Downtown Horror

(A Top Down Survival Game)

Implementation Document



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By Andrew Letailleur

Ayrshire College, Student

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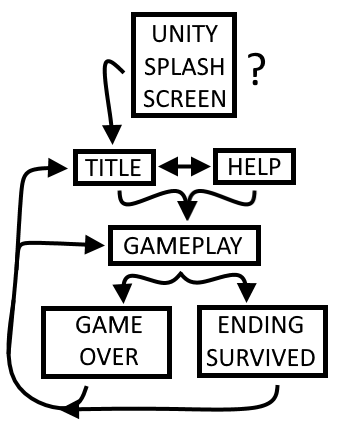
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# Storyboard/Design Layout

Below is a rough diagram of the entire app layout, and the transition to each page.

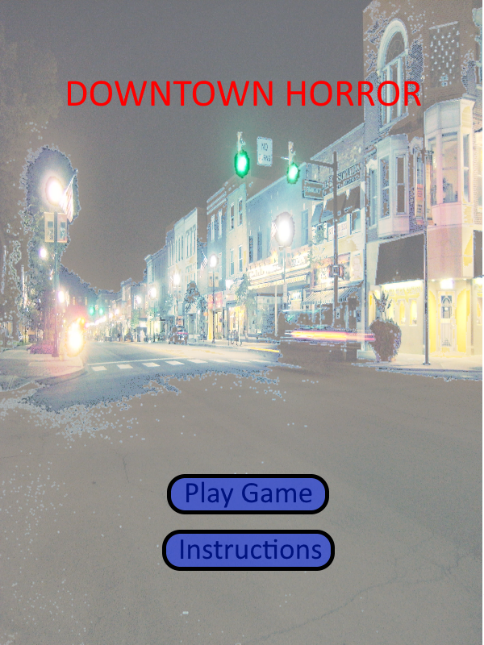
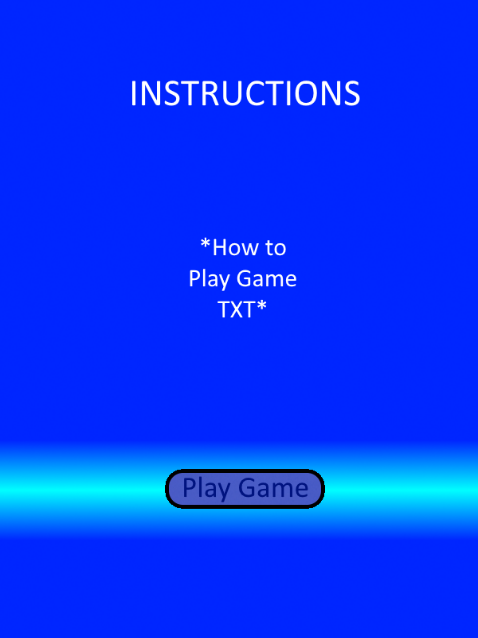


^Navigational Map (subject to change), showing in order

* Splash Screen (In case of Unity pre-loaders for the free version, say.)
* Title Screen, linked to the following pages
  + Help screen (Instructions)
  + Gameplay (Main gameplay)
* Help screen, linked back to Title Screen, and/or the gameplay itself
* Gameplay Screen/scene, linked to ‘Game Over’ and ‘Ending’ screens
* Game Over screen/scene, linked to the “Main Menu” Screen, or gameplay itself
* Ending screen/scene, linked to the “Main Menu” Screen, or gameplay itself

## Screen Layouts

Layouts are as follows

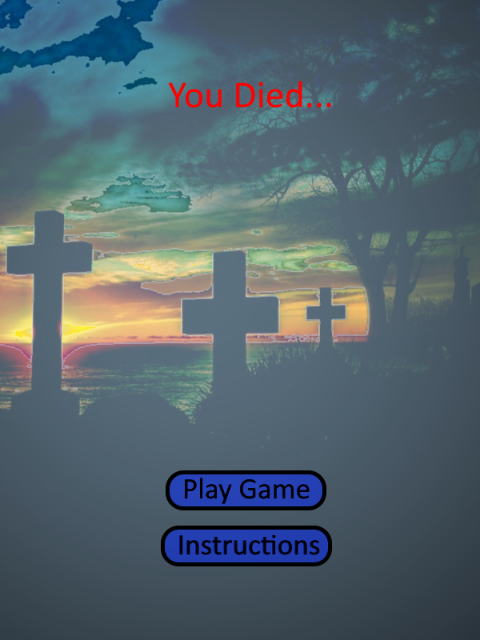
 

**Home Page/Main Scene** should only display buttons that link to either the help menu, or the gameplay itself.

**Instructions** screen/scene should teach the player how to play the game itself, with the instructions being contained in a scrollable text screen.

HEALTH

**Gameplay** screen/scene should consist of the gameplay itself, mainly on the player, their health and any roaming enemies. The main goal is simply to avoid collision with the enemy’s and their attacks, by touching the screen to move the player themselves.

**Game Over** screen should only replace the gameplay screen if the game is over, and the buttons should link back to either the gameplay, or the main menu screen.

Likewise, the **Ending** screen should only replace the gameplay screen if the player has won/survived the game long enough, and the buttons should link back to either the gameplay, or the main menu screen.

# Pseudocode

Below is a rough excerpt/plan on how to theoretically implement key features within the program.

## Neo Background Script

GET MAP ASSET, CAMERA VIEW POSITION

IF MAP OUTSIDE CAMERA VIEW POSITION, VERTICALLY

IF MAP OUTSIDE CAMERA VIEW POSITION, UPWARDS

MOVE MAP ASSET TWO SCREENS UPWARDS  
ELSE

MOVE MAP ASSET TWO SCREENS DOWNWARDS

END IF

ELSE IF MAP OUTSIDE CAMERA VIEW POSITION, HORIZONTALLY

IF OUTSIDE CAMERA VIEW POSITION, LEFT

MOVE MAP ASSET TWO SCREENS LEFT  
ELSE

MOVE MAP ASSET TWO SCREENS RIGHT

END IF

END IF

## Background Update

GET STAGE REF, INTEGER/NUMBER VALUE WISE

SET BACKGROUND STAGE VALUE TO STAGE REF, ONCE ???

IF STAGE REF NOT MATCH BACKGROUND STAGE VALUE

UPDATE MAP ASSETS TO STAGE REF VALUE  
 UPDATE BACKGROUND STAGE VALUE TO STAGE REF

END IF

## Player Code excerpt

**Health Damage**

IF COLLIDE WITH ENEMY

LOSE HEALTH, UPDATE HEALTH BAR

ELSE IF COLLIDE WITH BULLET

LOSE HEALTH, UPDATE HEALTH BAR

DESTROY BULLET

END IF

IF LOSE ALL HEALTH

GO TO GAME OVER SCREEN

END IF

**Movement**

IF AREA IN SCREEN IS TOUCHED  
 SLOWLY MOVE PLAYER TO POSITION OF TOUCH

END IF

**To Next Stage/Level**

IF SET AMOUNT OF TIME HAS PAST

UPDATE STAGE VARIABLE

IF STAGE VARIABLE ABOVE MAX LEVELS

GO TO ENDING SCREEN

ELSE

RESET TIMER TO STAGE VARIABLE

END IF

END IF

## Camera Script

FIND PLAYER LOCATION

SET CAMERA POSITION TO PLAYER POSITION

## Base Enemy Script

SET UP TIMER

MOVE IN SET DIRECTION  
  
IF OUTSIDE SCREEN

IF TIMER =< 0

DESTROY ENEMY

DECREMENT POP\_CAP (IN ENEMY SPAWNER)

ELSE

DECREMENT TIMER / TIMER - -

END IF

ELSE

RESET TIMER

END IF

## Vampire Script

GET PLAYERS CURRENT LOCATION

ROTATE TOWARDS PLAYER’S CURRENT LOCATION

MOVE SIDEWAYS (RIGHTWARDS)

MOVE FORWARD (BY SET AMOUNT, DEFAULT ZERO)

## Projectile Script

SET SPEED, AND BULLET OFFSET

SET COUNT, MAX\_COUNT, EXIST

IF COUNT > 0

DECREMENT COUNT / COUNT - -

ELSE

FIRE SHOT,

COUNT = MAX\_COUNT

END IF

**Fire Shot**

SPAWN BULLET

SET POSITION + BULLET OFFSET, ROTATION

ADD SPEED TO SPAWNED BULLET

DESTROY BULLET AFTER SET TIME, EXIST

ROTATE TOWARDS PLAYER’S CURRENT LOCATION

MOVE SIDEWAYS (RIGHTWARDS)

