

# Design Document for AINT253

## Coursework 2 (Escape Room)

### Specification:

In this coursework, we were tasked to create a interactive and virtual escape room experience. Using experiences from the last coursework and other things, we'll have to use 3D modelling, interactivity, sound and visual design to create a cohesive and intuitive user experience for this project.

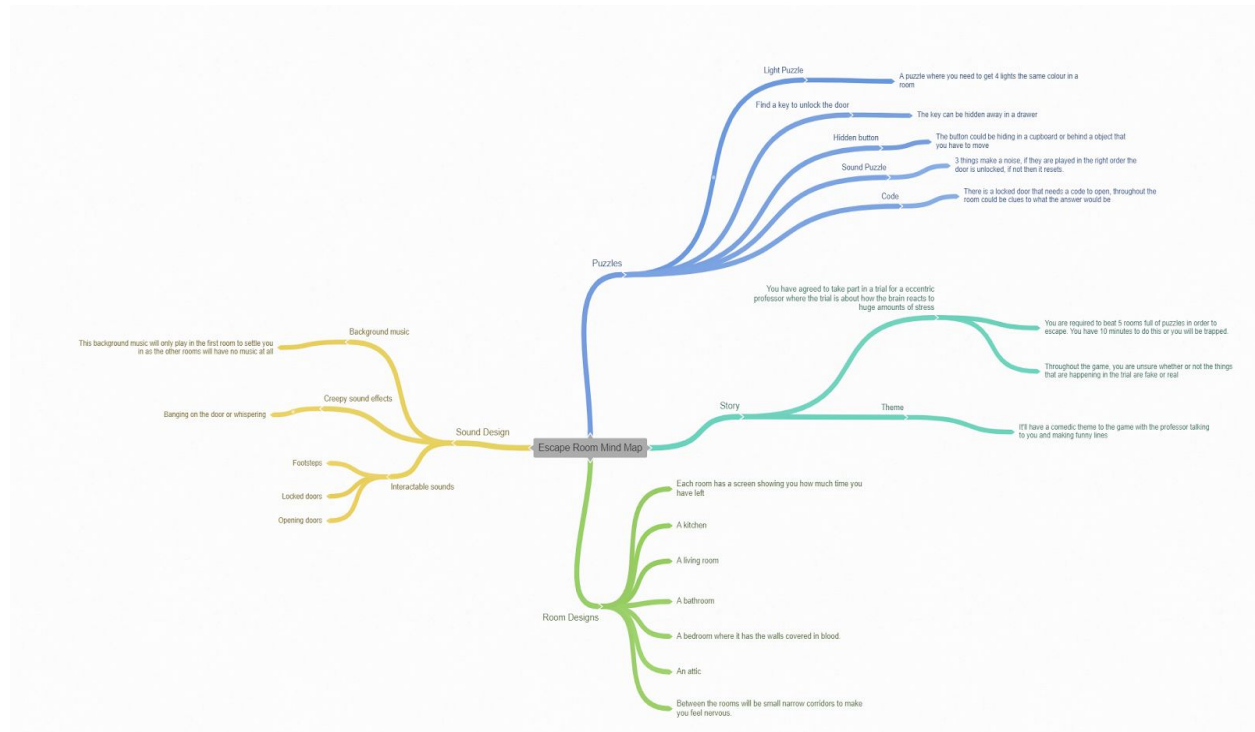
### Research:

To begin this research, we decided to start off by making the User Story Map for the Escape Room game that we'll be making. Below is a picture of that User Story Map.

Title screen showing a door in a grey-ish room	Theme of the game is comedic	Game ends by falling down a dark pit
You're locked in a room	You need to escape before the time runs out	There are puzzles you need to solve in order to escape
You are taking part in a trial	A screen on the wall showing you how much time you have	Puzzles that involve sound, lights, math and trivia knowledge
This trial is off the books and run by an eccentric "professor"	A voice telling you that if the timer runs out, you'll be trapped there forever.	The puzzles range from easy to hard.
The trial is an experiment on what happens to the brain under massive amounts of stress	Initially you don't believe the "threat" until you see a dead body in one of the rooms.	Hints for the puzzles can be found in the rooms you are currently in

To start off with, I explained the base situation of what a escape room game would be like and then expanded on that idea with what puzzles there are, what the basic story is and what the threat is.

Afterwards I then decided to flesh out these basic ideas into a Mind Map to show off what kind of ideas I could come up with. Below is a picture of that mind map.



This mind map is separated into 4 parts: Story, Room Design, Sound Design and Puzzles.

The story section briefly explains what the general premise of the game is and how the story will progress. It also shows what the tone of the game would be like. The Puzzles section explains what kind of puzzles there are and how they would be implemented. The sound design section explains what kind of sounds there would be in the game ranging from sound effects, music, etc. The room design section shows off what kind of rooms there would be in the game and how they would look like.

Once I finally sorted out the room designs for the game, I decided to create moodboards to figure out what kind of assets and what the layout of the room would be in the game.

Down below are all of the moodboards of the rooms in the game.



Use toilet and bathtub design with similar room layout



Good bathroom cabinet



Similar sink design



Mirror above the bed  
Desk/box at the foot of the bed



PC Setup in the  
bedroom

Similar bed and room  
layout but with no  
window



Drawer layout but  
much smaller







Good TV and TV stand  
(use tv for screens in  
other rooms?)



Similar picture frames



Good lamp design  
(use for bedroom too)



Good sofa design



Good table design



I like the layout of  
this picture

I like the pillar in this  
picture

I like the old withered  
look in this picture





I also need to create a prototype of the game so I made a list of what I need to make a prototype of the game.

### Prototype List:

- Basic main menu with function buttons
- FPS Character Controller
- Rough layout of the rooms
- Basic implementation of the puzzles that'll be in the game
- Basic sounds (doors opening + closing, footsteps, etc)
- Basic animations
- Endgame state (that once complete will kick you back to the main menu)
- Pause menu
- Basic lighting
- Trigger zones for sounds



Once I completed the prototype, I also would need to improve that prototype to make the Minimum Viable Product (MVP) so I also made a list of what I would need for a MVP.

