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1. Introduction

1.1. Purpose

The purpose of this Vision Document is to capture all potential stakeholders in the Trivial Purfuit project, and ensure that stakeholder vision is fully captured in order to deliver correct and complete solutions to fulfill stakeholder requirements.

1.2. Scope

The scope of this project includes all relevant stakeholders outlined in section 3 of this Vision Document. The scope of topics used in the Trivial Purfuit program include those pertaining to the people, events, places, and holiday facts associated with the U.S. Declaration of Independence.

1.3. Definitions, Acronyms, and Abbreviations

Dream Team: Refers to the software development company started by Johns Hopkins University students Derek Randall, Stefan Doucette, Mauro Chavez, and Jeff Pauls in June 2020.

COVID: Refers to COVID-19 (Coronavirus Disease 2019) - the disease caused by the Coronavirus, a global pandemic occurring from late-2019 to current day, which led to widespread business shutdowns and home quarantines for large majorities of populations worldwide.

Trivial Pursuit: Refers to the trivia-based board game sold by Hasbro. The idea for this product is based on a similar experience for users, but targeted towards the education sector.

Booster Pack: A software upgrade package to allow different themed play experiences. Components might include question and answer sets and game board themes.

1.4. Administrative Note

Our team referenced the IBM Knowledge Center website regarding Vision Documents in order to clarify what content is typically included in various sections of a Vision Document (“Vision Document”).

2. Positioning

2.1. Business Opportunity

Over the last couple of decades, the world has seen many different industries move from analog to digital, and the board game industry is no exception. Many traditional board games have already made the journey into users' web browsers and phone apps. The education sector is another that has moved online, as most students now learn, at least a portion of their curriculum, via digital mediums such as ebooks, apps, and online video lectures.

Dream Team sees an opportunity for the board game and education sectors to converge on their digital paths, and they have taken on the task of developing "Trivial Purfuit," a computer-based version of the classic game Trivial Pursuit. Their focus will be on a Declaration of Independence theme, which will be targeted at high school students across the United States. However, their model will allow for users to purchase other themes and question sets, and ultimately even upload their own.

The rise of COVID has presented a further need for students and board-game enthusiasts to benefit from remote connectivity. Social distancing, a necessary health measure, has temporarily eliminated social gatherings. As such, the Dream Team sees the development of a digital platform pertinent at this time.

2.2. Problem Statements

1) The problem of having limited tools to teach students American history affects educational institutions and their students. The impact is that instructors are forced to use traditional, less interesting methods of teaching American history such as lectures and textbooks. They are also limited in situations where physical classes cannot be held (see COVID below). A successful solution would include more engaging and fun instruction for students, who would better retain course material. This could potentially lead to better test scores, as well as better understanding of the Declaration of Independence nationwide.

2) The problem of ongoing COVID-related quarantines and social distancing at homes and schools affects both students and non-students drastically. The impact of this pandemic is that our timeline for building digital board games and learning tools has been brought forward. Over the last several months, this project idea has

gone from a ‘nice-to-have’ to a critical tool that needs to be rolled out. A successful solution would be a working game available to customers by August 19, 2020.

2.3. Product Position Statement

Dream Team is primarily positioning this project for a distinct user group - the educational sector. This will benefit educational institutions that need a fun, innovative way to teach students about the Declaration of Independence. Our initial release of Trivial Purfuit will focus solely on teaching and testing facts about the Declaration of Independence, which can be used for both teaching and studying.

Additionally, this product would be enjoyable and educational for the general public. Given the development model of allowing users to buy various themes and upload their own question sets, the Dream Team believes there will be appetite within the traditional board game player demographic as well.

3. Stakeholder and User Descriptions

3.1. Market Demographics

The market demographics of this product can be broken into two categories: academic and non-academic.

The academic demographic primarily consists of primary school students ages 6 and up, though a variety of Booster Packs can be tailored to different age groups depending on when certain subjects are taught. The Declaration of Independence pack will be tailored towards students age 16 and up. According to the U.S. Bureau of Labor Statistics in 2019, there were approximately 9.4 million high school students ages 16 and up in the U.S. (U.S. Bureau of Labor Statistics). Teachers and facilitators also fall into the academic demographic, giving our product the potential to reach millions more across the nation. As students graduate, continuing users may transition to the non-academic demographic. Our product should uphold a reputation of being a high-quality, enjoyable educational tool for use in the classroom.