MOVE FORWARD (BY SET AMOUNT, DEFAULT ZERO)

## Enemy Spawner Script

GET FOUR\_SIDES, POP\_CAP, STAGE\_INT, PLAYER

INITIALIZE VAMP\_THERE AS FALSE

SET MIN\_RNG

STAGE\_INT = PLAYER LEVEL, (STAGE WISE)

IF POP < (POP\_CAP \* STAGE\_INT)

SPAWN ENEMY

END IF

**Spawn Enemy**

ROLL DICE (between 1 to 100)

IF DICE > MIN\_RNG

SPAWN OBJECT

FLIP COIN

IF HEADS

SPAWN OBJECT = ZOMBIE

ELSE IF TAILS

SPAWN OBJECT = GHOUL

END IF

PICK RANDOM SIDE (Between ‘1 to 4’, UP, LEFT, DOWN, RIGHT wise)

SPAWN OBJECT TO CHOSEN RANDOM SIDE (UP || DOWN || LEFT || RIGHT)

INCREMENT POP\_CAP

END IF

IF PLAYER STAGE = 3

IF NOT VAMP\_THERE

SPAWN VAMPIRE

VAMP\_THERE IS TRUE

END IF

END IF

# Usability and Accessibility

Reason why I justify the layout of the program itself, is partly due to Unity by itself includes a ‘splash screen’ on its games have by default, for the free version at least. Though this is more based on a hunch/assumption than in depth knowledge of the Unity Engine’s, code/functions themselves.

For the button interaction, the reason for it being only in menu’s, is to separate additional content within a menu in order of importance. With gameplay being placed on top of the list due to its importance, while the help menu and other tertiary requirements are given a lower place due to it being a handy reference on how to play the game, instructions wise.

Especially since the instructions were not strictly needed to be seen every time the app itself loads. This may mean having to go through two pages to see most of the content within the game itself, but it helps with user interface in the long term when not having to load as much data unless that data is needed.

My justification for the planned layout of the content itself is so that once the user is finished playing the game itself, they can easily quit the game itself upon pressing the back button itself. Though that does not take into account the limited users who might have a vastly different interface than the one based on my own Xperia mobile device, among other types of devices.

As the actors themselves are on a touchscreen smartphone, the whole app will be interacted through touch screen interface, and buttons, at expense of any additional support for keypad input on other phones. This might cause conflict with other mobile devices with only a keypad interface, but an acceptable loss due to the market share of users having android phones can be assumed to have a touch screen interface. Any issues from touch controls has been taken into account with a heavily simplified control interface, requiring only touching buttons in a menu, or touching the area to move the player.

As for screen sizes, text should by default be around **16/20** in font size (ideally), while the button’s themselves being large enough to contain similar sized text, while having a ‘gap’ between each individual button, and should scale vertically according to screen size, especially in cases of tablets. This is before taking into account people with poor motor skills, or difficulty with reading. Also, care should be taken on colour’s chosen, not just on stage tone but the colours of the health bar itself; as red and green should not be used for those with minor colour blindness. Other colour blindness’s however, is something I cannot take into account at this point in time, past ‘common sense’ of the common red/green rule.

# Error Log for: Downtown Horror

Below is a rough error log I recorded my issues on during development, in order to have a clearer ‘plan’ on what to fix alongside the Kanban system of development. Due to lack of documentation examples, this is more ‘rough’ in style, and subject to change/improvements.

In general, this Error log is made under the logic of recording any errors that happen during development, and enables good amount of space to discover the reason behind the error, its solution/fix, and the date it was noticed and resolved.

# Error Log

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Error Case ID | Date of Error | Error In Question, and it’s results | Reason behind Error, Cause | Action Taken, to resolve the Error | Error Fixed at… |
|  | 25/09 | Scroll view not working initially, causing text to ‘snap back’ instead of stroll to an end, or be not fully filled. | Technical difficulties on coding scroll view, given inexperience on the feature. | Short term, to try and look through tutorials in order to possibly grasp how to resolve.  If however, doing so will be a detriment to time, to consider another avenue, such as scalable text.  At the end, it was decided that scalable text would be more viable. However, if in future via importing, this becomes an issue, I’d look again on Scroll view tutorials. | N/A, skipped |

