Adventure game

Seven Redemptions

Group 3 Report

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Introduction

The original concept of Seven Redemptions was to allow a player to take control of a character who has to fight through a realm of sin to redeem themselves. The game would have been a 2D action-adventure role-playing game (RPG) consisting of four levels, various enemies and a captivating story to go with it. Additionally, the game would have a retro pixel art style that would invoke the nostalgia of older players who are still fond of older games despite the limitations of technology a decade ago. A game of this style would also appeal to those who have lost interest in AAA games and are looking for art styles that are not hyperrealism.

However, Seven Redemptions was unable to meet the proposed design due to overambition and lack of time. The game had to be scaled down to a more manageable level. The team decided to remove all enemies from the game and rewrote the story to accommodate the changes. The final implementation is a 2D adventure platformer that follows a character inflicted with sin. The infliction periodically reduces the player's health. To survive, the player has to navigate the level to find potions that temporarily improve their health (represented by a pink potion) and another type of potion, where if the player can collect enough of them then the main character will be alleviated of their infliction and win the game (green potion). This gives the player a sense of pressure from the time limit that is their diminishing health. It also offers more than one style to the gameplay. For example, the player can increase the risks by ignoring the temporary health boosts and collect as many green potions as they can, relying on their platforming skills to collect them as quickly as possible.

Design

Seven Redemptions draws inspiration from the graphics of retro games, notably those that are over a decade old now. Thus, the game follows the retro aesthetic. This is to prompt feelings of nostalgia from the target audience - older gamers who remember when graphics were not as good. The retro aesthetic is reflected in the art, such as the characters and background, and even the fonts used. Additionally, the game uses 8-bit style music to further the retro theme.

To design this game, low fidelity prototypes were made. Storyboards, logic flowcharts and an inventory to keep track of files names were used. Storyboards were used to map out where each element would be placed on the page and what each button will do. Some elements had to be changed for the final version and new elements had to be incorporated too, such as a settings icon to access certain buttons.

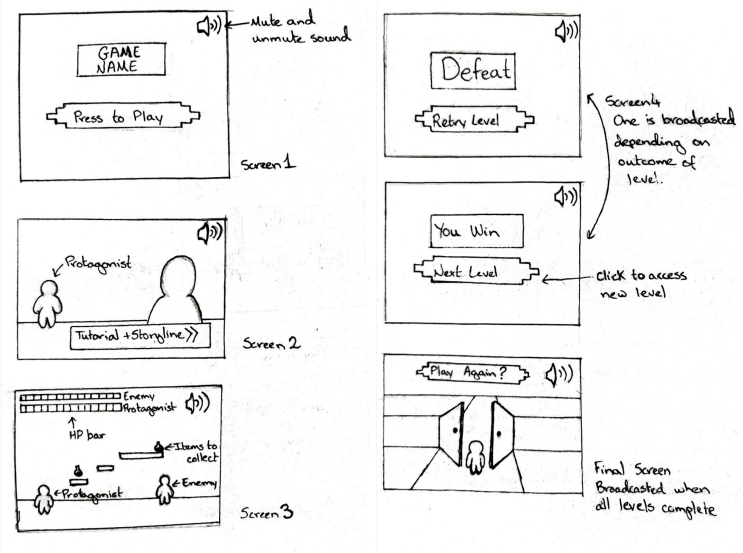

Figure 1: A storyboard from the ideation stage. Many changes have been made since.

The final implementation does not have an enemy for the player to fight, however, it has two different potions for the user to collect. One is the healing potion and the other poison. These are different in size and colour so that they are easier to distinguish. There is also no final screen presented as well as no button to access the next level on screen four.

Logic flow charts were used to follow the various states the game can enter. This was simplified for the final version to reflect the changes mentioned above.