#### MVP List:

- Fully functioning main menu with good design to it
- FPS Character Controller
- Completed layout of the rooms
- Completed implementation of the puzzles that'll be in the game.
- Improved sounds that fit the theme and setting of the game.
- Improved animations that fit the theme of the game.
- Improved endgame state
- A fully cohesive story in the game
- Improved Pause Menu with the same design as the main menu.
- Improved lighting that fits the theme of the game.
- All of the textured models in the game.

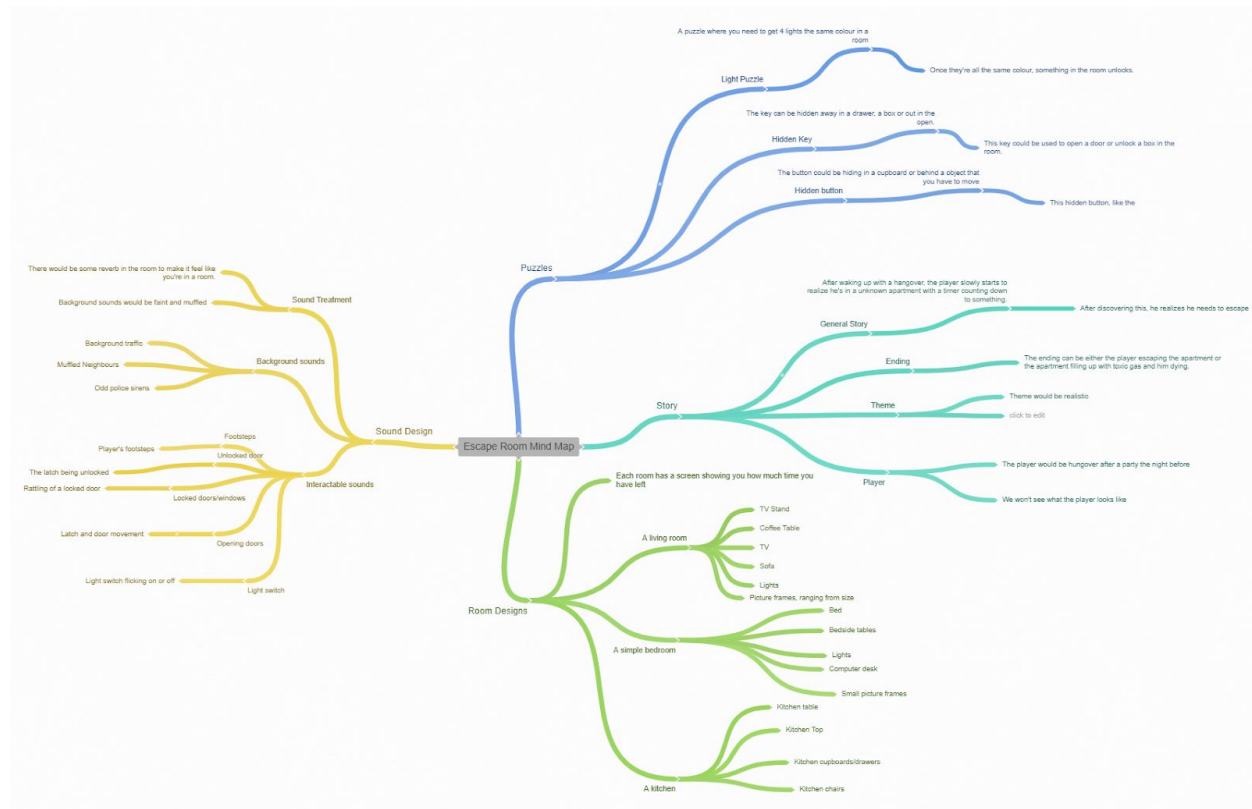
However after talking with my lecturer about the game, I decided to only do 2 rooms and change it from a house to an apartment. This way I have a lot less work to do and more time to work on what I have. I decided to scrap the Attic and Bathroom rooms since there's not a lot of detail I can add to them and from the moodboards, they don't seem fleshed out.

Also after looking at feedback from my first coursework, I decided to flesh out and improve my user story map for a more realized version of my game.



In this version, I made it more fleshed out from the user perspective of the game to help understand the story better. Because of this, the story has changed to a person being locked in an apartment after a night out drinking but slowly realizing that he's not in his apartment but actually he's in a random room with a timer counting down to something unknown.

I also improved the mind map to reflect this change and added more depth to the mind map such as a description of the sounds and what type of assets will be in the room.



For my audio moodboard, I decided to make a list of links to basic and unedited sounds that would fit well in my game.

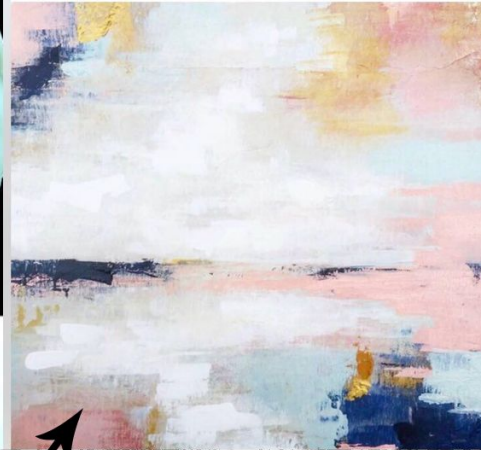
Here's the list:

- [City Ambience](#)
- [Light Flick](#)
- [Door Rattle](#)
- [Door Open](#)
- [Key Pickup](#)

I also created a Texture/Material Moodboard of all of the materials and textures that I want to use for my models and environment.