# Error Log (EXAMPLE)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Error Case ID | Date of Error | Error In Question, and it’s results | Reason behind Error, Cause | Action Taken, to resolve the Error | Error Fixed at… |
|  | 27/01 | Project was in cloud save | Human error on save location | Made another save within a physical, HDD location | 27/01 |
|  | 27/01 | Lack of actual Android Mobile support | It was not pre-emptively installed on Unity, thus could cause later term problems with resolution if left unresolved. | Installed the “Android Support Setup” app, to ensure future compatibility with mobile devices. | 27/01 |
|  | 30/01 | Background in menu’s not scaling properly. | Due to images by themselves, NOT scaling automatically when initially placed, if a ‘background’. | Utilized ‘pivots’ in order to enforce scaling of menu | 30/01 |
|  | 30/01 | Lack of actual program support of C++ language | Unity by default, only supports two programming languages, Java, and C# | Stick to C#, as it’s the closest relative of C++ when it comes to meeting the requirements. To say nothing on how switching to Visual Studio last minute, with the added requirements of 3D Assets, would have been far too much for my technical abilities. | 30/01 |
|  | 06/02 | Lack of knowledge on how to enable mobile input | Due to up until now, only been developing Unity programs for the PC Interface, not the mobile interface itself. | Look at tutorials, until I eventually found a solution, and added an extra ‘pointer’ class to help with debugging after initial failures. Did a working version for movement, though unsure if it also supports mobile touch input. | 16/02 (proto)  22/02  (final) |
|  | 16/02 | Laptop broke, due to anger issues with a C++ Project. | Self-destructive attitude when it came to I quote, “SDL Hell” in C++ Programming, and being stuck on a same bug for a month, with a ‘do or die’ pressure making me snap. | Got a new, work focused laptop, with no frills and warranty to cover for damages. On top of moving all of my future work to be more ‘careful’ against the odds of a similar incident happening again. | 16/02.  19/02 (regain) |
|  | 19/02 | New laptop did not have android support installed | It was not pre-emptively installed on Unity, especially as it was a new laptop. This  Could cause later term problems with resolution if left unresolved. | Installed the “Android Support Setup” app, to ensure future compatibility with mobile devices. And also redid build settings to ensure android support. | 19/02 |
|  | 22/02 | “Could not find debugger” was found on MonoDevelop | An occasional quirk that the code editor has on starting up, that I’ve noticed happen occasionally. | Close MonoDevelop, then run it again. Problem should solve itself by then. | 22/02 |
|  | 22/02 | Issues with proper scrolling on background sprites on a 3x3 map | Issue is due to technical difficulties with the x/y axis, when code is off camera screen. Along with tracking camera position wrongly initially in update. | Eventual downscaling to a more manageable 2x2 worth of screens, in reference to a previous tutorial on zombie conga. ??? | 07/03 |
|  | 07/03 | Issues with prototype walls NOT barring player movement. | Issue is due to the manner the player moves, code wise. That lets it bypass even rigid body ‘walls’. | After on/off attempts to resolve the issue, ran out of time to fix it. Thus, ‘axed’ the wall secondary feature. | 26/04, failure |
|  | 10/03 | Reference of Spawner is not set to instance of object, long error log headache wise. | The Invoke and Invoke Repeating methods, the way I was using them, lead to a persistent error, which leads to variables apparently refusing to update. | Focused on just the functions I’m aware of, “Update” And such wise. Especially when using a conditional ‘if’ statement utilizing the power of Delta Time variables. | 13/03 |
|  | 13/03 | Occasional weird funny enemy spinning upon being spawned, or colliding with an enemy. | My bet, is funky rotation dancing is due to complex object physics reactions when collision happens, especially between colliders and rigid bodies. This leads to fun things like ‘spinning’, and sudden circle walking on collision. | Unless I can keep track on every single factor behind it, most I can do is try and bar the objects from rotating on an X/Y axis at a guess. | **Not fixed,** unknown |
|  | 13/03 | Enemy Spawner NOT Spawning enemies to Camera Location properly. | Spawner does NOT keep track of player camera. Also, lack of proper calling to camera area, place wise. | Added a call to camera itself at the start of the spawn code, Start function, instead of top alone. Also, eventually stuck to “Viewport To World Point” for camera use. | 15/03 |
|  | 17/03 | Enemies spawning, but rotation being off on initialization. | This is due to just calling the enemy, yet not properly setting up the variables for rotations and such; | Utilize Vector3 and Quaternion.Euler, and also add a ‘random’ value within the z axis, rotation wise. | 20/03 |
|  | 20/03 | One side not spawning correctly, Spawner wise | This was due to a bug made in the random code itself, which lead to repeating the same spawn variable as another side. | Fixed the spawning ratio, so that it’d be each side having a different spawn variable. | 20/03 |
|  | 20/03 | Ghoul code being nigh the same as the Zombie code itself, with one difference. | This was due to a realization that the only difference is that the ghoul can shoot, while the zombie can’t. | Make a separate projectile script, to add on enemies that can shoot. While having the ghoul have the same movement AI as the zombie. | 21/03 |
|  | 21/03 | Projectiles not moving properly when spawned. | This is due to a lack of proper ‘movement’ code/script, when initially created/spawned. | Created a proper projectile script, which will destroy the object after a set time, along with bullet movement. | 21/03 |
|  | 21/03 | Pointer debug object not tracking properly bug. | Pointer debug object was apparently not properly tracing player input, touch/mouse wise. | Fixed, and it also in hindsight gave insight on why my movement script went funky, due to ‘piercing’ through barriers and walls. | 21/03 |
|  | 25/03 | Lack of time to make a decently detailed background art for stages. | Looming deadlines, meant that I cannot afford to do detailed backgrounds. More due to the headaches of copyright. | Resolved to make a ‘basic map set’ through use of geometric art, while developing editing ‘tricks’ along the way that helped with speed and quality. | 28/03, last image wise |
|  | 28/03 | Figuring out how to update stage map assets to reflect current stage variable. | This is due to the stage/background script not properly referencing the stage variables themselves, from player’s end. | Eventually searched for a tutorial, for referencing variables. And found an informative Youtube tutorial that helped me with referencing. | 06/04 |
|  | 03/04 | Rough implement of player health and timer variables, for stage reference | Programming health, timer and stage variables, in order to create the gameplay itself. However, as it is initially, it was all barebones, and not possibly fully implemented as of yet. | After some time, implemented a slider health bar and health damage timer mechanics, that’d help with a more detailed health visual, along with making timer and stage values easy to reference by other assets. | 05/04 |
|  | 05/04 | Basic damage collision set up, for damage to player health. | Needing to program in, in order for enemies to cause harm to the player, via “on collision stay”. | Had the collisions entered as ‘trigger’ conditions, that should lower the player’s health while colliding. | 05/04 |
|  | 06/04 | Audio glitches on work laptop | Due to the nature of the audio jack, sometimes moving the headphones a nudge can lead to disconnection, and speakers being active instead of earphones. | Muted the default speakers, and swore to in future, ideally stick to USB Audio jacks instead for a more stable audio experience, for testing purposes. | 06/04 |
|  | 09/04 | Code refinement | Due to at this point, some code being repetitive, or wasteful. | Removed repeated, REDACTED or useless code, after a check. | 09/04 |
|  | 09/04 | Bullet harm collision inclusion. | In order to ensure that there’s different types of harm within the game, especially when bullets are involved. | Make colliding bullets hurt the player for roughly 16% of their total health, before destroying themselves. | 09/04 |
|  | 09/04 | Despawn enemies and lower current pop if enemy is away from screen for too long. | In order to ensure there’s always a stream of enemies in the game field, and not all spawned and moving FAR away from the player. | Eventually made enemies have an internal tracker to see if they’re outside ‘camera’ view, and to die if they’re outside camera view for too long, lowering the total population, and keeping a stream of harm around. | 16/04 |
|  | 09/04 | Accidentally included a bug, where the enemies will stop moving period after a set amount of time. | This was due to the nature of what I did to try and fix my enemies not disappearing, I instead imposed a movement weight on them, via some arcane/inane means. | Reverted previous changes to a previous version, therefore losing all progress I’ve made, but not at the expense of enemies’ not moving, period. | 09/04 |
|  | 18/04 | Noticed lack of an actual Error or Change log. | Due to me not having set up a complete template from the get-go, and been mainly noting any ‘easy’ events through a txt journal over a change/error log. | Over time, set up an Error log, detailing each and every change, error or solution made during development, and put it into a log, along with dates attached, given flexibility of log design. | 12/05 |
|  | 18/04 | Having to outsource sounds to meet the audio requirements without issues | In order to meet the minimum requirements, and to meet the vision/scope of focusing on just ‘audio sounds’ for the game, I had to find sounds for all the enemies. | Logged into Freesounds.org, and other places offering free audio sounds, and also checked to ensure that each sound outsourced is in the public domain, and not required crediting. | 18,  (Most)  4, (Vamp) |
