Idea #1: K = 0 (Horror game)

(inspired by the 2023 horror game "Exit 8")
Project name: "K=0"

You play as a young woman who has a crush on some guy in your college, let's say, a specific class that always occurs at the same time everyday (although depending on the layer K of the dream you are in, the time of day might change slightly on your written schedule as a noticeable/more conspicuous anomaly, i.e. 1:00pm - 1:01pm). However, at the start of the game, you are in a dream rather than in reality, and your preset value of K (the layer of the dream you're in) is a randomized number between 3-7 inclusive, although of course, the value of K is never shown explicitly to you and is always kept secret. Your objective in each dream layer is to ask out your crush in said specific class.

Your objective is to wake up from all your dreams and be able to ask out your crush for real.

The deeper the layer of dream (K), the more anomalies will appear in your environment, and they become more conspicuous around you. This means that when K is smaller/i.e. closer to 0 (the waking world), the dreams are much harder to detect, and this is where most players would fail (when K is just 1 or 2)

if you succeed this round in determining that you're in a dream layer deeper than you were before, you wake up from the current layer of dream, and the layer K decreases by 1.

if you fail before you ask out your crush, however, you get either knocked out or put to sleep by a glitched/bugged version of your crush (how bastardized depends on how high K is), and K increases by 1, i.e. you get transported to a deeper layer of dreams.

If K reaches a predetermined fix amount in depth, say, M, you will die in real life of a heart attack or sudden cardiac arrest in your sleep.

More ideas: At high K, it could be a full-body horror show, while at low K, maybe it could just be a terrifyingly cold and hostile rejection that causes you to "faint" from shock, sinking you deeper into your dream. In any case, K is increased by 1 if you fail to detect that you're in a deeper layer of dream in time.

Actually, I think the starting value of K should be a random integer selected from 1 to 9, but not necessarily a uniform distribution - an approximate Gaussian distribution centered at 5.

M should be randomly selected from the start from 12 to 15.

Another idea: If K is in fact =0 and you still don't believe your scene is real before getting to asking out your crush (i.e. you decide to "Wake up" from your current dream), you essentially kill your actual self. At any level of K, the whole waking up mechanic is done by killing yourself in the current layer to decrease K by 1.

I was thinking each time you wake up, you invariably wake up in your home as if it were a real day of college classes (I meant every time K changes, whether it be +=1 or -=1, you get reset to your home in bed in the morning)

What should be obvious anomalies at higher Ks like K = 7 up to K=12? And how should the player get "knocked out and transported to K+1" in these dreams by their crush who is now a grotesque monster? In K=1 or K=2, I suggested maybe just have the player be mildly confused and faint, leading them into a deeper layer of dreaming.

Also, I will revise the starting K random generation for the range to be broadened to 0-10 inclusive, with the mean centered at 5, and

selection based on Gaussian distribution with standard deviation = 2.5.

Also, How should the game/play through end if the player doesn't believe K=0 is real and ends themselves/tries to "wake up" from K=0? And aside from that, I have decided that M=11 could be fixed. (The least K where the player will die irl in their sleep from a heart attack or cardiac arrest)

K=1 should look almost indistinguishable from K=0 and be very hard to detect as a dream. Most of a players setbacks in speedrun should be due to thinking K=1 or K=2 and getting trapped in a loop of unintentionally increasing their K again after they've almost decreased their K to 0.

In this game, the main character's/protagonist's name should be Ingrid (last name Williams, full name Ingrid Williams), while the crush's name should be Jonah. Maybe Ingrid here could be IRL diagnosed with BPD or Schizotypal PD canonically

Hence, the range [0, 10] inclusive implies that rarely, the player might start already in waking reality, but it's up to the player to decide if they want to believe it and actually go for asking out their crush Jonah.

There should no violence at all in K < 3 because K=1 and K=2 are meant to be extremely subtle and almost indistinguishable from reality. There should only be very limited amounts of gore (that the player doesn't cause themselves) in K=3 through K=6

9/20/2025 update: oh and a good point i thought of is that while lower K maps should be more and more subtle and harder to distinguish from reality, higher K maps should be much harder to navigate safely, and higher K maps could have its own monsters in hallways that will

send the player to K+1 without even asking out Jonah. This way, both endings (dying from K=11 and dying from K=0) are hard to avoid.

Ingrid Williams's canonical diagnoses: BPD (primary), Schizotypal PD (secondary), ADHD

Ingrid Williams's canonical personality type:

MBTI: INFP
Enneagram: sx7
Socionics: IEI
Enneagram Tritype: 749
Temperament: Melancholic-Sanguine

Big 5:
Extroversion: 10%
Neuroticism: 100%
Conscientiousness: 0%
Agreeableness: 50%
Openness: 100%

Ingrid's Canonical Birthday: January 1, 2000 (the game canonically takes place during the year 2022)

Jonah Park's (Ingrid's crush) canonical personality type:

MBTI: ESFJ
Enneagram: so9
Socionics: ESE
Enneagram Tritype: 927
Temperament: Sanguine-Phlegmatic

Big 5:
Extroversion: 80%
Neuroticism: 10%
Conscientiousness: 50%
Agreeableness: 100%
Openness: 50%

Jonah's Canonical Birthday: August 26, 2000

I could also make Ingrid also canonically have RYR2-mediated Catecholaminergic Polymorphic Ventricular tachycardia (which would make the K=11 failure/death in sleep ending more consistent)

Maybe the way K=1 or K=2 rejection lead to higher Ks could be from Ingrid's fainting caused by VTach caused by the unusually cold Jonah

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Idea #2: Keys to Your Heart (Educational Dating Sim Game)

Idea Outline: "Keys to Your Heart" - cryptography-themed dating sim idea (planning to use Godot to code it)

I was skimming through one of the problems on this week's number theory/cryptography homework, and I saw the wording "You and Alice", which promptly sparked an idea in my mind - what if I made a dating simulator game where the player (who can choose to play as either Alice or Bob) sends messages to either Alice or Bob to try to build up a romantic relationship, but Eve, the eavesdropper, who is in-game a jealous ex, tries to sabotage the relationship by spying, and attempting to access, the secret messages between the player and Alice/Bob. The player must take advantage of numerous possible

cryptographic ciphers in order to encrypt messages and try to shield them from Eve by making them as hard as possible to decrypt. To make this game not too esoteric, this game utilizes common cryptographic ciphers such as Deffie Hellman key exchange and Hill cipher in an accessible manner.

Over the course of the game, Eve learns more and more about cryptography in order to try to sabotage the budding relationship and gains an concerningly increasing amount of prowess at decrypting messages, prompting the player to use more and more secure ciphers (from Caesar cipher to Diffie Hellman key exchange to Elgamal PKC to RSA to encrypt their messages with Alice/Bob.)

Note: the player could also potentially play as Eve.

Concepts to touch on: frequency analysis + more

The prime number 83 should be prominently featured just because it's my favorite number. Also has potential because 83 is a safe prime and hence very suitable for Diffie Hellman (the player should be offered several options for small primes for the sake of toy examples/gameplays, and one of the primes is 83, while the others aren't safe primes)

Also, the game should feature primality tests and Fermat pseudoprimes/strong pseudoprimes (Millin-Rabin test), and if the player mistakenly uses a pseudoprime instead of an actual prime, then that makes Eve decrypt the messages much easier.

for the sake of adhering to small toy examples in the game (such as using the prime 83 instead of primes with thousands of digits), let's make Eve only capable of performing 1 operation per frame (60 operations per second) in the game, despite computers being able to

compute much much faster. Perhaps parts of the game could be combined with platformer gameplay - such as the player and their lover (Alice/Bob) having to escape a cell where they're being monitored by Eve before Eve successfully decrypts the message (the speed of the latter depending on the player's own choices)

Example scene in the game (Diffie-Hellman):

The player 83, 91, 97

Idea #3: Entropy (novel)

Idea Outline (8500 words):

Layout (8k-ish words)
Novel Title: "Entropy"

It is decided that Izumi has (undiagnosed) ARVC.
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How do I better flesh out both Izumi's backstory/childhood as well as the scientist's (Izumi's reincarnation) backstory/childhood?

This idea came to me in a dream. What if there was a manga where the protagonist, an ENFP girl of age 19 (name: Izumi), who is bubbly, effervescent, had her whole life ahead of her, and has many friends but is flawed in many other ways, suddenly dies in her sleep of a sudden cardiac arrest. (what if the initial 19-year-old girl had an undetected heart condition that they didn't catch until she went to

sleep one day and didn't wake up? Let's say this heart condition is ARVC, and in the several months up until her death, she continued to emotionally beg her friends and parents to not ignore her occasional but severe symptoms, which started appearing with increasing frequency, only for her words to come out one ear and go out the other, until she actually died? Makes the story more nuanced thematically as for the complicated relation of technology with nature (it should be trusted but not over-relied on and should exist in parallel with nature but not supersede it)). Also, on the girl's final night (the sleep she dies during), she could be having a nightmare about actually dying in some way, yet unlike most nightmares, when she died in her nightmare corresponds to the time where her heart went into v-fib and she actually died in real life too. I need this to be visualized in manga panels, it would make for a great poignant scene. also, since the original girl is ENFP, she must have a brilliant imagination, hence I should instead personalize her arrhythmias in the dream as some sort of heart-shaped (but distorted) evil maniacal monster with arteries (drawn in sloppy crayon) as arms and legs, chasing her through a hallway of artistic scenery, including mountains, beautiful rivers, and cherry trees (drawn in paint), representing her passion for art while she was alive, these would've been her future paintings if she wouldn't have died so untimely of sudden cardiac arrest that night. Right as vtach starts irl, in her dream, the grotesque heart monster starts destroying her artwork on purpose, representing the loss of her artistic future to her untimely death. Right as vfib starts irl, in her dream, the mutated heart monster devours her into his mouth. Right as asystole starts irl, in her dream, the mutated heart monster finishes eating her and she is fully digested.

