Vita
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Pathway: Creation
Pillars addressed: Movement & Exercise, Healthful Nutrition, Restorative Sleep, Stress Management, Cognitive Enhancement, and Gratitude & Purpose

INTRODUCTION & ORIGIN OF INTEREST

I have a 128 day streak on Duolingo, and I realized that this sort of gamification of learning almost made the 5, 10 minutes of chess or latin non negotiable for me, and it stopped even feeling like a chore. A few months back I kept trying to find good apps on the app store to help me solidify other habits. I did end up finding two where you can make a task then check it off to make a streak and when you miss one day you lose the streak, but these apps were quite basic as they were just checkboxes. So when I saw that making an app was an option for my Capstone project I immediately thought what if I made an app that makes it so that you practice lifestyle medicine every day and has that sort of gamification, like a streak, xp, and leaderboard, and it doesn't even feel like a chore. That's why I made Vita.

For me, sleep is a big thing during the school year, especially around exams or a busy few weeks. I often struggled to get 7 or 8 hours of sleep and usually got 5-6 hours.

The gap I kept returning to is not a knowledge gap. The evidence is public and the numbers are not secret, yet most people miss them. Stanford reports that only 50% of adults reach the physical activity levels needed to prevent chronic disease, and that inactivity is linked to 10% of premature deaths (Stanford Lifestyle Medicine, 2025c). About one third of adults sleep less than seven hours a night (Stanford Lifestyle Medicine, 2025f). Fewer than one in ten adults meets the daily fiber recommendation, roughly 5% of men and 9% of women (American Society for Nutrition, 2021). These are not obscure targets. People know they should sleep and move and eat better, and do not. What most of us lack is a structure that makes the behavior easy to repeat on an ordinary, unmotivated Tuesday.

Language learning apps solved that problem for a genuinely boring task using streaks, experience points, and small daily goals. My question was whether the same machinery could be pointed at the pillars of lifestyle medicine, and what would have to change in the design so that it encouraged consistency rather than anxiety.

BACKGROUND RESEARCH

Before I started building anything I looked into four things, which pillars to actually use, what each pillar tells you to do, whether gamification even works for health stuff or if it just works for language apps, and how habits form.

The pillar thing was more complicated than I thought it would be. Stanford Lifestyle Medicine uses seven pillars, movement and exercise, healthful nutrition, restorative sleep, stress management, social engagement, cognitive enhancement, and gratitude and purpose (Stanford Lifestyle Medicine, 2025e), but the American College of Lifestyle Medicine uses six and theirs are different. Theirs is aimed more at treating chronic disease so they have avoiding risky substances in there, and they do not have cognitive enhancement or gratitude at all (American College of Lifestyle Medicine, n.d.). Stanford actually says this themselves, that the pillars are a bit different depending on which institution you ask. I went with Stanford's because cognitive enhancement and gratitude are both things a student can do and check off every day, and avoiding risky substances is not really something you log. After that I used Stanford's individual pillar pages as my main source for every single target in the app so that what a user reads in Vita is the same as what the actual program says.

For movement Stanford uses the 2018 Physical Activity Guidelines and those say adults need 150 to 300 minutes of moderate aerobic activity a week, or 75 to 150 minutes if it is vigorous, or some combination, and then strength training hitting all the major muscle groups on two or more days. They also want balance training in there, and they say if you go past 300 minutes you get even more benefit. The main line they lead with is move more and sit less. Any activity is better than no activity. Sitting for long stretches is its own separate risk for heart disease, diabetes, cancer, and dying early, and that is true even if you exercise (Stanford Lifestyle Medicine, 2025c).

Nutrition surprised me because Stanford does not give you numbers. They give you principles instead. Eat nutrient dense food instead of high calorie food that does not really do anything for you, watch your portions and how often you eat, eat a colorful diet that is mostly fruits and vegetables, keep a balance between unrefined carbs and lean proteins and healthy fats, cut down processed food with added sugar and saturated or trans fats, drink water and go easy on alcohol and sweet drinks (Stanford Lifestyle Medicine, 2025d). That is basically it. Since they leave out actual gram targets on purpose I used the National Academy of Medicine fiber numbers instead, 25 grams a day for women and 38 for men under 50, because I wanted users to have something specific to hit and not just a vibe (Mayo Clinic, n.d.).