|  | 18/04 | Include the audio assets outsourced, to the actors themselves on spawning. | In order to meet the required scope/vision of the project, at least on the enemies & objects being spawned themselves. | It was so simple/easy to do, as it should only trigger on spawning I feel, that I only had to add in sound cues on spawning of an enemy. | 18/04 |
|  | 18/04 | Test different camera perspective for better 3D graphics, leading to off the rails spawning mechanics. | Was in order to see if I can implement a more detailed ‘3D’ view in game, to act as additional evidence of including 3D content. However, the spawning bugs that happened as a result, lead to a headache. | Scrapped plans on switching from the standard Orthographic viewpoint, to a ‘Perspective’ viewpoint, due to the strength of the glitches, and the limited timeframe I’m under. | 18/04 failure |
|  | 18/04 | Noticed that the map backgrounds did not scale properly | Likely due to minor visual glitches and such with certain software, which lead to visual cut offs by accident. | Resolved to give the test background, and future backgrounds more of a ‘polish’ to ensure maximum uniformity, loop wise. | 18/04 |
|  | 19/04 | Lack of detailed ‘Game Over’ and ‘Ending’ scenes | Due to prototype nature and focus being placed on creating the gameplay itself, did not took into account to properly create/render the ending screens. | Added text, to make the scenes a bit more ‘unique’ than just plain prototype assets, for now. | 19/04 |
|  | 19/04 | Lack of full three stages worth of background assets | Due to prototype logic initially focusing on a single, looping background. | Created two more additional map assets that took the lessons learnt from previous visual errors into account, leading to more realistic maps. | 27/03 (assets were done by then, just needed adding.) |
|  | 20/04 | Eventual issues with assets, and extremely limited time to render AND animate basic models; meant I had to import 3D Assets from Unity store. | Due to a looming deadline, and at this time of the project, zero confident skill in animating in blender, or created pre-set animations, to realistically make an animated 3D model by deadline. | Imported a base free Zombie asset from the Unity Asset store, which incidentally came with the right shape that made the player look a lot more realistic… And opened a whole new can of problems I didn’t noticed beforehand. | 20/04 |
|  | 20/04 | Animations, and the whole movement of zombie not working at all initially. | Due to inexperience and lack of familiarity with the asset itself, had some initial issues when it came to making sure it’s properly reconverted for use with my enemy models. | Eventually went into some sort of ‘trance’, where I got the basic amount of work done, with an animated ghoul enemy, and somewhat there zombie at the start. Further refinement’s needed. | 20/04 |
|  | 22/04 | Player character, upon having its appearance change from a test cube to a humanoid model, had the wackiest movement like glitchy superman. | Rotation quirks and such, variable wise. Likely lead to the player itself move ‘head first’ to the direction of the mouse click. Not helped by the way the player code was initially laid out, that can have a serious impact in visual believability. | At the end, managed to figure out how to force the changed rotation to change JUST the Z axis, due to that being the axis that changes the object and by proxy, actors actual ‘facing’ under a 2D scale, say… | 23/04 |
|  | 23/04 | Sudden glitches with widely inappropriate collisions. | Due to changes in actor shapes since updating to more ‘humanoid’ base model, leading to a required update in colliders to reflect asset changes. | Changed the colliders to be somewhat reflective of the models themselves, being more circular in tone. | 29/04 |
|  | 24/04 | Code clean up / refinement | Due to at this point, some code being redundant, or needing clearing up in format. | Removed redundant or useless code, after a check through. And moved bad scripts to an appropriate folder. | 24/04 |
|  | 24/04 | Lack of a Vampire unit | Due to initial time constraint fears, I focused only on the Zombie and Ghoul enemies. Now that they’ve been cleared, I am now able to focus on creating the vampire itself. | Create a new model, with a slightly different script that moved sideways of its facing, and had it facing the player’s current position at all times, ensuring ‘circle’ movement. This has been helped due to previous issues with Z-axis rotation’s fresh in mind at the time. | 24/04 |
|  | 24/04 | Issues with projectiles with vampire, shooting from its back. Instead of firing from its chest. | Due to technical difficulties/est, with the projectile script being dependent on the actor’s rotation. NOT the ‘facing’ rotation. | Made a gizmo, a separate ‘part’ of the enemy actors with a separate rotation, solely for spawning bullets. Likewise, this helped give an added offset for firing bullets. | 24/04 |
|  | 24/04 | Vampire not spawning, spawn glitch wise | Likely due to inability to properly grab stage reference | Reset/ “Reverse” polarity, helped by previous experience with health bar referencing. | 25/04 |
|  | 24/04 | Error and Change log in function, being one and the same | Due to the nature and logic behind the error logs and change logs, recording faults and providing changes and solutions to the problems. | Merged the two ‘ideas’ for a separate Error and Change log, into one universal ‘table’ of changes, say. | 24/04 |
|  | 25/04 | Lack of paperwork elements for too long. | Due to growing hyper focus/need to get the program itself done, over covering the full paperwork trail. | Created a rough storyboard or diagram for the program itself, incidentally noticed a possible fault with the health bar NOT being color blind friendly. | 25/04 |
|  | 25/04 | Health bar not taking into due account, Color blindness. | Due to initial oversight, and color bias of ‘green’ equals life, while ‘red’ equals death. In contrast to the ‘red/green’ color issue seen by some. | Changed the ‘green’ health bar to Yellow, ensuring, anyone can see the health bar degrade for those with a red green color blindness issue. | 25/04 |
|  | 25/04 | Green colored bullets being nigh impossible to see in game. | Due to ‘green’ projectiles not mixing well with the green background at stage 2, being nigh invisible danger, at the player’s expense. | Change the projectile color from Green, to Purple. | 25/04 |
|  | 25/04 | Weird visual glitch on multiple plays, that had the camera be darker in a sense. | Likely due to a weird, technical issue that I have no chance of understanding the reasoning behind. Past likely best remedied through play through menu, instead of the source. | Unless I can figure out how to fix this technical glitch, leave it be. As it’s a minor glitch in contrast to more crippling game bugs. | Unfixed, unknown |
|  | 25/04 | HUD needing polishing, and a help or instructions menu. | Due to lack of foresight leading to minor issues with better backgrounds, or a lack of a instructions menu on how to play the game itself. | Incorporated a help menu, and cleaned up the menu interface by a nudge, by making them scale according to screen size. Helped by being able to add to the UI Manager script, and considering putting instructions on a scroll view sort of storage. | 26/04 |
|  | 29/04 | Noticed some assets were not scaling properly | Likely due to not being completely optimized for mobile release, and such, which lead to not being friendly for far smaller screen resolutions. | Placed the assets dependent on HUD and GUI on scalers, and such in order to ensure as much scalability as possible for mobile devices. | 29/04 |
|  | 29/04 | Timers not being ‘good enough’ in stage length | After constant testing, I began to ‘feel’ a sort of extreme length between stages 2 and 3, say. | Evened out the time length of stages 1 & 2, math wise. | 29/04 |
|  | 02/05 | Issues with Error log taking too long | Due to the timing of creating an error log, and having to cross reference my development log taking far too much time. | Focused on other areas I can work on, while burnt out on error logs, paperwork wise. Especially with including required Test Documents and tables as such. | 02/05 |
|  | 02/05 | Instructions button did not have a working start button. | Likely due to not properly checking HUD buttons when setting up the instructions menu, where set up correctly. | Fixed the button issues, and double checked every other button to ensure no further issues where there. | 02/05 |
|  | 03/05 | Later headaches with formatting test tables. | Due to after a set amount of tests, the tests themselves can ‘visually’ blur to me, leading to mistakes in testing order. | For the test template, added little bold ‘headers’ next to each section, on actual results. To act as a visual ‘guideline’ for each section/group of tests, in a top down perspective. | 03/05 |
|  | 08/05 | Constant issues with building a mobile version not working properly. | Due to a combination of several technical difficulties, which lead to my Laptop just being unable to build an Android version of the unity game, due to SDK bugs/issues. Which leads to me not being able to properly debug for mobile devices much. | Eventually had to build each mobile versions on College PC’s instead, as they were set up more well in contrast to my developer headaches. And also, made a Windows version in case all else failed. | 10/05, work around found, but issues are not fully resolved. |
|  | 09/05 | Acquired test results on passes and fails, not only on issues, but passive complaints on gameplay and other quirks. | Some of the issues where mainly on the difficulty with Vampires, difficulty spike wise. And later on mobile, further issues due to inability to debug and other quirks with mobile interface. Including inability to move, inability to press buttons, and non-functioning back buttons. | Addressed every failure, with as much concern as a gamebreaking bug, to the best of my extent given the limited timeframe I was under. Rest I had to research and program in guesswork, and pray a solution worked by the time I can compile a version by the last day. | Xx, issues fully resolved by 12/04 |
|  | 11/05 | Last minute paperwork issues. | Due to apparent last minute paperwork issues, due to a combination of oversight, and too many documents instead of being in one universal files/est. | Re-organized my tables/est, and contents to be of two documents. Design document, and “Implementation” Document. | 11/05 |

