

FERTILITY FINDER

Personalized, AI-assisted reproductive health planning in a storytelling format

Your body, your choice, your story. 🗡



Sarah's Challenge



- Meet Sarah, a recent arrival to D.C.
- She's interested in 1) switching from birth control pills to a new contraceptive option and 2) starting a family with her female partner.
- After a few months, Sarah has not made progress with either goal.
 - Busy trying to make ends meet
 - Hasn't been able to find an OB/GYN specializing in LGBTQ+ issues who takes her insurance.
 - Information online is dispersed
- She wishes she could find help with all of these issues in one place.

Sarah is Not Alone

- Female reproductive health is an important issue
- Nearly half of pregnancies in the US are unintended, with nearly half of those due to incorrect/irregular contraceptive use
- Racial and sexual minorities are up to 3 times more likely to die from pregnancy-related complications
- New communication methods are needed to reach young women of reproductive age, who are "almost constantly online" and whose most common online activities include instant messaging and watching short story videos

1. Introducing Fertility Finder!

What is Fertility Finder?

Please help us understand you better

Follow up Question 1: Do you currently have medical incurance?

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Yes, I have
Follow-up Question 2: Do you have any of these conditions? (list: diabetes,
obesity, genertic condition in your family, high blood pressure, HIV, kidney
disease, autoimmune condition, daily use of alcohol/cigarettes/drugs, prior difficul

pregnancy)
No.

Submit

Illustration: Our questionnaire designed to offer a personalized response

Front-end largely improved in the final application, wait for the demo!

- A chatbot that elicits contraception and pregnancy needs, as well as eligibility for local assistance programs, through questions.
 - Personalized physician/midwife
 recommendations
 - Gauges pregnancy risk and refers to MFM specialists
 - Elicits and addresses pregnancy fears
 - Suggests eligible government and other local benefit programs
 - Affinity-based support groups
 - Personalized activity recommendations
- An informative narrative and accompanying images are output, ready to be emailed to the user



Technical Details

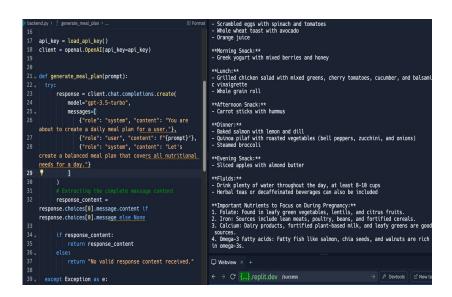


Illustration: Debugging & testing

A sample output of calling the OpenAI API directly from our backend

GPT3.5 Integration

- 1. **Prompts engineering** for a structured, narrative response with DALL-E-generated pictures from the OpenAI Assistant
- 2. Inclusion of user inputs and verified data create personalized, AI-driven recommendations with minimal hallucination
- 3. <u>Development framework</u>: Flask
- 4. Programming language: Python
- 5. Integration of OpenAI gpt-3.5-turbo



DEMO!

3. Business Viability

Our Business Model Canvas

Key Partners

- · State and local governments such as:
 - · DC.gov
 - State of Maryland
 - · State of Virginia
- · Public Health Schools such
- Johns Hopkins Bloomberg School of Public Health
- · Milken Institute School of Public Health
- · Hospital systems such as:
- · MedStar Health
- Johns Hopkins Hospital
- INOVA Health System (Northern Virginia)

Key Activities

- . Build out the team (1-2 healthcare advisors) + recruit software developers.
- · Build and enhance the MVP.
- · Get users and solicit feedback.

Key Resources

- Need Seed funding and capital.
- · Physical resources: computers, laptops, office space, etc.
- · Human capital and talent.

Value Propositions

- · We will deliver a magical experience to help any women with her pregnancy.
- · Our belief is that it's:
 - · Your body, your choice, your story.

Fertility Finder's CORE service is

- · Recommend Reproductive Health Clinics that will provide a personalized pregnancy for any women.
- By understanding a women's personal situation (age. medical history, insurance coverage, geography), we will suggest clinics that gives her:
- Contraception Information
- Match insurance → providers
- · Fertility Information

Customer Relationships | Customer Segments

- We want to develop long-term relationships with our customers by providing an exceptional service.
- · Reach people via a newsletter.
- Follow up via personal outreach.

Channels

- · Reach people via social media.
- · Reach people through email and affiliate marketing.
- · Try to get the company name to spread by word-of-mouth.

- · Women of reproductive age, in the DMV area.
- · This customer seament is (according to the March of Dimes) is ~2M people.
- Depending on how the app does, we will consider expanding it to the State of Maryland and the State of Virginia.
- · Nationally, there are around ~65M women who are of reproductive health across all demographic profiles. It's important to serve the needs of all women in all areas of the country!

Cost Structure

· Fixed Costs: Rent, salary, equipment, insurance, depreciation and amortization, taxes, SaaS software subscriptions.

- · Variable Costs: Customer acquisition costs, server usage/API request costs, labor costs.
- * We hope to reduce some of these costs as we gain traction and reach economies of scale.

Revenue Sources

· Subscription Service: We will charge people a subscription to bring in revenue in the beginning. This is going to the primary revenue stream.

· Tiered-Service: We will give people more access and more services based on the tier they subscribe to: Free tier -Bronze, Silver, Gold.



