

Design Document for:

Pickasso

Team Pablo
NM3216 Tutorial W2
AY 2018/19 Semester 1

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1. Game Overview

Pickasso is a single-player action/strategy arcade game, set in a museum modelled after *Musée Picasso*. The player controls Pickasso, who is attempting to protect his beloved paintings from sneaky thieves. To do so, Pickasso must pick and move the blocks that fall from the top of the canvas map, placing the blocks such that new blocks will land on top of them to form vertical stacks of 3 blocks and thereby forming 1 of the 4 different tools. Pickasso then clears the thieves by throwing these tools straight up at them as they descend on ropes. If any one thief reaches the row of paintings near the bottom of the map, however, the painting is stolen and the game ends. This game is appealing to those who like games that require multitasking and fast-paced action.

- **Objective:** The objective of *Pickasso* is to protect your paintings by defeating thieves before the thieves reach them.
- **Difficulties:** The player is challenged to build tools by skillfully shifting blocks along the Rainbow Line of Defence in time for falling blocks to stack on top of them. At the same time, the player is challenged to clear thieves by launching the tools up at them; the player must decide when to prioritize clearing thieves and when to prioritize shifting (stacks of) blocks. They must also choose the appropriate tool to clear the various patterns the thieves spawn in. The rate of spawning thieves and the frequency of falling blocks will also increase as the player clears more and more thieves, at set intervals (e.g. the spawn rate will increase after the player clears 9 thieves).
- **Juiciness:** The juiciness in *Pickasso* is derived from watching thieves splatter into paint which fills up the canvas with the corresponding colours, clearing whole clusters, columns, or rows of thieves at once, and watching stacks of 3 blocks form a tool (and hearing the accompanying sound effect). Also, even when the player loses the game, they receive the canvas that they have created while clearing thieves as a sort of consolation prize. This further immerses the player into Picasso's world, by making the player feel like an artist.
- **Core Mechanic:** Picking and throwing the tools up at the thieves.
- **Secondary Mechanic:** Picking and placing blocks along the Rainbow Line of Defence to form tools.
- **Ending Condition:** The game ends when a thief reaches one of the paintings, in the row right above the Rainbow Line of Defence.
- **Action Element:** Clearing thieves.
- **Strategy Element:** Deciding when and where to move blocks, and deciding which tool to use to clear particular patterns of thieves.

2. The Game World

2.1 Concept



Figure 1: Musée Picasso¹

The game world — in particular, the background — is modelled after the *Musée Picasso*, an art gallery dedicated to Picasso's works. The painting Pickasso defends is based on Picasso's 1971 *Harlequin Head*, which was stolen in a daytime heist from the Rotterdam Kunsthall gallery in October 2012².

2.2 The World Layout



Figure 2: The Game World

¹ Image taken from https://upload.wikimedia.org/wikipedia/commons/9/93/H%C3%B4tel_Sal%C3%A9e.JPG

² <https://www.nytimes.com/2012/10/17/world/europe/Picasso-and-Monet-Are-Stolen-From-Dutch-Museum.html>

The world is a single, non-scrolling map, with 9 columns clearly marked by the ropes that the thieves travel down. The canvas map — in other words, the playable area — is 22 by 9 blocks. At the bottom of the map is Pickasso's Rainbow Line of Defence. The columns are delineated by the 9 paintings and ropes above the Rainbow Line of Defence. Thieves will descend along these ropes. Together, the row of paintings and the Rainbow Line of Defence are 3 blocks high by 9 blocks wide (with the row of paintings taking up the top 1 by 9 block line); the height of this portion of the map was determined by the height of the maximum height of the stacks of blocks. Below the Rainbow Line of Defence is the wooden floor along which Pickasso walks.

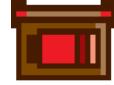
In the background is the museum front in blue tones, to denote that the game takes place when thieves attempt to rob the museum at night; in contrast, the canvas is brightly lit as it is located indoors, where there is lighting.

2.2 Key Locations

- The ropes which thieves descend on
- The Rainbow Line of Defence at the bottom of the map, where blocks stack and tools are formed
- The row of moving space for Pickasso to walk around, pick and place blocks/stacks, and throw tools upwards.

2.3 Objects

| Object A | Object B | Interaction | Effect |
|--|----------|-----------------------|-----------------------------|
| Coloured blocks (red, yellow, blue)  | (None) | Falls from top of map | Dependent on where it falls |

| | | | |
|---|---|--|---|
| Single coloured block | Single coloured block | Object A falls on top of Object B | Objects A and B form a 2-block stack |
| | | |    |
| Single blue block  | Blue 2-block stack  | Object A falls on top of Object B | Objects A and B form a 3-block stack which disappears; a Paint Roller appears in their place  |
| Paint Roller  | All thieves in a single column  | Object A is thrown upwards at Object B and makes contact | Object B is cleared from the map (see Figure 3 below) |
| Single red block  | Red 2-block stack  | Object A falls on top of Object B | Objects A and B form a 3-block stack which disappears; a Paint Bomb appears in their place  |

| | | | |
|--|---|--|--|
| Paint bomb  | Thief  | Object A is thrown upwards at Object B and makes contact | Object B and all surrounding thieves are cleared from the map (see Figure 4 below) |
| Single yellow block  | Yellow 2-block stack  | Object A falls on top of Object B | Objects A and B form a 3-block stack which disappears; a Ruler appears in its place  |
| Ruler  | Thief  | Object A is thrown upwards at Object B and makes contact | Object A stretches horizontally and makes contact with all thieves in the row; Object B and all thieves in the same horizontal row are cleared from the map (see Figure 5 below) |
| Any coloured block | 2-block stack where at least 1 block's colour does not match the colour of Object A | Object A falls on top of Object B | Objects A and B form a 3-block stack which disappears; a Pencil appears in its place  |
| Pencil  | Thief  | Object A is thrown upwards at Object B and makes contact | Object B is cleared |
| Any coloured block | Any tool along the Rainbow Line of Defence | Object A falls on Object B | Object A passes through Object B; upon making contact with the bottom of the Rainbow Line of Defence, Object A |

| | | | |
|--|---|------------------------------|--------------|
| | | | disappears |
| Thief  | Any painting above Rainbow Line of Defence  | Object A touches Object B | Player loses |

2.4 Tools

- Paint Roller



- Formed by making a 3-block stack of **blue** blocks only
- Clears all thieves in a single column (rolls through individual thieves and makes contact with each one; see Figure 3)

| | | | | |
|--|--|---|--|--|
| | | Thief hit by paint roller fifth | | |
| | | Thief hit by paint roller fourth | | |
| | | Thief hit by paint roller third | | |
| | | Thief hit by paint roller second | | |
| | | Thief hit by paint roller first | | |

Figure 3: Paint Roller's area of effect; the roller hits the first thief and continues upwards along the **entire** column, clearing all thieves it comes in contact with

- Paint Bomb



- Formed by making a 3-block stack of **red** blocks only
- Clears all thieves in a 3 by 3 cluster (see Figure 4)

| | | | | |
|--|---|-------------------------|---|--|
| | | | | |
| | X | X | X | |
| | X | Thief hit by paint bomb | X | |
| | X | | X | |
| | | | | |

Figure 4: Paint Bomb's area of effect; X marks thieves that are not directly hit by the thrown Paint Bomb but also cleared nonetheless

- Ruler



- Formed by making a 3-block stack of yellow blocks only
- Clears all thieves in a horizontal row, spreading out from the initial thief hit (see Figure 5)

| | | | | | | | | | |
|---|---|---|---|--------------------|---|---|---|---|--|
| | | | | | | | | | |
| | | | | | | | | | |
| X | X | X | X | Thief hit by ruler | X | X | X | X | |
| | | | | | | | | | |

Figure 5: Ruler's area of effect; X marks thieves that are not directly hit by the thrown Ruler but also cleared nonetheless because the Ruler clears the entire row. The thief directly hit by the Ruler can be any one of the thieves in the row; the column it is in does not matter.

- Pencil



- Formed by making any other 3-block stack
- Clears a single thief

2.5 Travel

Pickasso travels left and right with the [LEFT] and [RIGHT] arrow keys, walking grid by grid. His movement is restricted to the bottom row of the map, along the wooden floor. From the player's point of view, Pickasso's back is seen as Pickasso faces the Rainbow Line of Defence while moving blocks. When Pickasso picks up a tool, he will turn 180 degrees (the player will now see Pickasso's front, allowing them to see what tool Pickasso is holding). As soon as he throws the tool upwards, Pickasso turns back to face the Rainbow Line of Defence automatically to indicate to the player that they can return to the action of moving blocks.

3. Game Characters

3.1 Pickasso



Figure 6: Initial concept art for Pickasso sprite

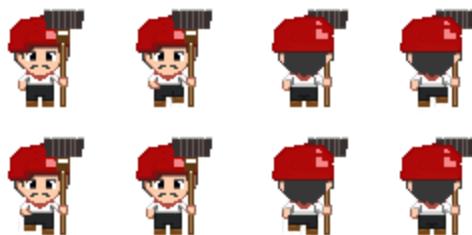


Figure 7: Final art for Pickasso sprite

Pickasso is the player's character. He wears a red beret and carries a paintbrush. There are 5 actions Pickasso can perform:

- Moving
 - Pickasso can move sideways along the wooden floor with the [LEFT] and [RIGHT] arrow keys.
- Picking
 - Pickasso can pick (i.e., select) blocks or stacks with the SPACE BAR along the Rainbow Line of Defence, which is at the bottom of the map. He can also pick up tools, but once he has done so, he must launch them by throwing them upwards.
 - Instead of literally “picking up and placing,” we have designed the UI in such a way that when Pickasso “picks” up a block/stack, it will be highlighted to show that Pickasso has selected that block/stack. Pickasso will also poke the block/stack with his paintbrush. Then, the block/stack will move along with Pickasso as he moves to place the block/stack in an empty space along the Rainbow Line of Defence.
 - This is designed to reduce confusion: in playtests, players assumed they could place blocks/stacks anywhere, even on an occupied grid. They also assumed they could stack a block they are holding onto another existing block on the Rainbow Line of Defence to form a 2-block stack, or on a 2-block stack to form a 3-block stack and therefore a tool.
- Throwing tools upwards

- After picking up tools, Pickasso throws them upwards with the SPACE BAR.
- Placing
 - After picking blocks or stacks, Pickasso can move them with the [LEFT] and [RIGHT] arrow keys and place them on any space along the bottom of the Rainbow Line of Defence with the SPACE BAR again as long as that space is not already occupied.
 - Note that Pickasso cannot place tools back down; they must be thrown upwards immediately.
- Deleting blocks/stacks
 - After picking up blocks or stacks, Pickasso can discard them (i.e., delete them) with the [DOWN] arrow key.
 - Pickasso can delete blocks any time in the game, but it is up to the player to consider if they will have enough blocks to form tools to clear the incoming thieves.