Test Cases/Plan for: Downtown Horror

In general, this Test Table was created under the general path/logic of Top Down testing, and the mentality of Black Box conditions. Each step is delivered through Thread Testing to ensure that each test is done in ‘steps’, so that the results of each step are recorded as they are assessed.

This test table is only designed to test the controls, the gameplay, and the menu transitions.

# Test Table for Downtown Horror: BLANK VERSION

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test Case ID | Test Action/Description | Expected Result/Output | Actual Result/Output | Test Pass/ Fail | Action Taken |
|  | Ensure the app properly loads the Unity Title when the app/program itself starts, Unity wise. | That the app loads properly without crashing, and the splash screen is loaded. | -**Start up Menu** |  |  |
|  | Check the “Main Menu” page loads properly once the Unity logo disappears. | That once a few seconds have past, the main screen will load along with two buttons, for playing the game, and help. |  |  |  |
|  | Check that if the user presses the ‘back button’, the app will instead close itself. | That if the back button is pressed, the app will close itself (ideally.) |  |  |  |
|  | Check that the user can access the “instructions” screen from the “Main Menu” screen, by pressing the help button. | That the help screen itself loads over the main menu, and shows a scaling set of instructions, along with a “Return” button to go back to the main menu, and a “play game” button to start the game itself. |  |  |  |
|  | Check that the text from the instructions page itself is scalable, and above all else readable on a mobile device. | That the text itself will faithfully scale to whatever native resolution the user’s mobile has, and above all is, is readable. |  |  |  |
|  | Check that the user can go back to the “main menu” page from the “help” page, by pressing the return button. | That the main menu loads over the previous page, and shows the main menu screen along with two buttons, play game and instructions. |  |  |  |
|  | Check that the user can play the game from the “main menu” page, by pressing the “Play Game” button. | That the gameplay screen loads over the main menu, and starts the gameplay with the player character in the center, and a full health bar. |  |  |  |
|  | Check that the user can play the game from the “instructions” page, by pressing the “Play Game” button. | That the gameplay screen loads over the help screen, and starts the gameplay with the player character in the center, and a full health bar. |  |  |  |
|  | Check to ensure that gameplay levels are loading correctly when required in game. | That level design, assets and such are loading properly without game crashing bugs, especially during stage progression. | -**Gameplay** |  |  |
|  | Check to ensure the player initially spawns at start with a full health bar. | That when the game starts, the health bar is rated ‘full’ when the player character is has been spawned. |  |  |  |
|  | Check to ensure the player can move their avatar to where the player tapped the screen, with a red dot showing where they’d move to. | That upon touching any area within the screen, a red dot will appear where the player tapped, and the avatar will face and move towards that red dot. | -**MOVEMENT** |  |  |
|  | Check to ensure map is scrolling, or looping no matter how far or where the player goes/moves to. | That if the player moves vertically long enough, the map will loop vertically, likewise if horizontally. |  |  |  |
|  | Check to ensure the camera always follows the player, and is always centered at player location. | That the screen will always follow wherever the player moves towards, and that the player is always center to the camera screen. |  |  |  |
|  | Check to ensure there can never be more than a set amount of enemies in the game screen, depending on the stage the player is in. | That there won’t spawn more than a set amount of enemies on screen, with the cap increasing according to the stage number. | **Enemy Spawn** |  |  |
|  | Check to ensure that enemies spawn in a random side of the screen, upon being spawned. | That if an enemy appears, they can appear from any side of the game screen itself. |  |  |  |
|  | Check to ensure zombies spawn at all stages, ghouls at the second and third stages, and the vampire at the last stage itself. | That zombies appear in all game levels, ghouls from the second level onwards, and the vampire at the last stage/level. |  |  |  |
|  | Check to ensure the enemy emits a sound depending on what type of enemy they are upon spawning. | That when an enemy appears on screen, they will emit a sound that will tell the player what kind of enemy they are. | **Enemy movement** |  |  |
|  | Check to ensure that each type of enemy is easy to spot, by visual color and set animation alone. | That each enemy has a unique ‘color’, and animation assigned to it. With the sole exception of Vampire, that has no ‘animation’ so to speak of. |  |  |  |
|  | Check to ensure that the zombie and ghoul monsters move at a set direction at all times when spawned, unless their rotation has been ‘nudged’. | That the zombies and ghouls, will always move at a set ‘pace’ in a linear direction, acting as visual ‘bullets’ or obstacles the player must move through or dodge. |  |  |  |
|  | Check to ensure the vampire always circle or ‘strife’ around the player, and slowly move towards the position of the player. | That the vampire will always circle around and face the player themselves, while slowly moving towards the player over time. |  |  |  |
|  | Check to ensure that a Ghoul or Vampire can fire a shot in front of them. | That the vampire and ghoul will always fire a shot moving in the direction they were facing at the time. |  |  |  |
|  | Check to ensure the bullet will travel towards it’s set direction, once spawned/fired. | That once fired, a bullet will constantly travel according to its parent’s aim, until collision with other actors or player. |  |  |  |
|  | Check to ensure bullet disappears from game after a set amount of time, or upon collision of player. | That the bullet will disappear after a set amount of time, or if it hits the player themselves. |  |  |  |
|  | Check to ensure the player loses health over time if they are in contact with any enemy unit collision wise. | That as long as the player is in ‘touch’ contact with any enemy, they will slowly lose their health over time. | -**Collision** |  |  |
|  | Check to ensure that the player loses a chunk of health if hit by a projectile, before the bullet disappears from the game itself. | That if a player collides with a bullet, they will lose a visible percentage of their health, before the bullet will disappear. |  |  |  |
|  | Check to see that enemies can’t go through each other, nor move past the player themselves. | That as intended, the enemies can’t move over each other or the player. |  |  |  |
|  | Check to see if a zombie or ghoul is out of the game screen after a set amount of time, they will disappear from the game itself. | That if a zombie or ghoul is out of the screen for more than a few seconds, they will remove themselves from play, and decrease the total amount of enemies for spawning count purposes. |  |  |  |
|  | Check to see that if player loses all health, the game will move to a game over screen. | That upon losing all health, the player will go to a ‘game over’ page along with two buttons, for playing the game again, and return to the main menu. | -**Progression** |  |  |
|  | Check to ensure gameplay moves to a new stage, after a set amount of time. | That upon not dying/losing all health for a set amount of time, the player will automatically move to the next ‘stage’, visually. |  |  |  |
|  | Check to ensure player goes to the ‘ending’ screen if they survive all three levels of gameplay. | That upon surviving for a set amount of time for all three stages, the player will go to the ending screen, having ‘won’ the game. |  |  |  |
|  | Check that the user can play the game again from the “Game Over” screen, by pressing the play again button. | That the gameplay screen loads over the game over screen, and restarts the gameplay with the player character in the center, and a full health bar. | -**After Game HUD** |  |  |
|  | Check that the user can go back to the “main menu” page from the “Game Over” page, by pressing the return button. | That the main menu loads over the previous page, and shows the main menu screen along with two buttons, play game and instructions. |  |  |  |
|  | Check that the user can play the game again from the “Ending” screen, by pressing the play again button. | That the gameplay screen loads over the ending screen, and restarts the gameplay with the player character in the center, and a full health bar. |  |  |  |
|  | Check that the user can go back to the “main menu” page from the “Ending” page, by pressing the return button. | That the main menu loads over the previous page, and shows the main menu screen along with two buttons, play game and instructions. |  |  |  |

Below, is the actual tests themselves, by actual test players and such.

# Test Table for Downtown Horror: TEST RESULTS, by “Greg Baird”

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test Case ID | Test Action/Description | Expected Result/Output | Actual Result/Output | Test Pass/ Fail | Action Taken |
|  | Ensure the app properly loads the Unity Title when the app/program itself starts, Unity wise. | That the app loads properly without crashing, and the splash screen is loaded. | **Once you lunch the app the unity title appears** | PASS | No further action required |
|  | Check the “Main Menu” page loads properly once the Unity logo disappears. | That once a few seconds have past, the main screen will load along with two buttons, for playing the game, and help. | Yes after a few seconds later the main menu shows up | PASS | No further action required |
|  | Check that if the user presses the ‘back button’, the app will instead close itself. | That if the back button is pressed, the app will close itself (ideally.) |  | ???  FAIL | Unable to test properly due to technical difficulties during the build. Should fix ASAP. |
