



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.**



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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

Accessible
and engaging



Comprehensive,
personalized
content



FERTILITY FINDER

1. Introducing Fertility Finder!

What is Fertility Finder?

Please help us understand you better

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

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

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



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Technical Details

```
backend.py | generate_meal_plan | ...
16
17 api_key = load_api_key()
18 client = openai.OpenAI(api_key=api_key)
19
20
21 def generate_meal_plan(prompt):
22     try:
23         response = client.chat.completions.create(
24             model="gpt-3.5-turbo",
25             messages=[
26                 {"role": "system", "content": "You are
27                 about to create a daily meal plan for a user."},
28                 {"role": "user", "content": f'{prompt}'},
29                 {"role": "system", "content": "Let's
30                 create a balanced meal plan that covers all nutritional
31                 needs for a day."}
32             ]
33         )
34         # Extracting the complete message content
35         response_content =
36         response.choices[0].message.content if
37         response.choices[0].message else None
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39         if response_content:
40             return response_content
41         else:
42             return "No valid response content received."
43
44 except Exception as e:
```

```
- Scrambled eggs with spinach and tomatoes
- Whole wheat toast with avocado
- Orange juice

**Morning Snack:**
- Greek yogurt with mixed berries and honey

**Lunch:**
- Grilled chicken salad with mixed greens, cherry tomatoes, cucumber, and balsamic vinaigrette
- Whole grain roll

**Afternoon Snack:**
- Carrot sticks with hummus

**Dinner:**
- Baked salmon with lemon and dill
- Quinoa pilaf with roasted vegetables (bell peppers, zucchini, and onions)
- Steamed broccoli

**Evening Snack:**
- Sliced apples with almond butter

**Fluids:**
- Drink plenty of water throughout the day, at least 8-10 cups
- Herbal teas or decaffeinated beverages can also be included

**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.
3. Calcium: Dairy products, fortified plant-based milk, and leafy greens are good sources.
4. Omega-3 fatty acids: Fatty fish like salmon, chia seeds, and walnuts are rich in omega-3s.
```

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. Development framework: Flask
4. Programming language: Python
5. Integration of OpenAI gpt-3.5-turbo