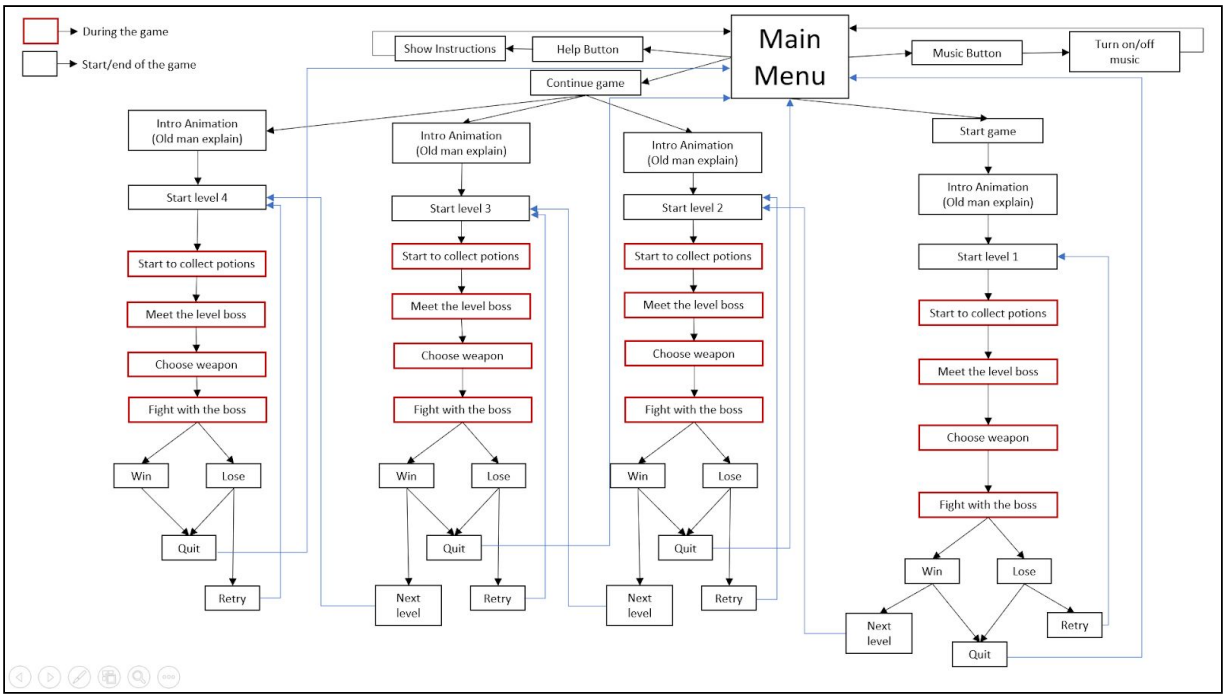

Figure 2: This flowchart shows a portion of what was planned at the beginning.

