91906 - Testing Document

Testing Video: [Dead Knight Python Game Testing](https://westlakeschool-my.sharepoint.com/:f:/r/personal/zz21155_my_westlake_school_nz/Documents/Dead%20Knight%20Python%20Game%20Testing?csf=1&web=1&e=ncbFys)

**Unit Testing**

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| Character Movement and Animation | | | | | | |
| Date | What is being tested | Test Type | Test Value | Expected Result | Actual Result | How it was fixed |
| 27/06/2025 | A loaded OS Tile map that allows the character sprite to appear. | Valid | N/A | The self-made "Knight" character Sprite will appear. |  | N/A |
| 29/06/2025 | When moving in any direction, the character properly faces that direction and displays correct movement animations. (e.g., the character displays upward animation when moving up). | Valid | W, A, S, D | The character is able to face into the correct direction, movement and animation when moving into the any directions | The character is able to move consistently in the correct direction.  Can be seen In One Drive Folder | N/A |
| 30/06/2025 | Idle animation for the character that can be automatically played when it is not moving in any facing direction. (including left, right, up, down) | Valid | N/A | The character can automatically do its idle animation when it is not moving in any direction facing. | The character idle animation is successfully played when it is not moving, working as expected.  Can be seen In One Drive Folder | N/A |
| 01/07/2025 | The character will be able to move only with WASD, or arrow keys. Other keys don’t. | Valid | All keys | The character is able to move by just using W, A, S, D, and arrow keys. | Arrow Keys doesn’t as not expect. WASD works perfectly to control the movement, and other keys don’t make the character move as usual. | Adding: or arcade.key. UP/DOWN/LEFT/RIGHT in self.held\_keys  Into each of these inside of the update player movement function. |
| 05/07/2025 | Single attack animation and double attack animation. | Invalid | Space key | The character is able to trigger the first attack animation when pressing the space key once. And the second attack animation after a double click. | The character is able to trigger the first attack animation, but the second attack animation is played together as the first attack animation. | Import time into the game, with the addition of attack combo function tracking attack and timers that will trigger the second attack animation. As the timer will be included in an if else function. As the can\_combo variable is initially False, so when the player press space, current\_attack = 1 plays that trigger the first animation. On the other hand, if the player presses twice at the correct time, which is self.combo\_window = 0.3, can\_combo become True that current\_attack = 2 plays the second animation. This allows the program to track the time period of the player to press space key is it between 0.3s or not, in order to play the second animation. |
| 07/07/2025 | Character’s hurt animation is able to trigger through the F button. (Just for testing, as there are no enemies that cause the player to be hurt). | Valid | F | The character’s hurt animation is able to be played when pressing the F button. | As expected, the character’s hurt animation can be triggered through the F button.  Can be seen In One Drive Folder | N/A |
| 07/07/2025 | Character is able to dash in multiple directions with correct facing animation and movement. | Invalid | Shift Key | When pressing the shift key, the character is able to dash into its facing direction with correct animation. | The character is able to dash with correct animation and direction. But it is not going forward in its facing direction. Meaning that the character is playing dash animation stationery.  Can be seen In One Drive Folder | Import time to track the time when dash starts with dash variable  self.dash\_start\_time = 0  in \_\_init\_\_ method to track when dash begins. Also adding:  if (time.time() - self.dash\_start\_time) >= self.dash\_duration or self.cur\_texture >= dash\_frames:  Inside of the character\_animation function of self.is\_dashing section. This will allow the character to end dash if the animation is completed. Furthermore,  self.dash\_start\_time = time.time()  To record the exact dash, start time, and when the character starts to dash. This will eventually solve the issue that the character dashes in a stationary position without any movement. Which makes the dash feature fully function. |
| 08/07/2025 | Character is able to die with death animation after it has been hurt for multiple times. | Invalid | F | After pressing 5 times of the F key, which means the character will play the hurt animation 5 times. The character is also to play the death animation with locked frame that all actions doesn’t work. | As expected, the character is able to die after 5 presses of F key for hurt. However, the die animation just plays the final frame without any animation.  Can be seen In One Drive Folder | Adding    Into the character\_animation class. As the original code doesn’t track the elapsed time since death starts. In this situation, the current code calculates the time in 1 second to completely play the full animation. |