3.2 Thieves

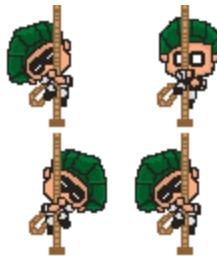


Figure 8: Art for thief sprites

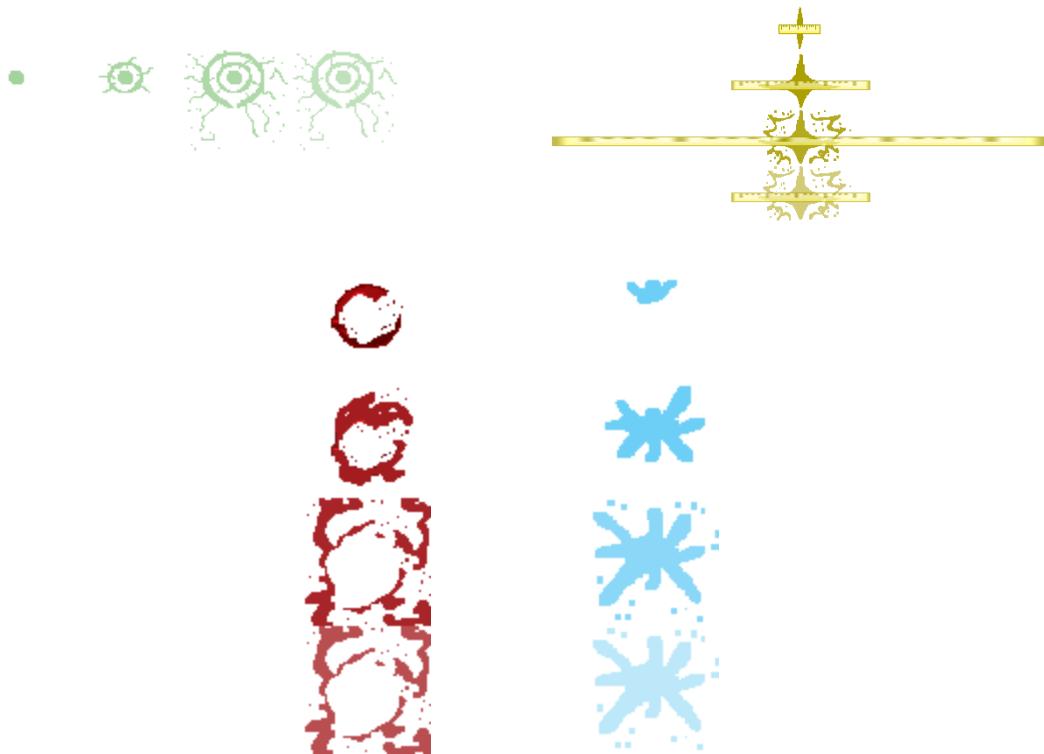


Figure 9: Art for paint splatters. Clockwise, from top left: paint splatter for Pencil; paint splatter for Ruler; paint splatter for Paint Roller; paint splatter for Paint Bomb

Thieves are the enemies. They spawn at the top row of the map, like blocks, and slowly move downwards along the ropes towards the bottom of the map. They only ever move downwards, and always move slower than the falling blocks. When they are cleared by a tool (through direct contact or by being in the tool's area of effect), they splatter into paint (Figure 9) and are cleared from the map. The paint remains on the canvas and later forms a “masterpiece” that the player has “created” in the process of playing the game.

4. Model of Automatic Difficulty

4.1 Initial spawn rates

- A block spawns every 3 to 5 seconds.
- There is a 25 second window at the start of the game in which no thief spawns, to allow players to build their first tools.
- After 25 seconds, a thief spawns every 13.5 to 15.5 seconds. Initially, only single thieves are spawned.

4.2 Automatic Increase in Difficulty and Connection to Player Performance

Pickasso's difficulty curve is a linear increase. As the player successfully clears thieves, the game automatically gets more difficult by increasing the rates at which thieves and blocks spawn and move downwards/fall from the top of the map.

- After 5 thieves are cleared, formations are introduced. There is initially a 50% chance that each new spawn will occur in a formation, which is a predetermined pattern of grid tiles (i.e., horizontal row, vertical column, and cluster). In each formation, there is a 25% chance that a thief will spawn in each grid tile within the formation.
- After another 9 thieves are cleared, thieves will only spawn in formations; single thieves are no longer spawned. There is an equal chance of each of the three formations being selected. In each formation, there is a 33% chance that a thief will spawn in each grid tile within the formation.
 - Note that single thieves can still appear, if by chance only one tile in the whole formation is filled. These situations should, however, be uncommon.
- With every 9 thieves cleared from the start of the game, the rate at which thieves spawn increases by 0.5 seconds. E.g. after 9 thieves are cleared, thieves will then spawn every 13 to 15 seconds, and so on.
- With every 13 thieves cleared from the start of the game, the rate at which blocks spawn increases by 0.1 seconds. This increase is capped after 40 thieves are cleared. After 70 thieves are cleared, however, the rate continues to increase, again by 0.1 seconds, to help the player deal with the influx of thieves. The increase is capped again after 80 thieves are cleared and is finally uncapped after 120 thieves are cleared to allow for a steeper challenge for advanced players.
- With every 13 thieves cleared from the start of the game, the speed at which thieves move downwards gets faster by 1.5 frames/second.
- With every 13 thieves cleared from the start of the game, the speed at which blocks fall gets faster by 0.5 frames/second.

For every thief spawned, there will be at least 3 blocks falling beforehand such that the player will never reach the situation of not having enough blocks to form the tool required to defeat the incoming enemy. Furthermore, when thieves spawn in a formation, an extra block of the colour that forms the tool best used to clear thieves in that particular formation will spawn. If the player decides to delete blocks or stacks, however, they may end up not having enough blocks to form tools. This is not a fault of the game mechanics, but of the player's decisions.

4.3 Balancing

There are 4 different types of tools that a player can build, with different areas of effect. While the game provides the specific blocks required to build the most effective tool for the formation spawned, whether or not the player will be able to form the 3-block stack by catching the falling blocks in time is determined by the player's skill level. This prevents the player from feeling cheated by not being able to form a desired tool because the missing block for the specific combination was not spawned in time. With this, the player can strategically create and throw tools upwards in response to the thieves' formations.

Furthermore, we have balanced the difficulty by having “wrong” combinations form the basic tool (the Pencil). As the game gets harder, there is an increasing chance that the player will not be able to form the combination to produce their desired tool. Instead of punishing the player by destroying the entire stack and making them build another from scratch, the game still generates a usable, albeit basic, tool. The player thus will not lose too easily and feel cheated by the overwhelming number of thieves as the game proceeds. However, it also distinguishes the better players as they will be able to build better tools, which will more effectively clear the formations of thieves.

5. User Interface

5.1 Game Flowchart

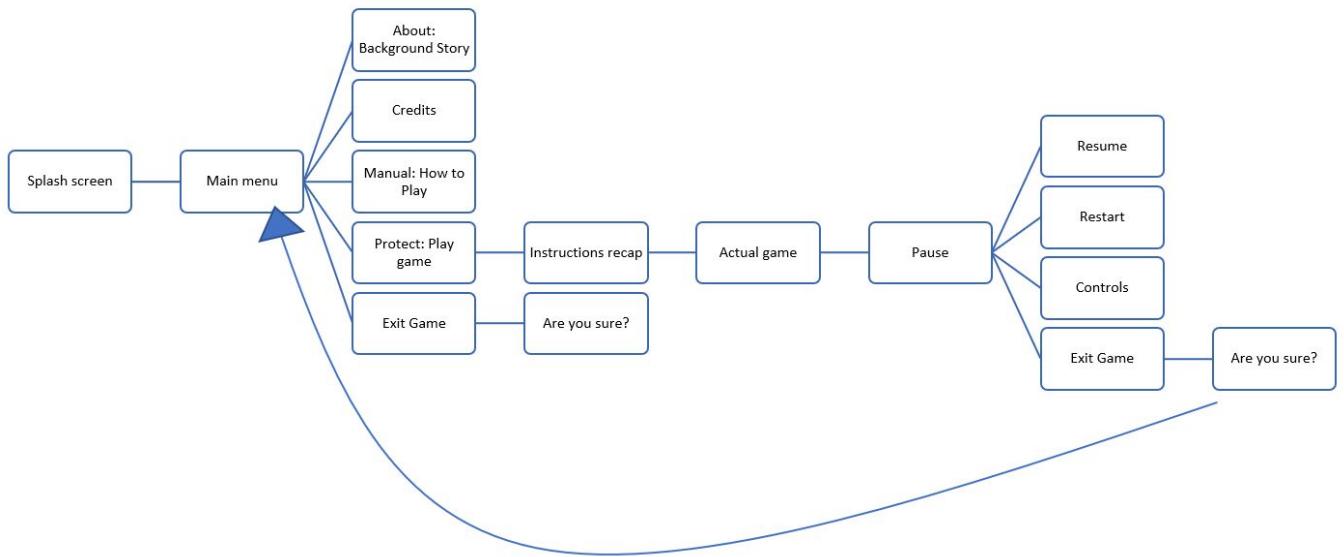


Figure 10: Game flowchart

5.2 Startup “Splash” Screen

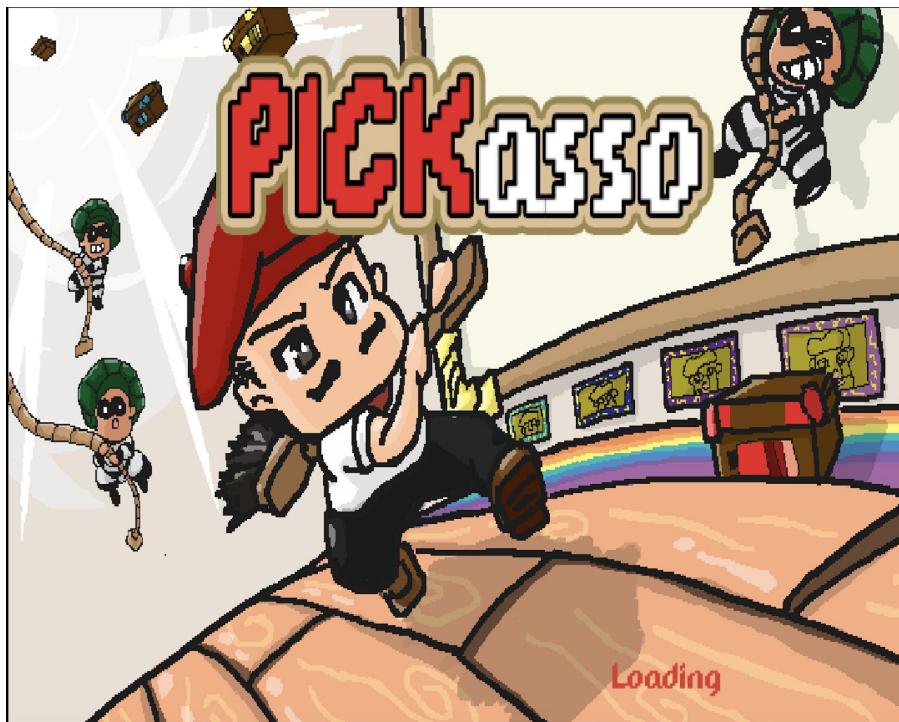


Figure 11: “Splash” screen

The splash screen depicts the player character, Pickasso, carrying his paintbrush as he runs across the wooden floor. In the background, the Rainbow Line of Defence is visible; a coloured block sits on it as it would during gameplay. Above the Rainbow Line of Defence is the row of his paintings. Around him, thieves descend from ropes and coloured blocks fall. The word “Loading” is written towards the bottom right of the screen, with three dots appearing sequentially to form an ellipsis over and over again until the game loads.

