Infection

ICS 62 Final Design Document

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Infection

Infection is a 2-player strategy board game played on 5x7 tiled game board. The goal of the game is to be the first to find 2 out of the 3 cures on the randomly generated map. The theme of our game is the "infection of the body" which focuses on players scavenging for medicine to prevent viruses from corrupting their own villages.

Rules

Players: 2 players (1v1)

Game pieces (attached at the end of the document):

- 5x7 Game board

- 25 Tiles (10 Blue, 10 Red, 5 Gray)

- 4 Player markers (Blue Villager 1, Blue Villager 2, Red Villager 1, Red Villager 2)

- 12 Health markers (3 Blue Villager 1 Hearts, 3 Blue Villager 2 Hearts, 3 Red Villager 1 Hearts, 3 Red Villager 2 Hearts)

- 20 Action cards (8 Move & Pick-up, 4 Axes, 2 Guns, 2 Arrows, 2 Grenades, 2 Steals)

- 8 Debuff cards (4 Cannot move, 4 Cannot use weapon)

- 2 Reference sheets

Setup: There are 2 teams (blue and red) consisting of 2 villagers each. Each player controls both villagers on his/her side. All villagers must start in their home village.

The board is a 5x7 grid, and each tile (excluding the tiles marked as village) has a card facing down on it. The cards are divided into blue, red, and gray cards. Shuffle each deck individually. Without looking at the cards, place the cards face-down in the correct section according to their color.

Win condition: The first team to collectively bring back 2 cures to their village wins.

Turn order: Blue team player 1 goes first, followed by red team player 1, followed by blue team player 2, followed by red team player 2. Repeat until one team wins.
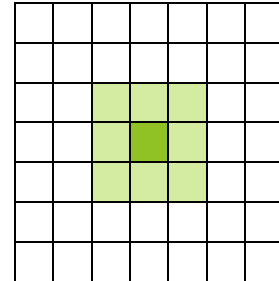
Health points: Each villager starts with 3 health points (HP). Players lose HP by picking up viruses/contagions or by getting attacked by an enemy villager. If the villager's HP drops to 0, he/she is instantly sent back to his/her home village. If the killed villager has a cure at the time he/she is killed, the cure drops on the tile he/she was killed on and may be picked up by any villager using a Move & Pick-up card. If the villager was killed by an enemy villager (as opposed to a virus), the villager that killed him/her can choose to discard one card of his/her choosing. Upon returning to the village (e.g. dropping off a cure or using a Move card to go to the village), the villager's HP is restored to 3.

Action cards: Each player has a total of 10 action cards. These cards can be used to perform the action described on the card. The player can only use one card per turn (except when moving and using weapon/steal, described below). Alternatively, the

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player may reset his/her cards instead of using a card on his/her turn. Resetting returns all cards (except the Steal card if it has already been played) to the player's hand, allowing them to be used again.

Action cards include (the number in parentheses denotes the number of that card per player):

- Move & Pick-Up (4): Villager can move up to 2 tiles (moving diagonally counts as 2 tiles) and pick up the tile he/she lands on. Alternatively, the player can choose to use a weapon/steal card instead of picking up a tile (the player can only move 1 tile in this case). A villager cannot move to a tile if there is already another villager occupying that tile.

Range for Axe. The darker green denotes the tile the villager is on and the lighter green denotes the tiles within range to use the Axe.