| 09/07/2025 | Heal animation is able to play with recover character’s health after it has been hurt. | Invalid | E, F | The character is able to heal when pressing the E button. This means that, when a character has been hurt once, the heal button will make the character recover one health. | The healing system is able to recover health for the character after it has been hurt. However, after the character reach the maximum hurt value and triggering death function with animation. The game froze.  Can be seen In One Drive Folder | This issue that makes this make is because the freeze feature has been triggered before the character’s death animation and die. To solve this issue,  changing and adding:    Also,  文本  AI 生成的内容可能不正确。  Based on this, death start time can be initialized in the die () method and resetting cur\_texture to ensure death animation can be fully played. Also, to solve the freeze issue, the elapsed time can be tracked through elapsed = time.time() to make sure that the game can be freeze after character die with 1 second complete death aniamtion. Also, frame = min (int(elapsed / death\_duration \* death\_frames), death\_frames - 1) is using time-based calculation to calculate each frame to make the animation can be fully played in 1 second time. Which directly solves the freezing issue. |
| 09/07/2025 | Character animation when the last image of the movement is played. | Boundary | W, A, S, D | As animations are made by multiple images, the character's movement should repeat the full cycle again after playing the last image. | Working as expected, the idle animation consistently repeats in a four loop. On the other hand, the running movement animation also repeats in the cycle successfully as expected.  Can be seen in One Srive Folder | N/A |
| 09/07/2025 | Combo Testing, testing each animation is able to function and can be combined with each other smoothly. | Boundary | W, A, S, D, E, F, Shift, Space | The character is able to act with multiple combos, such as movement with attack, dash, heal, and hurt (the hurt button is just for testing). When the character is moving, except dash, the character is able to stop in the current position and finish the animation stationary. | Most of the features combined well with each other in a smooth and consistent way. Dash allows the player to create more insane and crazy action with movement. Attack, hurt will allow the character to stop, which is good. The game is able to freeze after the character dies, telling the player the game has ended. However, when the character is moving and the healing action is triggered by pressing the E button, the character doesn't stop in place to complete the healing animation or process. Instead, it continues moving, which interrupts the intended effect and breaks the game physics.  Can be seen In One Drive Folder | Adding  and not self.player.is\_healing  in the on\_update method.  文本  AI 生成的内容可能不正确。  This will allow the heal animation to be include with dash and hurt in the function of fixing the player’s x and y movement stationary Which will allow the character is able to stop when it heals just like other animations. Eventually, solve the issue successfully |

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| Health Bar | | | | | | |
| Date | What is being tested | Test Type | Test Value | Expected Result | Actual Result | How it was fixed |
| 11/07/2025 | Health bars are able to display. | Valid | N/A | A health bar can be seen on top of the character. | 图形用户界面  AI 生成的内容可能不正确。 | N/A |
| 11/07/2025 | Health bar with movement. | Valid | W, A, S, D + Shift | The health bar is able to be fixed on top of the character and move as a whole system. | The health bar is fixed on top of the character as a whole.  Can be seen In One Drive Folder | N/A |
| 11/07/2025 | Health bars with hurt system, health bar can be decrease when a character gets hurt. | Invalid | F | When pressing the F key hurts, the health bar will decrease with number and green health bar. (As there is a red bar behind in the background. Combine together as a full system) | The number decreases by 1 for each press is successful. But the Green bar remains constant.  Can be seen In One Drive Folder | Adding calculation of:  health\_width =  HEALTHBAR\_WIDTH \* (1 - self.player.hurt\_count /  self.  player.max\_hits\_before\_death)  As the original code only includes health\_width = HEALTHBAR\_WIDTH meaning that the green bar’s width will always equal to the health bar width, which doesn’t change. With the addition of \* (1 - self.player.hurt\_count / self. player.max\_hits\_before\_death) allows the green bar's width to decrease based on how many times the player has been hurt. Which solves the issue. |
| 12/07/2025 | Health bar with heal system, health bar can be increased when character is healed. | Valid | E | When pressing the E button to heal, the health bar is able to increase. Meaning that the green bar is able to increase 25% of its width. Also, the number will also increase. | The heath bar is able to increase after each press of the heal button.  Can be seen In One Drive Folder | N/A |
| 12/07/2025 | Health bar with maximum 5 and minimum 0 health. No matter how many times the character gets healed or hurt. It never goes over its range and health bar width. | Boundary | F, E | When pressing the heal and hurt keys, the health bar increases and decreases. When it reaches either the maximum or minimum value, it stops increasing or decreasing, and the displayed number also should stop changing as well. | The bar and the number are able to increase or decrease without going out of its minimum and maximum boundary range.  Can be seen In One Drive Folder | N/A |