Picture in bedroom  
to unsettle player



Pictures

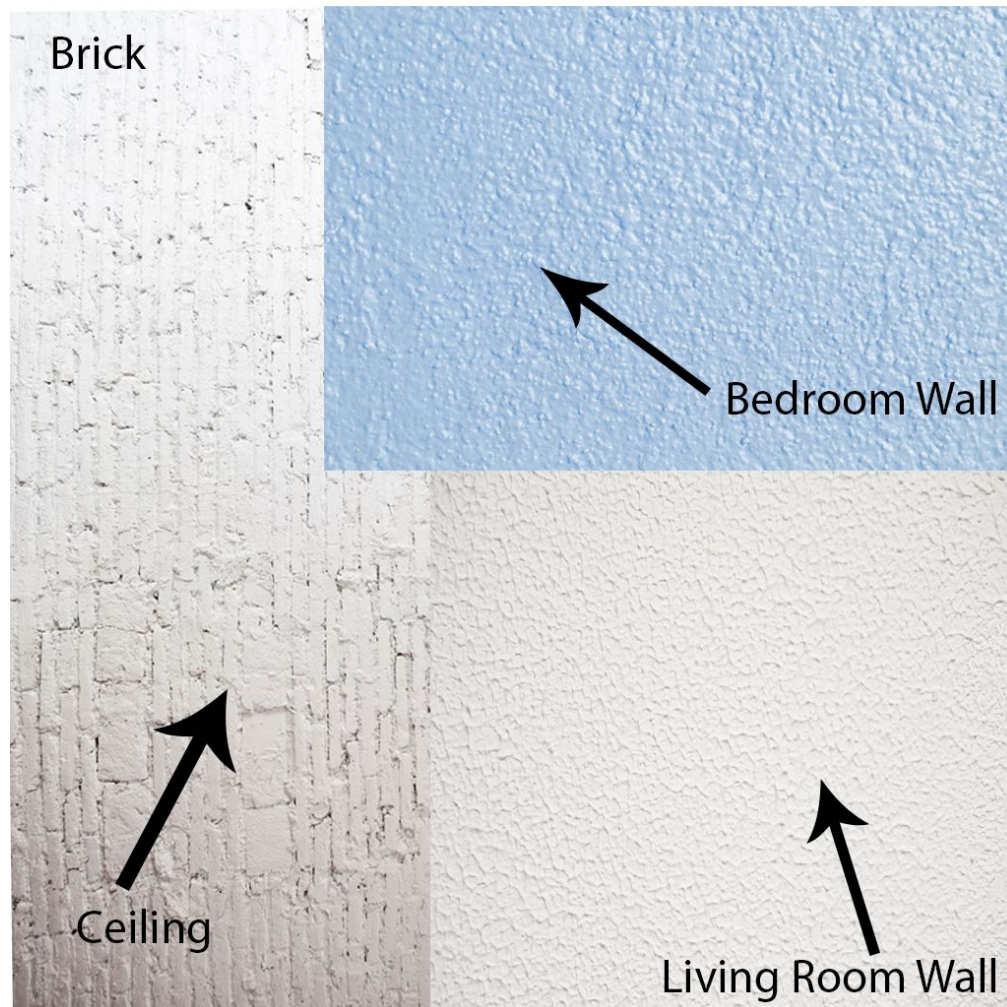


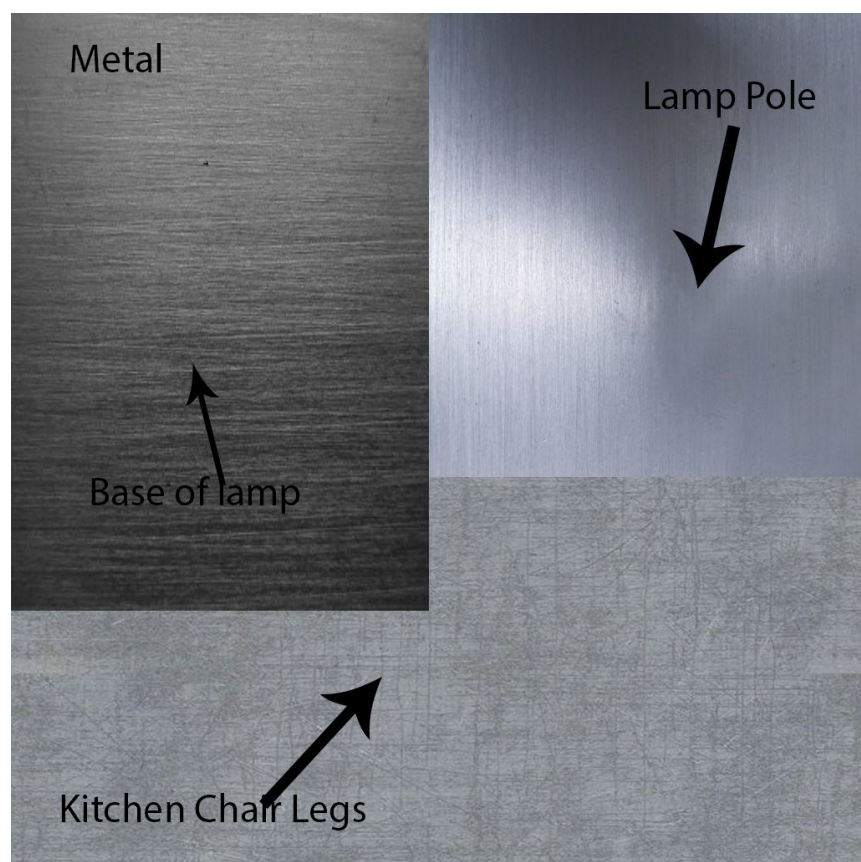
Artwork for living room

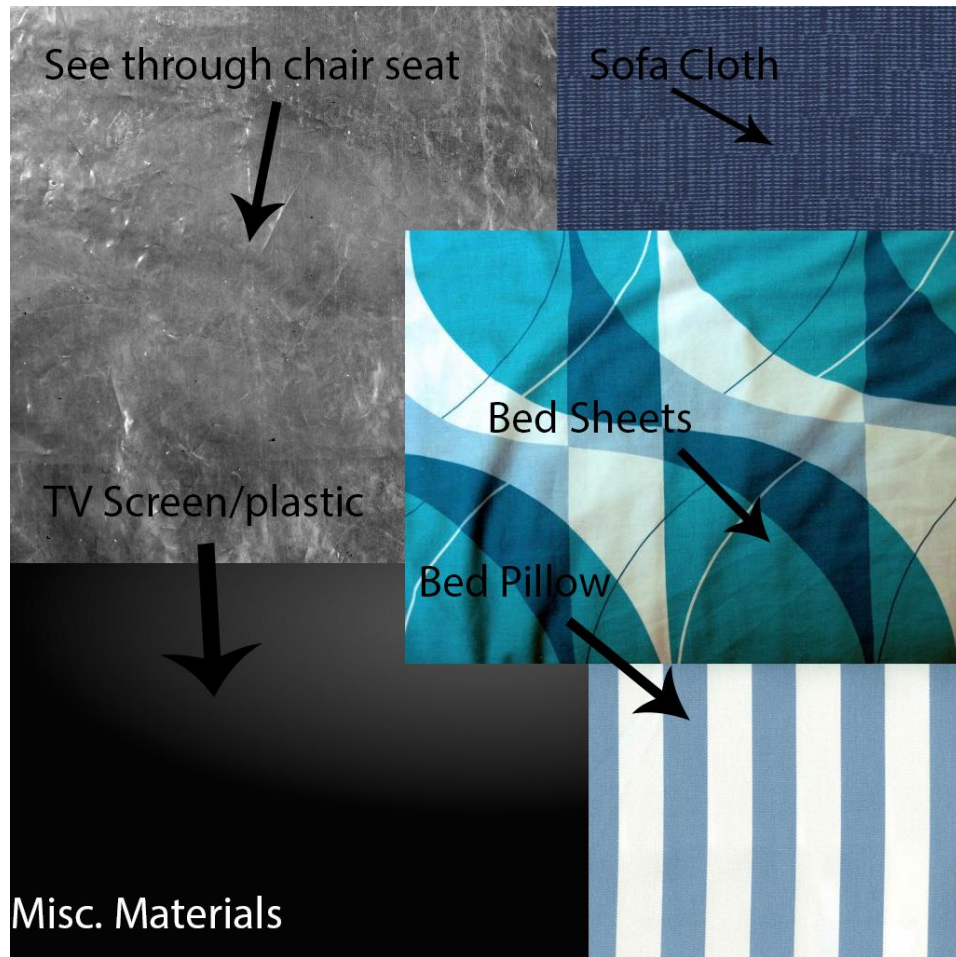












And finally, I created a Lighting Moodboard to show what kind of lighting I want in my game to set the ambient and mood of the level.