Sleep was the one I cared about most going in. Stanford says at least 7 hours a night for adults 18 and up and they cite the American Academy of Sleep Medicine, the National Sleep Foundation, and the CDC all agreeing on it. What I did not know is that they treat sleep quality as a completely separate thing from how long you sleep. Good quality means about 85% of the time you are in bed you are actually asleep, you fall asleep in under 30 minutes, you wake up no more than once, and you are awake 20 minutes or less after you first fall asleep. Their actual advice is a consistent schedule, a wind down routine, a bedroom between 60 and 67 degrees, devices off at least 30 minutes and ideally an hour before bed, no stimulants in the afternoon, naps under 30 minutes and before 3pm, and getting out of bed if you have been lying there for around 30 minutes. The caffeine thing got me. Its half life can be anywhere from 2 to 12 hours depending on the person, so for some people one coffee is enough to wreck that night (Stanford Lifestyle Medicine, 2025f).

Stress was not what I expected either. Stanford cites a paper from the American Journal of Lifestyle Medicine saying over 75% of doctor visits are stress related which is a crazy number. But their advice does not start with breathing exercises or meditation. It starts way further back. Figure out what is actually causing it, learn to recognize the signs in yourself, notice the unhealthy ways you already cope with it, make a plan that fits you specifically, keep your sleep and food and exercise in decent shape because those affect it, and ask for help (Stanford Lifestyle Medicine, 2025g). Goyal et al. (2014) did a meta analysis in JAMA Internal Medicine and they found meditation programs cause small to moderate drops in anxiety and depression and pain, so it works, but not massively, and that is why in Vita meditation is one option and not the whole stress pillar.

Cognitive enhancement was the biggest surprise in the whole project. I fully expected Stanford to talk about puzzles and memory games and brain training, and instead they say physical exercise is one of the most studied things that improves cognition. Then they explain the actual mechanism which I had never heard of. Exercise makes your body produce Brain Derived Neurotrophic Factor, BDNF, which keeps neurons healthy and helps build synapses, and synapses are what memory physically runs on. Exercising regularly changes how the genes that make BDNF behave so you produce more of it over time, and that change can last your whole life as long as you keep exercising. Exercise also releases norepinephrine and dopamine which is why your focus and learning are better for a few hours after a workout, and Stanford points out that a lot of students and professionals schedule exercise right before hard mental work on purpose because of this. Aerobic has the most evidence, strength training seems to add its own separate thing on top, and team sports add social benefits too. The numbers here are rough. Stanford cites WHO saying around 55 million people have dementia right now and that could hit 139 million by 2050, and doing varied stimulating activity consistently has been shown to push back when dementia starts by about five years. They also quote the National Institute on Aging saying lifestyle changes aimed at cognitive development can improve memory, concentration, information processing, and motor function (Stanford Lifestyle Medicine, 2025a; National Institute on Aging, 2024).

For gratitude Stanford points at a protocol from the Greater Good Science Center where you set aside at least 15 minutes a day, three days a week, for two weeks, and you write down at least five things you are grateful for. Being specific is the part that makes it work, not just listing stuff. They also suggest around 10 minutes of meditation a day and actually telling people you are grateful for them, out loud or in a letter or with something small (Stanford Lifestyle Medicine, 2025b). There is research they cite showing gratitude practice made people feel less lonely and report better health, and that after 8 weeks of meditation people had lower amygdala activation and got back to normal faster after seeing negative things. Emmons and McCullough (2003) ran the experiment a lot of this sits on, where people assigned to write gratitude lists reported better wellbeing than people assigned to write about things that annoyed them.

I also wanted to know if gamification actually works for health or if it only works for something like Duolingo. Johnson et al. (2016) reviewed the research on gamification for health and wellbeing and most of the studies they looked at found positive effects, and the effects were strongest for behavior like physical activity and weaker and messier for cognitive outcomes. They also said a lot of those studies were not great quality which I think is fair. That changed how I built the whole scoring system though. Vita gives you points for things you do, never for health outcomes it cannot actually check. You get points for logging a walk. You do not get points for being healthier, because the app has no way of knowing that.