|  | Check that the user can access the “instructions” screen from the “Main Menu” screen, by pressing the help button. | That the help screen itself loads over the main menu, and shows a scaling set of instructions, along with a “Return” button to go back to the main menu, and a “play game” button to start the game itself. | Once your press the help button, the help information displays | PASS | No further action required |
|  | Check that the text from the instructions page itself is scalable, and above all else readable on a mobile device. | That the text itself will faithfully scale to whatever native resolution the user’s mobile has, and above all is, is readable. | Yes the text is readable to me. | PASS | No further action required |
|  | Check that the user can go back to the “main menu” page from the “help” page, by pressing the return button. | That the main menu loads over the previous page, and shows the main menu screen along with two buttons, play game and instructions. | Once your press the return button it takes you to the previse page | PASS | No further action required |
|  | Check that the user can play the game from the “main menu” page, by pressing the “Play Game” button. | That the gameplay screen loads over the main menu, and starts the gameplay with the player character in the center, and a full health bar. | Once your press the play game button, the game loads, the health bar is full | PASS | No further action required |
|  | Check that the user can play the game from the “instructions” page, by pressing the “Play Game” button. | That the gameplay screen loads over the help screen, and starts the gameplay with the player character in the center, and a full health bar. | Once you’re in the help menu and press the start game button the game loads with the health bar full | PASS | No further action required |
|  | Check to ensure that gameplay levels are loading correctly when required in game. | That level design, assets and such are loading properly without game crashing bugs, especially during stage progression. | They are no errors. | PASS | No further action required |
|  | Check to ensure the player initially spawns at start with a full health bar. | That when the game starts, the health bar is rated ‘full’ when the player character is has been spawned. | You do spawn with a full health bar | PASS | No further action required |
|  | Check to ensure the player can move their avatar to where the player tapped the screen, with a red dot showing where they’d move to. | That upon touching any area within the screen, a red dot will appear where the player tapped, and the avatar will face and move towards that red dot. | They is a red dot on screen once your press where to move | PASS | No further action required |
|  | Check to ensure map is scrolling, or looping no matter how far or where the player goes/moves to. | That if the player moves vertically long enough, the map will loop vertically, likewise if horizontally. | The map does scroll with the player. | PASS | No further action required |
|  | Check to ensure the camera always follows the player, and is always centered at player location. | That the screen will always follow wherever the player moves towards, and that the player is always center to the camera screen. | Yes the camera follows the player till the game over screens | PASS | No further action required |
|  | Check to ensure there can never be more than a set amount of enemies in the game screen, depending on the stage the player is in. | That there won’t spawn more than a set amount of enemies on screen, with the cap increasing according to the stage number. | **3 enemies onscreen at one time** | PASS  ? | No further action required |
|  | Check to ensure that enemies spawn in a random side of the screen, upon being spawned. | That if an enemy appears, they can appear from any side of the game screen itself. | They come from all 9 directions | PASS | No further action required |
|  | Check to ensure zombies spawn at all stages, ghouls at the second and third stages, and the vampire at the last stage itself. | That zombies appear in all game levels, ghouls from the second level onwards, and the vampire at the last stage/level. | All 3 types of monster spawn | PASS | No further action required |
|  | Check to ensure the enemy emits a sound depending on what type of enemy they are upon spawning. | That when an enemy appears on screen, they will emit a sound that will tell the player what kind of enemy they are. | **Yes they are sounds for each of the enemy spawns** | PASS | No further action required |
|  | Check to ensure that each type of enemy is easy to spot, by visual color and set animation alone. | That each enemy has a unique ‘color’, and animation assigned to it. With the sole exception of Vampire, that has no ‘animation’ so to speak of. | Each enemy has its own color and animations | PASS | No further action required |
|  | Check to ensure that the zombie and ghoul monsters move at a set direction at all times when spawned, unless their rotation has been ‘nudged’. | That the zombies and ghouls, will always move at a set ‘pace’ in a linear direction, acting as visual ‘bullets’ or obstacles the player must move through or dodge. | Zombies and ghouls move in a set direction while on screen | PASS | No further action required |
|  | Check to ensure the vampire always circle or ‘strife’ around the player, and slowly move towards the position of the player. | That the vampire will always circle around and face the player themselves, while slowly moving towards the player over time. | The vampire cycles round the player | PASS | No further action required |
|  | Check to ensure that a Ghoul or Vampire can fire a shot in front of them. | That the vampire and ghoul will always fire a shot moving in the direction they were facing at the time. | Yes the ghoul and vampire fire in front of them | PASS | No further action required |
|  | Check to ensure the bullet will travel towards it’s set direction, once spawned/fired. | That once fired, a bullet will constantly travel according to its parent’s aim, until collision with other actors or player. | Once the bullet collise with player it disappears | PASS | No further action required |
|  | Check to ensure bullet disappears from game after a set amount of time, or upon collision of player. | That the bullet will disappear after a set amount of time, or if it hits the player themselves. | The bullet disappears after about 4 seconds | PASS | No further action required |
|  | Check to ensure the player loses health over time if they are in contact with any enemy unit collision wise. | That as long as the player is in ‘touch’ contact with any enemy, they will slowly lose their health over time. | **Yes the player loses health when the enemies hits** | PASS | No further action required |
|  | Check to ensure that the player loses a chunk of health if hit by a projectile, before the bullet disappears from the game itself. | That if a player collides with a bullet, they will lose a visible percentage of their health, before the bullet will disappear. | Yes the player loses about 15% health per bullet | PASS | No further action required |
|  | Check to see that enemies can’t go through each other, nor move past the player themselves. | That as intended, the enemies can’t move over each other or the player. | When enemies hit each other pushes each other out of the way | PASS | No further action required |
|  | Check to see if a zombie or ghoul is out of the game screen after a set amount of time, they will disappear from the game itself. | That if a zombie or ghoul is out of the screen for more than a few seconds, they will remove themselves from play, and decrease the total amount of enemies for spawning count purposes. | Yes after the enemies go off screen after a few seconds they disappear | PASS | No further action required |
|  | Check to see that if player loses all health, the game will move to a game over screen. | That upon losing all health, the player will go to a ‘game over’ page along with two buttons, for playing the game again, and return to the main menu. | Once you lose all your health the end screen menu shows up | PASS | No further action required |
|  | Check to ensure gameplay moves to a new stage, after a set amount of time. | That upon not dying/losing all health for a set amount of time, the player will automatically move to the next ‘stage’, visually. | After a set amount of time, the game stages change | PASS | No further action required |
|  | Check to ensure player goes to the ‘ending’ screen if they survive all three levels of gameplay. | That upon surviving for a set amount of time for all three stages, the player will go to the ending screen, having ‘won’ the game. | After a set amount of time the ending screen does appear | PASS | No further action required |
|  | Check that the user can play the game again from the “Game Over” screen, by pressing the play again button. | That the gameplay screen loads over the game over screen, and restarts the gameplay with the player character in the center, and a full health bar. | **Yes the player can press play again from the game over screen** | PASS | No further action required |
|  | Check that the user can go back to the “main menu” page from the “Game Over” page, by pressing the return button. | That the main menu loads over the previous page, and shows the main menu screen along with two buttons, play game and instructions. | The user can you back to the main menu from the game over screen | PASS | No further action required |
|  | Check that the user can play the game again from the “Ending” screen, by pressing the play again button. | That the gameplay screen loads over the ending screen, and restarts the gameplay with the player character in the center, and a full health bar. | Yes the player can press the play again button at the ending screen | PASS | No further action required |
|  | Check that the user can go back to the “main menu” page from the “Ending” page, by pressing the return button. | That the main menu loads over the previous page, and shows the main menu screen along with two buttons, play game and instructions. | Yes the player can press the return button at the ending screen | PASS | No further action required |