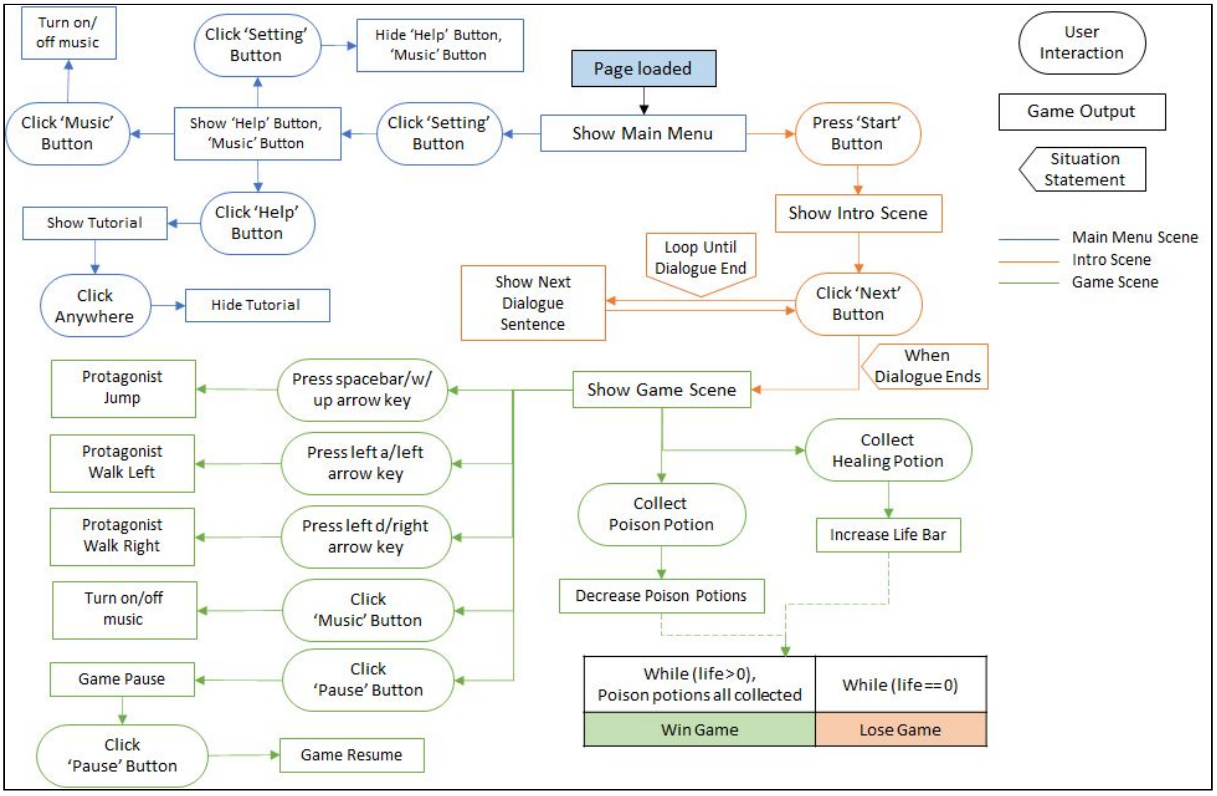

Figure 3: This flowchart is the revised version of the game and what became the final implementation.

The user receives feedback from the actions they perform. They can perceive the sound being turned on and off when they change the sound setting. They can see the game screen being paused from the icon switching from pause to play to notify that they are currently paused and can resume playing if they wish and they can see it from the state of the screen itself as it changes to black with text informing them that gameplay has paused. A similar situation occurs when the user wins and loses. If the user has the sound on, they will also receive auditory feedback informing that they have won or lost. These are only some examples of the user receiving feedback from the game.

When the individual settings buttons are visible on the screen they are placed in close proximity and form a group. By doing this, the association that these buttons are related somehow are formed. In this case, they appear as a group of buttons that alter a particular setting of the game - a menu bar. Using proximity to group the settings buttons together also helps distinguish them from the start game button on the main menu. It creates the impression that the start game button is not related to the settings buttons. Furthermore, any button icons use the colour orange, forming another group based on similarity. This reinforces the grouping of settings buttons and also informs the user that any orange icons are buttons.

Visual cues can be found in the game. Some trees are placed on the ground at higher points than other trees, giving the impression that those trees are further in the distance. Although to improve, a distinct middle ground could be made to make the height in the visual field more prominent.

The game also applies the interposition visual cue. For example, the main character obscures some of the background objects such as trees. Platforms and potions do the same. This creates the perception that objects such as the trees and the mountains are further in the distance than the main character, platforms and potions. This could have been improved by using the atmospheric perspective visual cue. This would have been achieved by making the background less saturated while the foreground objects appear more saturated. This would allow the foreground objects to stand out more to the user. Currently, the colours are quite close in saturation and thus, do not make clear what the user should be focussing on.

The texture gradient cue is used in the game as well. The floor of the foreground features some texture while the background does not. This gives the impression that the floor is closer to the user than the background objects such as the trees and mountains.

A cue that could have been taken advantage of more is the shading and shadow cue. It is featured a little in the character sprite for the main character. It also allows the mountains to be recognised as mountains rather than oddly shaped triangles. However, this visual cue is not used much elsewhere. Using this cue more in the game would create more depth, which would be very beneficial considering this is a 2D game.

The final implementation makes good use of grouping by placing settings related icons near each other and using the same colour. It also makes good use of the visual cue interposition. The cues shading and shadow and higher in the visual field could have been used and emphasised more to provide a greater sense of depth. To improve the final implementation’s design, cues such as the atmospheric perspective could have been used to further solidify a sense of depth. The dynamic depth cue motion parallax could also have been used to assist in creating depth in a flat image.