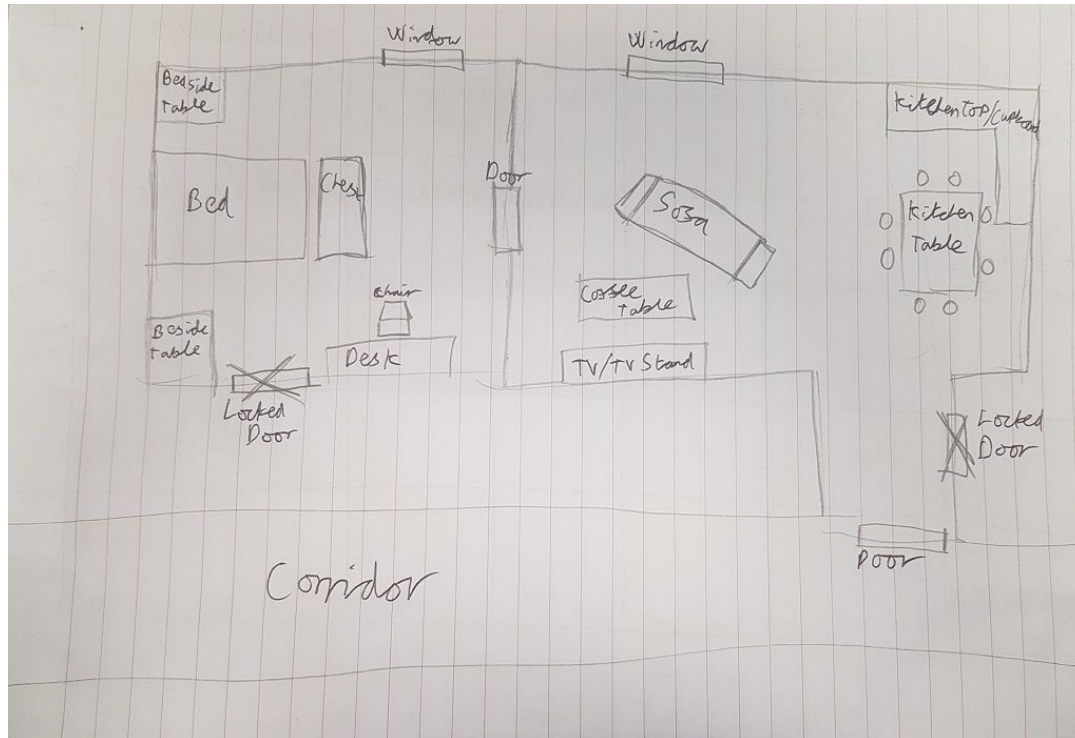


## Lighting



## Design:

To start off, I decided to create a top-down view of what i want the apartment/level design to look like so that I have a general idea of what the game would look like.



I also created a Audio plan of the specific sounds I wanted in the game and how they would be interacted with.