## Tester Summary Greg Baird

The test results above were a windows version of the game. As I couldn’t install it on my phone. While testing this game, it was very easy and fun to play. The first and second stage was easy, last stage was a bit buggy as the vampire would track and make the distance from the player shorter, which wasn’t meant to do this.

# Test Table for Downtown Horror: TEST RESULTS, by “Donald Moffat”

Date 08/05/17

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test Case ID | Test Action/Description | Expected Result/Output | Actual Result/Output | Test Pass/ Fail | Action Taken |
|  | Ensure the app properly loads the Unity Title when the app/program itself starts, Unity wise. | That the app loads properly without crashing, and the splash screen is loaded. | It does | Pass  Pass on Galaxy S8 | Came up without any issues |
|  | Check the “Main Menu” page loads properly once the Unity logo disappears. | That once a few seconds have past, the main screen will load along with two buttons, for playing the game, and help. | Page loads well displays proper name and menu | Pass  Pass on Galaxy S8 | None taken |
|  | Check that if the user presses the ‘back button’, the app will instead close itself. | That if the back button is pressed, the app will close itself (ideally.) | Could not be tested at present time due to build issues works well in windows format | Pass for windows  Fail for mobile would not go back on S8 | Fix issues with build in unity for android systems |
|  | Check that the user can access the “instructions” screen from the “Main Menu” screen, by pressing the help button. | That the help screen itself loads over the main menu, and shows a scaling set of instructions, along with a “Return” button to go back to the main menu, and a “play game” button to start the game itself. | Instructions clear and concise Menu buttons work well | Pass  Pass on Galaxy S8 | No Issues |
|  | Check that the text from the instructions page itself is scalable, and above all else readable on a mobile device. | That the text itself will faithfully scale to whatever native resolution the user’s mobile has, and above all is, is readable. | Everything looks fine with text and readable on Windows not tested on mobile due to build issues | Pass for working on windows format  Pass on Galaxy S8 | No Issues for windows format. Text looks fine on Galaxy S8 |
|  | Check that the user can go back to the “main menu” page from the “help” page, by pressing the return button. | That the main menu loads over the previous page, and shows the main menu screen along with two buttons, play game and instructions. | Works well with no issues | Pass on both Windows and mobile device | No issues on windows only back button not working but when using menu works well on mobile device |
|  | Check that the user can play the game from the “main menu” page, by pressing the “Play Game” button. | That the gameplay screen loads over the main menu, and starts the gameplay with the player character in the center, and a full health bar. | Works well from main menu | Pass works on both windows and mobile device | Problem fixed when another version of game was made and was playable on both mobile and windows |
|  | Check that the user can play the game from the “instructions” page, by pressing the “Play Game” button. | That the gameplay screen loads over the help screen, and starts the gameplay with the player character in the center, and a full health bar. | Play game button works well | Pass on both systems | No issue on windows or mobile version |
|  | Check to ensure that gameplay levels are loading correctly when required in game. | That level design, assets and such are loading properly without game crashing bugs, especially during stage progression. | Each level works well within the game | Pass on windows and mobile | No issue with windows or mobile version |
|  | Check to ensure the player initially spawns at start with a full health bar. | That when the game starts, the health bar is rated ‘full’ when the player character is has been spawned. | Health bar at full when game starts | Pass on windows and on mobile | No issue |
|  | Check to ensure the player can move their avatar to where the player tapped the screen, with a red dot showing where they’d move to. | That upon touching any area within the screen, a red dot will appear where the player tapped, and the avatar will face and move towards that red dot. | Movement is flawless with each tap/click within the game | Pass on windows and mobile | No issue  On windows version tapping on mobile worked well |
|  | Check to ensure map is scrolling, or looping no matter how far or where the player goes/moves to. | That if the player moves vertically long enough, the map will loop vertically, likewise if horizontally. | Map scrolls well when moving through the game | Pass on windows and on mobile | No problems on windows or mobile scrolling working well within game on both versions |
|  | Check to ensure the camera always follows the player, and is always centered at player location. | That the screen will always follow wherever the player moves towards, and that the player is always center to the camera screen. | Camera on the game follows character and works well within the game | Pass on windows and mobile | player on mobile version works well same within windows |
|  | Check to ensure there can never be more than a set amount of enemies in the game screen, depending on the stage the player is in. | That there won’t spawn more than a set amount of enemies on screen, with the cap increasing according to the stage number. | Enemies spawning and not too many on screen at one time | Pass on both windows and mobile version | None |
|  | Check to ensure that enemies spawn in a random side of the screen, upon being spawned. | That if an enemy appears, they can appear from any side of the game screen itself. | Enemies appear at random with no problem | Pass on both windows and mobile | None |
|  | Check to ensure zombies spawn at all stages, ghouls at the second and third stages, and the vampire at the last stage itself. | That zombies appear in all game levels, ghouls from the second level onwards, and the vampire at the last stage/level. | Each spawns for their respective level | Pass on both windows and mobile | None |
|  | Check to ensure the enemy emits a sound depending on what type of enemy they are upon spawning. | That when an enemy appears on screen, they will emit a sound that will tell the player what kind of enemy they are. | All sounds work correctly within the game | Pass sound heard on both windows and mobile version | None |
|  | Check to ensure that each type of enemy is easy to spot, by visual color and set animation alone. | That each enemy has a unique ‘color’, and animation assigned to it. With the sole exception of Vampire, that has no ‘animation’ so to speak of. | The enemies appear in a colour that is noticeable against the games backdrop | Pass on both windows and mobile version | None |
|  | Check to ensure that the zombie and ghoul monsters move at a set direction at all times when spawned, unless their rotation has been ‘nudged’. | That the zombies and ghouls, will always move at a set ‘pace’ in a linear direction, acting as visual ‘bullets’ or obstacles the player must move through or dodge. | Each enemy moves in different ways within the game as its played | Pass on both windows and mobile version | None |
|  | Check to ensure the vampire always circle or ‘strife’ around the player, and slowly move towards the position of the player. | That the vampire will always circle around and face the player themselves, while slowly moving towards the player over time. | Vampire moves in towards player the closer it gets the more health it takes away | Pass on windows and mobile version when time changes level | Player should be able to fire against vampire as no way of avoiding it otherwise on windows version unable to test on mobile due to lack of character movement |
|  | Check to ensure that a Ghoul or Vampire can fire a shot in front of them. | That the vampire and ghoul will always fire a shot moving in the direction they were facing at the time. | Both Ghoul/vampire can fire shots from each | Pass on both windows and mobile version on game | none |
|  | Check to ensure the bullet will travel towards it’s set direction, once spawned/fired. | That once fired, a bullet will constantly travel according to its parent’s aim, until collision with other actors or player. | Once bullet fired they move in direction they were spawned and do not change direction during game. | Pass on both windows and mobile version | None |
|  | Check to ensure bullet disappears from game after a set amount of time, or upon collision of player. | That the bullet will disappear after a set amount of time, or if it hits the player themselves. | Bullets disappears after reaching edge of screen or after a period of time within the game | Pass on both versions windows and mobile | None |
|  | Check to ensure the player loses health over time if they are in contact with any enemy unit collision wise. | That as long as the player is in ‘touch’ contact with any enemy, they will slowly lose their health over time. | when player contacts an enemy player loses health. | Pass health bar works in both version when player loses health | None |
|  | Check to ensure that the player loses a chunk of health if hit by a projectile, before the bullet disappears from the game itself. | That if a player collides with a bullet, they will lose a visible percentage of their health, before the bullet will disappear. | A large proportion of health disappears when hit by an enemy | Pass in both versions when player is hit | None |
|  | Check to see that enemies can’t go through each other, nor move past the player themselves. | That as intended, the enemies can’t move over each other or the player. | No enemies hit each other within the game | Pass on both versions of the game | None |
|  | Check to see if a zombie or ghoul is out of the game screen after a set amount of time, they will disappear from the game itself. | That if a zombie or ghoul is out of the screen for more than a few seconds, they will remove themselves from play, and decrease the total amount of enemies for spawning count purposes. | Both zombie and ghoul disappear after period of time within the game | Pass on both versions of the game no issues | None |
|  | Check to see that if player loses all health, the game will move to a game over screen. | That upon losing all health, the player will go to a ‘game over’ page along with two buttons, for playing the game again, and return to the main menu. | Once all health has disappeared the player is instantly sent back to main menu to the replay the game | Pass on both versions user taken to game over screen | None |
|  | Check to ensure gameplay moves to a new stage, after a set amount of time. | That upon not dying/losing all health for a set amount of time, the player will automatically move to the next ‘stage’, visually. | Whilst playing the game the next stage appears without issue and continues with no loss of gameplay | Pass on windows and mobile | None |
|  | Check to ensure player goes to the ‘ending’ screen if they survive all three levels of gameplay. | That upon surviving for a set amount of time for all three stages, the player will go to the ending screen, having ‘won’ the game. | Was not able to win the game at all after third level always got killed by vampire | Pass on windows and mobile versions | none |
|  | Check that the user can play the game again from the “Game Over” screen, by pressing the play again button. | That the gameplay screen loads over the game over screen, and restarts the gameplay with the player character in the center, and a full health bar. | Returns to main screen at end of last level with no issue | Pass on windows version Partial Fail on mobile version | Fix issue of back button not working on mobile |
|  | Check that the user can go back to the “main menu” page from the “Game Over” page, by pressing the return button. | That the main menu loads over the previous page, and shows the main menu screen along with two buttons, play game and instructions. | Works well within the game | Pass on windows and on mobile menu except for issue with back button on device | No issue on windows back button not working on mobile |
|  | Check that the user can play the game again from the “Ending” screen, by pressing the play again button. | That the gameplay screen loads over the ending screen, and restarts the gameplay with the player character in the center, and a full health bar. | Works well within the game | Pass on the windows version pass on mobile version | No issue on both |
|  | Check that the user can go back to the “main menu” page from the “Ending” page, by pressing the return button. | That the main menu loads over the previous page, and shows the main menu screen along with two buttons, play game and instructions. | Works well within the game no problem | Pass on windows fail on mobiles | Fix issues with back button on mobile. |

## 

## Tester Summary D Moffat

Whilst playing the game on windows format I found that the game was addictive and easy to play. I did find however that at times while playing I found that mouse control was not always that good probably the mouse that was being used. If game was to be put onto a Andriod device it would be a good tapping game for players on a mobile or tablet device. Due to the issues at not being able to play game on mobile, I find that the game has merit and if developer can fix the bug/issue within Unity, it may be a good game for users to play as a diversion for a few minutes at a time. At time of testing the game, the only available option was to use a Windows version. A mobile version was made available to me to test, but upon trying to test, the game was unplayable, as character would not move but other aspects within the game worked well that could be viewed by tester. The next day another version was given to me for testing where everything worked well within the game except for the issue of not being able to use the back button on the mobile device to either exit game or return to menu. Apart from that the game worked well and also some of previous testing and playing of the game where issues were found and were fixed within the game play.

Donald Moffat

# Evaluation

Here is a general overview of the testing results gained upon playing and testing the game.

## Gameplay

During Testing, from both tester’s ends the basic menu interface works exactly as intended. And generally speaking, the enemies spawn roughly as intended from the tester’s end, as is the gameplay progression itself being keyed to a timer, with new levels and the conditional spawning of the Vampire itself, to the ending conditions themselves. As the game itself is mainly a survival game, I felt throughout the game that the main emphasis of the game itself, should be to dodge incoming enemies, and their attacks. And in a general scope, I’ve seen I’ve just about succeeded in that aim, under the presumption the player played cautiously throughout the entire game.

However, despite being roughly playable, one common complaint I’ve heard that was agreed upon by my other tester, was the extreme difficulty of the Vampire in contrast to every other enemy unit. Though personally, under developer bias I felt that the vampire could be dodged if moved right, that sort of logic was not shared or properly grasped by the play testers. As such, if there’s any last minute tweaks to be had, it is to either cap how near the vampire can crawl towards the player, or nerf his forward movement to a standstill in crawling towards the player, in order to give the player a more reasonable chance to avoid its approach.

Either way, one sad aspect was during the main gameplay itself, I was initially unable to test on an Android Device proper. And by the time I was able to by college computers, compile a Mobile version of the game itself, I was met with a few gameplay breaking buts that on the gameplay itself, rendered the player unable to move the player character, period.

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It was due to how persistent said issues where, that for the main test I was forced to test via the windows application initially, and having to do blind guessing with the mobile issues. Ideally, I’d have the game itself developed with an actual assurance of being able to build a mobile port, without persistent issues that’d take too long to debug on mobile porting on my work laptop. Needless to say, worst case scenario, I still have a playable game, but not in the desired platform/format than intended.

Overall, I still feel on the mouse aspect at least, the game is perfectly playable at its core, with the player losing health upon collision of enemies or hazards. However, I still can’t help but feel that there is much left I can still do on the project proper, let along on the debug end that could improve on the gameplay itself. From the pressing need of fine tuning of technical issues, to alternative camera condition/positions to showcase more 3D aspects properly, or given additional time to implement dream features I was forced to cut due to time and technical constraints. But those are but idle thoughts on what could have been.