The non-academic demographic consists of casual, recreational players. This market is already established since the board game has been available for decades. In terms of pricing, Hasbro, the current owner of Trivial Pursuit, advertises

numerous versions for sale on their website with prices ranging from $14.99 to $39.99 (Hasbro). Since our product offers a free trial version, as well as $9.99 additional feature packs, it will offer significant cost savings to the customer. The computer-based version also provides numerous advantages over its traditional counterpart such as added mobility, easier game play, expandability, and game features like single-player trials. It can also be delivered to users directly and more easily than traditional board games, and at a fraction of the cost. With the mobile app market growing at near exponential rates, a transition from computers to mobile platforms is likely a financially rewarding move, especially with a legal partnership with Hasbro, the owners of Trivial Pursuit, whose reputation among board game enthusiasts is significant.

3.2. Stakeholder Summary

Stakeholder 1: Player

- Represents: Students, recreational players
- Role: Interacts with and plays the game, might also download additional content and install the game

Stakeholder 2: Teacher/Facilitator

- Represents: Individuals that teach or guide players
- Role: Installs software, downloads additional content, changes difficulty settings

Stakeholder 3: Developer

- Represents: Individuals/teams of programmers and development management
- Role: Adds features, removes bugs, and tests small components of the software product

Stakeholder 4: QA

- Represents: Individuals/teams of Quality Assurance engineers
- Role: Assesses the state of the code, enforces object-oriented standards, measures performance by viewing and running code

Stakeholder 5: Tester

- Represents: Individuals/teams of testing engineers and developers

- Role: Tests correctness and completeness of program features and functionality, look-and-feel of the interface, ease of installation, and usability of software product

Stakeholder 6: Grader

- Represents: JHU individuals for the Summer 2020 semester course
- Role: Views detailed aspects of the software including its code, quality, and operationality to assign a grade and give feedback

Stakeholder 7: Professor

- Represents: JHU instructors for the Summer 2020 semester course
- Role: Views software summaries software to assign a grade and give feedback

Stakeholder 8: Sponsor

- Represents: Hasbro (company that currently owns Trivial Pursuit)
- Role: Provides licensing/copyright agreement to use Trivial Pursuit theme for Trivial Purfuit

3.3. User Summary

The primary end user for the Trivial Purfuit software is the player. As described in Stakeholder 1, the user is either a student or recreational player (or both). Our goal is to make the user experience in the software-based version as similar to the board game as possible. Therefore, the player will interact with the software product much like in the Trivial Pursuit board game. In addition to playing the game, the player may also have to install and uninstall the software, plus download additional Booster Packs.

Secondary users are teachers and facilitators (Stakeholder 2), who, in the case of an academic environment, might install the software and load booster packs so the academic player does not have to, but may not play the game themselves.

3.4. User Environment

3.4.1. Player Count

The software will support 2-4 players. Current design plans do not intend to expand the scope of supported players beyond 4.

3.4.2. Player Time Investment

Given that at most 4 players can play at any given time, matches should take between 30-45 minutes. Game time may increase as users add questions to the question bank, which increases opportunities for players to get questions wrong and cuts player turns short.

3.4.3. Environmental Constraints

The game will require a computer, mouse, and keyboard. There are currently no plans to support a mobile-enabled version of the software.

We envision that the game will be launched from the command line calling a main python script, which means that users must have access to the terminal on their local computer. They must also have Python3 installed. Software will include a requirements file that can be used to install all dependent packages onto the user's machine.

If our team meets the stretch goal of enabling players to connect to a game remotely, then an internet connection will be required.

3.4.4. Current Platform

There are currently many ways to play Trivial Pursuit. In addition to the physical board game, Ubisoft has released a video game version for numerous modern game consoles. However, there is currently no version of Trivial Pursuit that is specifically themed for the U.S. Declaration of Independence. We currently do not intend for our software to interface with any existing versions of Trivial Pursuit other than sharing common visual and gameplay elements.

3.5. Stakeholder (Non-user) Profiles

Representative:	Developer	QA / Tester	Grader / Professor / Sponsor
Description:	Builds software	Ensures software works / no issues	Gives feedback and provides support

Type:	Business Expert	Business Expert	Guru
Responsibilities:	See ‘role’ in section 3.2	See ‘role’ in section 3.2	See ‘role’ in section 3.2
Success Criteria:	Code runs as expected to produce output	Well documented, working code that runs without bugs	Working product that exceeds minimum expectations
Involvement:	Direct - Programming	Direct - Testing and QA	Enterprise - Management
Deliverables:	Working program	Quality Report	Project Grade
Comments or Issues:	Inexperienced & working remotely	Inexperienced & working remote	N/A

3.6. User Profiles

Representative:	Player	Teacher/Facilitator
Description:	Student/board game player	Teacher using game as a tool
Type:	Casual user	Guru
Responsibilities:	Play game and answer questions. Potentially upgrade question. themes.	Coordinate game, divide teams, and ensure fair play. Give hints.
Success Criteria:	Player wins (answers correctly in center square)	Game runs smoothly, no technical issues.
Involvement:	Direct - user	Direct - facilitator
Deliverables:	N/A	N/A
Comments or Issues:	May be challenging for users without facilitators.	Requires knowledge of subject matter and how to run the game.