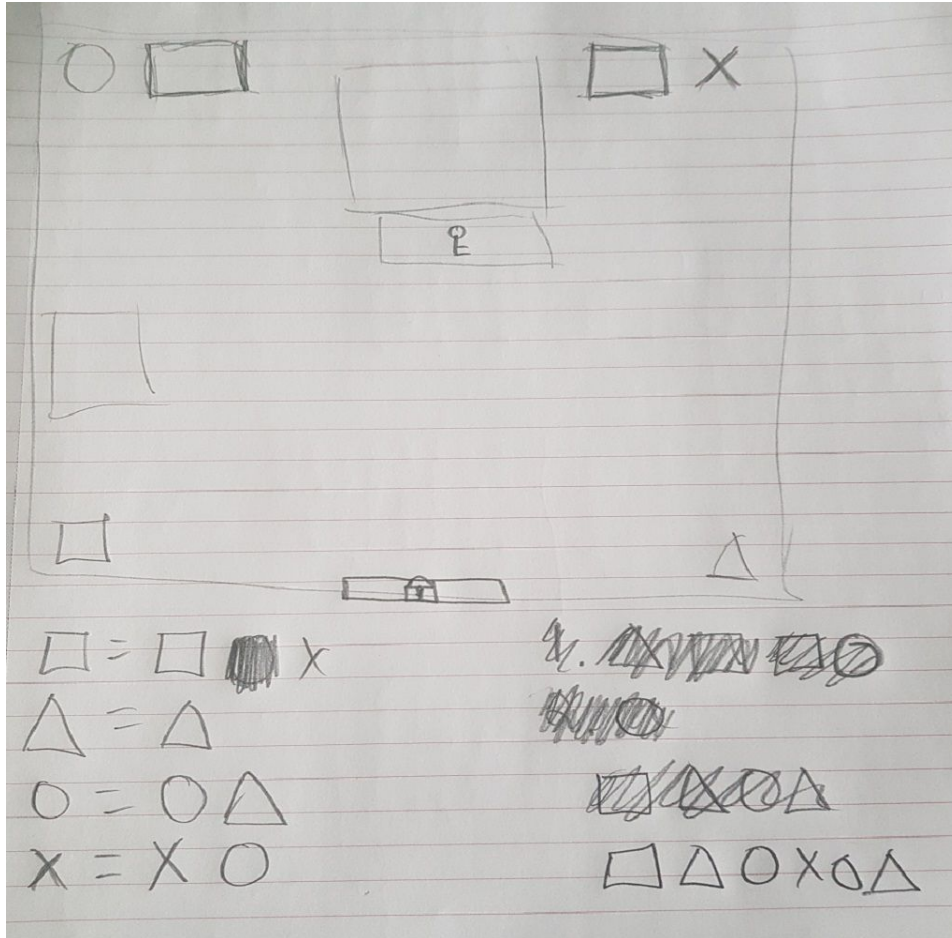
Description	Type	Duration	Source	Trigger	Treatment	Reference
Light Switch On/Off	Spot effect	0.5 seconds	Lamp	Player switches the light on/off	Slight reverb	
City traffic outside apartment	Ambient	90 seconds	Windows	Proximity	Flat/Muffled	
Police Sirens outside apartment	Ambient	5 to 10 seconds	Windows	Proximity	Flat/Muffled	
Upstairs neighbours	Ambient	10 seconds	Ceiling/Floor/Walls	Proximity	Muffled	
Player's Footsteps	Spot effect	1 second	Player	Player walks	Slight reverb	From Unity
Latch being unlocked	Spot effect	1 second	Door	Player unlocks the door by key or button	Slight reverb	
Rattling of a locked door	Spot effect	1 second	Door	Player interacts with the door for it to be locked	Slight reverb	
Door Movement	Spot effect	2 to 3 seconds	Door	Player interacts with the door to open it	Slight reverb	
Button Click	Spot effect	1 second	Button	Player presses the button	Slight reverb	Original
Key Pickup	Spot effect	0.5 to 1 second	Player	Player picks up the key	Slight reverb	Original(?)

I had also done the same for the Materials and Lighting.

Description	Type	Baked or Realtime	Used for?	Colour
Bedroom Lights	Point Light	Realtime	Light Puzzle	Light orange
Living Room Lights	Point Light	Baked	Ambient Lighting	Light orange
Kitchen Lights	Point Light	Baked	Ambient Lighting	White

Description	Type	Metallic?	Smooth?	Textured?	Albedo	Extra Details
Floor	Wood/Floorboards	No	Yes	Yes	N/A	
Ceiling	Brick	No	No	No	Off-White	
Living Room Wall	Brick	No	No	Yes	N/A	
Bedroom Wall	Brick	No	No	Yes	N/A	
Kitchen Wall	Brick	No	No	Yes	N/A	
Kitchen Top	Slate	No	Yes (Slight shininess to it)	Yes	N/A	
Kitchen Table	Slate	No	No	Yes	N/A	
Kitchen Chair	Plastic/Metal	Yes (Legs only)	Yes (Seat only)	Yes	N/A	
Bed	Fabric	No	No	Yes	N/A	
Desk	Wood		Yes (Slight shininess to it)	Yes	N/A	
Sofa	Fabric	No	No	Yes	N/A	
Coffee Table	Wood	No	Yes (Slight shininess to it)	Yes	N/A	
TV Stand	Wood	No	Yes (Slight shininess to it)	Yes	N/A	
TV	Plastic	No	Yes (Slight shininess to it)	Yes	N/A	Fingerprint smudges on the screen
Kitchen Cupboard	Wood	No	Yes (Slight shininess to it)	Yes	N/A	
Door	Wood	No	Yes	Yes	N/A	
Computer Screen	Plastic	No	Yes (slight shininess to it)	Yes	N/A	Fingerprint smudges on the screen
Bedside Table	Wood	No	Yes (slight shininess to it)	Yes	N/A	
Chest	Wood	No	Yes	Yes	N/A	
Door Handle	Metal	Yes	Yes	Yes	N/A	
Pillow	Cloth	No	No	Yes	N/A	
Door Frame	Wood	No	Yes	Yes	N/A	

I also had to design the puzzles that'll be used in the game so for the first puzzle this is what I made for the logic.