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| Tile map, Key Collection | | | | | | |
| Date | What is being tested | Test Type | Test Value | Expected Result | Actual Result | How it was fixed |
| 13/07/2025 | The OS Tile map is able to appear in the game. | Valid | N/A | The Tile map is able to appear in the game with the character. |  | N/A |
| 13/07/2025 | Collision Items and Walls have their collision system with the character. | Boundary | N/A | The wall and collision items have their own collision that act as a boundary to block the character’s path. | The "Walls" layer provides perfect and consistent collision boundaries for the character, which is perfect. However, the "Collision Items" layer doesn’t create any collisions with the character, which means its collision properties are not functioning as expected.  Can be seen In One Drive Folder | Adding Collision layer into the layer\_options in setup function: "Collision Items": {"use\_spatial\_hash": True}, adding the collision items with the wall into one Spritelist that all layers have the same collision system. 图形用户界面, 文本, 应用程序  AI 生成的内容可能不正确。 |
| 19/07/2025 | Character interaction with slow speed items, the character speed should slow down. | Valid | N/A | When the character is moving onto the slow item layer, the character’s speed will slow down. | Working as expected, when the character walks on the spider web or the mud. The character’s current speed will divide in two, which makes it slow down. | N/A |
| 20/07/2025 | Character interaction with keys. | Valid | E | When the character closes the key, the key can be collected without pressing the "E collection" button. | The character can only collect the key by using the E button instead of collecting automatically when it is close to the key. | As the previous game is too hard for the player to collect keys by pressing the E button, so to make it easier and more user-friendly I have decided to make the key able to collect when the character is close to the key. But it didn’t work when I was trying to achieve this function.  To fix this issue, I have added the code below into my program to check the collision between the key and the character. If the character has collision with the key, remove the key that collected from the sprit list and add 1 to the key\_collected variable |
| 20/07/2025 | Existing Tunnel Door. | Valid | N/A | There is an existing Tunnel door layer in the Game, that blocks the character from going to the next level. | As expected, Tunnel door does block the character going to the next level. | N/A |
| 20/07/2025 | Existing Tunnel When meeting the requirement | Valid | N/A | When the character has 6 keys, the tunnel door will disappear and present the Tunnel to the next level. | As expected, as the character has enough keys, the Tunnel will open. | N/A |
| 20/07/2025 | Character interaction with the Tunnel door with different number keys. | Boundary | N/A | When the character doesn’t have enough keys that meet the requirement to open the Tunnel door, the door will not disappear, character will not able go to the next level with no interaction. | Working as expected, 6 keys will allow the Tunnel door to open, if the key number is below 6, the door will not disappear and not go to the next level.  1 key:    2 keys:    3 keys:    4 keys:    5 key: | N/A |
| 25/07/2025 | Level 2, and 3 are able to load as expected. | Valid | N/A | After the character has enough keys to go to the next level. The next level should be loaded and playable. | All levels are loaded and can be going to the next level through tunnel with enough key requirement.  Level 2:    Level 3: | N/A |
| Peaks, Flamethrowers, Arrows | | | | | | |
| Date | What is being tested | Test Type | Test Value | Expected Result | Actual Result | How it was fixed |
| 15/07/2025 | Animated Peaks, Arrows, Flamethrowers are able to appear in the game. | Valid | N/A | All animated traps are able to appear in the game. | Working as expected, all trap animations are working. | N/A |
| 15/07/2025 | Animated Peak, Arrow and flamethrowers is able to hurt the character. | Invalid | N/A | When the character is on top of the peak or in the pathway of the arrow, when the peaks and arrows come out. The character should be hurt. | The character will get hurt even when the peak and the arrow don't come out. Which means it is continuously hurting the character on a fixed path. (If the explanation is not good enough, a One Drive video can prove this.)  Can be seen In One Drive Folder | Adding time delay of both peak and arrows. As the animation that I have previously made has 4s stop time for peak and flamethrower and arrow for 2s. This means that through code, I will just need to hide the peak, arrows and flamethrower layer for a specific time and make it appear again for another specific time. Which makes it able to achieve the expected result.  For example, in code if the character is not dead and 4.2s have passed since the last peak phase, the peak state becomes "active" where peaks can hurt the player. During these 2s of the peaks come out, collisions with peaks will damage the character with 1 health. Additionally, as the peaks enter a short "cooldown" of 0.2 seconds, which is the time that the peak goes back to the original phrase and eventually repeats the cycle.   The arrow logic is the same as the peak, but with a shorter time period cycle and hitting frequency. |
