

Slides:

<https://docs.google.com/presentation/d/1mEIBjaUTYgABuZox77GQZa9DaBl6CznRmIN6yyZtkXs/edit#slide=id.p>

Documentation:

1. Project Description: what is the overall concept as it applies to the theme? What is your interpretation of the theme and how did you design the system to convey that interpretation?

Our board game is designed to explore and promote digital literacy, focusing on cybersecurity and encryption. In an era where online security threats are emerging, we wanted to create an engaging way for players to understand key digital security concepts, such as protecting sensitive information, mitigating cyber threats, and using encryption.

Navigating the digital world requires both knowledge and strategic decision-making to stay safe. To convey this, we designed a system where players take on the role of hackers who need to defend against computer viruses using cybersecurity strategies. Players traverse a hexagonal board, collecting or purchasing passkeys, which are secure alternatives to traditional passwords. The use of cryptocurrency as an in-game currency helps us further convey this idea of security since it uses encryption technology to validate transactions, helping us emphasize the importance of secure practices in the digital space.

The game mechanics are built around risk management and strategic planning, reflecting real-world cybersecurity challenges. Players must decide when to spend resources, when to take risks in search of passkeys, and how to best position themselves to defend against viruses. The interaction between players (through competition or cooperation by ganging up on another player) reflects the collaborative and dangerous nature of cybersecurity in the real world.

These mechanics help ensure players not only engage with digital literacy but also develop a deeper understanding of cybersecurity and the importance of digital protection. We wanted to make a game that serves as both an educational tool and a fun experience, bridging both learning and gameplay.

2. Process and Implementation: How did you go about implementing the concept? What design choices did you make in terms of the available actions given the player and the rules that govern those actions? How did you decide on the final game space?

When implementing the game, we recalled back to Week 2 of class when we all brought in “Everyday Play” experiences and transformed them into games; we decided to do something similar and each came up with 2 board game ideas to review together in class. After reviewing

all 8 ideas, we decided on our favorites and combined certain elements of each (resource management was a popular idea).

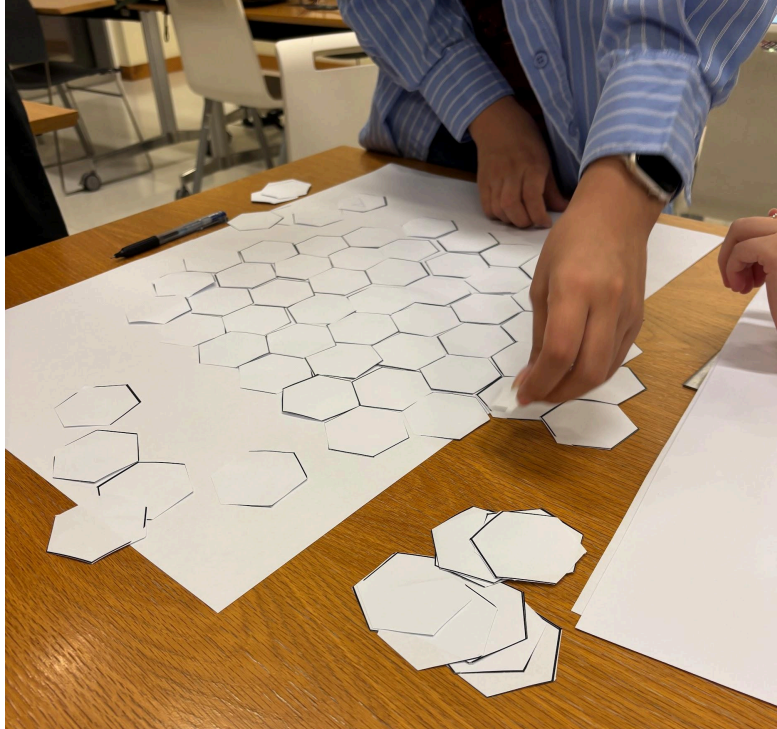
When brainstorming the game, we started out with interesting mechanisms, player interactions, boundaries, and conflict to guide our narrative and direction. For example, we knew we wanted the players to work against each other, for them to earn reward points to win, hexagonal board designs, and sabotage. The psychological thrill of sabotaging other players and using that as a strategy was something we all agreed contributed to the fun of a game, so we designed a mechanism where you could throw viruses at other players; if they didn't have enough passkeys, they would lose a hacker. Another sabotage element we included was being able to leave viruses on another player's host computer (base) and sabotage them in that way. These mechanisms allow a sense of control and strategy given to players rather than luck-dependent gameplay.