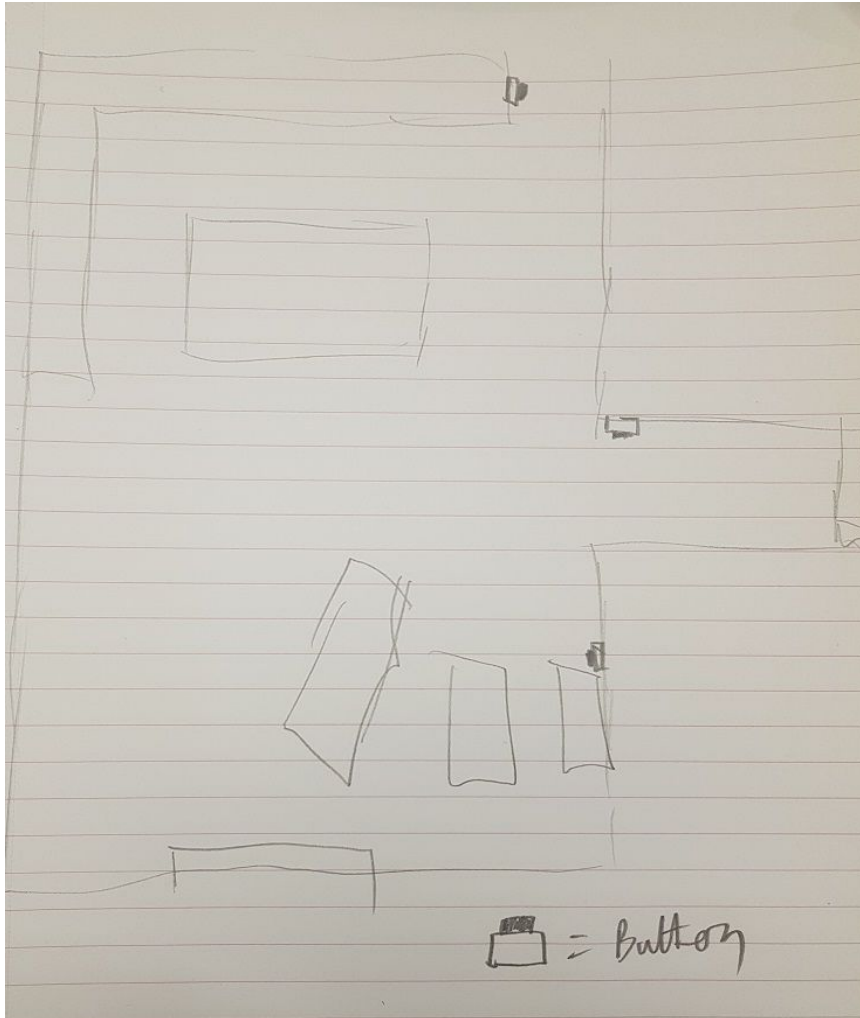


Above is a picture of the light puzzle design that I had thought of, the lights will be designated a shape and with this, I came out with the main thing needed to open the chest with the key in it to open the locked door.

The 2nd puzzle will be the key puzzle where you have to find the key to open the locked door, the way to get the key will be to complete the light puzzle.

The 3rd puzzle will be the button puzzle where there are 3 buttons in the room and you have to press each button within 5 seconds of each other to unlock the door or they'll reset and you have to do it all over again. Below is a rough sketch of where the buttons will be situated.





## References:

### Bedroom Moodboard:

- Wikimediaorg. 2018. Wikimediaorg. [Online]. [13 December 2018]. Available from: [https://upload.wikimedia.org/wikipedia/commons/0/0d/Bedroom\\_Mitcham.jpg](https://upload.wikimedia.org/wikipedia/commons/0/0d/Bedroom_Mitcham.jpg)
- Kesieuthitop. 2018. Kesieuthitop. [Online]. [13 December 2018]. Available from: <http://kesieuthi.top/wp-content/uploads/2018/07/simple-bedroom-design-ideas-simple-master-bedroom-design-ideas-simple-bedroom-with-elevated-bed-brick-wall-and-red-wall-bedroom-simple-bedroom-design-ideas-for-couples.jpg>
- Harbourbreezehomecom. 2018. Harbourbreezehomecom. [Online]. [13 December 2018]. Available from:

<https://www.harbourbreezehome.com/wp-content/uploads/2016/02/master-bedroom-2-ps-700x467.jpg>

- Ikeacom. 2018. Ikeacom. [Online]. [13 December 2018]. Available from: [https://www.ikea.com/gb/en/images/products/hemnes-chest-of-3-drawers-yellow\\_0394650\\_pe563691\\_s4.jpg](https://www.ikea.com/gb/en/images/products/hemnes-chest-of-3-drawers-yellow_0394650_pe563691_s4.jpg)
- Staticflickrcom. 2018. Staticflickrcom. [Online]. [13 December 2018]. Available from: [https://c1.staticflickr.com/2/1670/25053450291\\_6d92aee3c3\\_b.jpg](https://c1.staticflickr.com/2/1670/25053450291_6d92aee3c3_b.jpg)

#### Bathroom Moodboard:

- Blogspotcom. 2018. Blogspotcom. [Online]. [4 December 2018]. Available from: [http://3.bp.blogspot.com/\\_60ImBVz32KE/SwRYpMjUKEI/AAAAAAAAASA/ZUbOkMNM4c/s1600/IMG\\_4243 copy.jpg](http://3.bp.blogspot.com/_60ImBVz32KE/SwRYpMjUKEI/AAAAAAAAASA/ZUbOkMNM4c/s1600/IMG_4243 copy.jpg)
- Isi-damcom. 2018. Isi-damcom. [Online]. [4 December 2018]. Available from: [https://www.isi-dam.com/res/assets/ml\\_target/media/WebPTypeSquare/thumb\\_210/IdealStandard\\_null\\_WebPTypeSquare\\_dc8a289b029ef447e733901151337333.jpg](https://www.isi-dam.com/res/assets/ml_target/media/WebPTypeSquare/thumb_210/IdealStandard_null_WebPTypeSquare_dc8a289b029ef447e733901151337333.jpg)
- Amazonawscom. 2018. Amazonawscom. [Online]. [4 December 2018]. Available from: <https://s3-eu-west-1.amazonaws.com/images.linnlive.com/c1c72948fd87ad8eae3039e339965f2d/6b40bb2a-78c4-43ba-9433-836f913d8a67.jpg>