| 16/07/2025 | Animation with Peak, arrow and flamethrower when the character got hurt. | Invalid | W, A, S, D, Shift, Space | When the character gets hurt, all movements should be stopped and can be played after the hurt animation. | When the character gets hurt by the traps, the character cannot move in other directions by using W, A, S, D. However, the character can be dashed or into a longer distance with the hurt animation not fully finished. | By solving this issue, I simply add self.is\_hurt = False into the dash function when the character gets hurt and press shift key. Dash will have the highest priority to play and cancel the hurt animation function to play through False. Which solves the issue in an easy, flexible way. |
| 17/07/2025 | Character interaction with peaks and arrows after a long period of game progress. | Boundary | N/A | If the character is terrible in gaming skills. It may take them a longer time to finish the game than other people. In this situation, the peaks and arrows should follow the cycle consistently without any time delay. | After progressing for a long time, the trap logic starts to create a time delay that does not follow its intended attack cycle. Meaning even if the trap animation does not appear to be active with damage state, the character will still get hurt. | As this issue is the hardest issue I have ever faced, I take a week to research and discover the reason behind solving this issue.  28/07/2025:  At first, I thought the delay happened because of the internet issue, as there may cause the traps to create a delay. However, as I tested the game without connecting to the internet the same issue still happens. Then I made my research about if else and elif arguments, dure to the fact that there are too many of them exist in the logical trap code to judge the trap’s current state. I discovered that too many if else functions will create few milliseconds for the code to check through, which is the main reason that cause this issue. On the other hand, as I also wrote all my logical code in the on\_update method together, this dramatically increases the workload for one method to handle.  Therefore, to solve this issue, I have segregated all trap logical codes into three methods, peak, arrow and flamethrower, so the on\_update method can just import the function into it to make able to play. On the other hand, using dictionary to store all time constants and keys. This allows each trap’s behavior in its own finite-state machine, where phases (“wait,” “active,” “cooldown”) and their durations reside in a single, easily adjustable map. The main loop now simply dispatches update\_peak, update\_arrow, and update\_flamethrower with the current delta\_time, eliminating bulky conditionals and reducing interdependence. This allows the program |
| 18/07/2025 | Character dash interaction with Traps | Valid | N/A | When the character correctly time the time that traps is attacking and press shift for dash. The character will not be hurt as character is invincible for that part of time. | Working as expected, the character is invincible with dash animation and correct timing. Even the traps if attacking, the character will not get hurt. | N/A |
| 19/07/2025 | Character interaction with traps when you got hurt. | Valid | N/A | When the character gets hurt, it will create an invincible time for the character to press dash to escape. | Working as expected, the character is able to escape the trap after getting hurt by pressing dash. Also, the dash animation will have the highest priority to stop the hurt animation into dash. On the other hand, when the character gets hurt, it will push the character in the opposite direction of its facing direction for an easier escape experience. | N/A |

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| Health and Speed Flasks | | | | | | |
| Date | What is being tested | Test Type | Test Value | Expected Result | Actual Result | How it was fixed |
| 17/07/2025 | Animated health and speed flasks appear in the Game. | Valid | N/A | Both Speed and health flasks are able to appear in the game. | Working as expected, both flasks appear in the game. | N/A |
| 18/07/2025 | Character interaction with health and speed flask. | Valid | E | When the character is pressing the E collection button, the health flask will allow the character to heal for one health, where the speed flash will boost the character's speed for 4 seconds. | All flasks work perfectly so that when the health flask interacts with the character, it increases the character’s health consistently with one. On the other hand, the speed flask also works perfectly as it only speeds up the character’s movement speed, but also the dash speed.  Can be seen In One Drive Folder. | N/A |
| 19/07/2025 | Character interaction after flasks have been used. | Valid | E | After the flask has been used, it should disappear and enable second use. | Both health and Speed flasks disappear after they have been used, working as expected. Which is removed from the sprit list.  Can be seen In One Drive Folder. (Same as above testing video） | N/A |
