

Computer Studies 2015
Summative Proposal



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Course Code: ICS 3U1 - 02

Due: June 2nd 2015

Introduction

The game I will be making is called Box Life, a simple 2d platformer / puzzle game. The purpose of the game is to try finish as fast as possible and gain a high score. Each level has its own timer depending on the difficulty that the player needs to finish the level within. If time runs out the player will lose. Losing a level will reset the timer and cost the player a life. Losing all lives will end the game. To win, you must go through a blue block usually on the other side of starting position. Going through the block will spawn you in the next level.

Game States

Splash Screen: splash screen will be a quick 2 second slide at the beginning that says “Somar Ani Presents”

Main Menu: Entering the game will take you to a main menu. Main menu will be simple. Grey background with Box Life logo at the top, and a PLAY and EXIT options in the middle. You will be able to choose using “w” and “s” to navigate, and “Enter” to select. Option hovered on will be colored green. Pressing Play will take you to the difficulty select screen.

Main menu idea (made in Photoshop)



Colors:

Background color:
#3f3f3f

Highlighted color:
#34c765

Difficulty Select: This screen will let the user choose between 3 difficulties: Noob, Normal and Hardcore. It will look exactly like the main menu except it will have the 3 difficulty options in the middle.

Tutorial Screen: This screen will give the user a very brief introduction to the game. It will tell them what the controls are, and how the timer works. Pressing 'W' will start the game.

Lose Screen: Lose screen will just display what level and difficulty the player reached to, how many lives they had remaining and what their total time is. (This timer starts as soon as the player starts level 1). Will have 2 options, an option to exit and an option to play again.

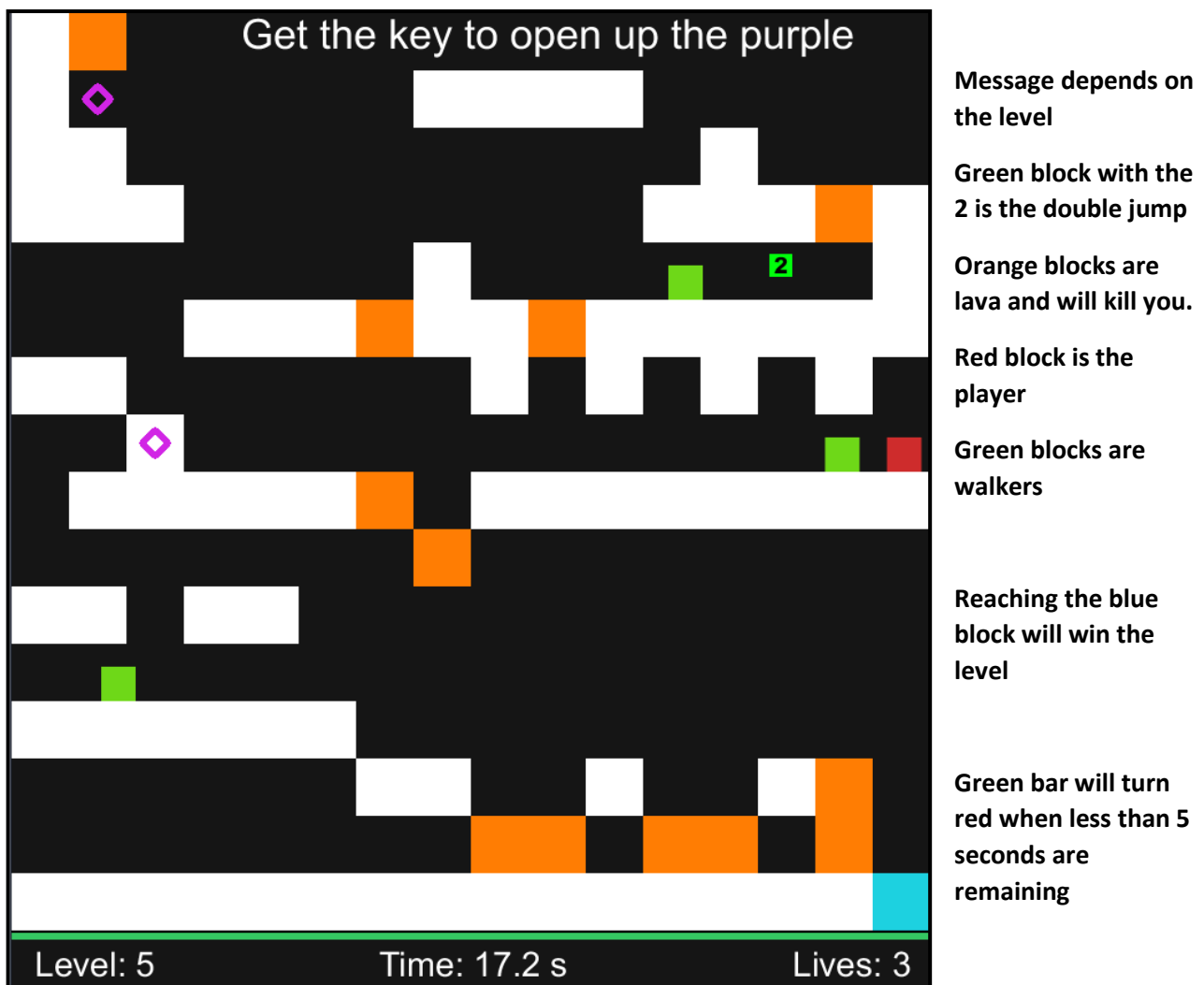
Win Screen: Very similar to the lose screen. Will display all statistics but will have a congratulatory message. Will have 2 options, an option to exit and an option to play again.