- Axe (2): Target loses 2 HP. Single target. 1 range (can hit diagonally).
- Gun (1): Target loses 1 HP. Single target. 1-3 range (cannot hit diagonally).
- Arrow (1): Target cannot move next turn. Single target. 1-3 range (cannot hit diagonally).
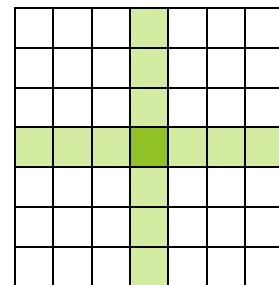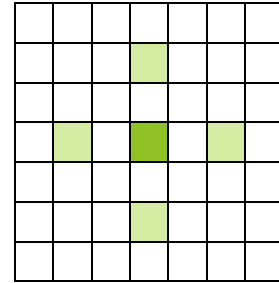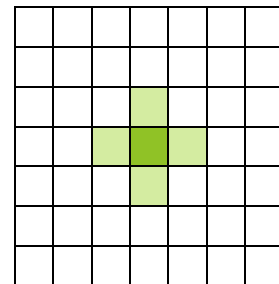
Range for Gun and Arrow. The darker green denotes the tile the villager is on and the lighter green denotes the tiles within range to use the Gun or Arrow.

- Grenade (1): Target(s) cannot use weapon next turn. Area of effect (AoE). 2 range for center (+ shape AoE around center).

- Steal (1 per player for the entire game): Villager steals a cure from the target. This card can only be used once in the entire game session. Single target. 1 range (cannot steal diagonally). Steal can only be used while next to an enemy villager holding a cure or on the row next to the enemy village when the village has a cure.

Range for center of Grenade (top). An example of the AoE of the grenade if the villager threw it to the tile above him/her (bottom).

Range for Steal. The darker green denotes the tile the villager is on and the lighter green denotes the tiles within range to use Steal.

Tiles: There are 6 types of tiles villagers can pick up. These are all faced down so the player does not know which type of tile he/she is on until he/she picks it up. There are a total of 10 tiles on the blue side (1 Cure, 4 Viruses, 2 Recovers, 1 Generosity, 1 Disarm, and 1 Contagion). Likewise for the red side. There are a total of 5 tiles in the middle row (1 Cure, 2 Viruses, 1 Generosity, and 1 Contagion).

Tiles include:

- Cure: Bring 2 back to home village to win. A villager may only carry up to 1 cure at any given time.

- Virus: Villager loses 1 health point (HP).

- Recover: Player chooses one played card to return back to his hand.

- Generosity: Both players choose one played card to return back to their hands.

- Disarm: The villager cannot use any weapon on the next turn.

- Contagion: All villagers lose 1 health point (HP).

Cure	Virus	Recover	Generosity	Disarm	Contagion

The 6 types of tiles and their icons.

Connections to Readings

Scott Nicholson – "Breaking Up the Monopoly With Modern Board Game Design"

In our original game idea, we had an Action Point Allowance System where players would expend up to a set amount of action points on each turn to move, pick-up, and attack. However, Nicholson mentions that a common result of Action Point based systems is players experiencing "analysis paralysis" — when there are too many possible actions that the player is overwhelmed. We wanted to avoid this problem by limiting the number of combinations of moves the player can make on any given turn, but still offer the players enough choices that the game does not become too predictable. We balanced this by limiting the types of cards available to the player to 6 (Move & Pick-up, Axe, Gun, Arrow, Grenade, and Steal). Each of the cards has a fairly simple and easy to understand effect on its own. To prevent the game from being too predictable, we allow players to use up to 2 cards (e.g. Move and use Axe) instead of always limiting it to 1 like in traditional card games. This opens up more combinations of cards to play, making it significantly more difficult to know what the game state will be 4 turns from now. After multiple playtests, players felt that 6 types of cards and using 1-2 per turn was the perfect balance.

Additionally, Nicholson states that it is important that each move the player makes is impactful and has an effect on the rest of the game. Our game accomplishes this because after every move, the game reaches a new game state, meaning the tiles the villagers are on, the tiles remaining on the board, the cards available for play, and the health points of each villager changes after every turn. Each game state will

have a different set of possible moves and outcomes, making every playthrough of the game unique.