| 20/07/2025 | Speed flasks exist time. | Valid | E | After the character drinks the speed flask, the boost effect will last for 4s. | Working as expected, the character will boost for 4s including its movement and dash speed. | N/A |
| 30/07/2025 | Character interaction with | Boundary | E | When the character is drinking the flask, no keys or movement can stop it. Which means it must finish the drinking animation before other movements. | When the character is pressing E and drinking the flasks, and press dash during the drinking process. The character will dash not playing the dash animation but remaining drinking animation and dashing forward. | This issue has been solved in the system testing process. |

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| First Round of Feedback | | | |
| Date | Name | What need to improve | How to improve |
| 21/07/2025 | Jimmy | Dash key binds – Shift keys | To solve this issue, I have added an extra dash button for right Shift for a better user experience. As I consider that, when there is a potential possibility that some players have the habit of pressing right shift key for dash instead of left dash. Which dramatically enhances the end user experience. |
| 21/07/2025 | Alex | Good game mechanics, nice graphic | Just like Alex said, the current feedback he gives out is positive. There is nothing to change from his feedback. |
| 21/07/2025 | James | Warning for Spikes, Arrows and flamethrowers. | By considering James’ feedback, I have implemented this by adding music for Spikes, arrows and flamethrowers when they are attacking. This not only allows the player to study the attacking frequency of different traps, but also, adding more interesting and successful responses with players. |
| 21/07/2025 | Ishan | The map looks fine. As a user, I was confused that the purpose of the game. Probably adding and aim that tells the user what to achieve. | I definitely agree with Ishan’s point, although the game is based on key collection, there is no UI to tell them the specific goal to play and achieve in this game. Therefore, I will be adding a key UI on top of the health bar that shows the number of keys that the player needs to collect to complete the level. |
| 21/07/2025 | Jesse | Fix hit boxes when going through traps. Change collect button, I like arrow keys and shift, but it is tedious to move your hand to E to collect items. | By solving the first issues, I have consistently discussed my issues with my teachers. They give out the solution, as the character's hit box is now fixed as a whole. This means that when the character’s head is aligned horizontally with the collision items and the peaks. Which causes the issue to happen. Therefore, Mrs. Smith suggests making the first line of objects a collision layer and the second line a non-collision layer in Tiled. They still maintain the same functionality of the collision layer, also provide a better Tile design concept.  On the other hand, I have already solved the collection issue as I consider using too much E button for all collection is too hard, this not only increase the game hardness into an extremely high level, but also, players may also get frustrated as there are too many things need to collect by pressing E button. Therefore, I have made the keys automatically collect if the character interacts or is close to the key. |
| 21/07/2025 | Kalpa | Movement speed is too slow, so make feedback for UI. For example, somewhere shows the character of the goal you are trying to achieve. | To address Kalpa’s first issue, I have changed the character’s movement speed from 4 into 5.5 and dash speed from 10 to 13. This dramatically increases the flow of the game to make it smoother. It also allows the player more focused more on the goal of the game, instead of waiting for the time to walk.  Kalpa’s second Issue has already been fixed through Ishan’s feedback, which I have make the keys automatically collect. |
| 21/07/2025 | Irenej | Add death/restart screen after the game is over. | By achieving Irenej’s feedback, I will add exit function that after the character died or complete the game, the game exit. In code, if the character's health = 0, the game will also exit. |
| 21/07/2025 | Kabin | It is a very good game; the graphics are nice, and the characters are interesting. | Just like Kabin said, the current feedback he gives out is positive. There is nothing to change from his feedback. |
| 21/07/2025 | Mrs. Smith | Prefect movement and animation. Probably remove the number that shows how much health to make the health bar look better. | Based on her feedback suggestion, I will remove the number of health that shows inside of the health bar. This will make the game more exciting as the player needs to calculate and predict the amount of health they have left. |

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| Sound have been used | Licenses |
| Key:    Dash:    Speed Flask:    Health Flask:    Peak Hurt:    Level Complete:  Flamethrower: |  |
| Peak:    Arrow and Flamethrower hit: |  |
| Arrow:    Background Music: |  |

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| Audio and Sound | | | | | | |
| Date | What is being tested | Test Type | Test Value | Expected Result | Actual Result | How it was fixed |
