

# AI DRIVEN CLINICAL INSIGHT PROGRAM



Using NLP and Data Analytics to Transform Women's Wellness Clinics  
Kiara Jenkins & Parker Wallace - Hackathon Concept Presentation



# THE CHALLENGE

- SOAP notes are time consuming to review
- Physicians lack quick access to *summarized* patient history
- Clinic underuse data that could guide better outcomes

➔ **Goal: turn unstructured data into actionable insights**



# CONTEXT

- Women's Wellness clinics generate vast amounts of *narrative data*
- Manual review leads to inefficiency and missed/overlooked patterns
- Medical personnel are typically adverse to large changes and quick shifts

# THE CONCEPT

An AI service that:

1. Summarizes patient SOAP notes automatically
2. Identifies similar diagnostic cases within the clinic

A Web service that

1. Displays clinic and patient insights on a series of dashboards
2. Gives patients access to *their* data



# TECHNICAL OVERVIEW

- Django REST API + local hosted NLP model trained on internal and open source data
- Patient data stored in structured JSON files for interoperability, compression, and safety
- Secure, HIPAA-compliant environment
- Modular dashboard with role-based access



# USE CASE #1: PHYSICIAN MODULE

## Dr. Numen opens a patient chart with data from 2019-2025

- Patient statistical data is displayed in a series of **dashboards**
- AI generated a one page **summarization** of symptoms, diagnoses and treatments
  - *Based on intake forms, previous history, and similar cases within the clinic*
- ★ The relationship feels more **personal** as Nguyen is more familiar with the patient for her appt
- ★ Time is saved using aggregated and summarized relevant data
- ★ Risk of oversight or misdiagnosis is reduced

# Women's Health Clinic Dashboard

Name  
Jane Doe

Age  
28

Weight  
65 kg

Intake Form  
View

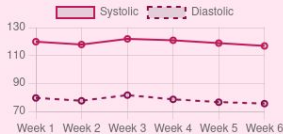
Total Patients  
24

Visits This Year  
42

Pending SOAP  
5

Avg pH  
4.5

## BP



## Weight



## Pain



## Vaginal pH



## SOAP Notes

[AI Assistance](#)

Subjective

Objective

Assessment

Plan

## Alerts / Risk Factors

- Pregnancy: 12w
- High BP
- Penicillin Allergy

## Medications

- Iron
- Thyroid
- Vitamin D

## Chronic Conditions

- PCOS
- Anxiety
- Hypothyroid



## USE CASE #2: PATIENT MODULE

**Penelope wants to know more about the results from her appointment at the clinic**

- Her information is **summarized** in a series of **dashboards**
- Her most recent exercise recommendation, treatment, new medication information can be **viewed at a glance** as a helpful reminder.
- ★ Penelope feels more at ease and **in control** of her healthcare information
- ★ Time is saved as she can **access information** she would have called for otherwise
- ★ With results in hand, Penelope may do some of her own research with more informed data. Leading to more **patient autonomy**



## Patient Dashboard

Name  
Jane Doe

Age  
28

Weight  
65 kg

### Recent Intake Form

[View PDF](#)

### Blood Pressure



### Weight



### Pain Scale



### Vaginal pH



### Most Recent SOAP Note

**Subjective:** Patient reports mild cramping.

**Objective:** BP: 120/80, Weight: 65 kg, Pain: 3/10

**Assessment:** Routine check, no issues.

**Plan:** Continue current regimen, follow-up in 4 weeks.

### Exercise Recommendations

- 30 min cardio, 5x/week
- Strength training 2x/week
- Daily stretching routine

### New Medications

- Vitamin D supplement, daily
- Iron tablets, 3x/week

### Clinic Contact Info

Women's Wellness Clinic

Phone: (555) 123-4567

Email: [info@womenshealth.com](mailto:info@womenshealth.com)

Address: 123 Health St, City, State

[Export Dashboard to PDF](#)



# USE CASE #3: ADMINISTRATION MODULE

## Clinic *director* reviews anonymized data trends

- Clinic **metrics** are displayed in a series of dashboards and reports
- ★ Much valuable information can be gained from **generalized data**
- ★ Can assist in **operational management** by *analyzing trends*

## Clinic Metrics Dashboard

Avg Visits / Day

25

New Patients / Month

18

Avg Wait Time (min)

12

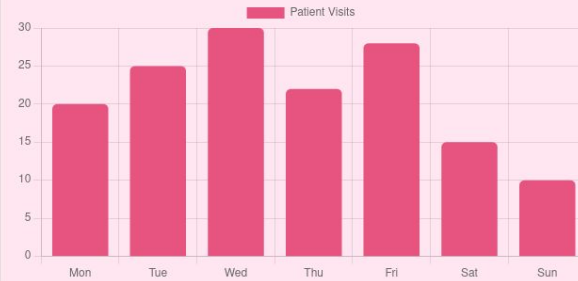
Outstanding Intake Forms

5

### No-Shows This Week



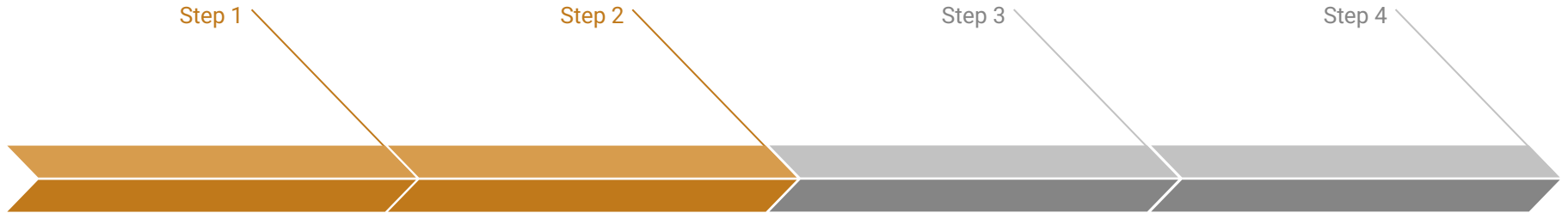
### Visits Per Day (Last Week)



### Staff on Duty / Clinic Team

- Dr. Emily Carter - MD, Obstetrics
- Nurse Olivia Smith - RN
- Dr. Sarah Johnson - MD, Gynecology
- Receptionist Mia Lee
- Medical Assistant Ava Brown

# ROADMAP



## Data Collection

Review existing patient data storage structure and implement transfer to structured json

## Exploratory Data analysis

Prototype a model which accurately leverages patient data to provide clear and actionable results

## System development

Create the frontend system with end user assistance for a smooth transition and ease of use

## Modular Integration

Slowly integrate modularized systems into clinic workflow



**Thank You!**