Finding <u>Product-Market Fit</u>, <u>Crossing the Chasm</u>, <u>Economies</u> of Scale

\$150,000Seed Fund

Phase 1
Months 1-6

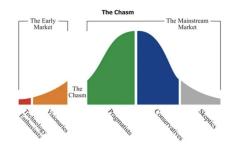
VALIDATED LEARNING LOOP

Better Minimal Viable Product
LOGAS MEASURE

WITH CUSTOMERS
Subjective A
Objective DATA

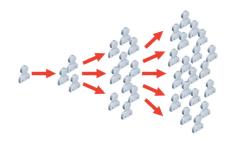
App development
Public launch
Community feedback

Phase 2
Months 6-12



Reach mainstream market
Refinement of app features
Formal evaluation

Phase 3
Years 1-3



Platforms expansion National expansion



Final Thoughts

A Magical Experience Awaits You! **

Fertility Finder is the first comprehensive chatbot solution that addresses gaps in reproductive health outcomes while using an innovative narrative technique to engage the target demographic.



Thank you from our team!





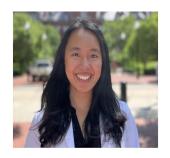
Chelsey Li, Computer Science Georgetown U.



Kaili Wu, Public Health Johns Hopkins U.



Terrell Davis, Computer Science U. of Maryland



Ariel Leong, Medicine Johns Hopkins U.



Yingquan Li, Computer Science Virginia Tech & UPenn



Citations

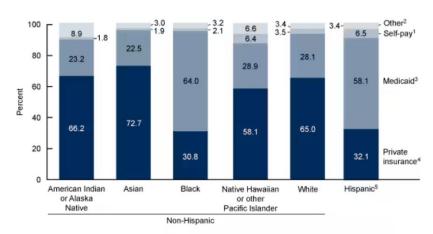
- 1. Barcelona, V., Jenkins, V., Britton, L.E. *et al.* Adverse pregnancy and birth outcomes in sexual minority women from the National Survey of Family Growth. *BMC Pregnancy Childbirth* 22, 923 (2022). https://doi.org/10.1186/s12884-022-05271-0
- 2. https://medicine.wustl.edu/news/access-to-free-birth-control-reduces-abortion-rates/#:~:text=E <a href="https://medicine.wustl.edu/news/access-to-free-birth-control-reduces-abortion-rates/#:~:text=E <a
- 3. Troutman M, Rafique S, Plowden TC. Are higher unintended pregnancy rates among minorities a result of disparate access to contraception? Contracept Reprod Med. 2020 Oct 1;5:16. doi: 10.1186/s40834-020-00118-5. PMID: 33014415; PMCID: PMC7527248.
- 4. https://www.guttmacher.org/fact-sheet/unintended-pregnancy-united-states
- 5. https://sproutsocial.com/insights/instagram-stats/

Appendix

These are slides that will not be presented.

Eve is Not Alone Here are Some Statistics from CDC 2021

- 96% of women had healthcare coverage during their delivery
 - o 51.7% Private insurance
 - o 41.0% Medicaid
 - o 3.4% Other
 - 0 3.9% Uninsured





What is Fertility Finder? Our Technology Solution!

Please help us understand you better

Follow-up Question 1: Do you currently have medical insurance?

Yes, I have

Follow-up Question 2: Do you have any of these conditions? (list: diabetes, obesity, genertic condition in your family, high blood pressure, HIV, kidney disease, autoimmune condition, daily use of alcohol/cigarettes/drugs, prior difficult pregnancy)

No.

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- Integration of OpenAI gpt-3.5-turbo



Our Web Application Integrates Well with GPT3.5

```
backend.pv > f generate meal plan > ..
                                                              □ Format - Scrambled eggs with spinach and tomatoes
                                                                         Whole wheat toast with avocado
                                                                        - Orange juice
17 api_key = load_api_key()
    client = openai.OpenAI(api_key=api_key)
                                                                        **Morning Snack:**
                                                                        - Greek yogurt with mixed berries and honey
21 v def generate_meal_plan(prompt):
                                                                        - Grilled chicken salad with mixed greens, cherry tomatoes, cucumber, and balsami
                                                                        c vinaigrette
                                                                        - Whole grain roll
           response = client.chat.completions.create(
               model="gpt-3.5-turbo",
                                                                        **Afternoon Snack:**
                messages=[
                                                                        - Carrot sticks with hummus
                    {"role": "system", "content": "You are
    about to create a daily meal plan for a user."},
                                                                        - Baked salmon with lemon and dill
                    {"role": "user", "content": f"{prompt}"},
                                                                        - Quinoa pilaf with roasted vegetables (bell peppers, zucchini, and onions)
                                                                        - Steamed broccoli
                    {"role": "system", "content": "Let's
    create a balanced meal plan that covers all nutritional
                                                                        **Evening Snack:**
     needs for a day."}
                                                                        - Sliced apples with almond butter
29
                                                                        - Drink plenty of water throughout the day, at least 8-10 cups
                                                                        - Herbal teas or decaffeinated beverages can also be included
           response content =
                                                                       **Important Nutrients to Focus on During Pregnancy:**
1. Folate: Found in leafy green vegetables, lentils, and citrus fruits.
2. Iron: Sources include lean meats, poultry, beans, and fortified cereals.
    response.choices[0].message.content if
    response.choices[0].message else None
                                                                       3. Calcium: Dairy products, fortified plant-based milk, and leafy greens are good
           if response content:
                                                                        4. Omega-3 fatty acids: Fatty fish like salmon, chia seeds, and walnuts are rich
               return response content
                                                                        in omega-3s.
                return "No valid response content received."
                                                                       ☐ Webview × +
                                                                        ← → C {...}.replit.dev /success
                                                                                                                                      → Devtools ☑ New to
      except Exception as e:
```

Illustration: Debugging & testing

A sample output of calling the OpenAI API directly from our backend

GPT3.5 Integration Workflow

- Prompts engineering for a structured, guided response from the OpenAI
- 2. Inclusion of user inputs to ensure a personalization experience