The next morning the devastating outcome is seen by her parents who immediately regret not taking her seriously. What about the autopsy scene where the diagnose her postmortem with ARVC? (note that here ARVC is better than CPVT for the purposes of the story, since the latter, which is only a channelopathy, wouldn't show up on autopsy irl)

how in the corresponding manga/webcomic for this short story do I show but not tell that the scientist is in fact a reincarnation of Izumi? should i subtly reveal this upon telling about the scientist's birth and childhood, or should I wait later?
Scientist in his early childhood, age 6-8, could have an interest in art and could be shown in the corresponding manga panels doodling drawings eerily similar to Izumi's art style, but his parents scold him and set him on the "right track" of focusing on science and technology as a career path, due to the latter being more practical and lucrative. Also the scientist could have an eerie fear of falling asleep, because Izumi died in her sleep from a sudden cardiac arrest.

Anyways, Her body is placed into cryogenic restoration by her grieving parents hoping she might revive in the future in that body. (what if Izumi's grieving parents, after her original death, end up donating millions of dollars to cryogenics to hope to see their daughter again (an ironic overcorrection from their initial distrust in science)? and they happen to die of old age at 97 and 94 respectively just three weeks before Izumi finally wakes up?) However initially the cryogenic freezing does not work and she reincarnates in a world similar to her own as a completely different (appearance-wise) 35-year-old man but with a similar but slightly different personality (ENTJ), however, in 51 years into the future. He has no memory of his previous life of course. Subconsciously, due to some residual influence from the scientist's past life (as the cryogenically frozen girl), he gets inspiration/influence

to work in science and cryogenics, a burning academic interest, but he doesn't know this consciously yet. (although he doesn't have ARVC and actually has a physically healthy heart, he still has nightmares about sudden cardiac arrest and heart attacks.) This man works his way to become a renowned scientist (completely different from the her aspiration to be a painter in his previous life) and pioneers the field of cryogenic resurrection. He unintentionally (since he's just doing his job) revives his previous life, the said ENFP girl.

At first Izumi was just another test subject to experiment on for the scientist, who had experienced no prior successes yet (hence Izumi will be the scientist's first test subject, which represents a sudden sign of nature/fate warning him of this, yet the scientist doesn't realize at the moment, him being a mere mortal and normal human being). Note that also the scientist is happily married.

The moment Izumi's heart starts faintly beating (but she stays unconscious), the scientist suddenly feels a palpitation (PVC) in his heart. He dismisses it as a run of the mill occasional phenomenon, and one of his coworkers (Hajime, INFJ), who was forced by his father to work in the prestigious cryogenics business, but doesn't believe in science at all, teases him "wow, looks like you really think this patient will return to normal neurological function? You've set your goals so high that your heart skipped a beat upon the slightest sign of life. I bet this person will be at most a mechanical vegetable, and cryogenics is complete BS. If her heart doesn't immediately stop afterwards."

Further develop the coworker (Hajime) as a character, someone who's skeptical and blunt and disagreeable and who didn't believe in or was interested in science and wanted to open a bar instead, someone who had a past strained relationship but remained acquaintances with the scientist. Hajime (INFJ) was the scientist's childhood friend but they grew more distant as they aged. Hajime went into Buddhism and

developed a fondness for reincarnation and protested that the cryogenic lab was interfering with nature (yet he was still forced by his parents to apply to the scientist's job as well as a government official due to the prestige associated with that position), but he wasn't heard or taken seriously, while the scientist ardently believed in science. (why? Develop later)

In the scientist's time period (51 years after Izumi's time period), the government has become strictly authoritarian, a dystopian 1984-like world. This also raises philosophical questions of whether the future would really be better than the present, and whether or not it's actually worth reviving oneself (cryogenics).

First, as Izumi remains in a medically induced coma for several days before actually waking up, the scientist only experiences Izumi in the form of several odd dreams/nightmares about art and dying of sudden cardiac arrest, and occasional PVCs/skipped beats, but thinks nothing of it, as things remain nearly normal.

Izumi profusely thanks the scientist for giving her a second chance upon waking up, at first thinking that she had just a routine cardiac arrest. However, upon the scientist telling her and providing evidence that she's actually in 2076, she is shocked/surprised, and as a gag/joke, Izumi loses consciousness/faints again upon hearing this (however, this has no long term effect, and she wakes up 20 minutes later). The scientist and his team on the other hand, seeing this as a sign of failure of the experiment, immediately becomes concerned that his experiment has failed and was only short-lived (the scientist yells "NOOOO!!! NOT WHEN I WAS THIS CLOSE!!!!"), and Hajime taunts him for this. However, much to the scientists' relief, it was just a simple benign faint for Izumi. Izumi immediately gets an ICD implanted in her the day after.

Note that a few of Izumi's childhood friends, now in their 60s to 70s, lived to see this day and was in the cryogenics chamber and cried tears of joy upon Izumi waking up and retaining her old self. They share some sentimental and emotional moments. Izumi of course doesn't recognize them anymore since they're now in their 60s to 70s. Suppose that her old friends were casually playing the game Mahjong in the waiting room when this happens, casually joking around how cryogenics will never work, betting Mahjong points for the aforementioned.

Izumi also drastically loses freedom in her new dystopian world, having to adhere to rules such as mandatory military service for everyone younger than 27 (in which she jokingly tries to get around by claiming that she's actually 19+51=70 due to being cryogenically revived but that obviously fails because the government (much like the DA in Lycoris Recoil) sees through this silly ploy), mandatory uniforms, rules such as always respecting the government in a 1984 manner, and notices that unsanctioned art, music, and literature (including self-created art) has been banned by the government, and that due to mandatory service, she has also much less time to make art, what she's passionate about. Also, a couple of her friends die in the next few months due to causes like cancer or dementia. Also, the world is now in 2076 filled with war, although the government tries to mask its existence. The former cheerful and bubbly girl has some thoughts of depression due to this and considers ending her own life a couple of times, but she pushes through with her mental resilience, reminding herself that this was the second chance at life she got, and she better not waste it. In fact, in this story, it's revealed cryogenics was partly developed by the government in a half-handed desperate attempt that it will convert some formerly dead people to obedient zombies and sycophants. Due to Izumi's unexpected return to full consciousness and being full of individuality, the rest of the government begins to form a parallel covert subplot to cut their losses and euthanize her,

since they realize it might be too hard to make a subservient member of society. Hajime, who is also involved, (INFJ 5w4) pretends to collaborate but secretly plots against this due to it interfering with his personal convictions/beliefs. (DEVELOP THIS SUBPLOT FURTHER LATER!!!!!!!!!)

Throughout the next several months, the scientist starts noticing conspicuous signs that he's losing his original identity/consciousness via reincarnation and it is being gradually replaced by Izumi's identity/consciousness. However, since this is gradual, the scientist first thinks nothing of it and isn't even aware of it at first until others have commented the scientist for his new incorporation of some of Izumi's speech idiosyncrasies and showing more of an artistic/emotional flair (he started producing some art reminiscent of Izumi's former style), and losing motivation in researching cryogenics/science. Several keystone research papers in cryogenics also start going missing mysteriously, even being deleted from archive.com. In the few hours outside of Izumi's mandatory military service, the scientist and Izumi form a friendship/bonding, the latter expressing her gratitude for reviving her despite the current circumstances. They start meeting each other at weekend dinners at the restaurant and develop a close friendship and dump private personal information to each other. We get to learn even more about the scientist's backstory this way. Due to their consciousnesses gradually becoming one, the scientist and Izumi feel an unnatural chemistry for each other, far beyond the realm of normalcy, and the scientist himself seeks therapy for this several times, his rational side critiquing it as immoral for him to have feelings for his own patient. The scientist even goes on a few dates (sometimes to art museums, sometimes cuddling while gazing at the stars) with Izumi when Izumi is free, finding himself more and more irrational attached to Izumi. They share a kiss under the moonlight. He also unfairly in a nepotistic manner gives Izumi slightly more freedom compared to the other

soldiers recruited, falsifying some attendance and exam records for her. Note that the religious and strongly spiritual (INFJ 5w4) Hajime notices this and fears for the worst, that Izumi's consciousness is in fact replacing the scientist's consciousness. Note that also, the scientist's love for Izumi subconsciously and metaphorically represents his enormous ego since he basically fell in love with a previous version of himself.

Since Izumi was only 19 at the time of her death and the scientist is 37, people start questioning their perceived relationship with each other, due to the large and immoral age gap. The scientist's own wife also divorces him, upon suspicion that he has been having an affair with Izumi. The scientist's public reputation sours and this further enrages him - he views Izumi as having taken away everything from him, from his research papers, his wife, his scientific/intellectual output, as well as his public reputation, but his ego fails to understand that it was him who did this to himself (since he chose to pioneer cryogenics and revive Izumi to begin with). Due to violating the transitivity of identity/consciousness, the universe's fabric tries to correct this by gradually erasing the identity of the scientist (cryogenics research papers and progress mysteriously disappearing one by one, etc., scientist becoming more and more Izumi-like, by both appearance and personality). Upon the realization/epiphany of the scientist one day that this isn't just all in his head, he tries vigorously to think of a solution to get his old self back and becomes more and more distant in his previously close friendship with Izumi. He runs DNA tests on himself, but they come back inconclusive. He goes to medical specialists, but no one finds anything wrong. He scans his brain, but all brain scans show the same neural patterns as Izumi's, which is concerning.

The scientist is egotistic, proud of his work, and before merging completely, wants to preserve his identity rather than be forced to

merge, so he opts to kill Izumi (this develops several months after Izumi wakes up). However in the end he doesn't realize that by killing Izumi, his body inevitably fails right after and he dies too since their consciousnesses were inherently intertwined/two-in-one. This is his ego getting in the way of rational thinking. He rationalizes this by thinking maybe if he killed Izumi, his old personality and research work in cryogenics would return and Izumi is the main impediment.