5.3 Main Menu Screen

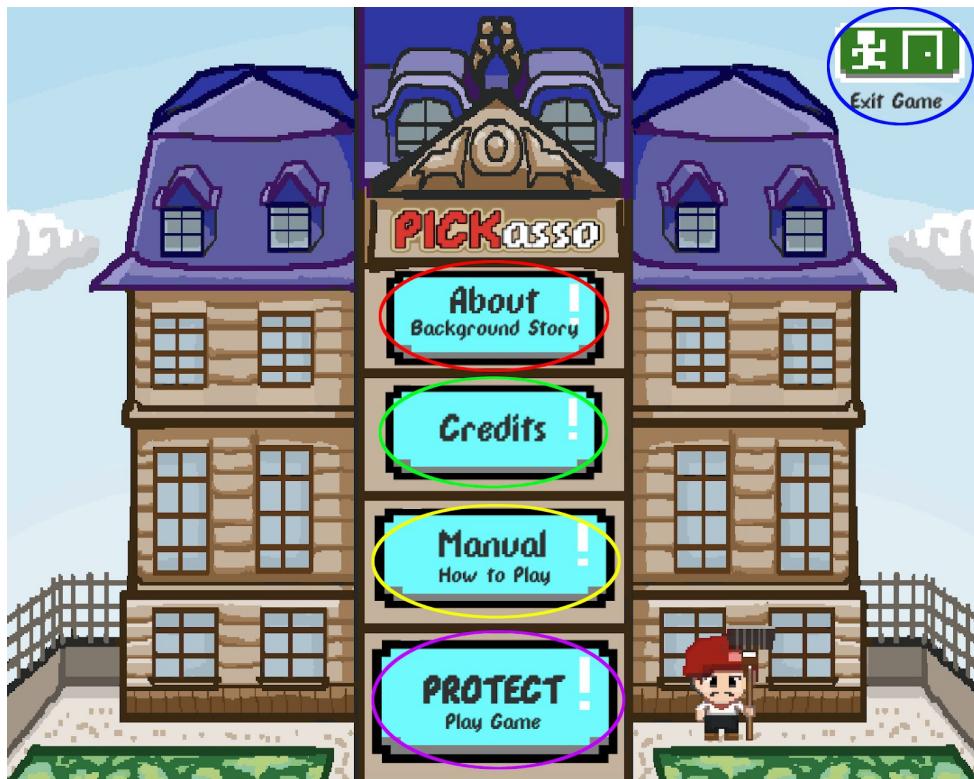


Figure 12: Main menu screen

The menu shows the front of the museum, in the day. Pickasso stands in front of the museum's right wing, bouncing lightly in place. In the middle, there is the game title, *Pickasso*, and buttons to read the background story (“About”; circled in red in Figure 12), view the credits (“Credits”; circled in green in Figure 12), view the instructions (“Manual”; circled in yellow in Figure 12), and to start the game (“Protect”; circled in purple in Figure 12). In the top right, there is a button that looks like an exit sign, labelled “Exit Game” (circled in blue in Figure 12), which allows players to leave the game.

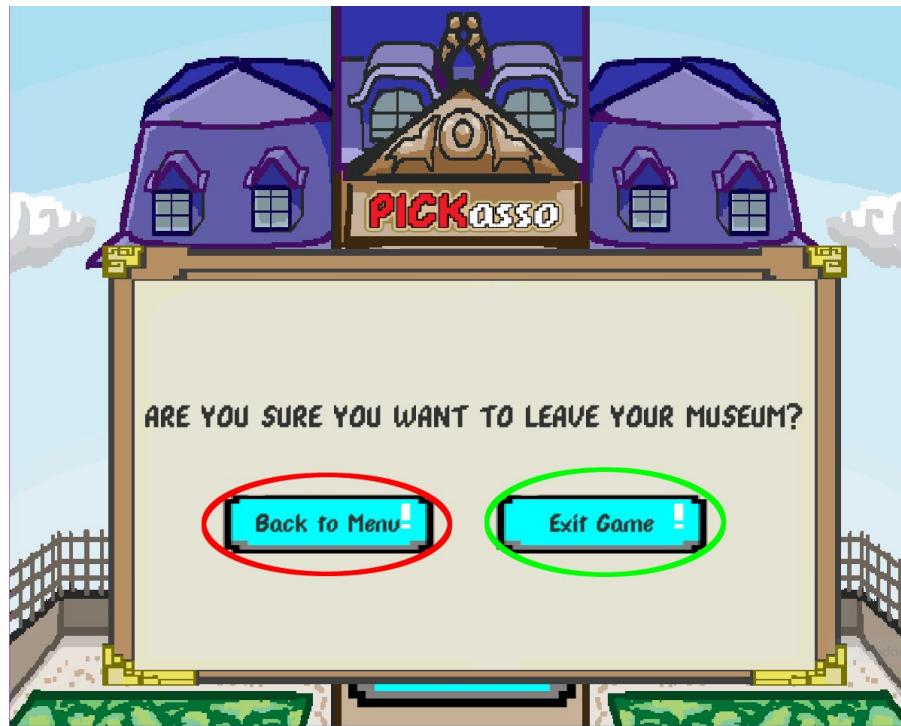


Figure 13: Are you sure you want to leave your museum?

They will first be asked, however, if they are sure they want to quit the game, with buttons to go back to the main menu (circled in red; see Figure 13) or exit the game (circled in green; see Figure 13). The player activates each of these options by clicking on them with the mouse; each button darkens slightly when the cursor hovers above it. With more buttons to click for the player to exit the game, it is more difficult to leave; this will hopefully encourage the player to continue playing. This is in contrast to entering the game; to start the game, it takes only one click on ‘Protect’ for the player to immediately be brought to face the thieves.

The text and font have been customized to match the retro, 8-bit game aesthetic and the aesthetic of Picasso’s art museum, to better allow the player to enter the “flow”. The Exit button is also customised to look like the ones in a typical museum.

5.4 In-game Interface



Figure 14: Gameplay

The input controls, as stated in Section 3.1 (“Pickasso”), are the left and right arrow keys for movement, and the space bar for picking and placing blocks/stacks and for picking and shooting tools. The down arrow key is used to delete blocks/stacks.

Additionally, there is a smaller secondary canvas on the right side of the screen. This canvas shows the combinations required to form different tools, and describes what each tool does.

The tools along the Rainbow Line of Defence are highlighted with bright borders so that they stand out more against the colourful background. In addition, when Pickasso is moving a block/stacks, green flares appear when he is in front of an empty space on which he can place the block/stacks down, and red flares appear when he is in front of an occupied space and therefore cannot set the block/stacks down.



Figure 15: Pause menu

To pause the game, the player either clicks on the button in the top right corner of the screen (circled in red in Figure 14) with the mouse, or presses the “P” key. In the pause menu, there are buttons that allow the player to resume the game (circled in red; see Figure 15), restart the game (circled in green; see Figure 15), view the controls (circled in yellow; see Figure 15), and exit the game (circled in blue; see Figure 15). The player can move between options using the arrow keys or by hovering over them with the mouse, and can select them by using the enter key or space bar if using the arrow keys, or by using the left mouse button if using the mouse. As with the buttons in the main menu, the buttons darken slightly when the mouse hovers over them or when the player moves through options using the arrow keys.

5.5 Instructions/help

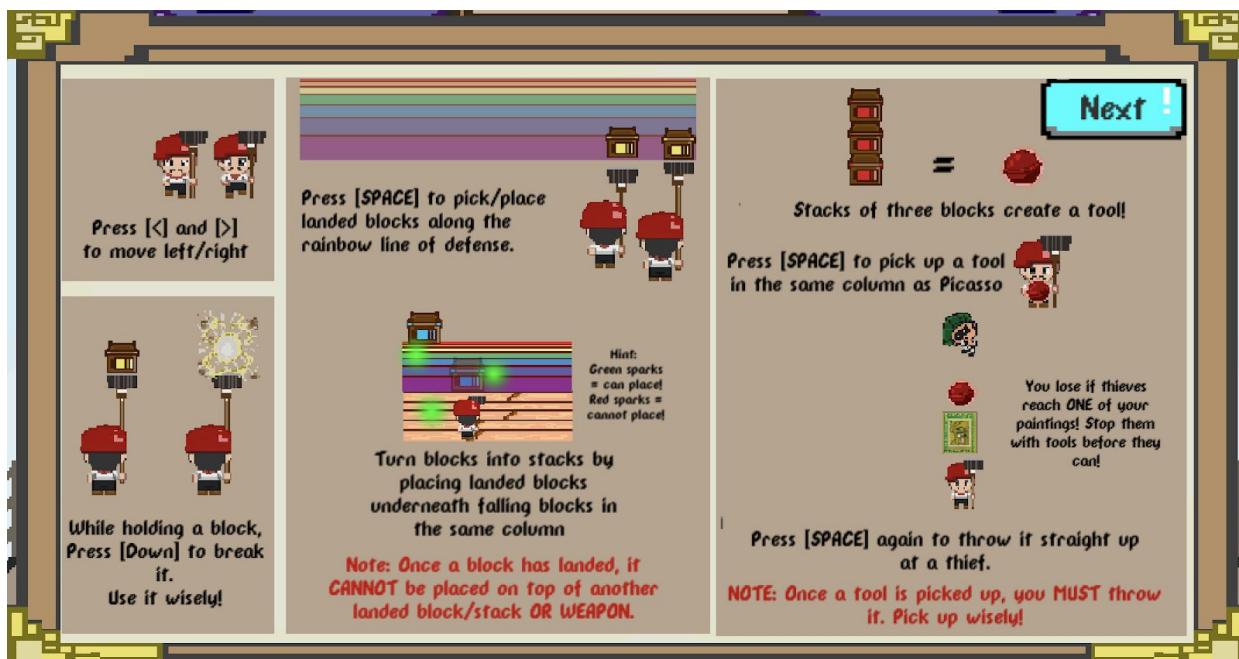


Figure 16: Instructions page 1



Figure 17: Instructions page 2

From the main menu, the player will be able to access the instructions page by clicking on the appropriate button (circled yellow in Figure 12). The player can navigate between the first and second pages of the instructions by using the light blue buttons.