The paper that changed the most for me was Lally et al. (2010). They followed 96 people forming a new daily habit and found it took a median of 66 days for it to become automatic, and the range was massive, 18 days on one end and 254 on the other. Two things stood out. Habits take way longer than the 21 days everyone repeats, so an app for this has to work over months not weeks. And the second one, which is the important one, missing a single day did not really damage the habit forming process at all. That is the reason behind the biggest decision I made in this whole project.

PROJECT DESCRIPTION & METHODOLOGY

I picked the creation pathway and built Vita as a web app. It is TypeScript and React on the TanStack Start framework, the database is PostgreSQL on Supabase, and accounts are handled by Clerk. Every screen pulls from whatever that specific signed in user has saved instead of showing fixed example content. I used AI tools for parts of the build which my program allows, but the research, the features, and the design choices below were mine and I checked the output against the sources.

There are seven daily quests spread across the six pillars, walk 30 minutes, sleep 7 or more hours, three servings of vegetables, eight cups of water, meditate 10 minutes, read 20 minutes, and journal. Every one of them is small enough that you can still get it done on a bad day, which is the whole point, because Lally et al. (2010) found the thing that builds a habit is repeating it in a steady context and not doing it perfectly.

The streak is the decision I am happiest with. Duolingo wipes your streak the second you miss one day and I know exactly how that feels because I have a 128 day one I do not want to lose, and losing a long streak makes you want to just stop entirely instead of starting again at 1. Since Lally et al. (2010) found missing one day does not actually hurt habit formation, Vita's streak survives one missed day before it breaks. I basically followed the research instead of copying the app that gave me the idea in the first place.

XP works out to 500 per level with titles going Explorer up to Legend, and there is a 100 point bonus if you finish everything in one day. The health score is out of 100 and quests are weighted heaviest at 35% because those are always available to you no matter what, and then sleep, hydration, mood, and active minutes only count once you have actually logged them so your score never looks good just because data is missing. Sleep gets full marks anywhere between 7 and 9 hours instead of peaking at exactly 8, because Stanford treats 7 as the floor and says some people need more than that (Stanford Lifestyle Medicine, 2025f).

The cognitive pillar changed after I read Stanford's page. I was going to put brain training minigames in there because that is what you expect in a gamified health app. Instead aerobic exercise is the first target on that pillar now and the guide explains why doing it before hard mental work helps you. The daily walk counts toward two pillars at the same time, and that is not me being generous with points, that is just how the biology works. Reading and learning something genuinely new fill the rest of the targets since Stanford stresses varied and hard activity over getting better at something you are already good at.

Each pillar has a full page with the target, why that target exists, routines, common mistakes, and a four week plan for starting. The sleep page follows Stanford exactly, 60 to 67 degrees, devices off 30 to 60 minutes before, no stimulants after the morning, naps under 30 minutes and before 3pm, and getting out of bed after about 30 minutes awake. The nutrition page adds fiber slowly over a few weeks instead of all at once because Mayo Clinic warns that going too fast causes cramping and bloating and that you have to drink more water alongside it (Mayo Clinic, n.d.), and that is probably why most people give up on it.