#### Living Room Moodboard:

- Ostkcdncom. 2018. Ostkcdncom. [Online]. [13 December 2018]. Available from: <https://ak1.ostkcdn.com/images/products/10673061/P17737467.jpg?imwidth=320>
- Ebayimgcom. 2018. Ebayimgcom. [Online]. [13 December 2018]. Available from: <https://i.ebayimg.com/images/i/112393857602-0-1/s-l1000.jpg>
- Walmartimagescom. 2018. Walmartimagescom. [Online]. [13 December 2018]. Available from: [https://i5.walmartimages.com/asr/1a8d5f22-3d85-4a7e-849c-ba11e7ca4b47\\_1.8dc67c019427b9f1eed4f435a2f12590.jpeg](https://i5.walmartimages.com/asr/1a8d5f22-3d85-4a7e-849c-ba11e7ca4b47_1.8dc67c019427b9f1eed4f435a2f12590.jpeg)
- Condecnnet. 2018. Condecnnet. [Online]. [13 December 2018]. Available from: [https://hg-images.condecn.net/image/dgoOWgVZP5R/crop/405/f/Andrew-Montgomery-Gallery-Walls-House-3-10Jul14\\_b.jpg](https://hg-images.condecn.net/image/dgoOWgVZP5R/crop/405/f/Andrew-Montgomery-Gallery-Walls-House-3-10Jul14_b.jpg)
- Castlegatelightscouk. 2018. Castlegatelightscouk. [Online]. [30 November 2018]. Available from: [https://www.castlegatelights.co.uk/images/dar-lighting-luigi-single-light-floor-lamp-in-polished-chrome-finish-with-cream-oval-shade-p25144-23905\\_medium.jpg](https://www.castlegatelights.co.uk/images/dar-lighting-luigi-single-light-floor-lamp-in-polished-chrome-finish-with-cream-oval-shade-p25144-23905_medium.jpg)

#### Attic Moodboard:

- Pdxadditionscom. 2018. Pdxadditionscom. [Online]. [4 December 2018]. Available from: [http://www.pdxadditions.com/wp-content/uploads/2015/11/Lauren\\_rawAttic-830x554.jpg](http://www.pdxadditions.com/wp-content/uploads/2015/11/Lauren_rawAttic-830x554.jpg)
- Pl-internalcom. 2018. Pl-internalcom. [Online]. [4 December 2018]. Available from: [http://uploads.pl-internal.com/NzRIOTThLOWEtNWEyOC00M2I1LTk2YTUtZTVjOWZkZjZmNmMy/content/2016/12/grandmas\\_attic\\_by\\_pixelmixtur-d64zsh1-2.jpg](http://uploads.pl-internal.com/NzRIOTThLOWEtNWEyOC00M2I1LTk2YTUtZTVjOWZkZjZmNmMy/content/2016/12/grandmas_attic_by_pixelmixtur-d64zsh1-2.jpg)
- Hcinsulationcom. 2018. Hcinsulationcom. [Online]. [4 December 2018]. Available from: [https://www.hcinsulation.com/sites/default/files/styles/sc\\_940x470/public/service/attic\\_vent.jpg?itok=QkttPvHE](https://www.hcinsulation.com/sites/default/files/styles/sc_940x470/public/service/attic_vent.jpg?itok=QkttPvHE)

#### Kitchen Moodboard:

- Travisperkinscouk. 2018. Travisperkinscouk. [Online]. [4 December 2018]. Available from: [https://www.travisperkins.co.uk/\\_ui/scene7/is/image/travisperkins/default/Dakota-Matt-White-Kitchen,7Edakotatp.qdefaultImage=travisperkins\\_missing-product.pagespeed.ce.9yZvCM3qev.jpg](https://www.travisperkins.co.uk/_ui/scene7/is/image/travisperkins/default/Dakota-Matt-White-Kitchen,7Edakotatp.qdefaultImage=travisperkins_missing-product.pagespeed.ce.9yZvCM3qev.jpg)
- Kitchenstoricom. 2018. Kitchenstoricom. [Online]. [4 December 2018]. Available from: <https://www.kitchenstori.com/images/uploads/kitchen-images/modern-contemporary-strada-gloss-porcelain-graphite-hero.jpg>
- Inmancom. 2018. Inmancom. [Online]. [4 December 2018]. Available from: <https://webassets.inman.com/wp-content/uploads/2018/01/Untitled-design-56-1984x880.png>
- Taylorwimpeycouk. 2018. Taylorwimpeycouk. [Online]. [4 December 2018]. Available from: [https://www.taylorwimpey.co.uk/-/media/HeadOffice/Images/Inspire me/Interior design/campaignkitchen.png?la=en](https://www.taylorwimpey.co.uk/-/media/HeadOffice/Images/Inspire%20me/Interior%20design/campaignkitchen.png?la=en)

#### Lighting Moodboard:

- Telegraphcouk. 2018. Telegraphcouk. [Online]. [4 December 2018]. Available from: [https://www.telegraph.co.uk/content/dam/interiors/2017/02/22/johncullen1\\_trans\\_NvBQzQNjv4Bqeo\\_i\\_u9APj8RuoebjoAHt0k9u7HhRJvuo-ZLenGRumA.jpg?imwidth=1400](https://www.telegraph.co.uk/content/dam/interiors/2017/02/22/johncullen1_trans_NvBQzQNjv4Bqeo_i_u9APj8RuoebjoAHt0k9u7HhRJvuo-ZLenGRumA.jpg?imwidth=1400)
- Staticflickrcom. 2018. Staticflickrcom. [Online]. [4 December 2018]. Available from: [https://c1.staticflickr.com/4/3035/2986555665\\_54b1a573e9\\_b.jpg](https://c1.staticflickr.com/4/3035/2986555665_54b1a573e9_b.jpg)

- Communityrecordsblockpartycom. 2018. Communityrecordsblockpartycom. [Online]. [4 December 2018]. Available from: <http://communityrecordsblockparty.com/wp-content/uploads/2017/04/Simple-Bedroom-Lighting-Ideas.jpg>
- Pinimgcom. 2018. Pinimgcom. [Online]. [4 December 2018]. Available from: <https://i.pinimg.com/originals/c6/bc/0e/c6bc0e3e289d8baf8b6580be65d0153f.jpg>