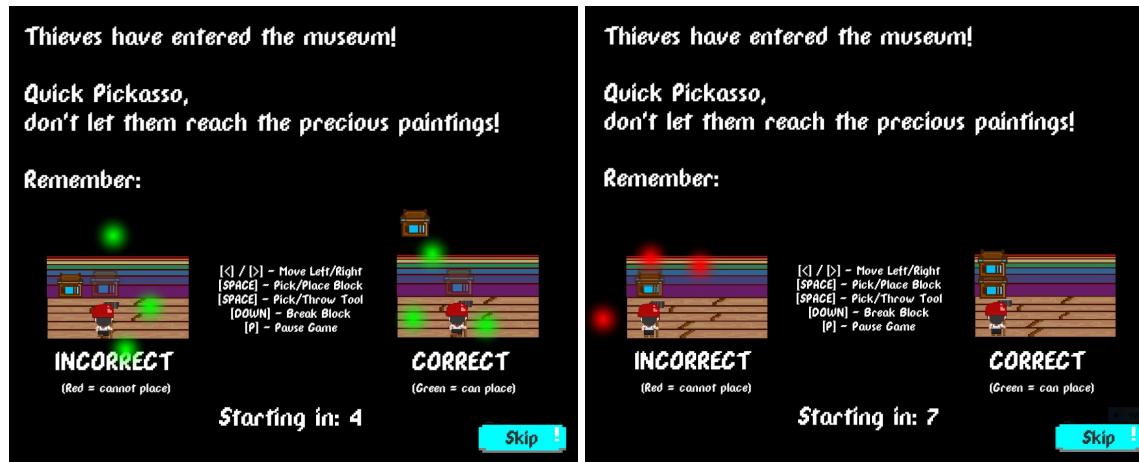


Figure 18: Instructions recap

Before the start of a new game launched from the main menu, the player is presented with a recap screen that reminds them of their objective (not to let thieves reach the paintings), the controls, and the green and red flares that indicate when Pickasso can put down his block/stacks and when he cannot, respectively. In the bottom right, there is a light blue “Skip” button, which was implemented to ensure that returning, experienced players would not get impatient and quit the game before it starts.



Figure 19: Controls

Within the game, if the player forgets the controls, they can access the controls information through the pause menu. The light blue “Back” button allows the player to return to the pause menu when clicked.

5.6 Game Over

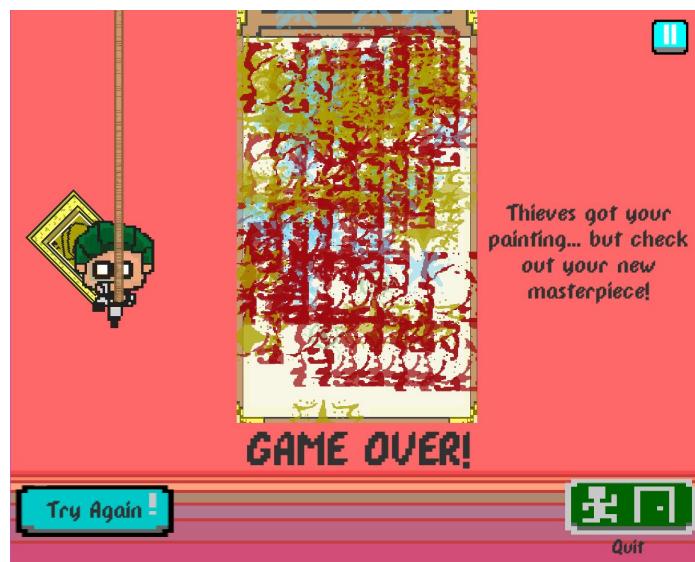


Figure 20: Game Over!

We wanted to enable the player to feel a sense of accomplishment after playing our game, even though they can never really win. Thus, at Game Over, players are presented with their original “masterpiece”, made with the paint splatters from clearing thieves. The canvas thus becomes a visual manifestation of the player’s hard work.

In the bottom left corner of the screen, there is a light blue button that invites the player to try again so as to tempt the player to keep playing. There is however also a button to exit to the main menu in the bottom right corner of the screen.

5.7 Story

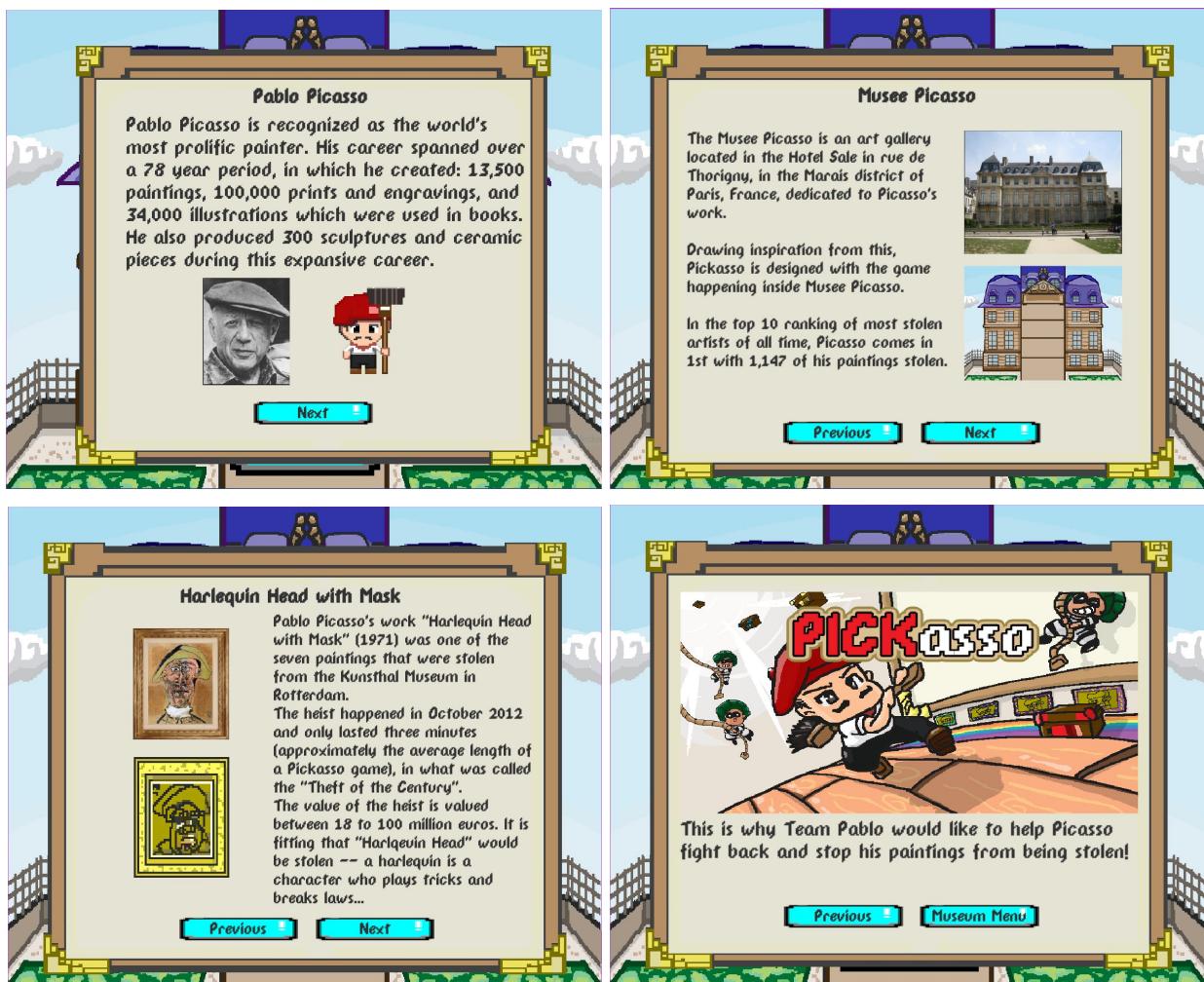


Figure 21: Story pages

The story pages are accessible through the “About” button (circled in red in Figure 12). These pages give players information on the setting, namely, the *Musée Picasso*, as well as the inspiration for the game’s concept, the October 2012 heist in which Picasso’s *Harlequin Head* was stolen. Players navigate these pages by clicking on the light blue “Previous”, “Next”, and “Museum Menu” buttons with the left mouse button.

5.8 Credits

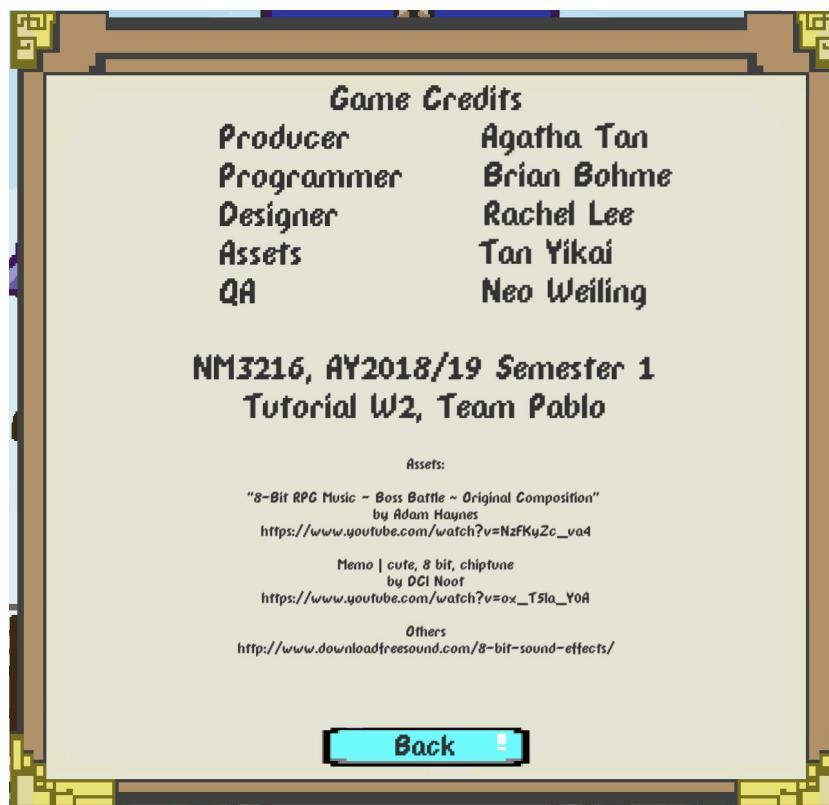


Figure 22: Credits page

The credits page contains the names and roles of all team members, as well as the information for the sources of all non-original assets.