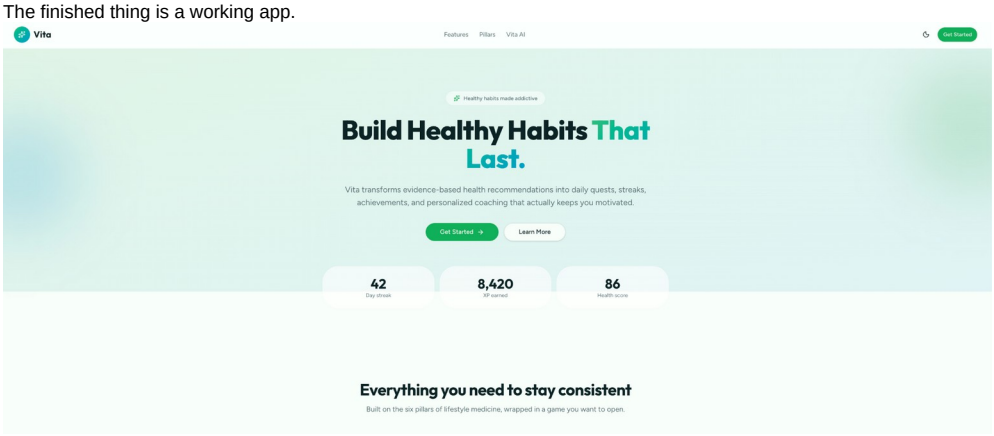
The journal has two ways to finish it. You can write five specific entries in the app following the Greater Good protocol, with prompts if you are stuck staring at it, or you can just tick a box saying you already journaled somewhere else. I added the second one on purpose. Plenty of people already use a paper notebook or another app and the streak should reward the actual habit, not reward opening my app.

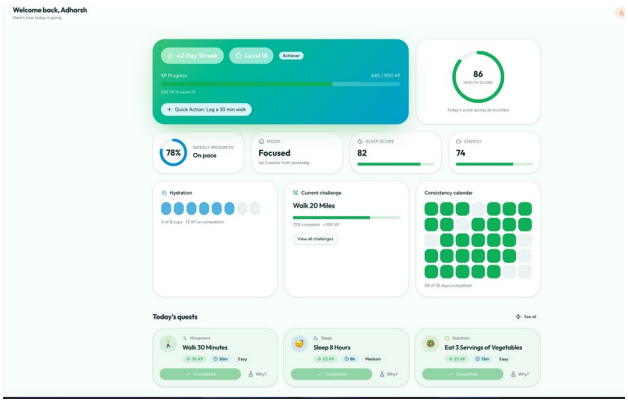
There was an AI chat coach in an early version and I took it out. Part of it was that a chat feature generating health advice on the spot cannot be traced back to a guideline the way every other target in Vita can, and the whole point of the app is that everything traces back to something. The bigger reason was cost. An AI coach would need to be trained and tuned for health advice specifically, and every single message a user sends costs money to run, so the more people used Vita the more expensive it would get. I want Vita to be free. A feature that gets more expensive the more successful the app is does not fit that at all, and it would eventually mean charging people or putting ads in, and I did not want either.

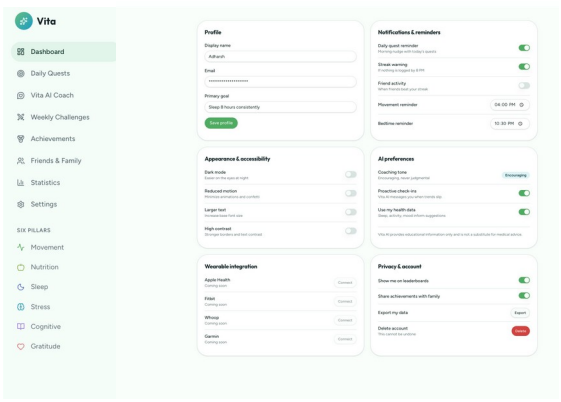
Privacy had to be part of the design since the app holds personal health data. The access rules live in the database itself so a user can only ever read their own records. Friends' point totals come from one narrow database function that returns totals and activity dates and nothing else. It never returns the entries themselves and it never returns anybody's journal.

RESULTS / FINAL PROJECT

The finished thing is a working app.







The dashboard shows your streak, level and XP, today's health score, a 35 day consistency calendar, a hydration tracker, and that day's quests. There are six pillar pages with targets and routines and tips and mistakes and the four week plan, plus the sources behind every recommendation on them. Quests, challenges, and achievements are all there, and the weekly challenges fill in automatically from stuff you already logged so you are not tracking things twice. The journal has prompted entries and your full history and the checkbox. Statistics gives you seven day charts for points, health score, sleep, activity, and mood.

Vita also connects to Oura, so sleep data comes in from the ring instead of the user having to type in how long they slept, which matters because self reported sleep is the number people are worst at estimating. Whoop and Apple Watch are listed on the site but not supported yet and that is what I am working on next. Currently you can manually enter in those details based off of what your wearable tells you, and you can go back in the year/month to log days.

