an Alzheimer's specialist look at facts and provide the relevant information we have in the current day.

ID #018 - Address Recovery Test

Description: Test accidental deletion and recovery of cryptocurrency address.

ID #019 - Currency Count Test

Description: Test to see if the currency mined equates to the amount shown.

ID #020 - Usability Test

Description: Tests the applications ease of use.

ID #021 - Conversion Check

Description: Checks that the current conversion rate being used is correct.

ID #022 - Help Test

Description: Tests to make sure that the tutorials are functioning properly.

ID #023 - Control Feel Test

Description: Tests the controls with test users to see their opinion on controls.

ID #024 - Color Test

Description: Checks that the coloring of the application is normal.

ID #025 - Blockchain Test

Description: Checks to connection to the Blockchain.

ID #026 - Steam Store Test

Description: Checks connection to distribution storefront.

ID #027 - Localization Test

Description: Checks application output is correct based on the region of the user.

ID #028 - Political Test

Description: Checks the political correctness of the application.

ID #029 - Fundraiser Test

Description: Checks that all funds generated are being sent to the Alzheimer's Association.

ID #030 - Legal Standards Test

Description: Tests various information with legal standards

ID #031 - Access Test

Description: Make sure that the game gets a rating for everyone.

ID #032 - Privacy Test

Description: Have the game not store any personal information.

ID #033 - Message Test

Description: The majority of users should understand system messages without seeking external clarification.

ID #034 - Cognitive Test

Description: Tests with users with cognitive issues that ensures they are still able to play.

ID #035 - Tutorial Test

Description: Tests the video tutorials with test users to see if they comprehend that information.

ID #036 - Platform Test

Description: Tests the system on different types of Computer builds to ensure it is playable.

ID #037 - Update Test

Description: Tests the updated system with various functionalities to ensure playability.

V Glossary

Alzheimer's: A progressive neurodegenerative disorder characterized by a decline in cognitive functions.

Cryptocurrency: A digital currency in which transactions are verified and records maintained by a decentralized system.

Coins: A digital currency native to its blockchain, storing value and acting as a medium of exchange.

Blockchain: A decentralized and public ledger which is used to record transactions between different computers.

Crypto Mining: The process used to generate new cryptocurrency coins and verify new transactions.

Player User: This is the user that is interacting with the system itself and only has access to front-end features that the developer has implemented.

App Admin: These users will have admin privileges to the system and will be able to access the backend features of the application that retrieves the research articles and the cryptocurrency.

VI References / Bibliography

[1] Alzheimer's Association, "Alzheimer's Disease Facts and Figures".

VII Index

Requirements

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