5.9 Sound Effects

Sound effects are employed:

- When a tool hits a thief and the thief splatters into paint
- When a block/stack/tool is “discarded”
- When a tool is thrown upwards
- When a tool is formed
- When Pickasso picks something
- When Pickasso places a block or a stack
- When Pickasso moves
- When the player loses (Game Over)
- When buttons are selected by user in the main menu
- Background heist music playing throughout
- Splash screen & Main Menu loading music
- Countdown timer at loading screen before the game starts

6. Assets

6.1 Visuals

All of *Pickasso's* visuals were designed by our Assets Developer, Tan Yikai; our QA, Neo Weiling, and our Game Designer, Rachel Lee. All our assets are drawn in pixel art for a consistent retro arcade game aesthetic.

6.2 Sound

We used 8-bit music to complement the visual pixel art aesthetic. We sourced music and sounds from a number of sources, all of which are free to use for non-commercial projects:

- The music used in the main menu is *Memo | cute, 8 bit, chiptune* by DCI Noot on YouTube³.
- The music used during gameplay is taken from *8-Bit RPG Music - Boss Battle ~ Original Composition* by Adam Haynes on YouTube⁴.
- All sound effects are taken from www.downloadfreesound.com. All sound effects from this website are in the public domain.

³ https://www.youtube.com/watch?v=ox_T5Ia_Y0A

⁴ https://www.youtube.com/watch?v=NzFKyZc_va4

Appendix A: Self-Evaluation

We believe *Pickasso* is a moderately fair and balanced game; noting that many of our initial playtesters lost the game quickly because they did not have the correct tools, we designed the spawning of the blocks such that the game will detect and spawn the blocks needed to form the tool best suited to clear all the thieves in the upcoming formation, therefore allowing players to advance in the game. The game also does not penalize players who might not be quick enough to move blocks into the right position as the game progresses by having 3-block stacks that do not form a Paint Roller, Paint Bomb, or Ruler form a pencil.

Pickasso best appeals to players who enjoy both action games and multitasking; it is therefore suited more to players who are older (it is not very child friendly, given how overwhelming the thieves can get without any strategy). It also seems to appeal to players who have quick reaction times and are able to think as they act, as well as players who do not get easily stressed out by seemingly large numbers of thieves as the formations can appear overwhelming but are in fact manageable to clear with the right tools.

The most interesting aspect of *Pickasso* is the incorporation of real time strategy in an arcade shooter. Some players who enjoyed our game mentioned that they felt challenged by the need to actively consider their priorities at every step of the game, while others commented that they found enjoyment in simply clearing thieves. By merging the two genres, then, we were able to appeal to a wider range of gamers.

Since the submission of the last milestone, we have made adjustments to the adaptive difficulty algorithm, since players feedbacked that the difficulty of the game felt quite random. We continued adjusting it until new playtesters reported a gradual increase in difficulty. Additionally, we made some changes to the UI: we implemented a refresher instructions screen that the player would see right before starting a new game from the main menu, which displayed both the controls and drew attention to the green and red flares. We also shifted the delete button from the “Z” key to the down arrow key, as many casual gamers gave feedback that they would forget the key’s function because they did not normally place their hand on “Z”. Finally, we edited our instructions for clarity, making sure our terms were consistent, adding in images, and compressing them into two pages, as players tended to skip through them when they were longer.

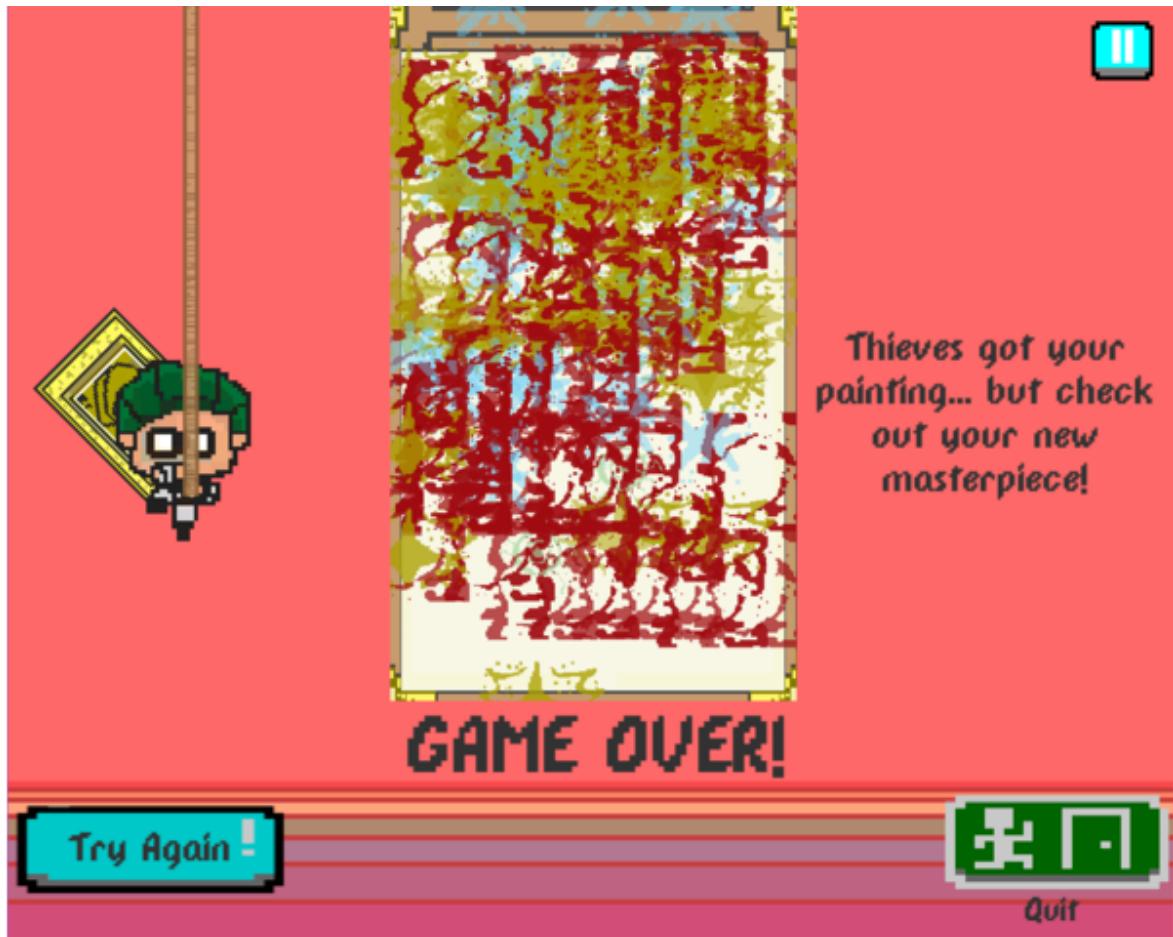
The main weakness of the final version of the game lies in the difficulty, as affected by spawn rates and movement speeds; they might not be at the sweet spot where both hardcore and casual gamers can feel consistently challenged or entertained. While we playtested the game with both casual and hardcore gamers and attempted to adjusted the spawn rates and movement speeds of the thieves and blocks accordingly, we would have liked to playtest with a larger number of players, but had limited time to do so because we spent a lot of time hammering out our initial concept, and then reworking it and making significant changes to the mechanics before we could begin to refine the game.

Appendix B: Summary

- Name of Game: Pickasso
- Created by Team Pablo
 - Producer: Agatha Tan
 - Designer/Writer: Rachel Lee Wang Ling
 - Content/Assets Developer: Tan Yikai
 - Programmer: Brian Scott Bohme
 - QA/Tester: Neo Weiling
- *Pickasso* is a single-player action/strategy arcade game. The player plays Pickasso, a famous artist, who must build tools by stacking coloured blocks to defeat incoming thieves and protect his paintings.

Screenshots:





Appendix C: Milestones

Week 6

Team Pablo

- Producer/documentation: Agatha Tan (A0160803N)
- Game designer: Rachel Lee (A0172168B)
- Programmer: Brian Bohme (A0144436H)
- Content/assets: Tan Yikai (A0158455W)
- QA: Neo Weiling (A0173766R)

Pickasso is an arcade/strategy video game. The player controls a graffiti artist, Pickasso, and his assistant/apprentice, Pickasso Jr., as they attempt to vandalize a painting in the middle of an art gallery. To do so, the player must pick up the coloured blocks around the different rooms (all on a single screen) and deposit them in the right place in the outline in the centre of the screen. All the while, the player must avoid being spotted by roaming policemen/security, the number of which will gradually increase as the player puts down more blocks.

Week 7

Pickasso is a single-player action/strategy arcade game. The player controls the ghost Pickasso, who is attempting to protect a sculpture in the middle of the map from thieves. Pickasso guards the sculpture by picking up and moving weapons into a desired position and then picking up and picking up coloured blocks and placing them on the weapons to load the weapons with ammo. Blocks can only be used as ammo for weapons that are the same colour as the weapon. Additionally, Pickasso can build better weapons (e.g. weapons that shoot faster, or weapons with longer range) by stacking coloured blocks of some particular combinations on top of one another. The thieves will spawn at random points in the map, and if any one thief reaches the sculpture in the middle, the game ends. The player clears the thieves by using the weapons to fire at them; once a single bullet from the weapon hits the thief, the thief is cleared from the map. This game is appealing to players who like games that require multitasking and the ability to conceive of long-term or large-picture strategies.

- Objective/goals: the objective of *Pickasso* is to keep thieves from reaching the sculpture in the middle of the map.
- Difficulties: the player has to balance long-term versus short-term considerations. In the long-term, it might be better for a player to stack blocks to create better weapons so that they are better able to deal with the increasing number of thieves. But in the short term, the player also has to decide how many blocks they should be using as ammo to clear the enemies already spawning rather than preparing for future thief spawns. Furthermore, the rate at which the thieves spawn will increase as the player clears more and more enemies (e.g. the spawn rate will increase after the player clears 10 thieves).
- Core mechanic: picking up and placing blocks.
- Game ending: the game ends when a thief reaches the sculpture in the middle of the map.

Documentation

Initial Concept

As it was initially conceived, *Pickasso* featured a single map with the outline of a picture in the middle. There would be a wide range of pictures available, but the game would pick one picture randomly when generating the map for each new game. Coloured blocks would randomly spawn on the map. The player would control Pickasso, and the objective of the game was to complete pictures in the middle. To do this, the player would pick up the coloured blocks and place them in the appropriate place within the outline. Enemies would spawn randomly, and if Pickasso got caught by an enemy, the game would end. When the picture was complete, a new outline would appear and all the enemies on the map would be cleared, but the spawn rate for new enemies would increase. There would also be a small, completed picture at the side of the UI (outside the map) to give the player more guidance in completing the picture.