Implementation

The group responsibilities were split between the three members. Gabriele was the project manager, lead sound designer and writer; Jieying was the lead programmer; Zi Yen was lead artist and animator. All members of the team supported each other throughout the duration of the project.

Time management and task breakdown:

- First 1.5 weeks of the project: Design phase where the aesthetics of the game are sorted out, such as designing or finding art assets of characters, backgrounds, items and buttons. Some assets were created using an app called 'dotpict' and the backgrounds used were found from online sources. All assets and their sources are listed at the end of this report beginning from page 11.
    - All members participated in designing art assets.
    - Music and sound effects were acquired by Gabriele.
- After the first 1.5 weeks: The programming phase began. Any assets that were not finalised in the first phase were finalised for use in this phase. This phase lasts until week eleven of the semester.
    - Jieying wrote most of the code for the game scene and character movement. Zi Yen and Gabriele contributed.
    - Zi Yen wrote the menu code using Konva, old man introductory code, merging menu and game scene, and also the code that is related to decoration for the game scene.
    - The game dialogue was finalised by Gabriele.
    - Testing was ongoing and performed by all group members. Any bugs and errors that occurred were fixed by or had solutions suggested by all group members.
    - The report was mainly written by Gabriele and Jieying. Zi Yen contributed.

The game is available to as many people as possible by being browser-based. The game was created using HTML5, CSS3 and JavaScript. A library called Konva was used to help create the menu. Therefore, those interested in the game do not have to install any plugins nor do they have to wait for the game to download onto their device.

The game functions by using a game loop to constantly update and render images on the canvas. This is done by using requestAnimationFrame() on a function we created called loop(). loop() updates values such as the player's position and their health as well as checking whether the player is dead. It also draws images on the canvas with a function we created called draw(). This draws the objects such as the background, potions and player. However, the draw() function is called only when the boolean values of variables pause and gameEnd are false and when variables win is true and gameEnd is false. The conditional statements applied here decide which screen should be drawn so that the user can see the appropriate information. For example, when the user pauses the gameplay by clicking the pause button, the value of pause is true. Therefore, the loop() function will begin drawing the pause screen instead of the game scenery.

Evaluation

10 usability Heuristics evaluation

1. Visibility of System Status

One way this has been incorporated was through the use of the timer. Here we can see the status of the user's health and how much of it is left. From this, the user can evaluate their next actions and what potions to collect next depending on the status of the HP bar. When the healing potions are collected extra time is added, which is represented by the elongation of the bar, again giving a way for the user to understand that now they have more time than before to perform a certain task.

Another way feedback is given is through the use of game over and win screens so that the user knows when the game has ended. It also allows the user to reevaluate their performance based on the outcome.

2. Match between system and the real world

The instructions on how to play the game, which are incorporated into the story of the dialogue, use a 'language' that the user will enjoy and find more interactive than one that uses bullet points to explain. Using this way to communicate with the user, is a lot more interesting and engaging.

The icons on the buttons used, also follow this same concept, as they were designed to mirror icons that have the same function in other appliances. The icons are intuitive to understand as the shapes are associated with what they do. For example, the sound on and sound off icons both feature a speaker, informing the user that they are to do with sound.

3. User control and freedom

The game permits the use of WASD controls, which are familiar to experienced PC gamers, but it also offers the more intuitive option of the arrow keys. Thus making the game more flexible to the audience. The keys are explicitly stated in the opening scene of the game as well, so new players are able to experiment to find the set of keys that they find most comfortable using if they desire.

4. Consistency and standards

Consistency has been achieved by using the same fonts, font sizes and colour schemes throughout the application. Particularly, this is demonstrated in buttons and the dialogue. These all integrate the colour orange, drawing the users attention to highlight that these buttons and dialogue (to explain the game mechanics and story behind the game) are important.

Additionally, this consistency persists in our choice of backgrounds and item images, as these have a similar aesthetic and are continuous in the level of the game. The consistency of each potion matching a different function based on the difference of its colour also creates a concise and clear image for the user on what each individual potion will be used for.

Sound effects are used to notify the user once certain events occur. These are constantly applied at specific times throughout the level. An example of this would be the collection of potions. Each different potion has

a different sound assigned to it, which plays after it is collected. This way the user can keep up with the progress of the game through auditory feedback.