CHALLENGES & LIMITATIONS

The privacy bug was the biggest thing I ran into. Going through my own database rules I found that my original rule let any signed in user read every other user's profile row, and that included their email address. I wrote that rule while I was thinking about how the leaderboard needed to pull other people's names and I just did not think about what else it was exposing at the same time. I changed it so you can only read your own profile plus the profiles of people you have actually accepted as friends. Finding that in my own work was not a good feeling but it is probably the most useful thing that happened in this whole project, because the app holds sleep and mood and journal entries and that is not data you get to be careless with.

Cutting the AI coach was the other hard call. It was the flashiest feature in the app and it was the one people reacted to when I showed them, so taking it out felt like going backwards. But an AI coach has to be trained and tuned for health specifically, and then every message a user sends costs money to run, which means the more people use Vita the more it costs me. I want this to be free. Keeping the coach would have meant charging for the app eventually, or running ads in it, and I did not want to build either of those. There is also the accuracy problem, that an AI answering health questions live can say something that does not trace back to any guideline, when the entire rest of the app is built so that every single target traces back to Stanford or another source. So it went.

The wearable side is only partly done. Vita connects to Oura right now, which handles sleep, and that matters more than it sounds because sleep duration is the thing people are worst at estimating about themselves. Whoop and Apple Watch are not in yet. I am working toward those but every one of them is a separate API with its own auth flow and its own data format, so it is not one job, it is three. Until they are in, most of what Vita tracks is still self reported and the app basically believes you when you say you walked.

The main limitation is that I have not tested Vita with real users over time so I cannot claim it changes anybody's behavior. All I can honestly say is that it is built on things the research supports. If I had more time I would run it for four weeks with 15 to 20 people and track how many quests they complete and how many of them are still using it at the end, and specifically test whether the forgiving streak keeps people around longer than a strict one does. That is the most interesting thing about Vita and it is the one part I have not proven.

CONNECTION TO LIFESTYLE MEDICINE

Vita covers six of Stanford's seven pillars and each one has its own page and at least one daily quest, movement and exercise, healthful nutrition, restorative sleep, stress management, cognitive enhancement, and gratitude and purpose (Stanford Lifestyle Medicine, 2025e). I picked those six because each of them is something a person can do and log by themselves. The seventh one is social engagement and that depends on other people instead of a daily personal action, so instead of building a pillar page I could not honestly turn into a quest I covered it through the friends and leaderboard feature.

Stanford's cognitive pillar is also the reason Vita works as one app instead of six separate ones. Exercise raises BDNF and builds synapses (Stanford Lifestyle Medicine, 2025a), and chronic stress makes your sleep and activity and eating all worse, so the pillars are not separate tracks running next to each other. One logged walk feeds movement, cognition, sleep quality, and stress all at once. That is the best argument I have for why this should be one tool.

The bigger connection is that lifestyle medicine's real problem is getting people to keep doing it, not telling them what to do. The interventions only work if you sustain them and everything above shows the gap is behavioral and not informational. Stanford's activity guidelines and sleep recommendations and nutrition principles are all public and free and most people still do not meet them. Vita does not add any new medical knowledge at all. It works on the sticking with it part, taking each pillar's published advice and turning it into one small daily action, then using game mechanics that research says actually shift behavior (Johnson et al., 2016) to make repeating that action more likely. Every target traces back to Stanford or another guideline body and every pillar page shows users where the advice came from instead of just asking them to trust it.

CONCLUSION & REFLECTION

What I took from this is that the hard part of being healthy is not knowing what to do and any tool built on the assumption that it is will not help anybody. The fiber number sums the whole thing up. The recommendation is published by the National Academy of Medicine and repeated by basically every health organization there is and fewer than one in ten adults hits it (American Society for Nutrition, 2021). More information does not fix that.

