**Product Requirements**

1. Player Movement
   1. Using the mouse to look around
   2. Using the keyboard to walk, slow walk, and run in 8 directions (North, East, South, West, North East, etc.)
      1. Walking using ‘WASD’ keys
      2. Slow walking using ‘WASD’ and holding ‘left shift’
      3. Running using ‘WASD’ and holding the ‘left control’
   3. Crouching down to half the player’s height and to walk slower
      1. Toggle crouching by hitting the ‘C’ key.
   4. Jumping using the space bar
   5. climbing ladders, ropes, and chest high objects (walls, fences, windows).
      1. Climbing ladders and ropes by being in arms reach and right clicking on the object and using ‘WS’ keys to climb up and down
      2. Using the space bar to jump off the object being climbed
      3. Climb or vault over chest high objects by being in arms reach and right clicking on the object
2. Player Interaction
   1. Player inventory
      1. The player will have an inventory consisting of a list of ordered objects that they can cycle trough backwards or forwards one at a time
      2. The player can toggle their inventory by using the ‘G’ key
      3. The player can move forward by one using the ‘T’ key and move backwards using ‘R’
      4. The inventory will consist of
         1. Lock picks
         2. Keys
         3. A weapon to knock out enemies
         4. The amount of gold collected that level
         5. Any special items collected that level
      5. They will be ordered first by the types mentioned at above (2.a.i.1) and then secondly by the order in which they were required.
   2. Opening doors
      1. When in arms reach right click to open or shut doors
      2. If the player is in the way of opening or shutting a door, the door will stop when it reaches the player, requiring the player to click on the door to try again
   3. Picking Locks and safes
      1. The player will have 3 lock picks in their inventory
         1. Each lock will require at least one of the lock picks
         2. Each lock can have up up to 4 tumblers. Each tumbler requiring a random pick needed to pick the tumbler
         3. To pick a tumbler the player must be in arms reach and must have a lock pick selected from their inventory and will hold and right click on the lock. After a short amount of (yet to be determined) time if the player has selected the correct pick the tumbler will make a click sound, else it will make a dull sound.
         4. Once all tumblers are picked the the door handle will rotate from its original position signaling to the player the the lock is now unlocked
      2. Safes will have 2-4 dials with each dial having 0-9 possible positions.
         1. The player can find clues through the level for the combination or try to brute force and guess the combination number
         2. To unlock the safe, the player must be in arms reach and left or right click on a dial to change the position of the dial, to check if it’s the correct combination the player must right click on the safes handle. If the dials are in the correct position when the player clicks on the handle the safe door will act like a regular door (2.b.) and open
   4. stealing gold, keys, important items, valuable objects (Jewels, Rings, Necklaces, Vases, small statues) in the level and off of enemies
      1. When in arms reach and in line of sight, the player can right click to pick the object up and place it in the player’s inventory
   5. Knocking out enemies
      1. If the enemy is not in an alert state, the player has a weapon selected from their inventor, and the player is behind and with in arms reach to the enemy.
         1. The player can left click and knock out the enemy
   6. Putting out light sources
      1. When in range the player can extinguish torches and fires and can turn off lights by left or right clicking with an empty hand
   7. Using switches (light switches or switches that can open and close doors, bridges, safes)
      1. When in range the player can toggle the switches by left or right clicking with an empty hand
3. Enemy Movement, Navigation, and Interaction
   1. Using Unity’s built-in Navigation Mesh builder to create level Navigation Mesh that allows the enemies to know where they are allowed to walk.
   2. Using Unity’s built-in Navigation agent to allow the enemy to travers and move to a point on the level.
      1. Using a custom behavior tree to tell the enemy where to go and what to-do
         1. The behavior tree will also tell an enemy when to open or close doors and when to interact with things in the world (lights, sitting on a chair or standing up)
4. Shadow Detection
   1. How far the player is away from a light based on the light’s range and intensity
   2. If the player is in line of sight to a light, using the distance to a light to see how much the player is in the light (0% completely in shadow, 100% completely visible)
5. Sound Detection
   1. Be able to detect how much sound a player is making (0% no sound, 100% running on marble or metal floors) based off of how fast the player is moving and what type of surface they are walking on (Marble and metal floors are louder then grass or carpet)
6. Enemy Detection
   1. Enemies have “sight” to try and detect the player.
      1. We start by seeing if the enemy has a clear line of sight to the player
      2. To see if the enemy can see the player we use shadow detection to see if the player is “visible” enough to the enemy.
      3. Visible being determined by how much the player is in light and how far away the player is to determine if the player is detected.
   2. Enemies have “hearing” to try and detect the player’s movement and try to determine the location.
      1. Enemies try to “hear” the player by seeing how much sound the player is making plus how far away the player is to determine if the player is detected
   3. Enemies have proximity detection.
      1. Enemies can detect if a player is to close based on how close the player is (in arms reach) and how fast the player is moving to determine if the player is detected
   4. Enemies have the ability to alert and be alerted by other guards.
      1. When the player is detected by an enemy, that enemy will try to alert other nearby guards that they have found (seen or heard) the player.
      2. When a guard is alerted by other guards they will move away from where they are and try to find the player
7. Levels
   1. Will be the size of a bank or small hotel and the player should be able to walk across an empty level without enemies within 2 minutes
   2. will have a starting point, where the player begins the level, and an exit point where the player will end the level
   3. can have keys for the player to be able to pick up and to unlock locked doors with
   4. will have loot for the player to steal. (Gold, Jewels, Rings, Necklaces, Vases, small statues)
   5. will have guards, with patrols for the guards to follow
8. Database/Sever
   1. At then end of each level the player will be able to input their name and it will store their score for that level into the data base. No login required, think of old arcade machines
      1. The score is made up of
         1. How much gold value that they have stolen
         2. The time it took to complete the level
            1. The timer starting at the beginning of a level and ending when the player has enough gold and has reached the exit point
         3. The times alerted enemies
         4. Times knocked out an enemy
   2. Using a service like Amazon Web Service to host the Database
   3. Also using a service to host the game on the web using Unity’s WebGL platform, so that the game can be played on a computer without having to download it