Illustration: Debugging & testing

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

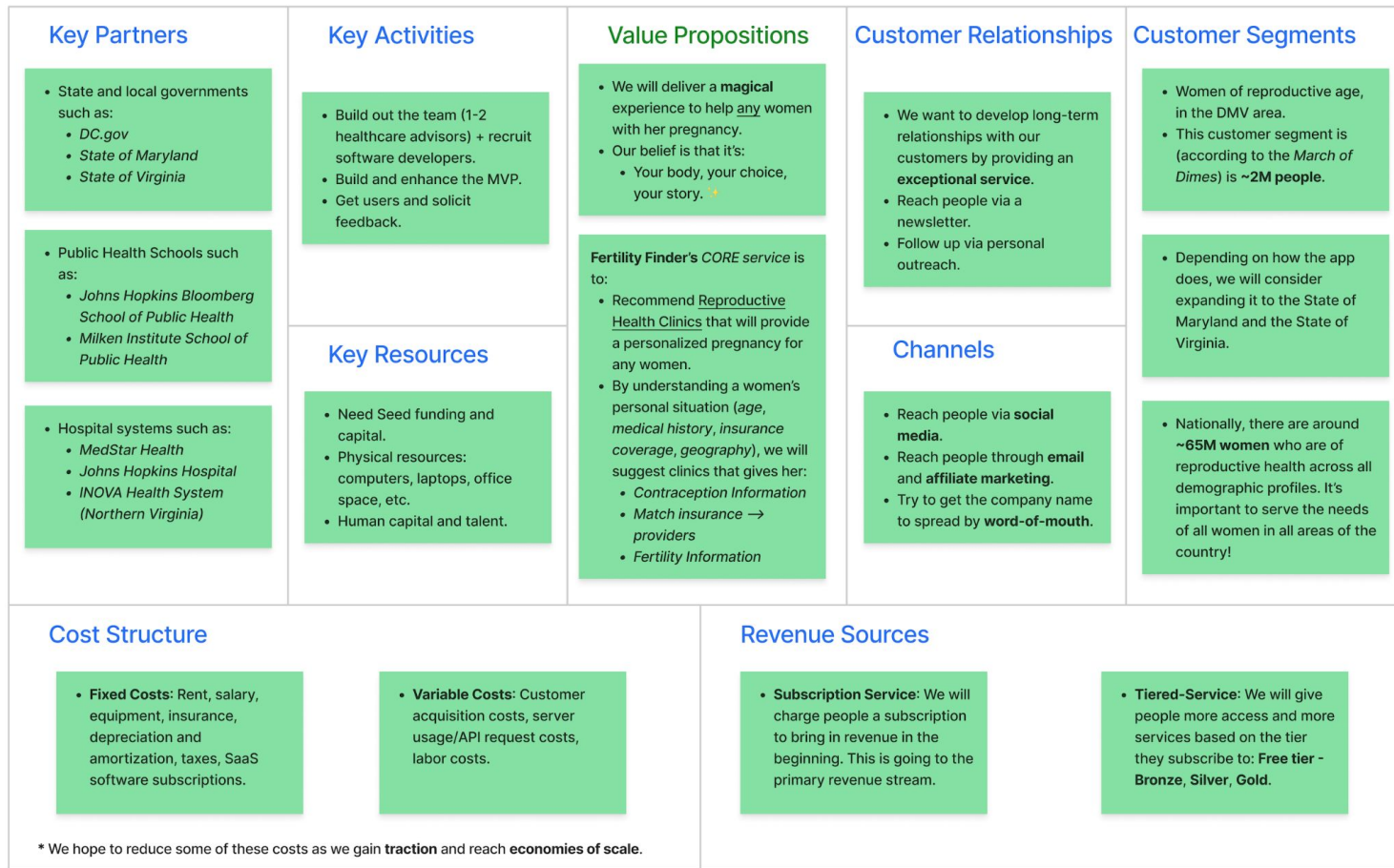


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DEMO !

3. Business Viability

Our Business Model Canvas

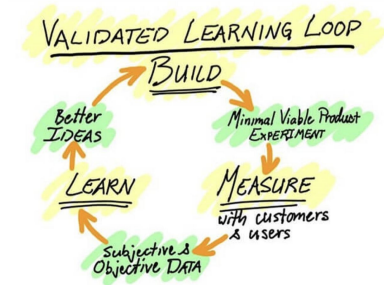


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Finding Product-Market Fit, Crossing the Chasm, Economies of Scale

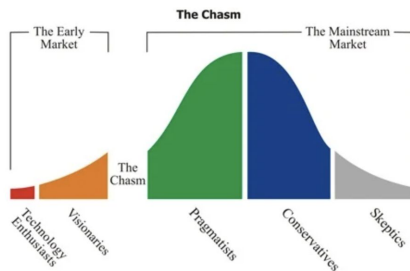
\$150,000
Seed Fund

Phase 1 Months 1-6



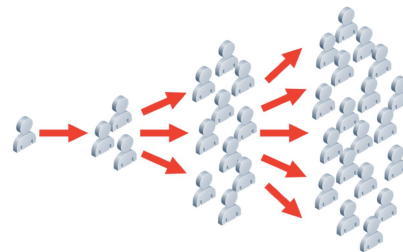
App development
Public launch
Community feedback

Phase 2 Months 6-12



Reach mainstream market
Refinement of app features
Formal evaluation

Phase 3 Years 1-3



Platforms expansion
National expansion



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Final Thoughts

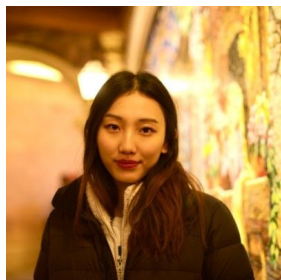
A Magical Experience Awaits You! ✨

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.



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Thank you from our team! 100



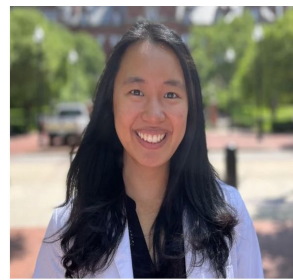
Chelsey Li,
Computer
Science
Georgetown U.



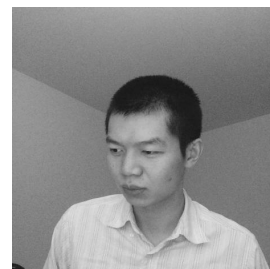
Kaili Wu,
Public Health
Johns Hopkins
U.



Terrell Davis,
Computer
Science
U. of Maryland



Ariel Leong,
Medicine
Johns Hopkins
U.



Yingquan Li,
Computer
Science
Virginia Tech
& UPenn



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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%20year%2C%20about%2050%20percent,from%20incorrect%20or%20irregular%20use>.
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/>

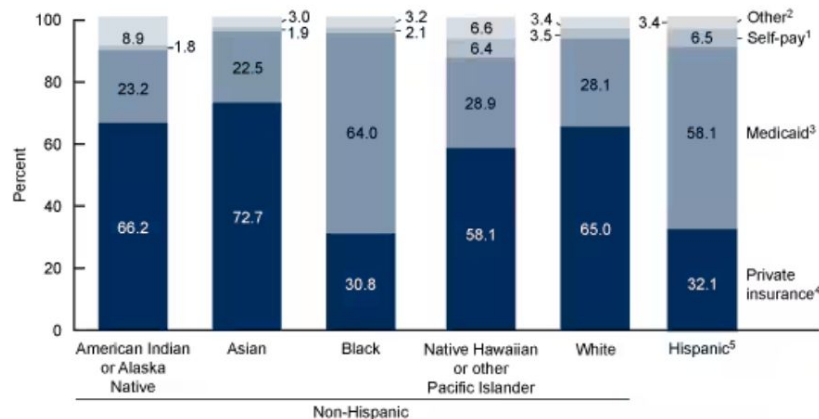
Appendix

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
 - **51.7%** - Private insurance
 - **41.0%** - Medicaid
 - **3.4%** - Other
 - **3.9%** - Uninsured



What is Fertility Finder? Our Technology Solution!

Please help us understand you better

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Yes, I have

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

No.

Submit

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Our Web Application Integrates Well with GPT3.5

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