In terms of standards, they are integrated into most of our buttons. For example, the symbols used on the mute, speaker and pause game buttons. These symbols make the uses for each button easily predictable and comprehensible for the user as they are commonly seen elsewhere. For example, the pause and play icons can be seen on many video sharing websites so users can easily recognise them.

5. Error prevention

There is no error prevention in the game to notify the player of incorrect actions, as this was not necessary for the user. If the input of keys is wrong the protagonist will automatically not move or jump. This would be enough for the user to understand that they are not using the right keys.

6. Recognition over recall

There are only two types of potions used in the game. That makes it easier for the user to recall how these are used, due to such a small variation between potions. The difference in colour also helps with the recognition process.

7. Flexibility and efficiency of use

The flexibility in the game lies within the pause function. Meaning the game time can be controlled by the user whenever needed, allowing the flexible use of time. The game will continue as normal and efficiently when it is resumed. This same flexibility of the use of time had been demonstrated in the dialogue, as the pace at which it is read is controlled through a button click.

8. Aesthetic and minimalist design

A minimalist design is presented in our main menu. There is a settings icon at the top right of the page, that when clicked, opens and gives access to more buttons. Each button has its own separate functions. Thus, the design avoids over cluttering of buttons on one page and makes the overall aesthetic look tidier. It also helps in not overwhelming the user.

A minimalistic approach has also been taken for the game over and win screens, to retain the user's attention on the outcome instead of being distracted by the aesthetic.

9. User's ability to fix errors

The user can fix errors previously made in the level, by having the option to replay and retry the game over and over again until the desired outcome is reached. This can be done by refreshing the page.

10. Help and documentation

There are two main ways which help can be acquired in this application. One way is through the main menu when the question mark button is clicked. This will reveal a tutorial page for the game. The other way is a guide explained in the dialogue of the old man character. This will appear just before the level starts to ensure that the user knows how to play before attempting at completing the game.

Help and documentation could be improved if the user could access the settings icons that are visible on the main menu. Currently, the in-game menu bar is missing the help icon, which, on the main menu, would reveal the tutorial. Adding the help icon into the in-game menu bar would improve the user's access to help if the user did not read the tutorial or forget the controls.

User feedback

Users found that collecting potions was too simple a task. This meant that the game was short and there was very little for the user to experience. They also mentioned that because there was nothing stopping them from collecting the potions, there was no challenge. Introducing obstacles could make the gameplay more interesting if placed wisely to avoid users taking the most straightforward route. Introducing enemies and a stealth mechanic could also make the gameplay more interesting as the user would have to consider timing their movements. Simply placing the potions in more challenging places would make the game more challenging and entertaining for the user.

One of the problems identified by the user was the fact that the character was not centred on the screen. This makes it difficult to see what is left of the user, especially if the user wants the player to move left. Some users felt uncomfortable moving left because of this and may feel discouraged to do this.

Sound autoplay is disabled on some browsers, such as Google Chrome and Firefox. This prevents some users from experiencing the game to its fullest without knowing. To solve this, a notice should be provided before the user starts the game informing them to turn the sound on for the full experience.

However, in terms of positive feedback, many of the users' felt that the buttons were easy to find and easy to predict their uses just by looking at their symbols. Additionally, many liked the colour schemes of the game, especially the main menu.

Re-implementations based on user feedback

One of the key changes made from user feedback was the title as this bugged many people due to the inconsistency of the lettering. Initially, this was Seven redemptions but was changed to Seven Redemptions so that the capital letters were consistent and made the overall presentation of the main menu look more symmetrical.

Another change we implemented from the feedback was about the character design. The user thought that the protagonist could be changed to fit the colour scheme of the background images as the character seemed to stand out too much compared to its surroundings, making the game look unrealistic. We decided to update our protagonist's design to match this. This same step was also taken to change the floor of the level, as it was a bit plain.

Conclusion

In conclusion, the game meets the users' desire for a retro game. The game is easy to understand and play as these are clearly outlined in the tutorials, but the difficulty is increased through the combination of two potions which both have different functions and uses. The use of pixels throughout the level again brings back a sense of nostalgia, especially for the older target audiences, making the game a bit more personal to each user.