#### Wood Moodboard:

- Glyphsco. 2018. Glyphsco. [Online]. [4 December 2018]. Available from: <https://img.glyphs.co/img?src=aHR0cHM6Ly9zMy5tZWRpYWxvb3QuY29tL3Jlc291cmNlcy9laS1SZXMtV29vZC1UZXBh0dXJlcy1TZXQtODAwDUxOC0xLmpwZw>
- Flyingarchitecturecom. 2018. Flyingarchitecturecom. [Online]. [4 December 2018]. Available from: [https://flyingarchitecture.com/images/cache/original/1204\\_Oak\\_Wood\\_preview\\_0002\\_Oak\\_Wood\\_Diffuse.jpg](https://flyingarchitecture.com/images/cache/original/1204_Oak_Wood_preview_0002_Oak_Wood_Diffuse.jpg)
- Gstaticcom. 2018. Gstaticcom. [Online]. [4 December 2018]. Available from: <https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcT3anxtw5k2ld2e-mZwlyF5Axf9Z0oB5MuSFPMISbVThbLZvoPBbQ>
- Designboltscom. 2018. Designboltscom. [Online]. [4 December 2018]. Available from: <http://www.designbolts.com/wp-content/uploads/2013/02/Free-Tileable-High-Quality-Wood-Textures-Patterns-For-3D-Mapping.jpg>

#### Pictures Moodboard:

- Wikimediaorg. 2018. Wikimediaorg. [Online]. [4 December 2018]. Available from: [https://upload.wikimedia.org/wikipedia/en/9/99/Arca\\_Sheep\\_Artwork.jpg](https://upload.wikimedia.org/wikipedia/en/9/99/Arca_Sheep_Artwork.jpg)
- Fineartamericacom. 2018. Fineartamericacom. [Online]. [4 December 2018]. Available from: <https://images.fineartamerica.com/images-medium-large-5/original-abstract-black-and-white-landscape-trees-art-painting-print-black-on-white-amy-giacomelli.jpg>
- Cositascouk. 2018. Cositascouk. [Online]. [4 December 2018]. Available from: [https://www.cositas.co.uk/wp-content/uploads/2017/09/IMG\\_0146.jpg](https://www.cositas.co.uk/wp-content/uploads/2017/09/IMG_0146.jpg)
- Gstaticcom. 2018. Gstaticcom. [Online]. [4 December 2018]. Available from: [https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcRd49HV1wfxXg\\_01Pi1-KHyJUyr7RI-pCMdER93iA7yMqRpejhMng](https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcRd49HV1wfxXg_01Pi1-KHyJUyr7RI-pCMdER93iA7yMqRpejhMng)

#### Brick Moodboard:



- Thesprucecom. 2018. Thesprucecom. [Online]. [14 December 2018]. Available from:  
[https://www.thespruce.com/thmb/ODSo77cARvxSpNXQa2Z5d-OJ\\_Uc=/2121x1414/filters:fill\(auto,1\)/TexturedPopcornCeiling-92347706-5a1da8d95b6e24001acaed99.jpg](https://www.thespruce.com/thmb/ODSo77cARvxSpNXQa2Z5d-OJ_Uc=/2121x1414/filters:fill(auto,1)/TexturedPopcornCeiling-92347706-5a1da8d95b6e24001acaed99.jpg)
- Artnaknet. 2018. Artnaknet. [Online]. [14 December 2018]. Available from:  
<http://www.artnak.net/upload/2017/12/28/429491d3d28884f0.jpg>
- Trendircom. 2018. Trendircom. [Online]. [14 December 2018]. Available from:  
<https://cdn.trendir.com/wp-content/uploads/old/interiors/low-cost-renovation-of-compact-city-apartment-7.jpg>

#### Metal Moodboard:

- Texturexcom. 2019. Texturexcom. [Online]. [10 January 2019]. Available from:  
<https://texturex.com/wp-content/uploads/2018/03/dark-brushed-metal-texture-steel-black-stock-photo-scratch-wallpaper-5-500x375.jpg>
- Freecreativescom. 2019. Freecreativescom. [Online]. [10 January 2019]. Available from:  
<https://images.freecreatives.com/wp-content/uploads/2015/09/FeaturedImg3.jpg>
- Texturexcom. 2019. Texturexcom. [Online]. [10 January 2019]. Available from:  
<https://texturex.com/wp-content/uploads/2018/03/aluminum-brushed-metal-texture-polished-wall-surface-stock-photo-5-500x667.jpg>

#### Misc Materials Moodboard:

- Textures4photoshopcom. 2019. Textures4photoshopcom. [Online]. [10 January 2019]. Available from:  
<http://www.textures4photoshop.com/tex/thumbs/transparent-plastic-texture-PNG-thumb31.png>
- Shopifycom. 2019. Shopifycom. [Online]. [10 January 2019]. Available from:  
[https://cdn.shopify.com/s/files/1/1693/7589/products/15736-206hi\\_5cd2a0cf-9380-4410-a061-00609855dc2f\\_1024x1024.jpg?v=1498660601](https://cdn.shopify.com/s/files/1/1693/7589/products/15736-206hi_5cd2a0cf-9380-4410-a061-00609855dc2f_1024x1024.jpg?v=1498660601)
- Sharecgcom. 2019. Sharecgcom. [Online]. [10 January 2019]. Available from:  
<https://www.sharecg.com/images/medium/351.jpg>
- Hogastillscom. 2019. Hogastillscom. [Online]. [10 January 2019]. Available from:  
[http://www.hogastills.com/index\\_html\\_files/4.png](http://www.hogastills.com/index_html_files/4.png)
- Pillowsxpressnet. 2019. Pillowsxpressnet. [Online]. [10 January 2019]. Available from:  
<http://www.pillowsxpress.net/cscart302U/images/detailed/0/640-BigBlue.jpg>