| 25/07/2025 | Character heals sound when interacting with health flask. | Valid | E | When the player presses the E button to drink the health flask. The healing sound will be triggered.  Can be seen In One Drive Folder. | Working as expected, the heal sound does appear when the character interacts with the health flask. | N/A |
|  | Character boost sounds when interacting with speed flask. | Valid | N/A | When the player presses the E button to drink the speed flask. The increased speed sounds will be triggered.  Can be seen In One Drive Folder. | Working as expected, the boost sound does appear when the character interacts with the speed flask. | N/A |
| 25/07/2025 | Character dash sound | Valid | E | When the Character press Shift for dash, there will be an addition of dash sound.  Can be seen In One Drive Folder. | Working as Expected, the dash sound does appear when the character is dashing | N/A |
| 25/07/2025 | Character keys collect sound | Valid | N/A | When the character collects the key, there will appear a key collected sound.  Can be seen In One Drive Folder. | Working as Expected, the key collected sound appears when the character collects the key. | N/A |
| 25/07/2025 | Character hurt sound when interact with peak. | Valid | N/A | When the character walks on to the peak and gets hurt, the game should play character’s hurt sound for peak.  Can be seen In One Drive Folder. | Work as expected, the character does trigger the peak hurt sound. But the sound repeats at a fast frequency that continuously plays the sound after the peak goes off. | Adding the peak play music in the cooldown 01 section instead of active in the peak logic code, this will make the peak play once the peak is in the cooldown 01 state. Although the music is not played when the peak is active, the cooldown 01 only takes 0.2s which doesn’t really affect the music to match the time that the peak is active. Which solves the fast repeat frequency issue. |
| 25/07/2025 | Character hurt sound when interact with arrow and flamethrower | Valid | N/A | When the character is hurt by the Flamethrower, the character will play the same hurt sound as the arrow.  Can be seen In One Drive Folder. | Working as expected, the character is triggering the same hurt sound as arrow. | N/A |
| 25/07/2025 | Arrow sound when arrow appears | Valid | N/A | When the character is hurt by the Arrow, the character will play the arrow hurt sound.  Can be seen In One Drive Folder. | Working as expected, the character is triggering the arrow hurt sound. | N/A |
| 25/07/2025 | Peak sound when peak appears | Valid | N/A | When the peak is active and starts to attack, their peak sound will be played.  Can be seen In One Drive Folder. | Working as expected, peak sound is able to be triggered when it is active. | N/A |
| 25/07/2025 | Flamethrower sound when flame appear | Valid | N/A | When the flamethrower is active and starts to attack, their flame sound will be played.  Can be seen In One Drive Folder. | Working as expected, the Flamethrower sound is able to be triggered when it is active. | N/A |
| 25/07/2025 | Arrow sound when arrow appear | Valid | N/A | When the arrow is active and starts to attack, their arrow sound will be played.  Can be seen In One Drive Folder. | Working as expected, the Arrow sound is able to be triggered when it is active. | N/A |
| 25/07/2025 | Background music | Valid | N/A | Background Music can be heard consistently throughout the whole game.  Evident in all music testing videos in OneDrive. | Working as expected, background music can be heard consistently throughout the whole game. It is also evident in the Level complete music, that after the character completes one level, the background music still plays. | N/A |
| 25/07/2025 | Level Complete | Valid | N/A | Level complete sound is able to be triggered after the character interacts with the tunnel with 6 keys.  Can be seen In One Drive Folder. | Working as expected, level complete sound is able to be triggered. | N/A |

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| Second Round of Feedback | | | |
| Date | Name | What need to improve | How to improve |
| 28/07/2025 | Allen | The game is perfect with wonderful animations. However, the game doesn’t end after the complete all levels. | Although Ireneo has pointed out this issue before, I didn't take this issue seriously. Which causes this issue to be pointed out again. By gaining improvement from feedback. In code, I have set a constant of MAX\_LEVEL of 3, if the player goes over the MAX\_LEVEL number, the game exits. This allows the game to end after the player completes all three levels, but also, ensures the game is not searching for level 4. |
| 28/07/2025 | Patrick | Make the character's hit box feet only, so that when the character gets hit by the traps when it is not even close to it. | Based on this feedback, I have now noticed how serious this hit box issue is, which is because of the time delay that creates. The solution has already investigated inside of the boundary testing of trap feature section. |
| 29/07/2025 | Laurence | Nothing is wrong, insane names, insane character, insane obstructs, insane background music, insane coding skills. You should sell this to epic games. Trust me, you will be successful in the future! | What wonderful and warm feedback. Just like Laurence said, the game is currently mature enough to a high quality and publish standard. Therefore, there is nothing to change about here. |