A range of implementation techniques were used to make the design choices for our game. These include a storyboard low-fi prototype and a logic flowchart. Visual cues such as shading and shadow, height in the relative field and texture gradient were used to make the game look like it had more depth despite it being a 2D image. Two principles of grouping (similarity and proximity) were also applied to the user interface of the game. HTML5, CSS3 and JavaScript were used to construct the game. Some tweaks have been made since that were based on our user feedback to make the game more enjoyable to our target audience. Care was taken to ensure the user's experience was as good as possible.

The team's next steps would be making more levels, which increase in difficulty as the user progresses through the game. These tweaks could include: making the health bar move faster to give the user less time to collect the needed potions, adding more obstacles such as small enemies that intrude the protagonist's path, and adding less healing but more poison potions.

References and final inventory:

Audio inventory:

Description of audio	Where is will be used	Audio code	References
Background music for the main screen	Main menu	intro_screen.mp3	https://www.zapsplat.com/music/game-music-soft-warm-synth-arpeggios-calming-soothing-game/
Music played when the old man's dialogue appears	Dialogue	dialogue.mp3	https://www.zapsplat.com/music/game-music-retro-arcade-melody-with-electro-drums-and-synth-elements/
The sound played when one of the potions is collected	Level 1	collect_item.mp3	https://www.zapsplat.com/music/game-tone-short-digital-generic-could-be-collect-item-1/
The sound played when the other potion is collected	Level 1	collect_item1.mp3	https://www.zapsplat.com/music/retro-8-bit-arcade-style-game-sound-action-blip-collect-item-4/
Sound plays when the player has not completed the level	Game over screen	game_over.mp3	https://www.zapsplat.com/music/game-sound-fun-arcade-organ-tone-short-negative-fail-or-lose-tone-2/

Plays when all poison potions have been collected	Win screen	level_complete.mp3	https://www.zapsplat.com/music/musical-game-tone-mystery-complete-end/
Plays throughout the level as the user plays the game	Level 1	theGame.mp3	http://mp3clan.top/mp3/pixel_game.html

Character inventory:

Character	Level used	Character code	Type	Use	References
Old man	1	old_man.png	graphic	Walks protagonist through the tutorial	Created by ourselves
		old_man2.png	graphic	Switches after the next button is pressed during tutorial	Created by ourselves
Protagonist	1	Player_1.png	graphic	Controlled by the user input to achieve the aim of the game	Created by ourselves
		Player_1i.png	graphic	Faces the opposite direction to Player_1.png	Created by ourselves

Button and Item inventory:

Type	Description	Filename	Where it will be used	References
Button	Clicked to start the game	start.png	Main menu	created by ourselves
Button	Mute button to stop the music	sounf_off.png	Main menu, Level 1	created by ourselves
Button	Speaker button to play the music	sound_on.png	Main menu, Level 1	created by ourselves
Button	Settings icon	setting.png	Main menu	created by ourselves
Button	After it is clicked it displays the tutorial of the game	help.png	Main menu	created by ourselves
Button	Used to resume the game	play.png	Level 1	created by ourselves
Button	Used to pause the game	pause.png	Level 1	created by ourselves
Item	Healing potion used for the first level	potion.png	Level 1	created by ourselves
Item	Poison potion used for the first level	green.png	Level 1	created by ourselves

Background inventory:

Filename	Levels used	Type	References
bg_1.png	Main menu	graphic	https://wallpapercave.com/w/wp1933972
title.png	Main menu	graphic	fontspace.com
Tutorial.png	Main menu	graphic	Created by ourselves
bush.png	1	graphic	Created by ourselves
cloudbg.PNG	1	graphic	Created by ourselves
dTree1.png	1	graphic	Created by ourselves
dTree3.png	1	graphic	Created by ourselves
darkTree1.png	1	graphic	Created by ourselves
hell.png	1	graphic	Created by ourselves
mountain1.png	1	graphic	Created by ourselves
mountain2.png	1	graphic	Created by ourselves
redbg.PNG	1	graphic	Created by ourselves