Levels

1. Level 1: This level will introduce the player to movement. At the top, it will tell the user that keys "W", "A", and "D" are used to move. As soon as a player moves, the message will change, telling the user to reach the blue block to win. There will be a couple jumps that the player will have to make. There is now way to lose in this level other than running out of time.
2. Level 2: This level will be the first to have lava blocks. Lava blocks are platform features that will kill you if you step on them. You will have to jump over them to avoid dying. This level will have multiple lava blocks on the ground and in the air which the player will have to jump over. It will also combine the lava with some harder jumps.
3. Level 3: This level introduces the player to walkers. The walkers move back and forth on a platform, with a message telling the player that colliding with them will kill you. The player spawns in the top left corner, and must jump over several lava blocks and 3 walkers. Blue block is still present at the same location in the bottom right.
4. Level 4: This level will not add anything new, but will be a more difficult level that incorporates all past learned things. It will have a few walkers, lava blocks and difficult jumps that the player will have to complete.
5. Level 5: This level will introduce players to the double jump power up which will double the height in which player can jump. This level will have multiple 2 block jumps which the player will have to make to familiarize themselves to the concept.
6. Level 6: This level will expand on double jump. It will incorporate all of previous learned concepts (walkers, Lava, and double jumps). In this level, the player will spawn right next to the blue block, but will not be able to get to it because a 2 block jump separates them. The player will have to get to the top left corner of the map, where there is a double jump power up that will allow them to jump over and get to the blue block. This level will be the first to have multiple walkers on the same platform.
7. Level 7: This level will introduce player to keys. Keys are game elements which the player needs to collect to open up a section of the map. This map will involve some elements from previous levels but the main purpose is for players to familiarize themselves with keys. It will have some lava and walkers, but no double jump.
8. Level 8: This is a more difficult level. It will incorporate everything learned so far. It will be the first level to have 2 keys that the player will have to pick up to complete the level. It will have the double jump power up, harder jumps to complete, many lava blocks and will have multiple walkers, some of which are on the same platform.

9. Level 9: This Level is similar to level 8, but more difficult. It will have 2 keys to open 2 different sections as well as multiple enemies and Lava blocks. It will also introduce the player to reappearing lava blocks. Repapering lava blocks are ones that appear and disappear in a pattern. Lava blocks will only kill the player if they are visible. This will force the player to make jumps in a rhythm like pattern to avoid getting killer.
10. Level 10: This is the final level. It will have many reappearing lava blocks and walkers. The level starts without a blue block. The player will have to grab a key placed in between reappearing lava blocks. Picking up the key will fully transform the map. It will turn into a maze where the blue block will be placed in the center. There will be a couple reappearing lava blocks but no walkers. The player will have to solve the maze with the remaining time they have. To get to the blue block, they will have to get yet another key. Getting this key will create an entrance to the middle where the player can access the blue block, and win the game.