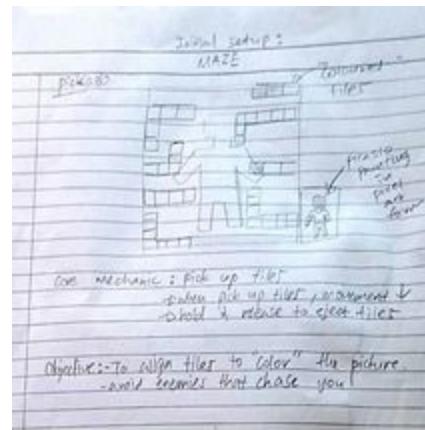


Figure 1: initial concept for Pickasso

Fleshing out Pickasso

In our meetings, we developed the concept and mechanics for *Pickasso* further. We came up with the concept of having *Pickasso* be a graffiti artist, who was trying to vandalize a painting in a museum. The enemies would be security guards, and *Pickasso* would get caught and the game would end if he was caught in one of the beams of light from any security guard's flashlight.

For the mechanics, we considered multiple ways to heighten the difficulty and the strategy element. We came up with the idea of introducing the mechanic of making colour combinations. While the core mechanic would still be picking up and putting down blocks, the player would have to stack blocks of the primary colours (red, blue, yellow) to create blocks of secondary colours (green, purple, orange). To achieve performance-based increments in difficulty, we decided that new enemies should spawn after a certain number of blocks was placed in an appropriate place (e.g. after placing 3 blocks, a new enemy would spawn).

To help the player manage the number of security guards that would spawn, as well as to introduce positive feedback to keep players invested and engaged, we created the mechanic of “flushing”—if, for instance, the outline showed a connected and uninterrupted line of red blocks and the player placed a red block on each end of that line, then the player would simultaneously complete the line of red blocks in between.



Left to right: Figure 2, setup of physical prototype; Figure 3, internal playtesting; Figure 4, limited field of vision created with a toilet roll

We settled on these mechanics and conducted internal playtesting with a physical prototype. From this playtest, we realized that the game quickly got repetitive, and that it was quite mindless and therefore unexciting even with the combination of colours.

We therefore decided to limit the player's field of vision; the player would be able to view only what was in Pickasso's immediate vicinity, and what was lit up by the security guard's torchlights. We also introduced Pickasso Jr., who could slow the security guards down by placing traps. This was designed to enable different playstyles.

Objective and concept overhaul

During the tutorial, we consulted with Dennis and realized that clearing all the enemies from the map upon successful completion of a picture would be considered a power up and was therefore not allowed in this assignment. Yet without this mechanic, we were at a loss as to how to incentivize the player to complete the pictures in the middle, since we also were not allowed to track points.

Thus, while keeping the core mechanic of picking up and putting down blocks, we decided to overhaul the objectives and concept of the game. We decided to have the main objective be instead for Pickasso—the ghost of a celebrated artist—to defend a sculpture in the middle of the map from thieves; this solved our problem of incentivizing the player to complete an action, and gave us a more focused, singular objective, resolving our confusion about whether the objective of the game was to complete pictures or stay alive.

At the start of the game, 3 basic weapons will spawn at random locations. The player, as Pickasso, must pick up these weapons and place them in appropriate locations to set up their defences. Thieves will spawn in random locations and head towards the sculpture; to defeat them, Pickasso must load the weapons with coloured blocks, which function as ammo. The weapons will then shoot out small coloured blocks, which will clear any enemy they come into contact with, until it runs out of ammo. Pickasso can also build new weapons by stacking the coloured blocks on top of one another to form different colour combinations. With this shift towards a multitasking/management strategy game, we decided to remove the limitations on the player's field of vision so as not to make the game overly complicated and hard to pick up.

We presented our idea to the rest of the class and gave a demo. One key finding from the feedback we received was that as we develop the code and start thinking about balancing the game, it is important to think about the player's speed versus the thieves' speed.

Week 8

1. Game Overview

Pickasso is a single-player action/puzzle arcade game. The player controls Pickasso, who is attempting to protect an unseen sculpture from thieves and has therefore set up a last line of defence. Coloured blocks will fall from the top of the map; three blocks of the same colour form a weapon, which requires more blocks of the same colour to shoot bullets. If a block falls onto a weapon or 1-2 block stack of a different colour, the weapon or stack of blocks will explode, thereby clearing them from the map and forcing Pickasso to stack more blocks to build new ones. Pickasso guards the sculpture by picking up and moving weapons and blocks into a desired position along the bottommost line to catch the falling blocks and shoot at the incoming thieves. The thieves will spawn anywhere along the top of the map, and if any one thief reaches the bottom of the map, the game ends. The player clears the thieves by using the weapons to fire at them; once a single bullet from the weapon hits the thief, the thief is cleared from the map. This game is appealing to players who like games that require multitasking and fast-paced action.

- Objective/goals: the objective of Pickasso is to keep thieves from reaching the bottom of the map.
- Difficulties: the player must be able to manage multiple weapons at once so as to avoid their weapons being destroyed by blocks of other colours. The rate at which the thieves spawn and blocks fall will also increase as the player clears more and more thieves (e.g. the spawn rate will increase after the player clears 10 thieves).
- Juicy elements: clearing multiple columns of thieves almost simultaneously.
- Core mechanic: picking up and placing blocks/weapons along the same line.
- Game ending: the game ends when a thief reaches the bottom of the map.

2. The Game World



2.1 The World Layout

The world is a single, non-scrolling map, with a grid. We are currently still in the process of designing it, and have yet to determine exact dimensions.

2.2 Key Locations

- The line at the bottom of the map: this is where Pickasso walks around, picks up and puts down blocks and weapons.

2.3 Objects

| Object A | Object B | Interaction | Effect |
|-----------------------|--|-----------------------------------|---|
| Single coloured block | | Falls from top of map | Dependent on where it falls |
| Single coloured block | Single coloured block: same colour | Object A falls on top of Object B | Objects A and B form a 2-block stack |
| Single coloured block | 2-block stack: same colour | Object A falls on top of Object B | Objects A and B form a weapon |
| Single coloured block | Single coloured block: different colour, OR 2-block stack: different colour, OR weapon: different colour | Object A falls on top of Object B | Objects A and B are destroyed (cleared from map) |
| Single coloured block | Weapon: same colour | Object A falls on top of Object B | Object B starts shooting bullets (limited number) |
| Bullet | Thief (character) | | Object B is destroyed (cleared from map) |

2.4 Travel

Pickasso travels by walking, though his movement is restricted to the top of the map.

3. Game Characters

3.1 Pickasso



Pickasso is the player's character. He moves sideways along the bottommost line. He can also pick up and put down blocks and weapons located along the bottommost line.

3.2 Thieves

Thieves are the enemy characters. They spawn at the top of the map, like blocks, and slowly move downwards towards the bottom of the map. They move slower than Pickasso. When they are hit by a bullet from any weapon, they get splattered by paint and are cleared from the map.

4. Model of Automatic Difficulty

4.1 Automatic Difficulty

The game automatically gets more difficult by increasing the rates at which thieves spawn and blocks fall from the top of the map.

4.2 Connection to player performance

The increase in difficulty is connected to the player's clearing of thieves. At set intervals (e.g. after 10 thieves are cleared), the rates increase.

5. User Interface

The input controls are the arrow keys for movement, and the space bar for picking up and putting down blocks/weapons. There will be sounds for when the player destroys a thief, and for when the player's blocks or weapons are destroyed.

6. Assets

To be determined.

External Playtesting Report

This week's external playtest was conducted within the tutorial groups to gain insight on how to improve our game design. We modified our game slightly after every playtest and conducted three playtests in total.

For the first playtest, our group proceeded with our original game concept. One problem that came up was the lack of board presence, which makes the action in our game seem underwhelming relative to the board area. There was also little incentive for players to walk across the large play area except to collect cubes for ammo, which could only shoot up to a 3-pixel range. The 3-pixel gun was also overshadowed by the 'upgraded' crossbow which shoots up to 6 pixels, making the gun useless since players could make the crossbow from the start of the game. The enemy could spawn anywhere without a fixed route; therefore, it was also not easy to predict enemy movement, making it difficult to pre-plan certain strategies.

For the second playtest, our group decided to add walls that shifts throughout the game as obstacles to help encourage players to move the weapon around and make it more exciting. However, the player felt that the walls were redundant and did not affect the gameplay since the strategy adopted was to wait for the enemy to approach before moving. The player felt that there was not much strategic freedom and their actions were restricted to the game designer's choices. The overcomplicated mechanics before shooting the enemy was again brought up – players had to move, turn, walk, load and time it such that the bullet hits the enemy at the right direction. There was thus still no incentive to move around and players preferred to remain close to the sculpture unless threatened.

Since moving and turning weapons was listed as something that players think should be changed as it overcomplicates the shooting mechanism, we decided to remove all weapons and make Pickasso himself yield a weapon. Players now have to simply load the correct coloured cubes into Pickasso before he automatically shoots bullets. This way, players just have to maneuver Pickasso to shoot enemies. In the third playtest, however, players still mentioned that walking across the game was quite useless since Pickasso can only shoot a short range when enemies come near. Also, the player felt that the game would be significantly more difficult as the number of enemies appear, since they could spawn at all directions and Pickasso has to walk to collect ammo before shooting a short range. This mechanic also lacks the 'chain reaction' satisfaction as Pickasso can only do one action at a time and players would eventually get bored of the game since there is not much strategy involved.

After the last playtest, our group decided to fix the enemy spawning area and movement, such that they can only spawn from the bottom and move in one direction. This allows for some predictability of enemy movements which would aid in strategy planning. We also thought of reducing the map size, restricting Picasso's movement to only the top of the game board and making the ammo cubes move instead. This reduces 'useless' walking time which could be used to make a strategy and also simplifies the shooting mechanic.

Week 9

2. The Game World



Figure 1: world layout (to be updated; the map is now of portrait orientation and the sculpture is located at the bottom of the map)

2.1 The World Layout

The world is a single, non-scrolling map, with a grid. It will only mark out columns faintly. It is contextualised to be in a museum, where thieves shift down a rope to get to the bottom of the map. At the bottom of the map, there is Pickasso's row of moving space and below that is his beloved sculpture.

2.2 Key Locations

- The line of defence at the bottom of the map
- The row of moving space for Pickasso to walk around, pick up and put down blocks and weapons, and jump to hit weapon.