Love Letter

In Love Letter, each card has a simple and unique effect, but can be strategically used with other cards in your hand to increase your chances of winning. For example, if a player has a Baron (Compare hands; lower hand is out) and a Princess (Lose if discarded), he/she can use the Baron card. Because the Princess has a point value of 8—the highest of any card, the other player is guaranteed to have a card with a lower value and therefore will be out of the round. The combination of cards one has in his/her hand is likewise important in Infection. If the player has at least 1 Move & Pick-up card and 1 weapon card (i.e. Axe, Gun, Arrow, or Grenade), he/she can use the two together, allowing him/her to move and attack in the same round, giving the player more power and opening up more possibilities. However, it may not always be strategic to use a Move & Pick-up card and a weapon card every turn. First of all, there are only 4 Move & Pick-up cards and 5 weapon cards so it is impossible to always use a weapon with a Move & Pick-up card without resetting and thereby effectively losing a turn. Second of all, the player is giving up the opportunity to pick up a tile and possibly discovering a cure every time he/she choses to move and attack instead of move and pick up. The player has to analyze the situation every turn because there is no one move that is always the "best" because the "best" move depends on the current state of the game, which will differ every playthrough due to the randomization of the tiles. This is comparable to Love Letter, where the deck is

shuffled at the beginning of every round and each player is dealt a card at random. By using the information currently known (e.g. because the discard pile has 1 Princess and 1 Countess, one can deduce that no player has a Princess or Countess in hand and therefore the highest value card is the King (6)), the player is able to make more calculated decisions (e.g. using the Baron card if he/she has the King) that he/she might not have made if the game state were different (e.g. if the Princess and Countess are still in play, one would be more hesitant to use the Baron because the other player may have the Princess (8) or Countess (7)).

Heroes of the Storm

Infection mirrors some of the competitive elements of Heroes of the Storm (HotS). In HotS, each team has 5 players and the goal is to work together to destroy the enemy team's core. It is difficult to push down structures alone because the enemy team can send 2 or 3 players to kill that player, so it is often beneficial to have multiple players work together to take down a structure. Likewise in Infection, each village has 2 villagers and players must coordinate their actions in order to win. For example, it is almost impossible to have 1 villager reach the enemy village, steal a cure, and return to his/her own village without getting killed by the enemy team unless the other friendly villager assists him by immobilizing or killing the attackers. Both HotS and Infection demonstrate the importance of teamwork.

As with most competitive games, fairness is critical. In HotS, this is done by having a symmetrical map (structures and lanes are mirrored on both sides) and players choosing from the same pool of heroes (given they own them). Similarly,

Infection has a symmetrical map and players choose actions from the same set of action cards. Each player has the same types of cards available, making play fair and balanced because the players have an equal chance of winning (not taking into account experience and random elements) at the beginning of the game. It is how the players choose to use those cards that determines who wins, making Infection a skill-based game like HotS.

Indie Game: The Movie

In Indie Game: The Movie, Team Meat (Edmund McMillen and Tommy Refenes) must finish Super Meat Boy in a month due to their financial situation. McMillen hardly slept and relied on his wife on many aspects of life during this time. Refenes gave up his social life and paid full attention to develop and finish the game.

Our experience was far less stressful, but we stood in a similar situation. For example, we had to reject our first game idea (a digital game that could not have been produced and tested before the end of the quarter) because of a misunderstanding of the requirements. Because we only had 1 week to develop our initial game idea for the midterm, we had to quickly come up with a replacement in a one-hour meeting after class. Despite the difficulties, working with a tight time constraint taught us to focus on the necessities and worry about the details later on, a lesson mentioned in Indie Game: The Movie. We originally had several more ideas but had to settle on a few key mechanics (moving, picking up tiles, attacking, and stealing) in a 1v1 setting (as opposed to also offering 2v2). This also has its benefits because by making the ruleset simpler, the game is easy to learn for new players,

which is shown by how quickly our playtesters were also to grasp the fundamentals of the game during their first playthrough.

