成都理工大學中英合作办学
CDUT Sino-British Collaborative Education

OXFORD BROOKES UNIVERSITY

UNDERGRADUATE PROJECT PROGESS REPORT

Project Title:	Game development
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1.1 Introduction

This project is a 2D horizontal mystery puzzle game. It is a local suspense puzzle game with Chinese theme. Players will control the characters (story participants and witnesses) and interact with the scene props in the game. As the story progresses, they will solve the interlocking puzzles and find out the truth of the events.

1.2 Background

In the game industry, there are already many games related to the horror and suspense genres, such as Silent Hill, The Evil Within, and The Forest. Some of these games have great graphics and great modeling, some have an exciting story pace, some have great game style, and most importantly, the atmospheres are so good that the players feel a sense of tension and pressure throughout the process. This has helped horror puzzle games gain popularity and support in the industry.

1.3 Aim

Develop a 2D horizontal single player linear story game with solving mystery theme.

1.4 Objectives

The objectives are as follows:

Ob1. The game is a combination of narrative and puzzle solving, and the puzzles in the game correspond to the story.and the player needs to manipulate the characters in the game to interact with the scene, obtain important information about the plot, advance the story flow, and solve the truth behind the strange events themselves.

Ob2.Design, construct and complete a mystery story set in the modern Chinese society.

Ob3.Design simple and easy to recognize human-computer interaction UI, so that players can easily interact with the game scene according to the guidance of the UI.

1.5 Project Overview

1.5.1 Scope

This project is a 2D horizontal mystery puzzle game. It is a local suspense puzzle game with Chinese theme. Players will control the characters (story participants and witnesses) and interact with the scene props in the game. As the story progresses, they will solve the interlocking puzzles and find out the truth of the events. The project will runs on macOS and windows.

1.5.2 Audience

1.People who love mystery, suspense games.

2.Peer developers in the game industry.

2 Background Review

2.1 Summary of existing approaches

Some of The best horror games that have been released in the game industry are Outlast, Paper Dolls, and The forest. Since this project is a 2D horizontal puzzle game, its picture performance and visual impact may not be as good as those of the above games. However, this project can render the plot and atmosphere of the game with a large amount of text content and hand-drawn scenes, props, characters and other picture elements. Start with the details and present the story to the player in more detail.

3 Project Technical Progress

3.1 Methodology

3.1.1 Approach

The project will use use waterfall with some of may steps. The first step is to determine the genre of the game's story. The developer will look at well-known games in the industry and analyze their stories to determine the best narrative style. Requirements analysis will be in the form of a table to analyze the images and art performance required by the game scene. Meanwhile, it will collect user requirements from different users, such as developers and users.The second step is to polish the story, which will also be done in the future development of the project.The third step is the design of the game UI. At the beginning of the game development, the existing UI materials in the development tools will be used to test whether the scene interaction works normally. In the subsequent development, the developer will design the

UI according to the story plot and atmosphere. The graphics and scene art of the game will be drawn in parallel with the UI design, different scenes, characters, props will be designed according to the story content, and the characters, scenes and other graphics may change before and after some key events. Finally, the text content of the game story will be filled. The text content will appear in the scene, character dialogue, and prop description. Meanwhile, in order to ensure the correct display of the text, the text display of each part will be tested in the subsequent development.

3.1.2 Technology

This project plan to use RPGMaker MV as development engine, developer will use this tool to script game, design game decryption and other technical work. Some Chinese elements (including but not limited to modern Chinese culture, scenes, characters, etc.) will be added to the game. Developer will use Baidu Academic, mendeley reference manager and other tools to search and manage relevant academic literature to make the elements in game more authentic and evidence-based.

3.1.3 Version management plan

This Project's version control and management will be finished by github and github desktop.

Different versions of the game will have different features added to the game: The first activities will be write the story, The core of the game is the narrative, and all the decryption and game mechanics will revolve around the story, followed by the learning and application of development tools, and finally the completion of the game graphics and illustrations.

3.2 Testing and Evaluation

3.2.1 Unit test

Test data

Input:

Player: A code used to unlock an organ item: code,number,or character.

Stored data: The database that comes with the development engine.

Output:

The locked item is unlocked

The player gets relevant information to advance the story

The game progresses to the next stage

Test Process

Set up test content

a.Game ontology program: not to contain user info:

b.Development engine database:

(a) Store game scripts, data

Get users info

a.Expected output: The game script executes normally, and the material call executes normally.

3.2.2 Acceptance test

Test whether the game can run normally, whether the menu and other UI interface can load normally, whether the game can exit normally.

These include: Installation (upgrade), startup and shutdown, functional test (positive example, important algorithm, boundary, timing, negative example, error handling), performance test (normal load, capacity change), stress test (critical load, capacity change), configuration test, platform test, security test, recovery test (in case of power failure, hardware failure or switch, network failure, etc., Whether the system can run normally), reliability test, etc.

The following work should generally have been done before the actual user acceptance test (which can be selectively adopted or added according to the actual situation) :

● Software development has been completed and all known software defects have been resolved.

● The acceptance test plan has been reviewed and approved, and is under document control.

● The review of the software requirements specification has been completed.

● Review of summary design, detailed design has been completed.

● Code reviews for all key modules have been completed.

● Reviews of unit, integration, and system test plans and reports have been completed.

● All test scripts have been completed, executed at least once, and passed review.

● Use configuration management tools and put the code under configuration control.

● The software problem handling process is in place.

● Acceptance test completion criteria have been developed, reviewed and approved.