3.7. Key Stakeholder Goals/Needs

Need	Priority	Concerns	Current Solution	Proposed Solution
Replicate Trivial Pursuit gameplay in software	High	Game will not feel as satisfying to play since there is less physicality	Ubisoft-released product	Free application written in Python leveraging free Python libraries
Curate question bank for U.S. Declaration of Independence trivia	High	Questions will be too specific	None	Search free online quizzes and lift questions for our question bank
UI to clearly set-up new game and play match to completion	High	UI framework will be chosen that will not support all our proposed features	Ubisoft-released product provides simple UI	Research UI frameworks in Python and choose one that supports clean design and required interacting components
Software errors can be quickly identified and corrected	Medium	Maintenance/Testing /QA teams will struggle to correct identified errors	None	Configuration Management team will employ proper version control
Support variable-size game board	Medium	Too large or too small a game board will be pointless	Modern implementations are appropriately sized	Dynamic game board that can grow or shrink based on user parameters
Support remote game sessions and internet-enabled multiplayer	Low	Back-end implementation will be too complicated to complete on time	Ubisoft-released product allows for multiplayer games	Build in database and rest API's for user clients to communicate with in order to enable multiplayer

3.8. User Goals/Needs

Need	Priority	Concerns	Current Solution	Proposed Solution
Easy to install	High	Users with no Python experience should be able to install the product	Physical game requires board set-up, reading set-up instructions	Software program provides simple, GUI-based "click and done" installation
Easy to create and play a game	High	Computer-based game may have too many confusing menus and features	Users read physical game rules and set-up instructions	Easy, intuitive user interface delivers an experience similar to physical game (similar icons/game mechanics)
Software feels like playing the actual board game	High	Poorly written software product may look/feel nothing like playing the actual game	Users play the physical board game	Software GUI and gameplay mechanics are nearly identical to playing the actual game
Software errors are quickly addressed	Medium	New software products are prone to crashes and errors	Physical game board does not have software errors	Maintenance team consistently tests/corrects emerging software errors and regularly pushes out hotfixes
Product must be affordable	Medium	If software is more expensive than actual board game, there is no point purchasing it	Users play physical board game	Product will include a free trial version, as well as affordable expansion packs for additional features
Ability to play with other human players	Low	Users can only play against computer-generated opponents	Academic: Students learn from textbooks/lectures Recreational: Users play physical Trivial Pursuit board game	Users are able to play Trivial Purfuit online with 1-5 other players

4. Product Overview

4.1. Product Perspective

Trivial Purfuit is a trivia-based board game that has been designed for use on a computer. While other trivia-based games exist, Trivial Purfuit stands alone as the easiest to use and customize. By keeping the format simple and allowing users to control everything from the question set/theme to the difficulty of the actual questions, Trivial Purfuit is a fun and easy way to learn. We also target the education sector, as it is a great tool for teaching and helping students to study.

4.2. Summary of Capabilities

Customer Benefit:	Supporting Features:
Software can be easily installed	Installer guides user through installation process [Dream goal]
Software can be easily uninstalled	Uninstaller guides user through uninstall process [Dream goal]
New users can easily learn product	Digital instruction manual, tutorial, clear graphics around steps to take, etc. [Dream goal]
User can play the game with mechanics that match board game rules	GUI matches the look and feel of physical game experience
Users can easily add question sets	"Add Dataset" button allows user to navigate to dataset file [Dream goal] "Browse Booster Packs" button directs user to website to the current selection of add-on packages [Dream goal]
Users can connect with other users over the internet for remote game play	Web-based connectivity is embedded into the software when using remote mode [Dream goal]

4.4. Assumptions and Dependencies

Assumptions/Dependencies:	**Impact If Not Met:**
User has a computer with that can meet the following requirements: ● x86 64-bit CPU (Intel / AMD architecture) ● 4 GB RAM ● 5 GB free disk space	User will be unable to run program or will experience degraded performance
User is able to run Python 3 programs	User will be unable to run program
User has internet access	User can only play local modes and will be unable to play remotely against other individuals
User has basic knowledge of the Declaration of Independence	User will be unable to answer questions correctly and will not have an enjoyable experience
User is fluent in English and not vision-impaired	User will be unable to install/navigate the program

4.5. Cost and Pricing

Trivial Purfuit products will be provided using a “freemium” model. The basic software package will be provided free of charge, but add-on packages that include additional features will be priced at $10 per package (with 50% discounts provided to educational institutions).