Playtesting amongst ourselves during the beginning stages of the game was crucial for deciding the size of the board, how many moves each player gets per turn, how many resources players start out with, and how many cards should be available in the game. This all determined the pacing of the game. The first few times we played, the game felt slow, so we adjusted the numbers and rules accordingly. This taught us a very important lesson on iteration and playtesting; even the smallest and simplest logistics can have great effects on the final gameplay experience.

At one point in development, we were overly ambitious and had a lot of cards like being able to have resources like a shovel to dig around the map, having separate cards to keep track of reward points, or being able to buy more hackers, but through playing the game, we realized that keeping things simple and letting the core mechanics speak for themselves was the better move. By making it too complicated and having too many elements, players have too much to memorize. Through this, we were able to focus our gameplay a bit more.

During the volatile stages of game development when we're constantly changing rules and testing mechanisms, it was very important we stuck with paper prototyping. It was easy to draw on and cut out pieces of the game. Even the board was constantly fluctuating since we just

cut out a bunch of hexagons and shifted them around as needed for designing the space:



If we needed more cards for the game to increase the duration of it, we'd simply draw more. This was helpful in finalizing the number of cards as the amount we drew was the amount that felt right during testing.

Finally, a big decision we spent a long time thinking about was framing our narrative. Not only do we want players leaving the game with fulfillment through all these mechanisms, we want to impart them with a lesson as well. We thought about problems plaguing our current society and looked at our own lives; for example, sometimes, links will disguise as taking you somewhere when in reality it's downloading a virus. Knowing how to protect yourself online is an important skill players need to be aware of.

3. Playtest Assessment:

We have conducted multiple playtests within our group and with testers from the class. Our in-group playtests focused on evaluating the core systems we designed, including the numerical system of the virus, the economy system for purchasing passkeys using cryptocurrencies, and the movement system. Through playtests, we analyzed the currency growth of players and redesigned the system to prevent any single player from becoming too dominant as possessing more currencies will lead to a higher possibility of winning; additionally, we evaluated the number of steps players should take to reduce unnecessary interactions, such as reaching others' bases or the "data shredder" too easily. These sessions encouraged us to

consider the game from a player's perspective, as we encountered several situations that we initially understood only from a designer's viewpoint. For example, questions arose regarding how many cryptocurrencies could be purchased, the exact procedure of a turn, when action cards could be used, and how to track the remaining steps before the virus activates. These insights helped us refine the rules and mechanics to ensure clarity and improve the board's visualization, making it easier for players to interpret the current game state.

With these refinements in place, we then conducted playtests with testers from the class to gather feedback from players who had no prior experience with the game, allowing us to assess how intuitive the mechanics were and identify any remaining areas for improvement.

From the feedback we received, we realized that some statements in our rulebook were not clear enough, as different players interpreted certain concepts differently. For example, terms such as "steps" related to the virus and the "base," where players start their moves and must defend against invasions from other players, were understood in varying ways. Additionally, the overall objective of the game was not immediately clear to players during the rulebook introduction, highlighting the need for a more structured and comprehensive rulebook, as well as refinements to the game mechanics to improve clarity. Our solution is to introduce a flow chart for our rulebook so while playing, the players can always refer to it and figure out the next steps to do.

Players also noted difficulty keeping track of how many steps till viruses activate, especially if you have multiple viruses to keep track of at a time. To combat this, we decided to create a space where players can place all the elements from the game in an organized manner and a space for players to keep track of each virus to see when it activates.

On the positive side, players reported experiencing moments of intensity and competitiveness, which is exactly the atmosphere we aimed to create through our game.

Active Virus			
A	B	C	D
Trigger Time Tracker		Event Cards	
A			
B			
C			
D			
Deactivated Virus			
Crypto		Passkey	

How could teaching the game be improved?

(What could have been explained better? Or earlier?)

I think the rules are a bit confusing. We were unsure just how to start the game & there was a lack of structure.

(circle the method used)

Demo / Read Rules / Blind Test

What kind of emotions or feelings did you feel / notice as you played? What brought those emotions out, the game or another player?

There were moments of confusion but also we experienced moments of competitiveness, as well as moments of satisfaction when we got the gist of the game & just how to play. Also the game brought out the feelings of confusion but the players brought out moments of competitiveness.