2.3 Weapons

- *Pencil Crossbow (default): Any 3 blocks*
 - fires 1 pencil (bullet)
- *Paint Canon: Eraser - Pencil - Sharpener*
 - fires a paintball that bursts horizontally when a thief is hit
 - the initial thief that is hit will be killed and
 - thieves along the same row will be killed
- *Powder Catapult: Pencil - Eraser - Pencil*
 - fires a powder bomb that kills a thief
 - along with the surrounding thieves within 1 grid radius
- *Heat Gun: Sharpener - Sharpener - Sharpener*
 - fires heatwave that lasts 3 seconds
 - range of 5 grid height x 3 grid width
 - kills any thieves that comes within the range

2.4 Objects

| Object A | Object B | Interaction | Effect |
|------------------------|---|--|---|
| Eraser | | Falls from top of map | Dependent on where it falls |
| Pencil | Eraser | Object A falls on top of Object B | Objects A and B form a 2-block stack |
| Sharpener | 2-block stack: e.g. Eraser - Pencil | Object A falls on top of Object B | Objects A and B form a weapon (e.g. Eraser - Pencil - Sharpener forms a Paint Canon) Previous 3 blocks are cleared and replaced by a weapon occupying one square |
| Any block | Existing Weapon | None | None |
| Bullet from any weapon | Thief | Object A hits Object B | Object B is destroyed (cleared from map) |
| Thief | Weapon | Object A touches Object B | Object A destroys Object B (cleared from map) |
| Pickasso | Line of defence filled completely with Blocks/Weapons | Object A tries to pick up an object in Object B | Not allowed. At least one empty square along the line of defence is needed to carry out the moving of Object B |
| Pickasso | Weapon | Object A jumps and hits Object B directly above it | Object B fires its bullet and clears from map |

2.5 Travel

Pickasso travels by walking, though his movement is restricted to the bottom row of the map.

3. Game Characters

3.1 Pickasso



Figure 2: initial designs for Pickasso

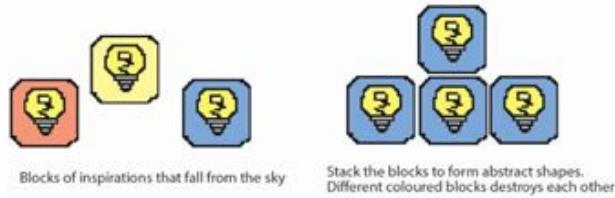


Figure 3: alternative initial designs for Pickasso, ghosts (alternative enemy concept), coloured blocks, and weapon launchpad

Pickasso is the player's character. He moves sideways along the row below the line of defence. He picks up and puts down blocks and weapons located along the line of defence, which is at the bottom of the map.

3.2 Thieves



Figure 4: character sprites for thieves

Thieves are the enemies. They spawn at the top row of the map, like blocks, and slowly move downwards towards the bottom of the map. They move in one direction only, down the column they came from. They move slower than Pickasso. When they are hit by a bullet from any weapon, they get splattered by paint and are cleared from the map.

Design Progress Report

During our tutorial this week, we playtested several mechanics of our game—namely, the rate at which thieves and coloured blocks spawn, the speed at which Pickasso moves. Following this, we then attempted to iron out the details of our other mechanics, since our game had undergone a major overhaul last week when we shifted from an entirely open map to limiting Pickasso's movement to the bottom line, with enemies and blocks falling from the top of the screen instead of spawning randomly.

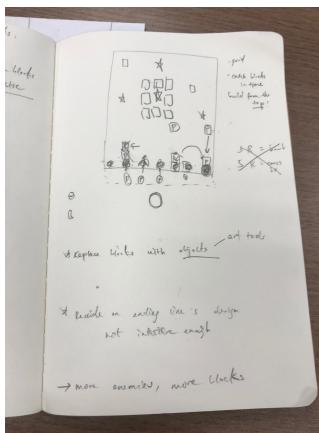


Figure 1: sketch of new screen

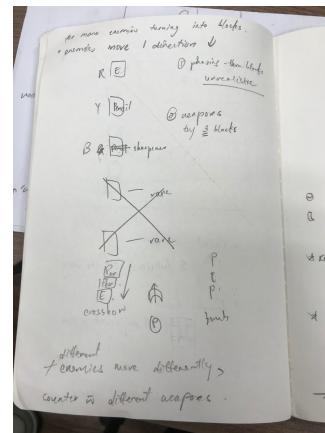


Figure 2: stacking mechanics

First we had to decide if we wanted the thieves to drop blocks. We decided not to implement this because even when we playtested our game without thieves dropping blocks, it already seemed as though the screen could get quite noisy as the game progresses and the rate at which enemies and blocks spawn increases.

We then had to decide if we wanted to implement different weapons, or if we wanted to just have one single basic type of weapon. After a discussion, we decided that we would implement the different weapon types in order to provide the player with more choices on how to defeat thieves and encourage the development of distinct playstyles. After making this decision, we then had to determine how the different weapons would be formed, as well as what they would do. We decided to have only 5 distinct weapons so that the game would not feel overwhelming, and with reference to our previous notes came up with these weapons and how they would work (as detailed in the design document).

We wrapped up our discussion with a discussion of assets. Our assets developer proposed having canvases at the very bottom of the screen, lining the bottom of the row Pickasso moves along. To launch weapons, Pickasso would pick up the weapon and slam it down on the canvas. However, it was pointed out that this might interrupt the flow, because picking up and slamming down are two distinct actions and the player might have to think more consciously about them rather than have them be natural associations. We decided instead to have Pickasso build weapons as planned, but jump up to hit below them (borrowing the conventions of Mario) to launch them, as we thought this would prove more instinctual to players familiar with arcade games.

Week 10

4. Model of Automatic Difficulty

4.1 Automatic Difficulty

The game automatically gets more difficult by increasing the rates at which thieves spawn and blocks fall from the top of the map.

For every thief spawned, there will be at least 3 blocks falling beforehand such that the player will never reach the situation of having not enough blocks to form the ammo required to defeat the incoming enemy. However, if the player decides to destroy his stacks of blocks, he may end up with having not enough blocks to form ammo—that would however be solely due to the player’s decision, and not the mechanics of the game.

Game balancing: there are 3 different types of ammo that a player can build, with different killing patterns. With the increasing number of enemies, the specific block that the player requires to stack to build their desired ammo will be detected and given to them. However, it still takes skill for them to be able to catch the falling block in time. This prevents the player from feeling cheated by not being able to form a desired ammo because the missing block for the specific combination was not generated in time. With this, the player can strategically build and fire ammos according to pattern of the thieves. Furthermore, by setting “wrong” combinations to form the basic ammo (pencil), we have balanced the difficulty. As the game gets harder, there is an increasing chance that the player will not be able to form the combination to produce their desired ammo. Instead of punishing the player by destroying the entire stack, and making them build another from scratch, the game still generates the most basic ammo. The player thus will not lose too easily and feel cheated by the overwhelming number of enemies as the game proceeds. However, it also distinguishes the better players as they will be able to build better ammo.

4.2 Connection to player performance

The increase in difficulty is connected to the player's skills in clearing thieves. At set intervals (e.g. after 5 thieves are cleared), the rate of thieves spawning and speed of falling blocks will increase.

- Difficulty Curve
 - Linear increase
- Rate of Increase
 - Start:
 - Thieves spawn every 7-9 seconds, randomly
 - Thieves take 35 frames to reach the bottom
 - Blocks every 3-5 seconds, randomly
 - Blocks take 10 frames to reach the bottom
 - Increase:
 - Every 5 thieves killed, the upper and lower limits on spawn times decrease by 1 each, e.g. from 7-9 seconds to 6-8 seconds
 - With every 7 thieves killed, the enemies get 2 frames faster
 - With every 7 thieves killed, the blocks get 1 frame faster and the upper and lower limits decrease by 1 each. The limit stops decreasing when it reaches 1-3 seconds
 - Enemy spawn patterns get more intense: 3 types of spawn patterns (individual thief in random / short line of continuous thieves along the same column / cluster of thieves close to one another); the length of the line of continuous thieves will slowly increase (tied to performance but number undetermined; need to test)
 - This balances the game since as the player gets better, they face longer streams of continuous thieves; ideally they should be able to use their skill in building better ammo to take them out. However, player also has the option to kill thieves one by one using the basic pencil ammo. We do not penalise players by “forcing” them to form a specific type of ammo.

NM3216 Project Pickasso

Milestone 10: Semi-Formal Playtesting Report

This week's semi-formal playtest was conducted within the tutorial group to gain insight on our computer-based prototype and difficulty of the game.

Difficulty

In our initial computer-based prototype, players could form three types of weapons by stacking three types of colored blocks. During our playtest, players claimed that the blocks were falling too fast, making it difficult for a beginner to react. Additionally, since our game does not allow stacking from the bottom, players were quickly stuck after a minute when all the slots were filled, and players could not place down the weapon/block they were holding. Players were also unable to last long enough into the game to notice an increase in difficulty. There were several bugs, so players could not place weapons at certain corners or blocks did not transform into a weapon, making players stuck after 1-2 minutes. In order to rectify this, our group decreased the speed of the blocks but retained the frequency to ensure that players have enough time to react and build weapons. We also decided to implement a delete button so that players could remove unwanted blocks and create space for building weapons. This gives players more control over the game and reduces the time wasted travelling to an empty slot.

Another reason why players felt frustrated was that Pickasso moves very fluidly compared to the blocks which follows a grid. This may break the flow of the game as the fluid movement becomes a restriction rather than freedom since players are unable to anticipate where to put the blocks. Since this is a reaction time-based game, players will become annoyed when the block snaps to the wrong column than what they anticipated. Our group will modify Pickasso's movement to be grid-like and also restrict his profile to just front and back view to prevent such confusion.

Instructions & User Interface

Players felt that our instructions were quite lengthy and complicated since our game has several restrictions. Many of the rules were also hard to visualize, such as stacking or activating, as they may not be as intuitive. Our group may take the players' recommendation to implement a tutorial in game to understand the game better.