4.6. Licensing and Installation

Licensing: Our legal team has worked with Hasbro to sign off on all agreements around matters having to do with licencing, trademarks, copyrights, and royalties. The idea of a trivia-based board game is generic enough that we will not have any issues with the general format.

It is important to note that other licensing obligations may arise with add-on packages. We will address those as necessary.

Installation: As mentioned in the assumptions, the user must have Python 3 installed and be able to run executables. Internet access is required for downloading and installing the program, however certain game modes will be available to play if the user does not have internet at any point after installation.

5. Product Features

- Software will test users' knowledge of the U.S. Declaration of Independence by posing questions and receiving answers via user input
- Game supports 2-4 players
- Each player gets a token of one of the following colors: red, white, blue or green. Players' tokens will be used to track their positions on the game board and progress towards answering a question from each question type.
    - Player tokens begin the game in the center of the game board
- Questions will come from one of four categories with the following color associations:
    - Red - People
    - White - Events
    - Blue - Places
    - Green - Independence Day Holiday
- User order will be displayed in a UI element, with a user's profile highlighted if it is their turn
- Users will navigate a square game board by rolling a die and picking a direction to move
    - Players start in the center of the game board
    - Each side includes N multi-colored squares that rotate between red, white, blue, green. N will be determined based on the size of the game board chosen by users [Dream Goal]. Default board size will have 7 squares along each edge.
    - Each side of the board should have two "roll again" squares
    - Game board will have "headquarter" squares in the center position of each side that break off into paths that branch towards the center of the game board
- Users will take turns playing the game until a winner is determined
    - A turn will consist of a user rolling a die, moving their token in the number of spaces indicated on the die in a chosen direction, and being presented with a question corresponding to the type of square they landed on
    - Questions will appear on the screen along with a text box for the player to enter their response. Responses will be case insensitive but spelling must be correct.
    - Answering a question correctly will result in the current user rolling again
    - A user's turn ends when they are unable to answer a question. This will be clear when they submit an incorrect answer and the UI reports an incorrect answer. The UI element keeping track of turns will then highlight the next player.

    - If a question is answered correctly while a player is on a “headquarter” square, a chip of that color is added to the player's token
    - If a player fills their token with a chip of each available color, they begin to move back towards the center of the game board. Once they return to the center, they must answer a question of a category chosen by the other players. If they answer a question correctly while in the center, they win the game.
- Questions and answers will be stored separately from the software for playing the game allowing for modifications of questions, answers, and category types involving both names and colors
- Running the software will put users in a main menu where they will be able to view game options or start a new game. Prior to a new game, users will be able to add or remove players and input player names.
- Software will come with documentation on how to install and run it
- Software will support “uninstalling” [Dream goal]
- Game will include a digital instruction manual, tutorial, clear graphics around steps to take, etc. [Dream goal]
- User GUI will matches the look and feel of physical game experience
- “Add Dataset” button in settings allows the user to navigate to the dataset file, view current questions, and add their own in addition to viewing the correctness ratio for each question [Dream goal]
- “Browse Booster Packs” button directs user to website to the current selection of add-on packages [Dream goal]
- Web-based connectivity is embedded into the software when using remote mode [Dream goal]

6. Constraints

Software Restrictions: The high cost of certain project management software will restrict the team to using cheaper, alternative software that may have limited functionality. This may impact project management and the development of documentation and videos. Additionally, we are limited to writing the program in Python 3 due to team programming experience.

Limited Access to Stakeholders: We will be unable to contact our customers or potential users until the end of this project. This limits our ability to refine requirements or conduct surveys of potential users.

Remote Work: Due to the ongoing COVID-19 pandemic, our employees are forced to work remotely from home. This limits team interactions to video chat and Slack chat channel communications, hampering project progress.

Copyright Agreement: Trivial Purfuit is a derivative product of Trivial Pursuit, and is therefore subject to copyright agreement with Hasbro. Although Hasbro has signed off on copyright use requirements, they could provide legal challenges on any future features/expansion packs that they feel infringe on existing copyrights.

Works Cited

"College Enrollment and Work Activity of Recent High School and College Graduates Summary." *U.S. Bureau of Labor Statistics*, U.S. Bureau of Labor Statistics, 28 Apr. 2020, www.bls.gov/news.release/hsgec.nr0.htm.

Hasbro. *Shop*. Accessed 29 June 2020. https://hasbrogaming.hasbro.com/en-us/toys-games.

"Vision Document." *IBM Knowledge Center*, IBM, www.ibm.com/support/knowledgecenter/SSWMEQ_4.0.6/com.ibm.rational.rrm.help.doc/topics/r_vision_doc.html.