Did the mechanisms work together well? Were the decisions meaningful? Do you feel like you have enough control to affect your outcome? When did you know who was going to win? Do you feel that you could play better next time?

-I Don't feel like you have enough control to affect your outcome, due to the fact that you get money randomly & with that money you get passkeys to diffuse the "bomb." In my opinion, yes, I do feel like I can play better next time, maybe it's because the rules were all over the place that I didn't know what was going on.

it was nice to see players all so engaged however through observing there were holes that we previously had not considered.

#1 problem: there are so many things to keep track of it can get overwhelming, from movement counts, to steps before explosion. There's also lots of exchange that happens so there should be a method to better organize defused bombs, active bombs, event cards, used resource/event cards etc.

#2 problem: ratio of bomb to resource being skewed, when mixing cards, sometimes bomb cards are all towards the end and beginning, with resource cards being bunched together, there should be a method for more even distribution. Shape of cards make it hard to shuffle?



4. Reflection/Evaluation: This should discuss whether your expectations and goals were met in the process of building the final working version and having others playtest it. Include the concept from your original proposal.

Our original concept came a long way from where it is now. We've made a lot of iterations, and in the process, we've learned that because gameplay can have so many different possibilities, designers need to do as many playtests as possible to ensure there are as few exceptions as possible. The idea that players have the freedom to do anything they want as long as they obey the rules brought about lots of different playing styles and outcomes that need to be considered when designing the game.

We initially designed our game mechanics around workers tasked with defusing bombs, though we recognized early on that this concept might evolve. Originally, we also included a mechanic that allowed players to purchase additional workers from the shop. However, through playtesting, we discovered that this feature was unnecessary. Most players prioritized acquiring as many toolkits as possible to defuse bombs and earn rewards rather than investing in more

workers to avoid elimination. This led us to refine the mechanics to better align with player behavior and strategic decision-making.

Our goal was to create a system that was engaging, required strategic thinking, and encouraged competitive player interaction. Initially, the pacing of the game limited these elements, as slower gameplay with minimal action reduced both excitement and player engagement. For example, without resource cards, the number of steps given to each player in each round felt arbitrary, as players were simply trying to avoid the virus without any additional information or income. This lack of direction not only extended the game time unnecessarily—especially if no one encountered a virus—but also failed to make the gameplay more engaging or dynamic. However, as we conducted more playtests and adjusted the rules accordingly, the experience became more dynamic. We found ourselves laughing at each other when receiving viruses without having enough passkeys, teaming up to pass viruses onto opponents, and devising creative strategies to maximize points. These moments reinforced that our adjustments were making the game more enjoyable, interactive, and competitive.