3.2.3 Functional test

Test whether the archive reading function can run normally.After entering the game, the test user starts a new game, establishes the game progress and saves the game. After exiting the game, the game is run again to check whether the save is lost. After confirming that it is correct, the file is read to determine whether the function can work normally.

In the acceptance test, also need to pay attention to the document review, before the test should be familiar with the structure of the game program, through the file structure directory to understand whether the file is able to execute properly. Before the game is delivered to users, it is important to ensure that the project itself has tested all aspects of the software adequately. In the end, the development team will invite several test players to play the game, evaluate it, and check whether the documents provided by the development team are complete.

3.3 Design and Implementation

1.Game UI design is complete.

2.The outline of the game has been completed.

3.The game development engine deployment has been completed.

4 Project Management

4.1 Activities

Different versions of the game will have different features added to the game:

4.1.1 The first activities will be write the story, The core of the game is the narrative, and all the decryption and game mechanics will revolve around the story.

4.1.2 Followed by the learning and application of development tools.

4.1.3 Finally the completion of the game graphics and illustrations.

Here are tasks and activities that will be done in project:

tasks

Write user requirements

Write user manual

Write technical design document

Wirte test plan

else.....

Test UI loading properly

Test scene image loading

Test Scenario Switching

Test character model loading

Test character, scene, and prop interactions.

Test trigger conditions such as scene switching and story progression

else.....

Development engine download and deployment

Create project environment

Game artist deployment

else.....

Design UI

Design the script (story) infrastructure

Character image design

Design script important event

Designing Game Text

else.....

Do RPGmaker MV tutorial

Search and collect news events, social hot material and other references.

Art drawing

Complete the basic game functions

else.....

Table1.Tasks & Activities

4.2 Schedule

This semester will complete the learning of development tools, the general framework of the game story, and the art style of the game interface.

In the semester of 2023, project will complete the plot details of the game, complete the game art drawing, complete the game script and code. Complete the game project until it is ready to run for at least two chapters.

4.3 Project Version Management

Data management will be finished by github, a folder will be created in the repository and this folder will be dedicated to storing project data, update logs, etc.

4.4 Project Data Management

Data management will be finished by github, a folder will be created in the repository and this folder will be dedicated to storing project data, update logs, etc.

4.5 Project Deliverables

The final deliverable files of the project are: 1. Game ontology, initiator (executable file) 2. Game code 3. Game update log 4. Game data management files.

5 Professional Issues and Risk:

5.1 Risk Analysis

5.1.1 Risk analysis of game fun

This risk is very important because it can lead to a design failure. The purpose of playing a game is to have fun. If there is no fun, players will soon lose interest in the game, which is undoubtedly devastating to the game design. The solution to this risk is as follows: Let the developers design a simplified version of the game (demo) for the players to release the trial version of the game in advance, so that the players feel the interest of the game, in the long term development of the game, this method can let the developers, designers find out the problems in the game mechanism, let them have the opportunity to optimize and modify the game, to bring better game experience to the users.

5.1.2 Game engine risk analysis

Here's a first question: What if the game engine can't support all the graphics and animations? This is also a common problem in the development part of game design, and if it is serious, the player will not be able to play the game properly. The solution to this problem is to prototype the game as early as possible. The prototype should show as much as possible what the game will look like on the screen at each stage, and also test whether the game engine can be used properly in the game, if not, make the change as early as possible.

5.1.3 Risk Analysis of game level Design

Level design is undoubtedly the most important part of this project to develop a game based on story experience. However, level design does not require designers to design as many elements as possible to reduce the aesthetic fatigue of players, which will make the development cost and time of the project reach a very terrible amount. If the time consumed exceeds the expected value, the game design needs to be changed immediately. Reduce elements, can also use reuse thinking to solve the problem of large design engineering.

5.1.4 Risk Analysis of game character design

Another question to consider in game development and design is: Will the player like the characters, story, setting, and map the design team has created? Such a problem obviously cannot be solved by prototyping, because in any case testing is judged by the developer's own standards and cannot get the design tendency that the general public can accept. The solution is to let the artists first design the first draft of the game's plot, characters, scenes, and other important things that need to be paid attention to. After getting the first draft, they can show it to the target users and record their comments and feelings on the work.

5.1.5 Network security risk analysis

The game is based on the Internet, leaving the Internet game will be a lot of color, the network game brings us not only fun, but also with a lot of hidden dangers. The open nature of the Internet leads to Internet failures caused by network infrastructure failures, software vulnerabilities, power supply, natural disasters, and even malicious attacks by network hackers, which interfere with the normal operation and information security of the Internet. As a result of the above reasons, the property loss of game players will be reduced, the experience of game players will be reduced, and the reputation of developers will be affected, which will have a negative impact on game products. (3) Risk of infringement of privacy

Game companies are subject to government regulations on privacy and other legal obligations in the processing, storage and use of personal data and other data, and actual or perceived failure to comply with such obligations could harm the business of game companies.

5.1.6 Risk analysis of infringement of others' intellectual property rights

In the process of independent research and development of online game products, game developers may face the risk of litigation for infringement of others' intellectual property rights by a third party due to insufficient internal control of the team, mistakes in the investigation process, or deviation of team members' understanding of intellectual property rights. If the game product is further identified by the competent authority as infringing the intellectual property rights of others, the developer may bear the corresponding infringement liability, and the original product must be modified or adjusted, and the game product may even be removed from the shelves, thus adversely affecting business performance and other aspects.

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