In the end, the scientist still ends up killing Izumi, but not before his friend Hajime, the religious Buddhist who believed in reincarnation but still rational/logical, actually tries to talk some sense into the scientist about the ramifications, and tells the scientist to embrace his new, merged identity/consciousness. Hajime tells him that the scientist does kill Izumi, then this shows that cryogenics is self-effacing. The scientist, in his irrational Izumi-tinted state (at this point he's perhaps already 51% Izumi in personality), still thinks his belief is correct that his old consciousness (which wasn't supposed to exist and caused a temporal paradox upon Izumi's waking) will return and cryogenics will flourish again so he ends up one night killing Izumi anyway. The scientist kills Izumi in her sleep by hacking into Izumi's ICD device (because he thinks this will evade detection by police and make it seem like a natural death due to machines sometimes naturally glitching) and making it shock her chaotically and uncontrollably, eventually causing an actual sudden cardiac death (Izumi's second time dying of a cardiac arrest, and this time finally ironically).

Ironically, the scientist shortly after (in just a few minutes, after egotistically celebrating that his cryogenics research and company will finally flourish again and he will get his old life back) actually dies similarly (his heart begins failing and he immediately dies of a sudden cardiac arrest as well) after this. Any attempts by paramedics at reviving the scientist fail immediately. His last moments are lived in pure panic and regret as he realizes Hajime was right all along, that

either his or Izumi's existence was a mistake, and they were indeed one consciousness now. Irony: the scientist wasn't revived after death, but Izumi was.

Hajime, in the end, witnessing the tragic aftermath, "finishes what the universe paused" and destroys the remnants of the cryogenics research lab since in his mind (it was already partly demolished symbolically by research papers mysteriously vanishing while the Izumi-tinted scientist was still alive), this wasn't ever meant to be reality to begin with, due to the its self-effacing nature (cryogenics here ironically actually caused the revived person as well as the scientist behind it to die once again) as well as it violating the principles of nature/fate in terms of reincarnation. He covers up the cryogenics lab's existence from ever having existed via a similar manner to the DA/government from Lycoris Recoil positing that the cryogenics lab had only existed as a movie prop for an upcoming blockbuster film and was a failed prop due to being too expensive to maintain, meaning they had to destroy it because it was useless. In order to make this consistent with the overarching narrative and not a deus ex machina, I should also make the age the scientist lives in a dystopian government-controlled strictly authoritarian age (**this has extra potential because Izumi now has to conform to stringent rules in her new life, much to the dismay since she's a very individualistic artist**), much like in 1984 and/or Lycoris Recoil. I should also make Hajime duo as a high ranking official in the government, despite his Buddhism beliefs.

In an epilogue, archeologists 2000 years revisiting the graves of Izumi and the scientist discovered that their skeletons had merged into one much like with conjoined twins, but in a connecting mechanism never seen before in any sets of conjoined twins in history, furthermore a painting of a flower is etched on the conjoined twin skeleton's shared skull. This is also unprecedented due to one skeleton being female

and one being male, and conjoined twins are always identical genders. This oddity later becomes a museum exhibit, and no one knows how this occurred.

More worldbuilding:

Epsilon Echelons (math contest in this fictional world, established in 2043)

Contest Format:

Like the Putnam, strictly proof-based, and the scoring is 10 points per problem. (Like the Putnam, very unforgiving grading, each solution either gets 0-1 points or 9-10 points), making the perfect score a 510.

This contest is split into 3 sessions containing 17 problems each (for a total of 51 problems), each session has a time limit of 3hr 47 minutes (227 minutes), so on average the participant is allotted roughly 13 minutes per problem.

This contest, since it is set in the future (2043-2076) of the story, is much harder than the Putnam/IMO in today's age. Problem A1/B1/C1 is roughly equivalent to the difficulty of a A4-B4/A5-B5 on the actual Putnam, and Problem A17/B17/C17 is just slightly short of being a mere conjecture (e.g. Collatz) that no one has solved yet.

It is mandatory for military screening for anyone between the ages of 19-26 (since 2063), to determine what roles they'll serve in. If they score at least 83/510, they'll be spared from combat/menial labor. It is also an application requirement for any undergrad college student for graduate school and holds as high stakes as the Gaokao in China.

Typical score distribution of each year:

Record score (highest score ever achieved by any contestant in the fictional world of the story): 383/510

99.99th percentile: around 250/510

99.95th percentile: around 210/510

99.9th percentile: around 180/510

99.8th percentile: around 140/510

99.5th percentile: around 90/510

99th percentile: around 50/510

95th percentile: around 20/510

90th percentile: 7/510

75th percentile: 2/510

50th percentile: 0/510

25th percentile: 0/510

Notable scorers:

The scientist (in 2058): 227/510

Hajime (in 2061): 59/510

Izumi (in her second life, post-resurrection, in 2076): 2/510

The scientist gets pressured by his parents to score high, and he is himself very overachieving and manages a 227/510 (99.98th percentile) on the 2058 Epsilon Echelons, since he aimed to get into one of the most prestigious research institutions upon graduation, in order to advance his cryogenics research in nontrivial ways.

Cutoffs:

To get commended/a tier 1 honor - 51/510

To dodge menial labor in mandatory military service like fighting, cleaning, or nursing and advance to help with cryptography or technology for the military - 83/510

To get a tier 2 honor - 111/510

To get a tier 3 honor - 179/510

To get a tier 4 honor - 347/510

2058 Problem A1:

Let n be an integer $\geq 3,$ p be a safe prime $> 2^{n+1}$, and let $a, a^2, ..., a^{m}$ be a sequence modulo p, where m is the

least integer ≥ 1 such that $a^m = 1.$ Define $\{ x_i^{(a)} \}$ as the subsequence of $a, a^2, ..., a^{m}$ containing only the elements $2, 2^2, 2^3, ..., 2^n,$ in the order they were originally presented in. Over all integer choices of $1 < a < p-1$, how many distinct possible subsequences $\{ x_i^{(a)} \}$ are there?

Also, have Izumi go through a similar episode of self terminating VT as mine three months before her sudden death in her sleep. To expound on this episode, suppose that Izumi was visiting an art museum with her best friend Aiko some day in October 2024. She is admiring a piece of art painted by fictional German painter Marie Bretschneider (who canonically lived from 1790-1841, and who is known for her theme of the juxtaposition between order and chaos in her paintings, and who is also Izumi's favorite painter she holds dear to her heart), this particular piece of art is titled "Entropy" and shows a gradual top to bottom gradient between an orderly and polished array of sunflowers vs. complete chaos/destruction on the bottom (wilting, shredded petals, random scattered light/colors, etc.). While admiring said artwork in the museum, Izumi suddenly feels her heart start to unsteadily race, as she's going into ventricular tachycardia. The last thing Izumi perceives before falling unconscious is a blurry image of the said painting called Entropy, with random stars and black spots in her vision, while her friend Aiko panics, not knowing what's going on. Izumi wakes up 10 minutes later to a frantic and crying Aiko who genuinely thought her friend had died.

Also, note that the German fictional artist Marie Bretschneider (December 10 1790 - December 2 1841), is canonically Izumi's favorite artist. In this story, Marie Bretschneider was also an avant garde individualist who rebelled against the austere expectations of religious conformity in Europe during her lifetime, and ended up dying in 1841 at age 50 to a gradual debilitating early-onset Alzheimer's.

Major theme of this story: Order vs. chaos (i.e. in Izumi's heartbeat (i.e. normal sinus rhythm vs. VT/VF), in Izumi vs Marie Bretschneider's deaths, in Izumi vs. her best friend Aiko's personalities, life vs. death, comformant dystopian society she wakes up in vs. her individualism, also reflected symbolically and thematically in the work of Izumi's favorite artist, Marie Bretschneider)

Aiko (Izumi's childhood best friend) introduction/description:

Birthday: April 15, 2005

Brief Exposition: Aiko met Izumi in the year 2012 (when they were both 7) in grade-school after admiring the latter's outstanding creativity and talent in the art class that they shared together.

Personality Type: ISFJ sx9 962 RLOAN (reserved, limbic, organized, agreeable, non-curious). Contrast this to Izumi being ENFP sx7 749 SCUAI (social, calm, unstructured, agreeable, inquisitive)

Personality Description: She's a meek and gentle introvert, often accompanying her friend Izumi on trips to art galleries and historical landmarks out of mainly diligent care for her rather than her own interest. She is known to be more practical and less head-in-the-clouds compared to Izumi, yet she looks up to Izumi as a role model since she wants to improve herself and venture out of the familiar, ordinary, or routine, which is her fear. She is Izumi's facilitator when it comes to the latter's spontaneous bursts of whimsy, i.e. whether it be suddenly wanting to start on a new art project, writing a new story, Izumi is the brainstormer/inspirer while Aiko is the implementer/helper - this manifests in Aiko often draining her own bank account to buy art supplies and drawing tools for the often indolent and recalcitrant Izumi, due to the latter's parents' lack of finances and patience to continuously support the quixotic Izumi's plethora of hobbies. While Izumi is always bursting with optimistic

energy and seeing potential in things, Aiko is often pessimistic and panics easily, such as in the October 2024 museum incident. Although Aiko is naturally self-effacing and strives to serves others, she, being more pragmatic, sometimes offers Izumi practical and healthy criticism on her quixotic artistic escapades, which the latter, when younger and more immature, often took to heart and recalcitrantly distanced herself from Aiko due the perceived offense (this has been the source of several interpersonal conflicts between Aiko and Izumi in their childhood years), but as Izumi grows more mature, she has slowly grown more appreciative of Aiko's concerns and feedback. Aiko however often later feels guilty for what she perceives as her relentless criticism of someone she looks up to so much, perhaps this comes from a place of not wanting to accept her neurotic propensity to merge with others.