FEZ's developer Phil Fish redesigned the game many times because of his perfectionism. The development was hence troubled and delayed. Similarly, we found many flaws in our game during the playtests. The first playtest revealed the imbalance between the number of players and deck size. In the early design stage, Infection supported up to 4 players. However, we lacked the time and resource to test the proper deck size and gameboard, hence we reduced the players to 2. Players were likely to fight back and forth on one cure because they could always go back and use weapons. The game would soon become repetitive and boring. To prevent these situations, we set a limitation on Move & Pick-up and added a penalty on death. Players could only move up to 1 tile when they use a weapon and the defeated player must discard 1 card in hand chosen by the opponent. As shown in Indie Game: The Movie, game development takes a lot of iterating to perfect and we got to experience some of tedious process that goes into creating a well-balanced and fun game.

Development from Midterm

Design Goals

Our original idea from the midterm revolved around an action point system for players to make moves. However, that system was too commonly used in board games and would lead to analysis paralysis where the players would spend too much time calculating the optimal move. Because of this, we changed our game from an action point system to a card system. A card system is more unique and will open up more strategies for players with the addition of different types of weapons, steals, and resets.

The first idea we had was having players draw from a deck of cards on each turn. These cards included Move, Pick-Up, Axe, Gun, Arrow, Grenade, and Steal. Players could have up to 5 cards in their hands and could play up to 2 cards per turn. However, this iteration of the game was too random and did not test the players' skills adequately. We felt the randomization of the tiles was enough that randomizing the actions one could take each turn as well would make the game too luck-reliant. We decided to keep the different types of weapons because it allowed players to think more strategically when they have more options at their disposal.

We eventually settled on the core idea that each player would have a set of the same cards available to them at the beginning of the game. A player would then be able to use 1-2 of these cards per turn or reset his/her deck, returning all played cards back to his/her hands. This made the game significantly fairer because players would have access to the same cards without there being a randomness factor. The

following section will highlight some of the key changes we made to our game over the course.
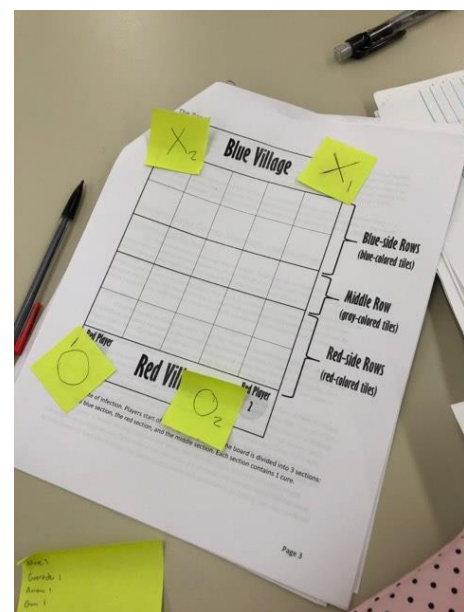
Playtesting and Iteration

We met 1-2 times every week for 4 weeks to playtest our game. Each playtest session lasted around 1-2 hours and focused on balancing and exploring various game mechanics.

Playtest 1

Changes: We decided to discard the idea to have a 2v2 version of the game because we were limited by time and resources to adjust and balance cards for all 4 players. Instead, we made it so that one player controls two villagers, utilizing 8 cards between the two of them.

Gameplay Observations: Some game sessions went on for too long due to players repeatedly attacking each other after finding the first cure. Specifically, we noticed a stalemate occurring when a player is trying to attack and take a cure

Our initial board design from the first playtest. We tested movement and actions.

from the enemy player. That enemy would die and respawn with all his health back, resulting in a major advantage. The villagers would keep attacking, picking up the cure, and dying before returning the cure to the village instead of looking for the 2

other cures. Because of this, we decided to brainstorm a stronger punishment when players die.