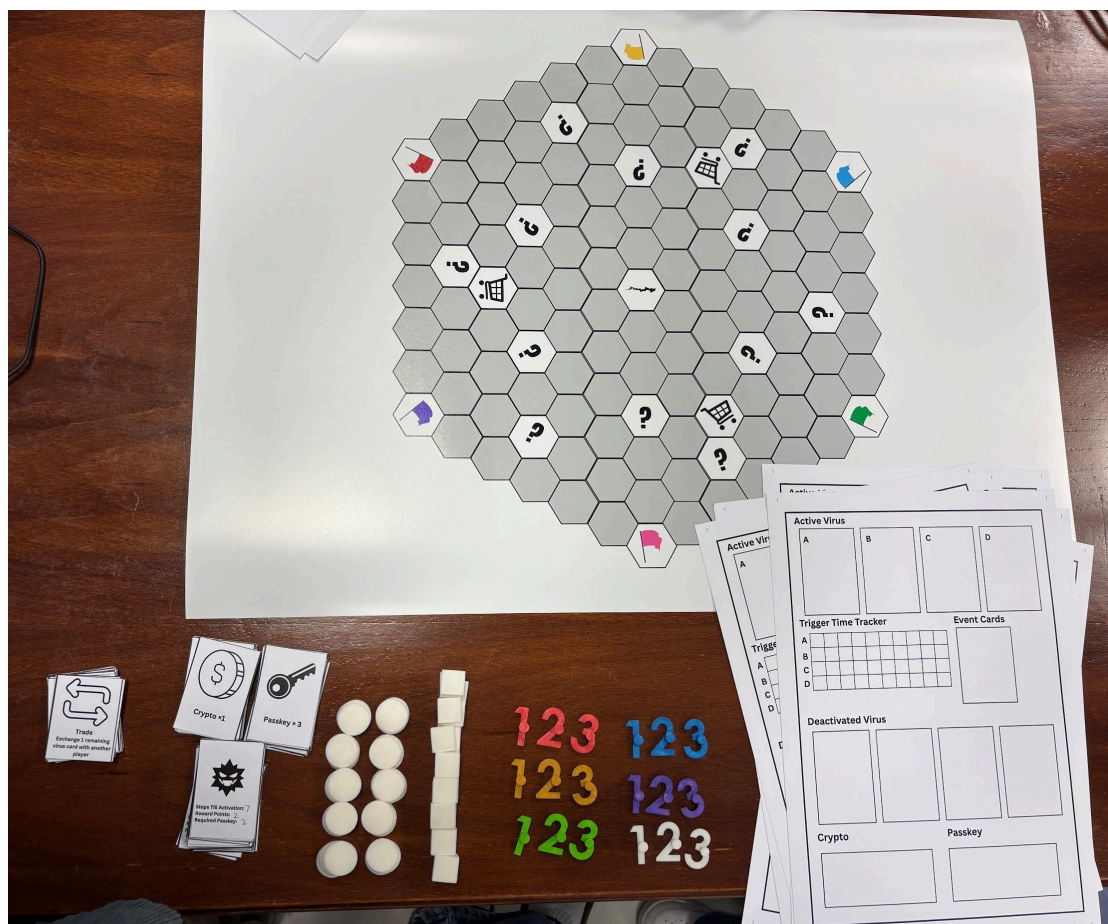
Another goal we had was introducing relevant themes from our current society, so when we decided on the topic of digital literacy and using competition to enforce the importance of security and protecting oneself, we made sure the elements in our game were relevant to this concept. From viruses to passkeys to crypto to hackers to data shredders, we're satisfied with how the game weaves in encryption and security.

5. Game as Meaningful Play: Briefly discuss how your game expresses the intended meaning through gameplay and whether there were any metaphors in mind in the design process. This should include playtest feedback which may or may not, in varying degrees, align with your original intentions.

We wanted our game to encourage digital literacy in an age of technological reliance. Different concepts like viruses and using passkeys to deactivate them are incorporated into the gameplay to show the dynamic between evolving viruses and hackers having to constantly come up with solutions to these threats. Practicing good cybersecurity also means securing your passwords safely. Passkeys are one of those things that protect you from phishing or scams as they're much more secure than passwords. The more passkeys you have in this game, the more protected you are since players can use them to deactivate viruses. The more viruses you deactivate, the more reward points you'll receive and be on track to winning. We also have a money system in the game that uses cryptocurrency so players can purchase more passkeys. Sticking with the theme of cybersecurity, cryptocurrency uses encryption and blockchain technology to make secure transactions without the need for a bank. These concepts are important to understand as more people have access to the Internet. The middle of our board also has a data shredder that players can dump the virus to if they get there in time before the virus

activates. A data shredder completely removes files and data from your computer, so we thought this to be a fitting way to dispose of viruses.

Observing users playtesting helped us solidify meaning behind play and certain actions they take. The competition and sense of pride they feel when they deactivate more and more viruses helped us realize that we can make people feel a sense of importance for this issue. The natural confusion when learning the rules also goes to show how complicated navigating the Internet can be. Of course, we want to design the rules in a way that makes it as simple to understand as possible, but the first time playing had users questioning everything; this goes hand-in-hand with the complicated systems at work online. After the first few rounds, however, when they get the hang of it, it becomes ritual to defeat as many viruses as possible and compete with the other hackers. Viruses and hackers in real life coexist in this feedback loop where they make each other stronger over time and to become more equipped with different threats. Overtime, the players gain more and more resources to combat the viruses, but are also faced with more complicated threats like being passed a virus by someone else or having a virus thrown at their home base. Seeing users carry out all the possible actions made us understand and see our game in different ways.