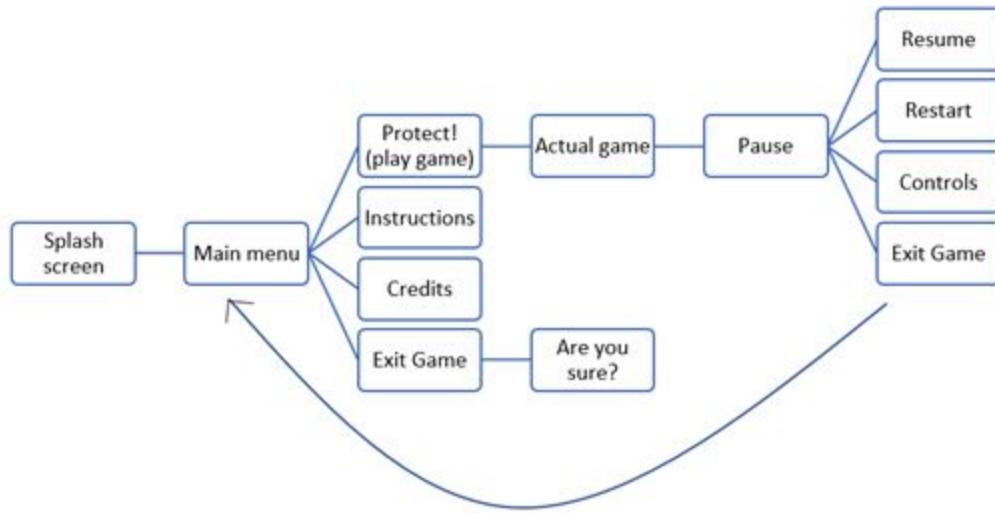
A common problem we encountered was the stacking of the blocks – the words and affordances of Pickasso ‘stacking’ and ‘picking up’ brings an assumption that the blocks can be stacked by picking it up and placing it on an existing block. However, players can only stack blocks by placing it down before a block falls on top of it. In order to rectify this, our group decided to change the user interface such that when Pickasso picks up a block, the stack is highlighted and enlarged to give a ‘slotting out’ affordance so that it would be more intuitive that blocks can only be slotted into an empty column.

Players also mentioned that jumping to activate a weapon when it is placed down is not as intuitive and also adds additional steps just to shoot one bullet. Our group came out with another idea such that players are building different ammos rather than weapons. Different ammos would then have to be dropped into cannons fixed at the bottom of the screen.

Week 11

5. User Interface

5.1 Game Flowchart



5.2 Startup “Splash” Screen

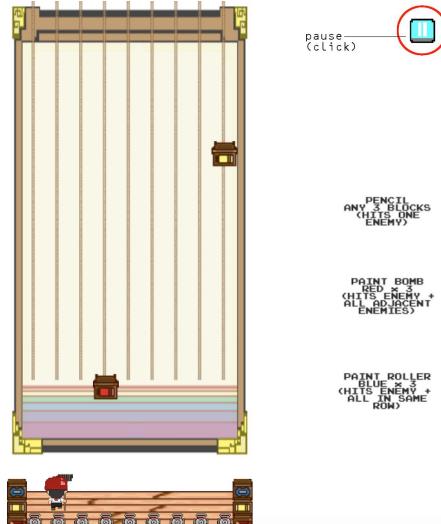
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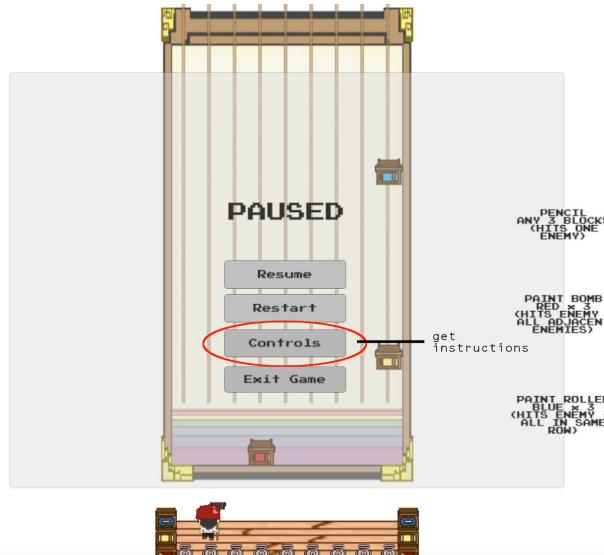
5.3 Main Menu Screen

[design under construction]

The menu includes buttons to start the game (“Protect!”), the instructions, credits, and to exit the game. The player activates each of these options by clicking on them with the mouse.

5.4 In-game Interface





The input controls are the left and right arrow keys for movement, and the space bar for picking and placing stacks/blocks/shooting ammo. The “Z” key is used for the “hacking” action, which allows players to delete blocks.

To pause the game, the player either clicks on the button in the top right corner of the screen (circled) with the mouse, or presses “P”. Once in the pause menu, the player can click on the “Controls” button with their mouse to access control instructions (how to move, delete blocks, pick up and put down blocks, shoot ammo).

5.5 Instructions/help

Pickasso, you must protect your precious painting from the bandits!

Luckily, you've prepared for this...

Combine your paint materials to make special paint equipment that you can use to stop the bandits in their tracks!

Remember Pickasso, your painting's fate relies on your speed, skill and multitasking.

[Next](#)

Move Pickasso using the [L] and [R] arrow keys.

Press [SPACE] to "pick" or place blocks at the bottom of your canvas along your rainbow line of defense.

Turn blocks into stacks by placing existing blocks in the same column as a falling block.

NOTE: Once a block has reached the bottom of your canvas you cannot stack it on top of another stack. When holding, green = can place, red = cannot.



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Stacks of 3 blocks form an ammo!

To pick up an ammo, use [SPACE] when in the same column.

Press [SPACE] again to load ammo into cannon and fire it.

NOTE: Once you pick up an ammo, don't fire it! Use wisely!

SPECIAL AMMO:

- Red:** Paint Bomb (Clears all enemies in 3x3 radius of hit enemy)
- Blue:** Paint Roller (Clears all enemies in same row as hit enemy)

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Unwanted block? Use [Z] while holding to break it, freeing space. Need a break? Press [P] to pause.

Remember, this is a test of your item management, Pickasso.

Don't break too many blocks or you may not have enough tools to defend against the bandits.

DO NOT LET THEM REACH YOUR RAINBOW LINE OF DEFENSE!

Go and get them Pickasso!



[Previous](#) [Start!](#)

From the main menu, the player will be able to access the instructions page by clicking on the appropriate button.



Within the game, if the player forgets the controls, they can access the control information through the pause menu.

5.6 Sound Effects

Sound effects are employed:

- When a bullet hits a thief and the thief splatters into paint
- When a block lands/stacks
- When a block/stack is “hacked”
- When an ammo is fired
- When a Pencil Ammo is formed
- When a Roller Ammo is formed
- When a Bomb Ammo is formed
- When Pickasso picks & places something
- When a block/stack is being moved
- When the player loses
- When buttons are selected by the user in the main menu
- Background heist music playing throughout
- Game Over
- Splash screen & Main Menu loading music
- When buttons are selected by user in the main menu
- When the “Exit Game” button is selected by user in-game

5.7 Credits

Credits screen still under construction.

NM3216 Project Picasso
Milestone 11: Usability Playtest Report

This week's usability playtest was conducted within the tutorial group to gain insight on our user interface design. The splash screen and main menu were excluded for this playtest.

Instructions

Our instructions page was 4 slides and they were really small due to a technical error. All players claimed that the instructions were too long and they skipped through it after reading two slides. Therefore, there were certain elements such as the combinations or delete function which were not utilized but could aid in players' strategy. During gameplay, we added the three different ammo combinations at the side of the game screen for players to refer to. Players however did not notice the aid at the side as they were too focused on the game; thus our group removed it since it also disrupts the game world.

Players suggested having an in-game tutorial; however, due to time constraints, it is not the most feasible option. We were also unable to add animation or gifs in our instructions due to budget constraints (requires Unity Pro). Our group thus decided to reformat our instructions such that the first two slides contains the more important instructions while the more miscellaneous information could be added at the back. Visuals would be added to replace words, so players can understand the instructions better even if they skim through (e.g. control keys, colored block and ammo). We would also attempt to rephrase our instructions such that it is more succinct and clearer since players only want to know the main mechanics and jump straight into the game.

During the game

Players claimed that the controls of the game were quite intuitive, except the delete button which is the key Z. The players also claimed that the picking up and shooting of enemies were also intuitive. This however may be because they understood the main mechanics of the game from previous playtests. Our group initially planned to add extra animation such that Picasso would drop weapons into the cannon below to shoot the ammos, however players claimed that Picasso shooting it directly was intuitive enough. We thus scrapped the cannon feature as it may not match with the museum theme as well.

Many players did not get that the objective of the game was to prevent thieves from reaching Picasso's painting (not just the line) as the painting was not visible. To make it more intuitive, our group planned to make the end line a row of paintings in addition to the rainbow line to give players make sense of the storyline and provide a purpose for shooting.

Affordances

The interfaces for main menu and pause screen were incomplete—the buttons were a shade darker than the screen but were not very responsive when the mouse hovers above it. This poor feedback makes users feel like the buttons are spoilt. The pause button in the game was designed like a button with beveled 3D effect, however it can only be accessed by clicking P, not the button itself using a mouse, giving a false impression of a button. As our group finalizes the main menu and pause screen, we will ensure that the buttons are designed with better affordances and feedback to prevent frustration from the player.

Week 12

Milestone 12: Formal External Playtesting Report

This week's formal playtest was conducted outside of the tutorial group to gain insight on how to improve our game. The game was tested by two types of gamers – hardcore and non-gamer – to determine if our game is suitable for both types of players.

Difficulty

For the hardcore player, the difficulty seemed quite easy in the beginning after 2 tries, evident from the player having to wait around. The non-gamer however took 4 tries to get used to the game and was more anxious as the screen filled with blocks and thieves. When asked if the game was too difficult/easy, both players claimed that it was still manageable. The adaptive difficulty however was not evident – both players felt that the difficulty progress was not very consistent and more random.

User Interface

Players had difficulty noticing the tools as they blended with the rainbow background, especially for the paint roller, ruler and pencil. Our group placed green and red flares as indicators if players can stack the blocks on that column; however, all players claimed that they did not notice the flares at all. Our game background was already quite saturated, making the flare unobvious. Players were also too focused on other things to notice it. To rectify this problem, we will try to highlight the tools to make it stand out from the blocks and background. The game background would also be faded to make the tools and flares more evident. When a thief gets killed, there will be different paint splatters on the canvas (gameboard) which we plan to display to players when the game ends. Many players appreciated the paint splatters as it adds to the juiciness and had a positive reaction towards the end canvas idea.

Although the non-gamer was confused by the multiple uses of the space bar (can pick, place, shoot), both players felt that the space and arrow buttons were simple and intuitive. Both players however forgot the use of the delete button [Z] because it was not intuitive and out of the way. Players suggested to change the [Z] to the [delete] button or [down] arrow key which is more intuitive and easier to navigate.

Instructions

In our most recent game version, our instructions were still incomplete and lacked images. This proved to be a great disadvantage as many players could not understand the stacking mechanics without a visual aid, making their game experience less than ideal. We were also not consistent in our terms (e.g. thieves, bandits, enemies; ammo, tools) making the instructions more complicated than necessary. Players also tend to forget about the pencil tool as it was placed at the bottom and the only tool without block illustrations.

To ensure that players understand our instructions better, we will make several changes. All the instructions are going to fit into a single screen rather than multiple screens since players tend to click next without fully reading all the instructions as they want to reach the end. If time permits, we will add a trial or animation after the instructions to guide players on how the stacking mechanism works, since that was the main source of confusion.