Playtest 2

Changes: If a villager dies, the enemy can choose to discard a card from the player's hand. Previously, villagers dying and being sent back to their village became an advantage in certain situations. We wanted to punish them for dying, so we debated between making them lose an entire turn and just discarding one card from the opponent. We decided on the latter because it would be too difficult to keep track of which villager has lost his/her turn. Additionally, we changed the Grenade card so that it prevents players from using a weapon next turn. This change was to test its viability relative to its previous ability, which was making the villager(s) move a maximum of 1 tile instead of 2 on his/her next turn. Since the Arrow card already prevents villagers from moving, we decided that Grenade should have another function.

Gameplay Observations: We noticed players had trouble keeping track of whose turn it was and when their debuffs are going to end. We started using colored paper slips in future game sessions to help memorize the turn order. In addition, we created debuff status cards that can be applied to a specific villager. We noticed players were able to reset while being under a debuff. We felt this was not a problem, but more strategic thinking because the enemy would have to carefully choose when is the most opportune time to use their debuff weapon cards (Arrow and Grenade).

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Playtest 3
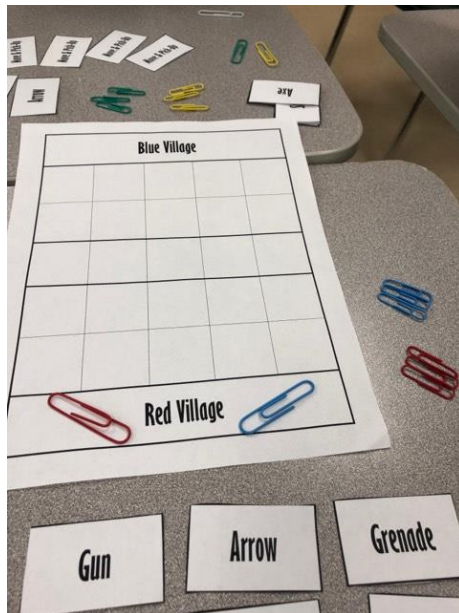
Our revised design. We tested out the new types of weapons and health point system.

Changes: If a villager is stealing from the enemy village, he only needs to be in a tile next to the village's spawn area. Players initially had to move into the enemy village in order to steal the cure, but that almost always resulted in the villager's death and a disadvantage due to how deep he was in enemy territory. With this change, it became a more reasonable option to steal from the opposing village. The Steal card can be used to steal from players carrying the cure (as long as he is one tile away vertically/horizontally).

However, it can only be used once per game. We did not want a stalemate when villagers continuously steal cures, so we increased the strength of the card while also limiting the number of times it could be used. As a result, players would have to decide wisely when to use the card.

Gameplay Observations: Upon interviewing our playtesters and asking for feedback, we discovered that the mechanic of moving and attacking at the same time was overpowered. One suggested that we should include more weapons while also weakening the mechanic for our future playtests. Both testers also mentioned that the game would be significantly faster if there was less resetting needed after using up all their weapons.

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Changes: Players are only able to move 1 tile if they plan on using a weapon on that same turn. Previously, players who are carrying the cure back to their village were at a major disadvantage of not being able to attack back while the enemy can. With this change, playing the Move card by itself can take up to two tiles. We also decided to add another Axe card. Players previously had 2 weapons that dealt a total of 3 HP. This would only kill one player before needing to reset. We wanted to have players inflict more damage before resetting, so having an addition attacking card proved to be useful.

Gameplay Observations: We noticed in this game session that villagers were picking up too many viruses on their side. This was a problem because players trying to find a cure on their side would too easily become vulnerable to attacks. To counter this problem for the next playtest, we changed one Virus tile on both sides to become a Recover card instead.