| 30/07/2025 | Sonny | Really good sound effect with each interaction. Perfectly fix the trap time issue. Your space key is for attack but there is nothing to attack. I suggest deleting it as it is redundant. | Just like Sonny said, the character attacking animation and function is redundant as there is nothing that can interact with attack. Therefore, deleting all properties, methods, functions, animations, frames about attack. |
| 30/07/2025 | Jerry | The background music is exciting; the use of multiple trap system is one of the highlights of the game. Especially level 2 and 3 become more challenging, I like the excitement of facing challenges. Good Job. | Positive feedback from Jerry. Just like he said, the current game is of a high-quality level. So, nothing to change about. |

**System Testing**

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| Whole Program | | | | | | |
| Date | What is being tested | Test Type | Test Value | Expected Result | Actual Result | How it was fixed |
| 30/07/2025 | Game is able to Load | Valid | N/A | The Game should be successfully loaded. | The Game load was as expected. | N/A |
| 30/07/2025 | Game start Tilemap loaded correctly | Valid | N/A | The Game should load Level\_1 Tile map at the start. | Load Level\_1 as expected. | N/A |
| 30/07/2025 | Game Tilemap animation is loaded correctly | Valid | N/A | The Animations in the tilemap should successfully loaded and animated through the real game program | Tile map animations are successfully animated as expected. Layers like Non-Collision Items, Flasks, Peaks, Arrows, Flamethrowers consistently produce its animation throughout the game with repeated cycle.  Evident in One Drive Folder | N/A |
| 30/07/2025 | Character Idle animation is successfully working in all four directions and repeating the frames in complete cycle. | Valid | N/A | The Character’s idle animation should successfully work in all four directions, North, South, West, East. Also, it should repeat in a consistent cycle with 7 frames. | The Character Idle Animation is working successfully in all directions and repetitively repeats the animation cycle.  Evident in One Drive Folder | N/A |
| 30/07/2025 | Character hurt animation is successfully working in all four directions and repeating the frames in complete cycle. | Valid | N/A | The Character’s hurt animation should successfully work in all four directions, North, South, West, East. Also, it should repeat in a consistent cycle with 7 frames. | The Character Hurt Animation is working successfully in all directions and repetitively repeats the animation cycle.  Evident in One Drive Folder | N/A |
| 30/07/2025 | Character Movement animation is successfully working in all four directions and repeating the frames in complete cycle. | Valid | W, A, S, D, Arrow Keys | The Character’s Movement animation should successfully work in all four directions, North, South, West, East. Also, it should repeat in a consistent cycle with 7 frames. | The Character Movement Animation is working successfully in all directions and repetitively repeats the animation cycle.  Evident in One Drive Folder | N/A |
| 30/07/2025 | Character Dash animation is successfully working in all four directions and repeating the frames in complete cycle. | Valid | Left and Right Shift Keys | Character’s Dash animation should successfully work in all four directions, North, South, West, East. Also, it should repeat in a consistent cycle with 7 frames. | The Character Dash Animation is working successfully in all directions and repetitively repeats the animation cycle.  Evident in One Drive Folder | N/A |
| 30/07/2025 | The character Drink Flask animation is successfully working in all four directions and repeating the frames in complete cycle. | Valid | E | Character’s Drink Flask animation should successfully work in all four directions, North, South, West, East. Also, it should repeat in a consistent cycle with 7 frames. | The Character Drink Flask Animation is working successfully in all directions and repetitively repeats the animation cycle.  Evident in One Drive Folder | N/A |
| 30/07/2025 | The Character is able to boost by increasing its movement speed and dash Speed in 4s. | Valid | E | Character’s movement and dash speed will dramatically increase after drinking the speed flask. This state will last for 4s. | There is an increase of character dash and movement speed that lasts for 4s.  Evident in One Drive Folder | N/A |
| 30/07/2025 | The Character’s health is able to increase by one after drinking the health flask. | Valid | E | Character’s health is able to increase by one after drinking the health flask. | Character’s health is able to increase by one after drinking the health flask.  Evident in One Drive Folder | N/A |
| 30/07/2025 | The combination of all keys with character movement and animations. | Boundary | W, A, S, D, E, Shift | When Pressing WASD, for example, if the character press W and A, the character should go to the Northwest direction. On the other hand, when the character gets hurt, pressing E will stop the hurt animation and transfer it into sadh animation for character to escape. | Issue discovers, when pressing E button to drink the flask and press Shift for dash. The character will still play the flask animation, but with the movement of dash.  Evident in One Drive Folder | Adding new Flask properties of self.is\_drining = False, this will be triggered to become True when the character is healing. Therefore, as the dash function is not able to change the is\_drinking state, that makes the drinking flask function individually. |