Physical appearances (in 2025, pre-revival):

Izumi:

Hair color: #4d100b

Eye color: #e6ba43

Hair length: long and wavy

Aiko:

Hair color: #311f4d

Eye color: #12301d

Hair length: short and polished

Jakob Schwarz-Bretschneider

Descendant of Marie Bretschneider (1790-1841), foreign exchange student from Germany

Born in 2000, got held back from school several times

Physical Lifespan: 2000-2083 (died aged 82)

Mental Lifespan: 2000-2076 (went into a permanent vegetative state aged 76)

An heir of the profits Bretschneider ended up accruing during her lifespan, Jakob Schwarz-Bretschneider is an artist that tries but fails to become recognized, result-focused, has less artistic and intellectual talent than he thinks (i.e. false grandiosity but complementary with his false lack in other attributes), vehemently jealous of his ancestor from several generations ago, Bretschneider. To Jakob, a life of affluence, wealth, and prosperity is not enough, and he strives to be recognized for something above materialism. His degeneration into poverty is largely due to both (1) formal renunciation of an aristocratic life (2) his own lack of conscientiousness. His extreme insecurity about his intellect and sophistication causes him to throughout his life later develop charlatanic and sophistic qualities much like Socrates in Aristophanes' The Clouds, i.e. he becomes conniving and tries to intellectually challenge and defraud others. He wears an intellectual and artistic mask and sometimes convinces others of his talent through this duplicity, but deep down is extremely ashamed and hates himself for his pretention.

In Jakob's childhood, he was known to be brash, petulant, and extremely entitled/not aware of how privileged he already was/always wanting what he lacked. Jakob was allowed to attend the same middle and high schools as Izumi only due to his parents being well educated compared to his further ancestors, getting an opportunity to move from a rustic German village to the metropolis of Tokyo in his childhood around the year 2007, and pushing him to do well on the placement exams. In class, he was known for being pseudointellectual and a know-it-all, and particularly in art class, he often brags about the fact that he was a 7th generation descendent of famous artist Marie Bretschneider, while receiving uninterested and annoyed stares from others. He was quite a recalcitrant student, always trying to outsmart his teachers, but ultimately being held back for 5 years due to his utter lack of discipline. In around late 2024, a few months before Izumi's first death, Jakob develops an insatiable crush/infatuation on an uninterested but well meaning Izumi. A short while later, Jakob is particularly enraged when he finds out Izumi's favorite artist is in fact his descendent Marie Bretschneider. rather than himself, as he always lauded his own artistry as sophisticated and talented. (although deep down he knows he's just not naturally talented and is just envious and petulant) Masochistically to himself though Jakob remains romantically attached to his rival (both the love and the rivalry is one-sided) until she dies for the first time on February 2, 2025 due to a sudden cardiac arrest. Jakob is outwardly theatrical and emotional at Izumi's funeral, but his tears are merely performative and deep down and deep down he's overjoyed that his rival, the major source of his neurosis, has "gotten what she deserved." Between 2025-2076, Jakob toils as an alcoholic and gets obsessed/deeply invested with religion, particularly Christianity, but misinterprets the centrel tenet in an egotistical and personal way - instead of Jesus' sacrifice as a way to save others from their sins, Jakob thinks Jesus sacrificed himself as a symbol of masochism and self-punishment due to knowing his own weakness in

the world, spreading his religion Christianity along the way as a means of "retribution".

In 2076, Jakob is now a homeless old man rotting in the streets but somehow hasn't been executed or ousted, due to his being chameleonic exterior and charlatanic talent at stealing and forging score/award certificates (e.g. high enough scores to get exemptions/surpluses from the government) of other people and claiming them as his own, despite having personally scored 0 on all actual attempts on the exam. Jakob also still has some modicum of wealth/savings but he chooses to live an ascetic lifestyle both so others can have pity on him (unconscious motivation) and according to him, because he renounces "aristocratic and ostentatious displays of wealth," viewing his mental talent as much more valuable. Jakob becomes all the more enraged when he hears from the news that his former rival 51 years ago was revived cryogenically.

Also in 2076, he contrives a plan to kill Izumi along with himself as a final act of retribution and manifestation of both his self-loathing and hatred for whom he envied, but just like the scientist (effectively philosophically, since the scientist is just Izumi reincarnated), only ends up killing himself, but there are two key differences here: (1) He fails to kill Izumi due to his lack of conscientiousness, in particular, while promising the naive and trusting Izumi a secret banquet/celebration to showcase her art, and where the new order posits assigned seats in every gathering that is >10 people, he gets Izumi's seat number wrong due to his old-age myopia and slips the hemlock poison in the cup/drink of an unoccupied seat in the banquet. Before actually doing so, Jakob "borrows" one of Izumi's paintings and uses steganography and a nuanced AI to hide a personal message

"only in death will I actually live", paired with a cross symbol representing his idiosyncratic version of Christianity, as a final symbolic gesture before his intended suicide (2) he failed to even actually kill himself, instead, by ingesting a cocktail of hemlock at same said banquet (Jakob wanted to die the same way his favorite philosopher Socrates died), he later gets found unconscious on the street by the kindhearted Izumi, who immediately sends him to a hospital, where Jakob remained in a permanent vegetative state for the rest of his life due to profound and irreversible brain damage. In 2083, when his plug is forcibly pulled due to the new government collapsing and his hospital being defunded, Jakob finally dies a very undignified death as not only did he kill his own brain first before his body (while ironically his intellect was the very thing he was insecure and jealous about), his corpse was literally dumped into a radioactive landfill. Ironically, a similarity was that Jakob did die in a rather similar/isomorphic fashion to his ancestor Marie, which is the soul/brain dying before the body doing so.

Overall, Jakob is essentially there to serve as a foil to Izumi, while the latter is genuinely and innately curious and exploratory about art for its own sake, Jakob always seemed to use art as more of a means to compensate for his remarkable insecurity regarding his intellect/sophistication/talent rather than as an end to itself.

In the epilogue, many years later, scholars and excavators who dig up one of Izumi's paintings that Jakob hid his steganographic message and misattribute the hidden message "only in death will I actually live" to Izumi herself.

Ironically, Jakob's failure to kill Izumi himself unintentionally paves the way for the scientist to kill her. Also, Izumi ironically only recognizes Jakob as a random drug addict hobo rather than remembering an

inkling of who Jakob was in her previous life, when she sees Jakob lying unconscious due to his suicide attempt and nonetheless tries to get him treated emergently as a act of kindness.

Jakob also serves as a foil to the scientist, the former representing self-hatred masquerading as self-grandiosity, while the latter representing pure self-grandiosity.

More random brainstorming:

- Perhaps Aiko could try to learn CPR in the three months between October 2024 and February 2, 2025, and then become emotionally devastated when she realizes even CPR wouldn't have saved Izumi since Izumi's final fatal ventricular arrhythmia happened in her sleep.
- i decide maybe Aiko could try her hand at art/drawing or writing stories/poetry when she was young, but then gave up and quietly resigned/accepted that she just wasn't naturally imaginative or creative and she's innately low openness on Big 5. This makes her a foil to Jakob who didn't accept himself for who he is.

here's the guide to the lifespans for all the characters in my story so far:

Marie Bretschneider: 1790-1841

Izumi (birth to first death): 2005-2025

Izumi (birth to second death): 2005-2076

Aiko: 2005-2076 (dies of cancer just three weeks after witnessing Izumi get revived and talking with her for one last time)

Jakob (birth to braindeath): 2000-2076

Jakob (birth to physical death): 2000-2083

The scientist: 2039-2076

Hajime: 2036-?

The scientists' wife (Lily Jimi): 2040-2076

Birthdate: 2040

Deathdate: 2076

Name: Lily Jimi

Personality Type: ESFJ sp2 SLUEN (sociable, limbic, unorganized, egocentric, non-curious) FEVL ESE

Backstory: Born in 2040, Lily Jimi was the daughter of a high ranking government official, the de facto chairman (Kazuma Jimi, who notably disdained funding for artists or any scientific research for purposes other than furthering conformity to the government), so she had exemptions from the Epsilon Echelons exam or required military service. As a "nepo baby", all she knew during her childhood was a life of being pampered and doted on. After Kazuma Jimi gets assassinated in 2057 by an "unknown" figure who slipped some digitalis into his drink and provoked in him a deadly arrhythmia (this is again inconspicuously implied in the story and not obvious), his contemporaries contrive a story and evidence that Kazuma had always suffered from a hidden heart disease that was triggered by alcohol, even though it was obvious from further investigation that he was murdered. Much like North Korea's extreme cult of personality with the Kims, Kazuma Jimi became a legendary renowned figure, and badges/portraits of Jimi inside homes/public places started becoming mandatory, and "art classes" in schools around this time

predominantly focused on painting and mass producing more portraits of Jimi to hang around everywhere. Kazuma's death notably helped promulgate public awareness of hidden heart disease and boosted the manufacture of ICDs to help prevent new military recruits from dying suddenly due to too much exercise strain from a possibly elusive heart ailment. Note that this indirectly helped Izumi quickly get her own ICD after she gets revived in 2076 using cryogenics, the very instrument that both helped prolong her life in 2076 for a few more months and was weaponized by the scientist to kill her.

After failure to admit their incompetency at solving the cold case, either (1) the government frames/plants evidence on a random innocent young boy who was also an aspiring artist or (2) Jakob himself planted the evidence (this is left up to the reader to decide). This young boy, whose original name was never known and was renamed to and known as "The Gremlin" by the public and hearsay, was brutally tortured and executed just a few weeks after the event. "The Gremlin" was now known in the jurisdiction's "folklore" as the number 1 government enemy by the mass-brainwashed populace.