Mockup Level



NOTE THIS MAY NOT BE LEVEL 5. THIS WAS FOR DEMENSTRATION OF ELEMENTS ONLY

Game Mechanics

- Screen is 800 x 850, all game elements will be displayed on the screen at all times
- The game level is 800 x 800. The bottom bar which is 800 x 50 will display Level, Time remaining and level which player is on
- Difficulty determines the amount of lives a player has. Noob: 5, Normal: 3, Hardcore: 1
- The time to complete a level depends on difficulty. Noob gives plenty of time to complete the level. Even if a mistake is made the player has enough time to finish. Normal gives the player moderate time, allowing them to take the level slowly. Hardcore gives the player the minimal time needed to complete a level. In most cases, perfect execution is required to win at hardcore, any mistakes will cause the player to lose too much time
- A game timer will begin as soon as you start level 1. This timer will not be visible to the player until they win or lose. It will show how long it took them to reach to that point. The lower the time is the better.
- Levels are made up of 16 x 16 tiles, each tile is 50px * 50px
- The game uses 'A' and 'D' to move side to side, and the key 'W' to jump
- Player can jump a maximum of one block vertically without double jump. Gaining double jump will allow the player to jump 2 blocks.
- Gravity is present in all levels. As soon as you jump, you will start accelerating back down, getting faster with each tick, until you reach the ground.
- The blue block has no collision. Going over it will cause you to fall through where you will spawn on a platform in the next level.
- A timer will start as soon as you start each level. Running out of time will count as a death and will subtract a life.
- Reaching 0 lives will end the game and take the player to game over screen.
- Taking double jump will leave it on for the rest of the level. Dying or moving on to the next level will reset jump height to one block.

Collision

Collision is very straight forward. Player will not be allowed to move into walls, and will be considered to be collided if any of its sides or corners are in contact with the platform.

Same method of collision is used for entities and power ups. As long as a corner or any side of the player is in contact with the entity it will be considered to be collided.

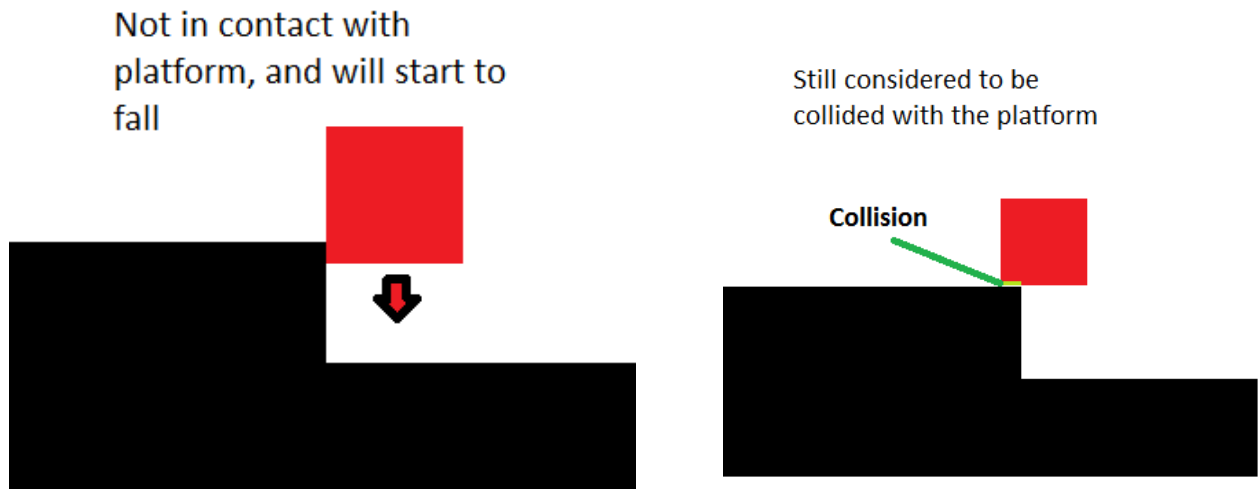
Collision

Detected

Player cannot move to the right anymore,
but can move to the left.



Player is considered to be
collided with the ground
and will not fall any
further



If the player hits a wall which is on top of them, they will start accelerating downward.

Collision with the orange block is very similar to regular collision. If any part of the player is touching the orange block it will be considered collided and the player will die.

Conclusion: Overall the theme of this game is to be simple yet intuitive. Using blocks and simple colors gives the game a very simplistic design, while making it easy for the player to see everything going on.