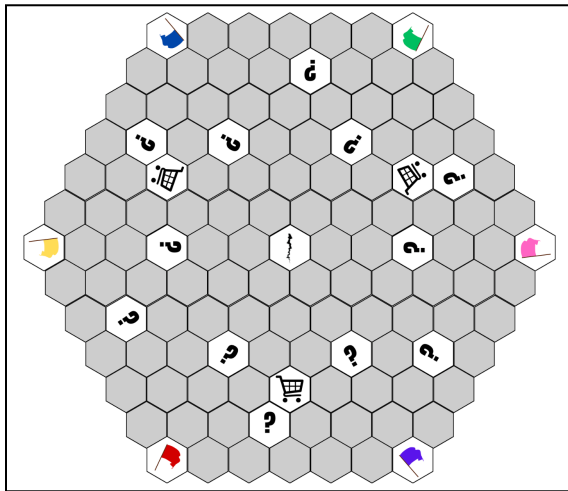
Official Rulebook:

Hacksagon

Game Concept:

A game on digital literacy and cybersecurity: In Hexagon, representing the deeper webspace, players take on the role of elite hackers diving into the depths of cyberspace to navigate the vast digital frontier. Their mission: to eradicate dangerous computer viruses that threaten to steal valuable data. Every move is a battle of strategy and survival; players must outmaneuver the lurking threats and rival hackers to restore order to the web. Will you emerge as the ultimate cyber defender?












Game Board:



The game board consists of a 7 by 7 hexagonal grid, whereby players can move and interact.

- 1) **Player Bases:** Each corner occupies a player base, indicated by different colored flag icons. All corresponding hackers are placed at their respective bases.
- 2) **Data Shredder:** The “Data Shredder” is represented by the icon located in the middle of the board. The Data Shredder enables players to discard a virus card if they don’t possess enough passkeys to deactivate it.
- 3) **Event Card Tiles:** The 12 question mark tiles dispersed across the board indicate spaces where players can draw an event card.
- 4) **Shops:** Shops illustrated by the cart icons enable players to purchase passkeys with their cryptocurrency. **One Passkey costs 2 cryptocurrencies.**
- 5) **Grey Tiles:** Landing on grey tiles allows players to draw from the **Random Resource Card** deck, containing a random array of virus and resource cards.

Game Components:

<div></div> <div><p>Cryptocurrency</p><p><i>Cryptocurrency can be procured through collecting resource cards from the Random Resource Card Deck</i></p></div>	<div></div> <div><p>Passkey</p><p><i>Passkeys can be procured from the shop or through collecting resource cards from the Random Resource Card Deck</i></p></div>	<div></div> <div><p>Player pieces “Hackers”</p><p><i>Each player obtains 3 hackers.</i></p></div>																																																		
<div><div><div><p>Freezer Pause the countdown during this round</p></div><div><p>Snatch Get 1 random item from another player</p></div><div><p>Blink Boots Move 2x distance within one step in this turn</p></div><div><p>Trade Exchange 1 remaining virus card with another player</p></div></div><div><div><p>Teleport Move 1 of your hackers back to your base</p></div></div><div><p>Event Cards</p><p><i>Event cards provide boosters for players and can be played at any time during their turn.</i></p></div></div>	<div><div><p>Steps Till Activation: Reward Points: Required Passkey:</p></div></div> <div><p>Random Resource Card Deck: “Virus Card”</p><p><i>The virus card outlines 1) the number of steps remaining before the virus is activated, 2) the reward points earned for deactivating the virus, and 3) the number of passkeys required to deactivate the virus.</i></p></div>	<div><div><div><p>Passkey × 2</p></div><div><p>Crypto ×2</p></div></div></div> <div><p>Random Resource Card Deck: “Resource Card”</p><p><i>Resource cards specify the number of additional passkeys or cryptocurrency players can obtain.</i></p></div>																																																		
<div><div><div><p>Active Virus</p><table><tr><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td></td><td></td><td></td><td></td></tr></table></div><div><p>Trigger Time Tracker</p><table><tr><td>A</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>B</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>C</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>D</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></div><div><p>Event Cards</p><div></div></div><div><p>Deactivated Virus</p><table><tr><td></td><td></td><td></td><td></td></tr></table></div><div><p>Crypto</p><div></div></div><div><p>Passkey</p><div></div></div></div></div> <div><p>The management sheet is used for resource tracking. It allows players to keep track of:</p><ul style="list-style-type: none">• Active viruses and their respective steps before activation• Deactivated virus cards• Unused event cards• Cryptocurrency and passkeys</div>	A	B	C	D					A										B										C										D													
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Management Sheet