Personality description/role in the story: Lily is known to be an extremely immature and melodramatic, having never fully grown out of an entitled mindset to receive love and care unconditionally from others, even in adulthood. After the death of her father in 2057, her neurotic need for be cared for only skyrocketed due to the loss of the one most caring person in her life, and this resulted in a compulsive habit to stalk and seduce random men and try to not only make them her lover, but also a facsimile of a "father-figure". This is pretty much how Lily met her current husband, the scientist, after five previously failed relationships.

Like her father, Lily Jimi is notably anti-intellectual, perhaps from being instilled those traits from a young age. The only books she was ever interested in reading were popsci self-help books that promised the user a boyfriend in 30 days. The only artistic works she drew were mass-produced portraits of her father (Lily Jimi was actually the first person to produce such portraits, starting for her childhood, she often gave her father her artwork of her as "transactional gifts" in order to receive even more love and attention from him), which quickly became promulgated and used/spread by the government after her father's assassination in 2057. Being a naturally complacent character, she didn't ever see a reason to grow from being highly crass and unruly.

After the scientist starts to uncontrollably fall in love with the girl he cryogenically revived, Izumi (again, this is due to Izumi actually being the scientist's past life and their consciousnesses slowly but surely merging), Lily Jimi at first playfully teases the scientist about it, often jokingly saying to him "wow, I'm sure your coworkers just didn't induce a girl into a coma as a test subject and have her wake up and then you claim that you actually made real scientific progress," and "haha did you really fall in love with your test subject? that's so cute! However, I'm cuter than she'll ever be." However, Lily quickly starts to feel resentment and deep hatred for Izumi as well as a sense of betrayal from the scientist. Lily Jimi starts to become increasingly more erratic and neurotic and starts to contemplate suicide because it seems like everyone in her life, then her father and now her husband (the scientist), whom she also unhealthily views as a father-figure, has now started to abandon her. She start journaling her thoughts, including her thoughts on committing suicide, without a sense of conscientiousness/foresight of knowing that maybe she should hide

her journal better and not let it get found. Before her plans though, Lily Jimi demands a final divorce from the scientist after his relationship with Izumi becomes more apparent to her, but not before threatening to expose this to the public (i.e. the 37 and 19 age gap as well) and get the scientist either ousted from his position as a cryogenics researcher, or even worse, arrested or executed for "disrespecting the government", always reminding the scientist of her privilege. The scientist thus is forced to kill his own wife Lily Jimi in 2076 in order to silence her and prevent his already souring reputation from becoming completely besmirched (he already starts having trouble doing this for at least a few weeks before finally killing Lily, this is because at this point his personality/character has already started merging with the agreeableness and compassion of his former self Izumi), framing Lily's death as a suicide, using her diary entries/private notes accrued from Lily to his advantage.

Also, in 2076, upon Jakob's failed suicide attempt, it is subtly hinted that Jakob was the silent perpetrator of Kazuma Jimi's death via the similar modus operandis, but this is purposely not expounded on in the story.

Thematic/symbolic extensions:

the story's central theme (regarding the violation of transitivity of identity) could be reduced to if you remove/break one of the three edges/sides of a triangle, the third edge will always eventually grow back.

also in the epilogue of the story the scenery could also feature a scene with an unusual "tree" that has a 3-cycle as an easter egg (usually trees both in real life and in the graph-theoretic sense don't have cycles so this tree is "naturally unnatural")

I need to "fractalize" the concept of transitivity/3-cycles to create a sense of thematic parallelism in the story.

on a broader scale than Izumi and the scientist:

The nation in the story splits into a democratic faction vs an authoritarian faction, much like the real life North Korea, and the region the main characters like Izumi and Jakob used to live in becomes part of the latter from circa 2040 to 2076. After Izumi and the scientist's joint death and Hajime's realization of guilt, after destroying the cryogenics lab, he then exerts influence to make progress on uniting the nation again.

on a smaller scale than Izumi and the scientist:

the story could feature numerous instances of "desire paths" in real life (add them to either pre-2025, 2025-2076, or post-2076), where a third diagonal "desire path", due to entropy, is always drawn alongside the officially established paths. If this desire path is blocked by say a gate or a sign, another desire path will pop up. These could pop up in situations as perfunctory as Izumi walking to school in the early 2020s.

Also, in Jakob's midlife crisis arc, he could bastardize the concept of the Trinity in his own personal brand of Christianity by positing that the Holy Spirit, The Father, and The Son are in fact mutually equal, while theologically, they're not. The psychological motivation due to this could come from wanting to force himself out of his human envy/neurosis via a conviction of fate/inevitability/unity.

perhaps in a casual, lighthearted filler scene in 2024 where Izumi and Aiko are hanging out together at a cafe, there could be an easter egg where one of the menu items is named Derek "Parfait", a nod to the philosopher Derek Parfit.

Ideas for the prologue (preceding Izumi's 1997 birth):

The novel could open with a perfunctory, everyday scene in 1997 (i.e. December 4, 1997) involving Izumi's mom waking up for yet another day of class at university. The first chapter (narrated from Izumi's mom's perspective) could honestly also be structured in a journal/diary entry format.

Note: This prologue is set in 1997, from the narrative perspective of Izumi's mother, who is at the time a college student. She majors in philosophy.

On the evening of December 4, 1997, Izumi's mother is riding the metro back to home from her Logic class. Deep in thought, reflecting on an argument she had with her professor during that class, she accidentally misses the announcement of her stop. (unbeknowst to her, even if she didn't miss the announcement, she would've missed her stop anyways, due to the metro stations being enclosed underground and looking the same throughout, because that day announcements were accidentally shifted late one unit due to operator error) Once she realizes that the operator had already announced her stop but she didn't get off, she rages internally. The way to the next stop (which she thinks is her stop plus 1, but is actually her stop plus 2) is rather long in duration and intercepts a sketchy part of the city, plus due to it being December, it is already pitch black early in the evening. Between her stop + 1 and her stop + 2, some sketchy criminal in the back of the train emerges and tiptoes to her direction, wanting to rob/mug whom he saw as a young weak women who wasn't paying attention. A struggle ensues and Izumi's mother is beaten unconscious, having all her belongings taken from her in addition to that. Izumi's mother wakes up in the hospital the next morning, having survived a traumatic brain injury, wondering how she

got there. The nurse explains that a generous man (later Izumi's father) who got on the metro at Izumi's mothers stop + 2 noticed Izumi's mother's unconscious body near the back of the train and immediately took her personally to the hospital. Perhaps the first diary entry is written on December 4, 1997 while Izumi's mother is still on the metro, and the remainder, as in when she wakes up on December 5, 1997 in the hospital, could be written on a journal that Izumi's father gave her out of gratitude (because Izumi's mother was almost completely robbed).

It is however later revealed that the metro operator actually accidentally got drunk and made an off-by-one shifting error on broadcasting the next stop - i.e. to begin with, Izumi's mother wouldn't have gotten off at the correct stop even if she'd followed the operator's announcements, because the operator broadcast the correct stop name/label one stop late for each stop in the metro path that day.

Izumi's dad is an undecided major, also at the same university.

symbolism in small seemingly perfunctory details/show don't tell.

Izumi's mother's lifespan: 1979-2025

(so in 1997, Izumi's mother was a freshman in university, and she starts an on and off relationship with Izumi's father? In 2004, she

becomes unexpectedly/accidentally pregnant with Izumi. In 2025, despite being an INTP, she dies of broken heart syndrome after Izumi's death)

In 2004, Izumi's mother should want to observe the consequences of her actions (with refusing the abortion), not wanting to put an artificial stop to inevitability/fate. She reasons "I have intervened before but the results tend to be the same, so what's the point of expending energy intervening?" Let Izumi's mother be a Nietzschean believing in determinism.

Perhaps the prologue could continually switch between the perspectives of izumi's mother and father. We could get a thought from izumi's father as he boards the train on izumi's mother's stop + 2 and sees an unconscious beaten women near the back of the train.

After Izumi's sudden death in 2025, izumi's father could suddenly become a lot more withdrawn and introspective. He decides suddenly one day to give up his life and move to the mountains echoing Walden, and he was never seen again, his fate being unknown.

philosophy major?

language: precise and descriptive, yet also at the same time abstract

needs to NOT be contrived, show don't tell

desire path?

"my heart skips a beat"

set in 1997

perspective: Izumi's mom?

viewed Izumi as the embodiment of what she couldn't complete?

The conception of Izumi was accidental, as Izumi's mom, being an intellectual academic, didn't want kids at first?

platonic ripples/imperfect reflection?

serendipitous encounter/meetup?

parents: Izumi's mother: INTP sx/sp 5w4 ILI RLUEI, father: ESFJ 9w1 so927 ESE SCOAN?

Izumi's father should carry the mutated gene responsible for Izumi's ARVC, instead of Izumi's mother. He should remain mostly oblivious that there's anything wrong with him. He should have no symptoms at all. However, Izumi's father despite being a carrier or ARVC should have no symptoms at all, while ironically, Izumi's mother occasionally gets benign palpitations from neurotic anxiety despite actually having a completely normal heart.

Izumi's mom and Izumi dad's relatinoship could have a push and pull dynamic.

I should Izumi's father very agreeable but not very intellectually open - having an aversion to discussing abstract concepts for too long, but at the same time wanting to improve his tolerance to them.