Lally et al. (2010) changed my thinking the most. Finding out that missing one day does not undo your progress made me look at the streak completely differently, it went from something that punishes you to something that should be built to forgive you. I started out wanting to copy a mechanic I liked and ended up deliberately changing it because the research said the original is harsher than habit formation actually requires. Stanford's cognitive pillar corrected me in the opposite direction. I assumed brain training games belonged in an app like this and it turned out the intervention with the best evidence behind it is exercise, which I was already tracking (Stanford Lifestyle Medicine, 2025a). The most game like feature I had planned was the least supported one and the pillar I had already built was doing the work the entire time. Twice, reading the actual source told me I was wrong about my own app.

As a creator I learned that finishing something is way harder than starting it and most of the difference between something that looks built and something that is built is work that nobody can see. I also learned to go back through my own project looking for problems instead of assuming it was fine because I made it. Finding that privacy bug in my own rules, and cutting the feature I liked most because the math on it did not work, both taught me that meaning well is not the same as checking.

If someone takes one thing from this, I want it to be this. Pick one habit, make it small enough that a bad day cannot stop you, and let yourself miss a day without starting completely over. That is how habits actually form according to the research. Most tools, including the one that gave me the idea for this, are built like it is not.

REFERENCES

American College of Lifestyle Medicine. (n.d.). *Lifestyle medicine.* Retrieved August 3, 2026, from https://lifestylemedicine.org/

American Society for Nutrition. (2021, June 9). Most Americans are not getting enough fiber in our diets. https://nutrition.org/most-americans-are-not-getting-enough-fiber-in-our-diets/

Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology, 84*(2), 377–389. https://doi.org/10.1037/0022-3514.84.2.377

Goyal, M., Singh, S., Sibinga, E. M. S., Gould, N. F., Rowland-Seymour, A., Sharma, R., Berger, Z., Sleicher, D., Maron, D. D., Shihab, H. M., Ranasinghe, P. D., Linn, S., Saha, S., Bass, E. B., & Haythornthwaite, J. A. (2014). Meditation programs for psychological stress and well-being: A systematic review and meta-analysis. *JAMA Internal Medicine, 174*(3), 357–368. https://doi.org/10.1001/jamainternmed.2013.13018

Johnson, D., Deterding, S., Kuhn, K.-A., Staneva, A., Stoyanov, S., & Hides, L. (2016). Gamification for health and wellbeing: A systematic review of the literature. *Internet Interventions, 6*, 89–106. https://doi.org/10.1016/j.invent.2016.10.002

Lally, P., van Jaarsveld, C. H. M., Potts, H. W. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. *European Journal of Social Psychology, 40*(6), 998–1009. https://doi.org/10.1002/ejsp.674

Mayo Clinic. (n.d.). *Chart of high-fiber foods.* Retrieved August 3, 2026, from https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/high-fiber-foods/art-20050948

National Institute on Aging. (2024). *Cognitive health and older adults.* National Institutes of Health. https://www.nia.nih.gov/health/brain-health/cognitive-health-and-older-adults

Stanford Lifestyle Medicine. (2025a). Cognitive enhancement. Stanford Medicine. https://lifestylemedicine.stanford.edu/lifestyle-pillars/cognitive-enhancement/

Stanford Lifestyle Medicine. (2025b). Gratitude and purpose. Stanford Medicine. https://lifestylemedicine.stanford.edu/lifestyle-pillars/gratitude-purpose/

Stanford Lifestyle Medicine. (2025c). Movement and exercise. Stanford Medicine. https://lifestylemedicine.stanford.edu/lifestyle-pillars/lifestyle-medicine-fitness/

Stanford Lifestyle Medicine. (2025d). Nutrition. Stanford Medicine. https://lifestylemedicine.stanford.edu/lifestyle-pillars/lifestyle-medicine-nutrition/

Stanford Lifestyle Medicine. (2025e). Pillars. Stanford Medicine. https://lifestylemedicine.stanford.edu/lifestyle-pillars/

Stanford Lifestyle Medicine. (2025f). Sleep. Stanford Medicine. https://lifestylemedicine.stanford.edu/lifestyle-pillars/lifestyle-medicine-sleep/

Stanford Lifestyle Medicine. (2025g). Stress. Stanford Medicine. https://lifestylemedicine.stanford.edu/lifestyle-pillars/lifestyle-medicine-stress/