| 30/07/2025 | The slow speed item layer is able to decrease the character speed | Value | N/A | When the character is walking on the slow speed item layer, the character’s speed will be slow down by dividing the current speed by two. The boost speed after drinking the speed flask also will be affected. | Working as expected, the character’s speed does slow down by halving its current speed, also apply to the boost speed.  Evident in One Drive Folder | N/A |
| 30/07/2025 | The collision interacts with collision item and walls layer. | Boundary | N/A | When the character is walking towards the wall and collision items, it should be stopped by them. | Working as expected, walls and Collison Item Layers are able to act as boundaries that block character’s path.  Evident in One Drive Folder | N/A |
| 31/07/2025 | Peak, arrows and flamethrowers are able to hurt when all items are attacking | Valid | N/A | When the character walks on to interact with peak, arrow and flamethrower. The character will hurt by decreasing one health down. | Working as expected. The character is able to be hurt when the traps are active.  Evident in One Drive Folder | N/A |
| 31/07/2025 | Traps don’t hurt the character when its is attacking | Valid | N/A | When the character is walking on to the pathway of trap exist, when they are not attacking, the character will not get damaged. | Working as expected, the character will not get hurt.  Evident in One Drive Folder | N/A |
| 31/03/2025 | Game progresses with trap. Time delay. | Boundary | N/A | After the game progresses for a long time, the trap will still remain the same logic trap time cycle without any time delay. | Working as expected, all traps don’t create a time delay even if the game has progressed for more than 5 min. Still following the same time cycle.  Evident in One Drive Folder | N/A |
| 31/03/2025 | Game sound | Valid | N/A | All music should be consistently progress at the time they are active. | Working as expected. Background music can be heard, all trap sounds are able to appear when the trap is active or attacking with correct hurt sound, the key is collected sound appear when the key is collected, level complete sound is able to appear.  Evident in One Drive Folder | N/A |
| 31/03/2025 | Character Death | Valid | N/A | After the character have 0 health, the character will firstly play the death animation and then exit the game. | Working as expected, after the player died, its player the dyed animation first and then exits the game.  Evident in One Drive Folder | N/A |
| 31/03/2025 | Character key collection | Valid | N/A | After the character has enough keys (6), the Tunnel door will open and show the tunnel. When the character is close to the Tunnel, it moves to the next level. | Working as expected, after the player has 6 keys, the Tunnel door opens, and the character is able go to the next level.  Evident in One Drive Folder |  |
| 31/03/2025 | Character collection with not enough keys. | Valid | N/A | If the character doesn’t have enough keys, the Tunnel door will not open, and the character is not able go to the next level. | Working as expected, if there are not enough keys, the character is not able go to the next level, also the tunnel door will not be removed from the sprite list.  Evident in One Drive Folder | N/A |
| 31/03/2025 | Character interaction with walls | Boundary | N/A | When the character is walking towards the wall, the wall will be in front of the character to make it not in the state of standing on the wall. | Working as expected, the walls are able to be above the character, so it doesn't seem it is stand on top of the wall.  Evident in One Drive Folder | N/A |
| 31/03/2025 | Game Level 2 | Valid | N/A | After the character enters the second level, it should progress like the same as the first level, but just in a different tile map. | Working as expected, Level 2 is successfully loaded with correct Tile map and working consistently just like the First level.  Evident in One Drive Folder Final Game Play Video. | N/A |
| 31/03/2025 | Game Level 3 | Valid | N/A | After the character enters the third level, it should progress like the same as the first and second level, but just in a different tile map. | Working as expected, Level 3 is successfully loaded with correct Tile map and working consistently just like the First and Second level.  Evident in One Drive Folder Final Game Play Video. | N/A |
| 31/03/2025 | Game after Level 03 | Boundary | N/A | After the character has 6 keys and interacts with the Third level Tunnel. The game should exit as there are no more level 4 and other levels. | Working as expected, as the character has 6 keys, and interacts with the tunnel in the last level. The game successfully exists without any issues or problems.  Below is the Terminal commending that give out:  File "/Users/zhenghui/Desktop/AS91906---Dead-Knight/dead\_knight.py", line 1196, in \_handle\_level\_progression sys.exit()  SystemExit:  Providing the game is a System exit, not a game crash of trying to find the next level.  Evident in One Drive Folder Final Game Play Video. | N/A |

Finishing the Testing Document.