Pierre Plessis (1891-1912)

He was born on May 1, 1891 in a small French village, and on the day he was born he suffered from an anoxic brain injury due to failure to pull his head out of the womb in time - this resulted in permanent intellectual disability. As a child he was self aware that he was intellectually deficient compared to his school peers and would stand no chance pursuing a career in law or science like his parents of bourgeois background pressured him to. He turned to expressing this insecurity and melancholy over his deficient intellect in his abstract paintings instead and soon became recognized for his unconventional talent. He was known to be impractical and disorganized throughout his whole life preferring his art to pursuing schooling, knowing his intellectual and planning deficiency. His subject material mostly consisted of the mind and the consciousness as well as his fascination with classrooms in his school in his early childhood and transforming them to ethereal Cubist art. His style was both raw and rushed, with

brushstrokes visible and used for perturbing light but he was also syncretic and combined his style with the cubist and modernist theme of reducing complex figures to their geometric essences. He died on April 14, 1912 at the age of 20 from being struck on the head two days earlier by his own 13 foot by 15 foot painting "Verstand" (despite being French his paintings were syncretic and had German undertones too), after it fell from its frame and hit him during an exhibition. Plessis did not make sure to secure the said painting enough first before exhibiting it. He spent two days in a coma before passing.

He is also one of the painters Izumi ardently admires, along with Marie Bretschneider, due to both his artistry and Izumi relating to his short personal life.

9/15/2025 new brainstorming update:

In Izumi's second life, let's suppose she suffered mild to moderate anoxic brain injury but still with enough self awareness. She becomes depressed and contemplates suicide sometimes due to not only the newly imposed restrictions in the 2076 authoritarian dystopia, but also because her mild to moderate anoxic brain injury caused her to become much less creative and imaginative, particularly when it concerns her art.

Idea #4: Five Factors of Fate (website)

Overall idea/foundation for Five Factors of Fate (FFF)

Premise: PDB (personality database) but much more scientific and catering towards more serious academics but still bearing a cutesy and fun design.

Main Functionalities of the Website:
- Users can add character collections (e.g. for a particular TV series, novel, or general category, like the category of philosophers or the category of 1900s historical figures)
    - To prevent spam, non admin/non moderator FFF users need at least 21 Books to add a character collection.
- Users can add characters in each character collection (e.g. Lin Daiyu in a collection dedicated to Dream of the Red Chamber)
    - To prevent spam, non admin/non moderator FFF users need at least 7 Books to add a character to an existing collection.
- Users can type each character/historical figure/celebrity on the Big 5 via voting in their opinion each trait as one of the 5 options: Very Low (0%), Low (25%), Average (50%), High (75%), Very High (100%). On each page, for each trait, there will be a consensus which is the average of all votes so far. (For instance, if three users respectively vote Chisato Nishikigi from Lycoris Recoil as 50% agreeableness, 75% agreeableness, and 100% agreeableness, her consensus so far is 75% agreeableness)
    - Users have the option to vote on just the summary traits (the 5 main OCEAN traits) or go even more granular and vote on specific NEO, HEXACO, or BFAS traits via dropdown menus. Again, for each trait, they choose one of the 5 options: Very Low (0%), Low (25%), Average (50%), High (75%), Very High (100%). For instance, they could also vote character A as 75% imagination (NEO) or 50% politeness (BFAS). Again, the consensus for each subfacet

trait (like imagination, politeness, or assertiveness) is the average of all votes so far for that trait.

- Each character page and character collection page has a comment section in which people can discuss/analyze their personality from a scientific/psychological perspective, as well as discuss the literary work or media the character is from, or if a historical figure, the pertinent period of time in history.
    - As with other online forums, comments all have a likes/dislikes system and the ratio for each comment will be shown publicly. Comments can also be replied to, making a hierarchy/nested data structure viable for implementation.
- User account system
    - Each user has their own personal FFF page by default (if they have it enabled), in which other users can vote on their own Big 5 (HEXACO/NEO/BFAS) traits as well as comment on each other's pages, greeting them.
    - Users have their own personal blogs integrated into the site in which they can post moments, and which other people can comment on.
    - Each user can input a short bio describing themselves (719 character limit)
    - Each user is required to enter their gender and birthdate upon registration but can choose whether or not to show their age and gender on their profile.
    - Upon registration, each user has the option whether or not to display their Big 5 personality scores systematically on their profile. Each user has the option to take a shortened 50-item FFM test (that uses percentiles instead of raw scores), in which the scores on their profile are automatically replaced by the FFM percentile results they get. If they already know their Big 5 results, they can also

input them in dedicated text fields and finish registering. Or, if they simply don't want to, they can skip this altogether.

- Much like reddit, there is a point/karma system, and the currency is Books (symbolizing high openness/intellect in Big 5). Each comment upvote has a 20% probability to earn you 1 Book and 5% probability to earn you 2 Books, while each comment downvote has a 60% probability to subtract 1 Book, 12.5% probability to subtract 2 Books, and 2.5% probability to subtract 3 Books.
- Forums
    - Various boards, not just for personality/psychology discussion but also for other interests/hobbies/and general forums, like life advice, philosophy, mathematics, gaming, movies, books, and anime for instance.
    - Users can create new topics/threads in each forum, and the topics can each be commented on and the comments replied to.
    - Moderators/admins as well as FFF users with at least 325 Books can create new forums.
- Thematic Design
    - 5 cute anime-style characters that are mascots of the site, each representing one of the core Big 5 traits:
        - Openness (Cosmo, nonbinary)
        - Conscientiousness (Liam, male)
        - Extraversion (Chase, male)
        - Agreeableness (Phoebe, female)
        - Neuroticism (Shizuku, female)
    - These 5 characters will be featured prominently in both user registration as well as the site's UI overall, sometimes providing guides and tutorials towards personality/psychology, particularly concerning the Big 5. They'll also introduce themselves as the 5 main traits.

- Although the site focuses on scientific personality frameworks only, let's refine each FFF mascot's personality:
    - Cosmo (Openness mascot): ENTP sx/so 7w8 748 ILE
    - Liam (Conscientiousness mascot): ISTJ so/sp 6w5 613 LSI
    - Chase (Extraversion mascot): ESFP so/sx 8w7 827 SEE
    - Phoebe (Agreeableness mascot): ESFJ sp/so 2w3 279 ESE
    - Shizuku (Neuroticism Mascot): INFP so/sx 4w5 469 IEI

Idea #5: Rubik's Cube Trainer app (ideally meant for a hackathon, will be implemented using Godot)

Idea Outline:

- Main feature: 3x3 cube simulator (could also include 2x2, pyraminx, and 4x4)
- Tutorials/walkthroughs on common PLL or OLL cases, beginner's method, CFOP, and ZZ for 3x3 cube
- Virtual cube in which you can time yourself both on specific algorithms and on a whole solve
- PB (personal best), Ao5, and Ao12 trackers, perhaps a feature to calculate your percentile performance (based on time) compared to WCA competition participants

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Idea #6: "Speciman 279"/"100% Agreeableness" (either could work as the title)

"Speciman 279"/"100% Agreeableness" (either could work as the title of this story)

A hypothetical 21 year old girl that I generate (both body and personality) as a companion for myself via a hypothetical artificial human creation machine, complete with her maturity as well as false implanted memories of her first 21 years of life once the process is complete and she is allowed to awaken. When she awakens from the creation, she lies on a bed and is given the impression/false memory that she's only just awakened from a routine surgery. The scene is eerily orchestrated to resemble a routine surgery rather than the creation of a human being. Callum should make a convincing AI caricature of a doctor/surgeon and he himself asks as the concerned boyfriend waiting for his girlfriend to wake up.

Programmed/Ingrained Big 5 personality traits in this hypothetical "Specimen 279":

Extroversion: 38%

Agreeableness: 100%

Neuroticism: 77%

Conscientiousness: 0%

Openness: 52%

And let's make the scientist who created specimen 279 for his companion have a personality like this:

Enneagram core type: sx5

Tritype: 548

Socionics: ILI

Big 5:

Extroversion: 0%

Neuroticism: 100%

Agreeableness: 0%

Conscientiousness: 75%

Openness: 96%

Additionally suppose that the sx5 ILI scientist, whom we'll name Callum, gives specimen 279 the name "Paige". Callum has a BPD diagnosis.

Also, suppose Callum kills Paige in the end of the story but frames it to her as "sending her to an alternate virtual reality dimension". Callum kills Paige out of an amalgamation of (1) his intense guilt of using humanity itself as a means to an end and (2) the experience of a 100% agreeable, 100% neurotic, and 0% conscientious Paige being not as Callum intended and inevitably but unexpectedly (to him) becoming mundane.

Also, suppose that Callum the manipulative charlatan tries to also insert false memories of his and Paige's existing romantic relationship before Paige's creation and awakening (alongside the false memory that Paige just awoke from a routine surgery upon creation for plausible deniability purposes) into her brain when creating her.

Also, suppose that Callum's eventual murder of his own creation, Paige, is also justified by this: Paige becomes self aware of how she was actually made after she stumbles across Callums' old notebooks, (since Paiges' initially designed Openness is still middling, along with

her neuroticism, as initially designed), after months of vacillation/going to therapy trying not to believe that she was actually created to be Callum's and her memories fabricated and her personality designed to be Callum's unleaving partner, she finally breaks down in the self awareness and accepts it, and one day tries unsuccessfully to kill herself (due to her Agreeableness, she only resists killing herself because Callum might be disappointed). Callum's mind then goes into emergency-decision mode and puts her to sleep to give her a brain surgery to try to "eradicate" Paige's neuroticism, but it is unsuccessful and while it made Paige less neurotic and more placid, it also made Paige permanently intellectually disabled (like Lennie Small) as well as much less emotionally intelligent or sensitive, due to accidentally damaging her amygdala. Callum decides to kill his "ruined creation", giving him a third subjectively moral reason for killing her.

Reframed: In particular, Paige's gradual self awareness of her purpose makes her start to contemplate suicide and when she is about to commit suicide she resists because she is afraid to disappoint Callum. This makes Callum go into freakout mode to quickly give her a lobotomy (in the hope to make her less neurotic or likely to commit suicide) only for the results to fail - Paige now is a shell of her former self with reduced intellect and affect. Callum then kills this Paige the same way he did all his patients when collecting materials for her.