Playtest 5

Changes: We decided that the Steal card can be temporarily discarded if it has not been used yet. The player is able to Reset to bring the Steal card back to his hand. This change gave a more strategic play and advantage when it comes to stealing a cure. For example, it can prevent the enemy from immediately stealing back the cure on the next turn. We increased the range of Gun and Arrow to 3 and made the Axe able to hit in tiles all around the player (horizontally, vertically, and diagonally). It was initially too difficult to use weapons after nerfing the movement, so this

extended range allowed for more reachability while also not making it as powerful as its original version.

Gameplay Observations: Player 1 was lucky to discover the cure in the beginning of the game, giving him a strong advantage to start looking for the next cure. However, this lead did not decide the outcome of the game as the other player was still able to strategically recover from the disadvantage. Instead, it resulted in a shorter game rather than a decided victory.

Originality and Playability

The game has a unique mechanism that combines exploration and fighting, forming a balance between pure strategy and chance.

The hidden tiles are the base of this game and are set up randomly, providing uncertainty. At the same time, the 5x7 map is small enough that it is possible to make strategic moves based on the current state of the game (e.g. if a cure has already been found on one side, the player should pick up tiles in another section where the cure has yet to be uncovered). The small map size makes it easy to engage fighting between teams because it will only take a couple of turns to reach an enemy villager.

Exploring

Since the victory condition is bringing 2 of the 3 cures back to the village, the Move & Pick-up action is arguably one of the most important actions and should be used frequently. Exploring is exciting because of the uncertainty of the tiles. Because one can never know what lies underneath the tile prior to picking it up, any one tile can drastically change the course of the game. Despite this randomness, players can

still use the tiles to their advantage. For example, players know that approximately half of the tiles contain a virus (lose 1 HP). One can use an Axe (lose 2 HP) on an enemy villager. That villager now has 1 HP left. This leaves him/her in a predicament because if he/she uncovers a virus on his/her next turn, he/she dies and is sent back to the village. If he/she gets "lucky" and discovers a cure, he/she can be easily killed and forced to drop the cure where the enemy can easily pick it up for themselves. The uncertainty of picking up a tile is like drawing a card in a card game, and that is what makes card games attractive and keeps every game different from the last.

Fighting

The fighting system is another place to develop strategy. There are many different actions, debuffs, and weapons that players can utilize to get the cures and bring them back to the village.

Since villagers go back to their home village after being killed as well as losing a card if killed by an enemy villager, managing action cards is vital when coming up with a game plan. Different weapons allow for various strategies. For example, a villager can use an Arrow to stop a distant enemy villager and allow the teammate to do the damage using an Axe or Gun. Likewise, using a Grenade (enemy cannot use weapon on his/her next turn) can protect a teammate who is carrying a cure, allowing him/her to safely return to the village. The ability to think through the next few moves of both the player and the opponent is key to winning Infection.

Originality

Unlike traditional board games that require rolling a die to determine movement, Infection manages movement through a limited number of movement

cards. Players must think strategically when they want to move instead of leaving it up to chance. There will not be enough Move cards for the villagers to move every turn so the player must manage his/her cards wisely or will be forced to constantly reset his/her deck and lose valuable turns.

Infection is also unique in the sense that the map is randomized at the beginning of the game. Popular board games such as chess or Monopoly usually have a fixed map, meaning that the map does not change for each playthrough. One benefit to a random map is that each playthrough will be unique, so there is no one strategy that will always win. Players have to consider what is the best move for his/her current situation. Another advantage is that players who are more experienced are not guaranteed to win over first-time players. In chess, there is a strategy for a player to win in 3 moves and can easily be used to beat people that have never played the game before. This is not a problem in Infection because even if one has played before, there is no way to know ahead of time which tiles contain the cures. This gives the newcomer a chance to win, making the game more accessible to a wider audience.

We designed Infection to be easy to learn while still having in-depth strategies that players need to play several times before picking up. This makes the game as enjoyable on the first playthrough, when one is learning all the mechanics, as well as the 20th playthrough, when one is coming up with complex strategies and thinking 5 moves into the future.