## Cut Features

Throughout the game development from the planning stage to the development stage, there has been features cut. These consist of the following;

### Planning cuts

Due to the full scope of my project likely being too much to cover fully for a ‘demo’, more so given the limited time frame I have in developing the game itself; I had to keep in mind key features that I might not be able to include in time, due to technical difficulties and limited time frame. In priority, these consist of the following;

* **Walls**

Though another key feature I’d like to include if given time, due to it’s potential to ramp up the difficulty and make the player ‘feel’ more isolated as the game rolls on. Due to the anticipated difficulty in programming essential key features themselves, I kept it in mind as a ‘secondary’, to work on first if I have the spare time after ironing out key functions.

* **Obstacles**

Extending on walls, Obstacles where another key feature I was weary of, not the least being possible headache when it came to spawning mechanics, and possible headaches with trying to stop the player from bulldozing/moving through the objects themselves, depending on technical/programming difficulties.

* **Health kits**

Increase health ‘power up’ pickups to try and ‘lessen’ the gameplay difficulty depending on how hard the game is, was kept in mind. However, given time constraints and theme clash, I won’t have time to *think* of implementing health kits when I have other issues to sort out.

* **Environmental hazards**

like mines, est. Where also lightly talked about in the planning stage. However, as it was just light conjecture at the time, and with the limited time frame after ‘secondary’ additions such as walls and obstacles are dealt with first, I’d likely not have time to even *think* of adding more hazards that can harm the player, past the basic enemies themselves.

* **Fine polishing of AI**

In order to give more challenging gameplay, I feel there’s a chance I would eventually need to tweak the AI to move/behave a bit differently than a ‘straight’ path, in order to give an added challenge to the player themselves in variety. However, given priorities to ‘implement first, polish later’ for basic, working functions/features, I’d likely not have enough time to do any more polishing past last minute debug’s, on a case by case basis.

### Development cuts

During development of the game, if my planned cuts were not enough, or in the off chance I suffered from technical difficulties during the time constraints on the scope, I had to cut off a few additional features or ideal features of the game. These include the following.

**Walls & Obstacles** due to programming difficulties, and time constraints. I did spend some time trying to implement these features due to some spare time, but the technical challenges where just too much given the limited time I had. Not to mention the technical issues while developing the game on trying to have walls that’d bar the player from just moving past, barrier wise.

**Enemies killing Enemies** due to part development oversight during the development of the game, given other higher priorities such as getting the base game itself to work properly, and issues with walls and obstacles. Not to mention leading to opening a can of worms on having to also track enemy health, and possibly end up with more room for errors if not handled carefully/properly.

**Detailed backgrounds** due to above time constraints, this likewise also applies to higher detailed enemies that required contributions from the unity asset store.

**Custom Assets** due to the time constraints, I had to acquire more detailed, 3D assets from the Unity Store itself. However, it’s due to the fact I wasn’t able to make custom animations so easily (especially as said assets utilised 3DMax, apparently.) That lead to me naturally not having the ability to make custom animations, which leads to a case of WYSIWIG on the assets themselves (What You See Is What I Get)

Due to this, depending in context, I may have to include references to the source of my assets in question, just to be on the safe side of copyright law. Triply so if it’s free assets.

## Testing

Testing has been done both on the Unity Engine itself, but also on the mobiles themselves, taking all due consideration for screen sizes and resolution throughout the development of the game itself. For the testing itself, I followed through a test table on required tests after thinking on all the possible aspects of the game itself to test, along with some ‘gut instinct’ in light outside the box testing related to key tests themselves, that by chance \_\_\_ allowed me to catch a couple of unexpected bugs I’d have not otherwise noticed on strict white box conditions.

For a change, I had a couple of other people playtest the game, and handed them my detailed test table to work through. Each of them gave different input, but in general they had issues with the game not being in mobile format due to technical difficulties, and particular complaints on the vampire closing in too close to the player themselves, with no hope or chance of escape.

This gave me insight for last minute tweaks to be made to the game, along with valuable insight for future lessons learnt for the game itself. But overall, past those two particular issues, the rest of the gameplay is just about ‘alright’ in the gameplay to difficulty aspect, and that things scaled accordingly, which relieved me of a few other possible issues the game could have had beforehand that I wasn’t able to notice as such.

# APP (Gameplay) - Bugs/Glitches

While testing I’ve noticed a few minor glitches and bugs that don’t crash the game, but interfere with the gameplay. The bugs and glitches in question are;

### Severe Technical Difficulties with Port issues

Out of all the bugs and glitches, by far the worst I’ve had been issues regarding porting the game to android initially. Something that made me spend roughly two hours trying to fix, in vain, before eventually giving up with instead porting a Windows version of the game itself.

In general, of the top of my head, they include the following two or three bugs;

* Lack of functional back button, quit game wise.
* Inability to switch game screens, due to buttons being non-responsive.
* Inability to move the player in gameplay.

All I can say, is in time I’d hope to get some sort of help in order to port the game itself. But worst case scenario, I’ve at least tested a Windows version of the game, which worked more or less spot on past the below issue.

### (Cannot) Escape from the Vampire

Even though it’s not ‘technically’ a glitch, in practice it’s a bug in game difficulty that makes the overall game take a major spike in difficulty. No matter how well the player moves reasonably, average players are just unable to properly escape, or at least move ‘away’ from the Vampire for a strict amount of time. Not helped by the vampire itself slowly creeping towards the player, with no viable means of maintaining distance past trying to move in the opposite direction the vampire is facing, along with additional issues from the other enemy units.

All I can do in the short term, is nerf the speed in which the Vampire closes the distance between it and the player, to a near or at 0 value. Past that, better longer term idea would be to figure out how to ‘draw’, and maintain a set amount of distance between the player and vampire, in order to avoid being outright having the player’s health drained to death, by a Vampire.

### Buggy Title Screen

Even though most of the time, it was working as intended. At the literal last minute/build, the ‘title screen’ completely shrunk to something of a red rectangle. Given the absolutely limited time frame by the time that happened, I was unable to resolve the issue.

Despite that, the other text screens header wise were working completely correct, so a minor visual bug, at most.

## Untestable Variables

One last note. Not so much a bug or glitch but more an ‘inability to test the game on mobile devices properly given lack of resources’. By far the biggest untestable variable was mobile support, due to long complex and headache inducing issues I’ve had with trying to create a port, and testing said port. This has been somewhat addressed via College computers not having that bug, but it just showed even more bugs that I might not be able to visibly fix in time.

The last two aspects I was unable to test properly given the time frame, are finer spawn variables within the spawn AI itself, and unable to truly start checking map border’s yourself due a lack of a functional barrier or warden yourself.

# Feedback – End User Evaluation

Once I had a finished game made, I showed my work to others in order to gain feedback and evaluation on any possible bugs or design faults not noticed by the developer himself. The two test tables above concluded with each of the tester’s own evaluation.

Conclusion

I’ve had high lows in development, which every so often came with challenges that took several weeks to solve. A few, wasn’t able to be solved at all in the limited timeframe, and had to be cut accordingly. And one or two which still persisted or happened at last minute, and as such I wasn’t able to properly fix those issues. I’ve had lows and highs with the paperwork, the invisible weight that at times was easy to write on if in a dozy, while other times I’ve went to stress hill trying to solve a forgotten problem, or do enough paperwork on time without distractions. And lastly, I’ve had super hell with last minute detailed testing for the mobile port. Not only due to technical issues with attempting to create a port on my laptop, but the limited timeframe and ability to nip those critical, nigh game breaking bugs in the bud.

Overall, there has been issues I’ve had to work through, especially on the sudden headaches of mobile ports. But that aside, I’m kind of happy with the general state of the project itself as it stands, especially thanks to last minute compiling in college leading to a working mobile version, along with a Windows back up, build wise. Though I feel like given time and polish, the game itself could be a bit better on a graphical, gameplay perspective and if there’s issues with non-functionality, a better port. That, and it’s been a learning experience in the complex issues with working for different platforms with Unity in general.

# ****References****

**AIL Test Table – Test 1** – From previous work with programming test logs, and tables as a ‘blueprint’ of overall layout of the documentation.

**Previous documentation** – for a general guideline on what sort of layout to aim for, especially on layout rules and test tables.

Misc. sites, for research of code solutions (Hail vague, verbose and sometimes confusing Unity tutorials, from Youtube, to Stackoverflow and the Unity forums for bug questions.)

Links to ENLIGHTENING Tutorials/questions/answers, forum wise.

Unity Asset Store, for the Zombie assets 3D Model/Animation wise.