Also, suppose this story starts with Callum (much like the real life serial kiler Harold Shipman) working as a ER technician (also bored of his mundane/ordinary job and wanting something ideal and perfect, which is another one of his motives) subtly murdering countless hospital patients by hiding toxic drugs in their IV medications in order to gather body parts and brain materials for his planned grim experiment (while, like all serial killers, being great at charlatanic deception and acting normal), and suppose that the idea of a

"perfectly engineered wife" came to him after a (1) a devastating breakup with his last girlfriend (in which his last girlfriends' suicide followed) which made him cynical and depressed and (2) studying neuroscience and philosophy (particularly the works of Derek Parfit), particularly the concepts of cognitive behavior therapy and learned helplessness. Also suppose the epiphany that generated the idea of the project immediately came to him when Callum in his job was assigned one day for the first time to monitor a suicidal and relentlessly self-harming patient who was treated using electroconvulsive therapy and deep brain simulation and eventually improved dramatically. Callum eventually kills Paige using the same method he's always killed other patients.

Callum temporarily stops his serial killing after Paige/Specimen #279 (which implies 278 previous failures in his laboratory) is successfully created, because he doesn't have to anymore, but after Paige becomes cognizant of her condition and fabricated memories, Callum goes out to serially murder hospital patients at his job again (this time instead he starts a new modus operandi - inducing sudden cardiac arrest in already underlying vulnerable patients as a morbid curiosity of how the human brain changes after anoxic brain damage, both as an act of abject rage and to fulfill his obsession with experimenting on humans while Paige is genuinely depressed/seeking therapy herself, and less responsive in their relationship. In his sudden cardiac arrest induction, Callum leverages digitalis poisoning to provoke Bidirectional VTach, which again subtly echoes the "order/period 2" theme in the story.

The day after Paige's death, Callum finally gets caught by law enforcement for both his serial killing of hospital patients as an ER technician/employee, while Paige's death remains being investigated. Callum eventually gets a life sentence in prison, but 1 year into his sentence, much like Jeffrey Dahmer, he gets his brain severely

damaged after a fight initiated by a fellow inmate and remains in a vegetative state for the next couple of years. When Callum finally wakes up and gets neurologically evaluated, his IQ turns out to be 60, with no memories of his past at all, and having to relearn everything (now, Callum becomes extremely neurotic, gullible, and agreeable while also extremely deficient in intellect and conscientiousness/executive function). The state decides to release Callum from his life sentence (much like the real life disputed case of Ricky Ray Rector) because Callum now remembers nothing and his mind is reduced to that of an obedient child.

Callum is now under permanent lifelong care under Paige's friend Rebecca (whom initially was one of Callum's coworkers in the same ER, and developed a close friendship Paige when after Callum has brought along his created girlfriend Paige to work a few times), who eventually unethically and illegally manipulates Callum, her patient, into marrying her because Rebecca herself is also manipulative and very avaristic in relationships - desiring a partner that would never leave.

Actually you know what, in a twist, let's make Rebecca also Paige's therapist who develops a very personal and intimate friendship with her. Suppose Rebecca is Callum's coworker in the hospital and she specialized in the psych ward. Let's also make it so that Rebecca has had a past legal dispute (which she eventually got away with due to both "lack of evidence" and corruption in the capitalist healthcare system) due to sexually assaulting a teenage male patient. Rebecca marries brain damaged Callum in the end in particular to replace Paige, who she also had an inappropriate crush on as her therapist and also slowly started withdrawing medications from Paige to make her more vulnerable and compliant.

Rebecca and Callum are meant to be "two different sides of the same coin" - one initially seduces from emotional manipulation, the other from intellect.

TBD: how could callum try to implant false memories of his relationship with Paige at the latter's first awakening after creation?

ALSO, make Callum and Rebecca NEVER INTERACT other than in a coworker context before Callum gets institutionalized (after his brain damage in prison), to make the parallelism more stark. The irony is intended that Rebecca is unknowingly contributing to Callum's further abuse of Paige and Callum's eventual decision to kill Paige after his failed lobotomy executed on Paige, as well to Callum's eventual arrest (and eventually Callum getting beat up and brain damaged in prison much like Jeffrey Dahmer and becoming compliant himself)

Also, Paige is almost successful with her suicide attempt until she holds back due to fear of disappointing Callum, which is ironic since if she'd just committed suicide, the grisly endings wouldn't occur.

Also, the story could start with Callum as a psychology student taking a class on the Big 5 that emphasizes how heritable personality is, and Callum's passion for psychology/neuroscience being warped by his practical obligation to stick to being an ER technician as his job. This shows how his obsession started. Also, the final straw that broke the camels back for him was Callum's breakup with his ex

Rebecca, Callum, and Paige will be the ONLY three characters of the whole story.

Let's make Callum (pre-arrest) never interact with Rebecca at all except on a perfunctory coworker level. Let's also say when a lobotomized Paige dies by her creator's hand, Rebeccal like everyone else at first assumes is was a suicidal OD on Paige's side. Let's also say when a lobotomized Paige dies by her creator's hand, Rebeccal

like everyone else at first assumes is was a suicidal OD on Paige's side. Rebecca cries because she lost who was in her mind her best friend Paige.

The final irony of Rebecca later becoming Callum's full time caretaker can be left up to the reader to interpret.

Let's add that Callum is beat up and severely brain damaged in prison because an unnamed male inmate whose own girlfriend became brain dead due to the doctor's negligence viewed Callum as systemically contributing to medical healthcare corruption. This male inmate was thrown in prison for attempted murder of his girlfriend's primary care physician. The difference though is that this male inmate actually loved his girlfriend genuinely and cared for her as an actual person, or maybe this can be intentionally left vague too. Suppose this male inmate gets enraged hearing from the news or the grapevine what Callum did to many many patients (like Harold shipman). This inmate rationalized the attempted murder of Callum (which fails and instead leaves him in permanent neurological disability and under lifelong supportive care by Rebecca after being granted a release from his life sentence to permanent institutionalization after a similar ethical debate from the Ricky Ray Rector case) because not only did Callum contribute to the medical malpractice in the US, he willingly contributed to it unlike other doctors who were just looking to pay their bills and make a living.

This unnamed inmate was in prison because he attempted murder of his girlfriend's doctor, but how could we make this more subtle and only implied?

Let's add: Callum is of course intent on maxing out Paige's Agreeableness when creating her, and while he was less certain about Neuroticism because it might make her less stable or predictable, callus in the end decided in his subjective rational that high

neuroticism would help make Paige more dependent on him. This of course later turns out to be a fatal mistake.

Also, Paige's self awareness should start via her over Agreeableness making her overly eager and curious to check out Callum's notebook containing the very sketches/plans for Paige herself at first (a nod to Nabokov's Lolita). It shouldn't sink in until several months later, it should be a very slow and tormenting process that emphasizes cycles of realization and then denial.

Callum should be 23 throughout the story (at his job as an ER technician), maybe 19 when he was first just a psychology college student. Paige is again, made to be of the exact age 21. Callum also should over the years as a late-night ER technician (shift from 10pm to 6am) slowly come to absolutely loathe his job at the ER.

Another part of Callum's neurosis: He hates unpredictability, mundanity, and embraces inevitability/determinism, hence he himself also desires for action and control to not feel powerless.

Suggestion: "After his devastating breakup and his ex's suicide, he may have spiraled, affecting his grades in his final years, closing off competitive graduate program opportunities (like a Ph.D. in neuroscience). Needing to pay rent and service his loans immediately, he looks for the fastest, most stable job he can get with a bachelor's in a science-related field. An ER technician certification is a relatively short program that provides a shift-based job with reliable pay and benefits."

Callum gradually becomes accustomed to the perfunctory humdrum ER work, and later during his gathering of materials to create Paige, he becomes internally conflicted and rationalizes it by "I was given this mundane ER job anyways, why not put it to good use? If I had pursued a PhD in psychology, all of my crazy ideas would only remain

on paper, in the teaching materials as hypotheticals for my students to debate ethically. However, I can finally actualize these ideas, so this is the silver lining in my otherwise boring and mind numbing job."

What might Callum's first date with Paige look like (objectively it's their first date after Paige's creation, but in Paige's mind, it's their 59th date)

Also, make it so that Callum occasionally slips up (not knowing what exactly he programmed for Paige, since of course he isn't Paige herself) in remembering things about their ostensible "relationship", and over the course of the six months after Paige out of agreeable curiosity stumbles across Callum's notebook, Paige factors these in gradually as signs that her whole life was fabricated.

Also, Callum could give Paige believable "excuses" in her memory to line up with the real world - i.e. perhaps both her parents passed away in a tragic car accident when she was a teen. However, Callum's calibration isn't perfect and sometimes there's some very subtle inconsistencies with Paige's memories and the real world.

^^^ The above gives me a very compelling idea - aside from the 4 main "real characters" (Paige, Rebecca, Callum, and unnamed jailer), the rest of the characters could simply be in Paige's fabricated memories. now we have effectively a story within a story, "meta-characters".

More character info about Callum:

Favorite artist/composer: Erik Satie

Favorite piece by said artist: Vexations

Favorite book: Lolita by Nabokov

The first half of the novel before Paige's death should be written from Paige's perspective.

Callum's inspiration is meant to be a mix of real life serial killers Jeff Dahmer and H Shipman.

Paige's eventual contemplation of suicide after disillusionment is inspired partly from Mulholland Drive.