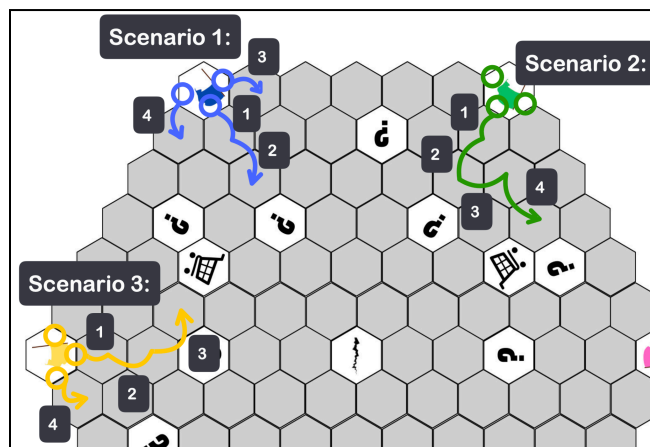
Game Play Rules:

1) Game Setup:

- Each player begins with 3 hackers that are placed in their respective bases. Turn order for the rest of the game is established through rock-paper-scissors.
- Each player starts with 3 passkeys and 5 cryptocurrencies.

2) Player Movement:

- Players can move a total of 4 consecutive spaces during their turn, in any direction. Movement must be consecutive - each step must connect directly to the previous one.
- Movement may also be distributed amongst their 3 hackers (*refer to the image below*).



- Landing on grey tiles allow for players to acquire extra cards from the Random Resource Card deck. If multiple hackers are moved during your turn, the corresponding number of cards are drawn. For example, if 3 player pieces are moved to grey tiles, you will draw 3 cards from the pile. If 3 player pieces occupy grey tiles but only 2 have been moved during your turn, you will only draw 2 cards.

3) Special Tiles:

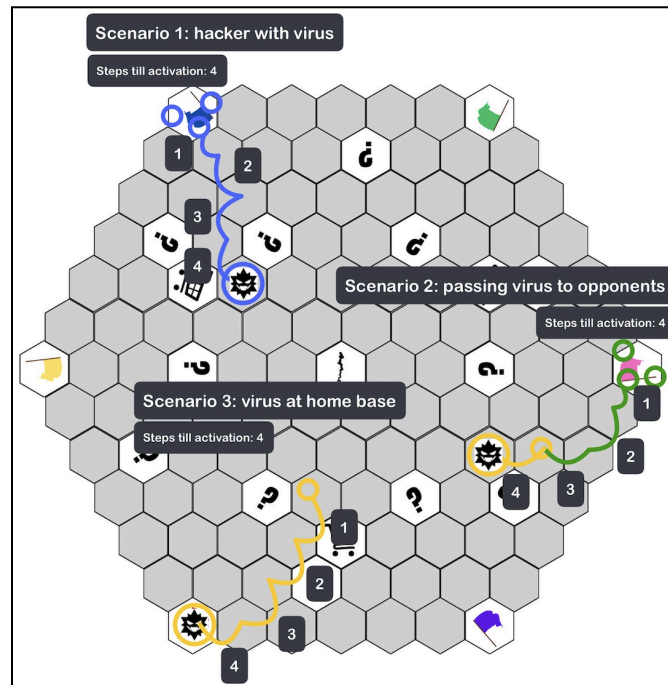
- Players obtain an event card when their hacker piece lands on an **Event Card tile**. These cards provide boosters that serve as advantages during the game.
- Players can purchase additional passkeys when they land on a **Shop tile**. Each passkey costs 2 cryptocurrencies. Multiple players may occupy the Shop tile at the same time and purchase passkeys.
- Players must land on the **Data Shredder tile** to discard a virus card. Like the Shop tile, multiple players may occupy this tile.

4) Actions Pertaining to Virus Cards:

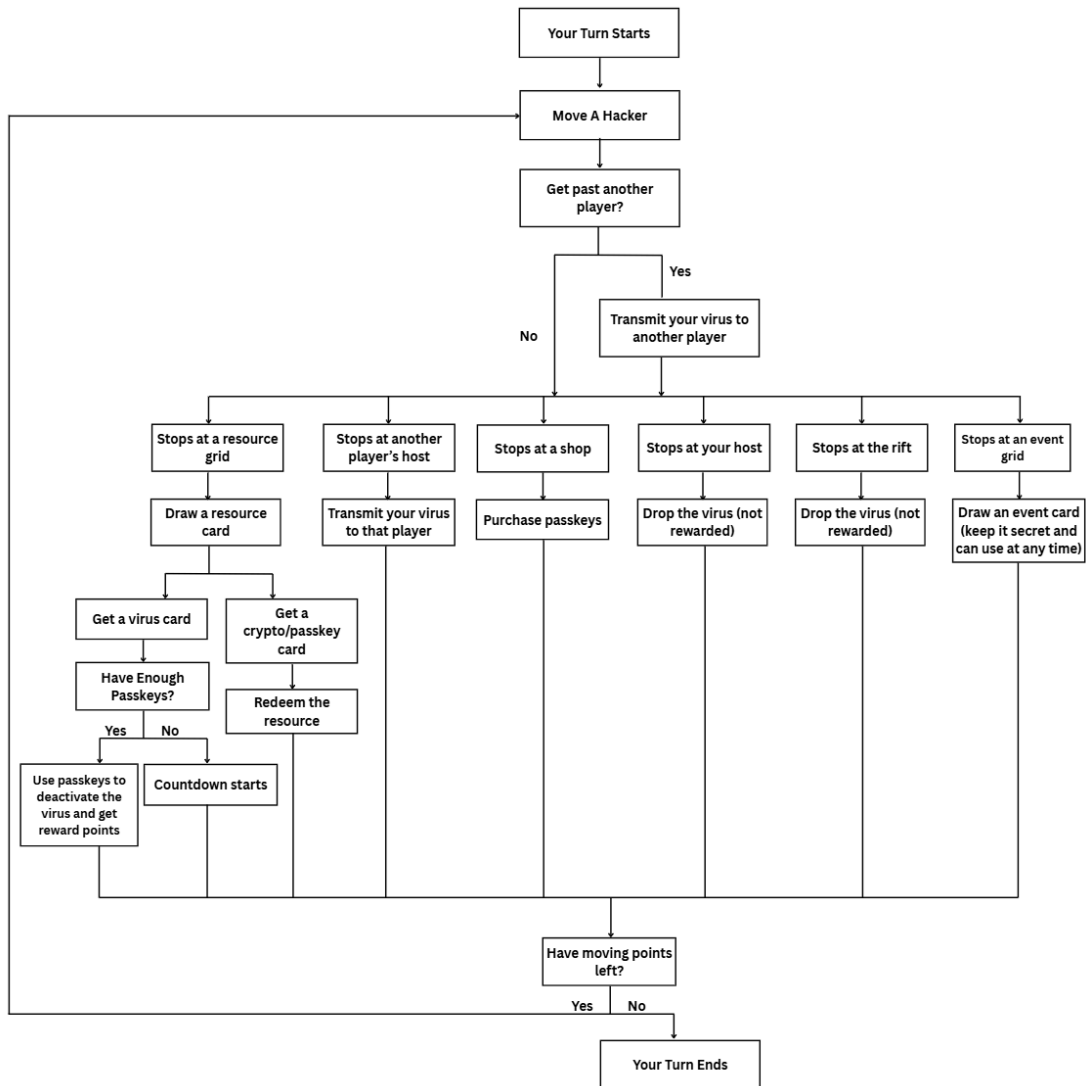
- To deactivate an acquired virus, players must pay the required number of passkeys before virus activation, as indicated on the virus card.
- Alternatively, players can reach the Data Shredder before virus activation to discard the virus card, if they do not possess the stipulated number of passkeys. However, doing so prevents players from earning any reward points.
- Players may also choose to sabotage by passing their virus card to an opponent. Players must either occupy the same tile as their opponent's or pass an opponent's occupied tile

during movement. The number of steps the player takes before passing the virus is subtracted from the remaining activation steps and transferred directly to the opponent. For example, if a virus card stipulates that 6 steps remain before activation, and a player has moved 4 steps before transferring the virus to the opponent, there will only be 2 steps remaining before the virus activation.

- d) Players may also choose to discard a virus card at an opponent's base (*represented by the flag icon*). In this case, the opponent must reach their base before the virus activates. For example, if the virus activates in 6 steps, players must reach their home base within 6 steps regardless of where their hackers are situated.



- e) **If a virus is activated, the affected player permanently loses one hacker.**
- If a virus activates at a player's base, they may choose which hacker to eliminate.
 - If a hacker picks up a virus card that is activated before being dealt with, that respective hacker is eliminated.



5) Winning Condition:

a) There are 2 winning conditions:

- i) If all other players' hackers are eliminated, the sole player with surviving hackers wins.
- ii) When the Random Resource Card deck is finished, players with the most reward points (as detailed on the virus cards that have been previously deactivated by the player) win.