Paige could have a beloved "childhood friend" (fabricated in her memories) named Jessica. Where Callum sets up/prepares an AI chatbot for Jessica before Paige ever awakens so Paige can continue living in her illusion. Also, perhaps Jessica in Paige's mind had a hobby of writing stories, and through these stories "Jessica" writes, we can not only have secondary-level characters (i.e. characters that exist only in Paige's fabricated memories), but also tertiary-level characters (i.e. characters that exist only in Jessica's stories that she has written, in which Jessica herself only exists within Paige's fabricated memories). An inventive twist could be in which one of the stories Jessica has written was supposed to be "inspired by Paige" since "Jessica" was Paige's childhood friend and tells (suppose this was a self-referential bug that Callum accidentally left when programming the memories for Paige's mind), but with some differences in detail, in other words, this very story I'm writing right now. This makes for a recursive loop with period 2 in terms of reality layers. Suppose Callum allowed this to happen by a combination of his subconscious arrogance and his tendencies to project himself onto other people and view other people as mere objects/blank slates who he needs to merge into his mental possession. Suppose this was unintentional, and that he just made the fabricated character of Jessica a writer only because Paige needs a plausible "life story" herself, and a childhood friend with typical/plausible hobbies.

This now generates a narrative recursive sequence with period 2. Perhaps other symbolisms/motifs of cycles/sequences with a period/order of 2 could also occur within the story. One part this period 2/order 2 symbolism could manifest is in Callum's own BPD and cycles of alternating idealization and devaluation.

Let's pretend that *I'm* my own fictional character Callum for a second (as an exercise). How could *I* further flesh out the layer 2 character of Jessica?

we could also subtly feature the number 11 in the story since 1/11 = 0.09090909090909, with period 2

Now, here is a hierarchy of narrative layers:

Layer -1 (meta-real layer): Revealed at the end. Every layer >=0 (including Layer 0) itself ends up being Callum's own fantasies during a mental breakdown at the psych ward. Layer -1 only has Callum as an ordinary insecure psychology student who fails all his classes with a profound insecurity about his intellect and a fear of medical doctors. None of the other events in this story are even real.

Layer 0 (base layer): This story I'm writing right now. To subtly make Layer 0 also conform to the period 2 of narrative layers, although the first half of the story should be mostly from Paige's perspective, we can subtly infuse Jessica's writing style or personality into the literal writing of this story itself.

Layer 1 (Paige's layer): The reality/memories (21 years) that Callum fabricated for his artificially constructed 100% agreeableness "girlfriend", Paige, including her ""childhood friend Jessica".

Layer 2 (Jessica's layer): The reality/memories of Paige's artificially fabricated childhood Jessica that doesn't exist in Layer 0 at all. Jessica notably has writing sci-fi/speculative fiction stories as a hobby

and one of her novel drafts was ostensibly "inspired by her best friend Paige", which is basically this story I'm writing right now but with names and details slightly changed. Call the equivalent of Paige in that one of Jessica's story Paige prime. Again, suppose Callum accidentally allowed this to happen (this "period 2" bug in Paige's constructed reality) by a combination of his subconscious arrogance and his tendencies to project himself onto other people and view other people as mere objects/blank slates who he needs to merge into his mental possession.

Layer 3 (Paige prime's layer): Basically the Paige layer (Layer 1) from this story again, but with Paige prime rather than Paige. Call the recursive equivalent of Jessica in this story Jessica prime.

Layer 4 (Jessica prime's layer): Again, isomorphic to Layer 2. Call the equivalent of Paige in this layer Paige prime prime.

Layer 5 (Paige prime prime's layer): isomorphic to Layers 1 and 3.

Layer 6 (Jessica prime prime's layer): isomorphic to layers 2 and 4.

Layer 7 (Paige triple prime's layer): Isomorphic to layers 1, 3, and 5.

This forms a quasi-period 2 sequence of narrative layers.

Ad infinitum.

However, as the layer number grows deeper, each subsequent layer should also have lower fidelity/higher vagueness, because inherently even Paige's memories constructed by Callum (layer 1) themselves shouldn't be perfect.

"Jessica's" (who herself is a "doubly fictional" character) own story ostensibly inspired by Paige, along with the Callum's notebook that Paige stumbles across (inspired by Nabokov's Lolita) become the impetus for disillusionment for Paige herself, a much more effective

and immediate impetus than the earlier gradual observations of inconsistencies in her own fabricated memories/life and the real world which Paige brushes off as poor memory and allows Callum to correct her due to her preternatural level of Agreeableness.

But also suppose that there's something that just prevents Paige from going onto "Jessica"'s blog and fully reading her story draft that is pretty much this very story I'm writing right now without suffering a mental breakdown and transient neurotic loss of identity - this is because metaphysically, the deeper the layer is, the lower fidelity/more ambiguity the layer is, and the more inherently "unstable" the layer is, and because the period 2 recursive sequence is an infinite regress, the spirits from arbitrarily deep layers (e.g. Layer 83, Layer 1 billion, or Layer Graham's Number+1) propagate up to Layer 1 (Paige's Layer) and supernaturally "haunt" the upper layers. This is what takes Paige so long to realize her own disillusionment that she was just created by Callum to act as his perfectly agreeable girlfriend.

It remains an exercise to the reader what Layer Infinity would be (similar to Thomson's Lamp paradox). Also, suppose this infinitely recursive structure constructed in Paige's mind was not intended by Callum but bleeded through subconsciously. The only intention was to make Paige's friend Jessica have plausible hobbies, which along with drawing and watching anime, include writing.

The story should end with Rebecca's own layer of reality that supercedes Callum's - layer negative 1.

Maybe the whole story ends in a twist - The layers >=0, including layer 0 itself (includes Callum's whole construction of Paige), was actually Layer negative 1 Callum's own dream during a night at the psych ward due to a mental breakdown caused by Layer negative 1 Callum's own insecurities about his intellect and capabilities, and Layer negative 1 Callum is just a normal college student majoring in psychology and

neuroscience, which classes he is getting Fs in. The serial killing didn't actually happen, the construction of Paige didn't actually happen, and Callum's therapist at the psych ward, also named Rebecca, is a normal person just doing her job. The Rebecca in the main story is a subconscious projection of Layer negative 1 Callum's fear of doctors and medical treatment. The story ends with a conversation between Layer negative 1 Callum and Layer negative 1 Callum's parents just considering a career as an ER technician to pay the bills. At the very end, Callum comes out of the psych ward and realizes all the classes he's missed. He realizes that he has a midterm in 3 hours that he hasn't studied for at all, and not knowing what to do he tries to frantically scramble and ask a random classmate to give him some notes he's missed and help him study. A classmate that he's never met before, named Paige, altruistically helps Callum, and the story ends here.

In particular, the ending of the real story in layer negative one (considering a career as an ER technician) is meant to invite suspense - this mirrors the story of exactly how Layer 0 was written in my text story. Might Layer -1 also develop like Layer 0 later? Who knows.

Rebecca (Layer negative 1 Callum's psych ward therapist) is a normal person doing her job rather than the monstrous manipulator in Layer 0.

The end of the novel should hint at Callum finally developing a healthy romantic relationship with Paige (the random classmate from his psychology class) in Layer -1 but not actually detail it.

To subtly hint at the possibility of Layer -1 still being a dream, perhaps Paige might bump into Callum in psychology class and seem to recognize him from somewhere but not know where, kind of like the ending to Donnie Darko. Perhaps Callum's core fear is losing his

intellect/personhood/consciousness/volition/will, which he architects in Paige in Layer 0 and later his nightmare of actually losing his intellect (which could be a projection of his own self deprecation "I deserved it") becomes real as he is beaten up into a near vegetative state and cared by the manipulative Rebecca for the rest of his life in the ending of Layer 0, before he finally snaps back into reality in Layer -1.

How might a perfunctory day-to-day scene in the earlier days of Callum and Paige's relationship in Layer 0 (shortly after Paige's creation) look like? Say, a scene right after Paige wakes up from falling asleep in Callum's arms.

Idea #7 (Topology Horror Game) -

We will title this game idea "Continuous Deformation" for now.
This has the potential to be an educational horror game. The player, named Grace, is in a 4D manifold of unknown Hausdorff topology (3 spatial dimensions, 4th dimension is time - which could loop around depending on the topology - which is randomly selected from a set of starting topologies). Note that crucially, time participates as one of the dimensions in this 4D manifold. ALSO, note that time, independent from the player's movements, naturally moves in one pre-selected randomized direction (it might make the players' actions loop back naturally too depending on the topology, effectively making the player "stuck" in an infinite loop). The player can connect powerups that let them continuously bend and stretch their reality to perceive it in different ways under the same topology. The player's objective is to find scissors, glue, on the map (which could disappear to any dimension being made non-compact/compact or become accessible

due to the topology becoming disconnected. Note that scissors can also be used to poke holes in the world to make the world not compact anymore) to eventually alter the topology of their world to be equivalent to the whole unbounded 4D Euclidean space (again 3 spatial dimensions, 4th dimension is time), so they can freely explore and find their home (or an exit portal back to normal reality) that is located at an area with all four coordinates having arbitrarily high absolute values (note that the 4th coordinate is time so the player might have to wait a while too - they could check for looping in time to see if time dimension is configured properly, otherwise scissors have to be used yet again). Have the player here be canonically a girl named Grace.

Also, suppose in this game the 4D manifold does have Grace's usual college life encoded in it (including the dimension time too) - and also other characters like her friends, her family, professors, etc. could potentially hide/provides resources like scissors, glue, or glasses/goggles and also be affected by the 4D manifold in the same way. Also, let the goal instead being finding the objective coordinate (a coordinate arbitrarily/infinitely high in absolute value of all 4 dimensions including time that is only accessible if the world's topology is back to unbounded 4D Euclidean space) to Grace can wait and finally find her ideal partner/boyfriend/connection she was longing for the whole time.

Note that in particular the time dimension is made disconnected, then Grace will die before she gets to the arbitrarily high time value.

If implemented, this would make for a very rare game that is both a horror game and educational.