Disease Prediction Using Machine Learning

WHO are we empathizing with?

Who is the person we want to understand?
What is the situation they are in?
What is their role in the situation?

Medical Students

Patient who cannot afford to consult doctor

People who live in remote areas

Medical Researchers

Medical Professionals

Low-Income Individuals:

Frequent/ International Travelers

Cruise Ship Passengers

First Aid Providers

What do they HEAR?

What are they hearing others say?
What are they hearing from friends?
What are they hearing from colleagues?
What are they hearing second-hand?

Success Stories: Some users share stories of accurate predictions and early interventions that led to positive health outcomes.

Caution: Others express caution about the reliability and accuracy of these models.

Privacy Concerns: Conversations may revolve around concerns about the privacy and security of personal health data when using these models.

Need for Professional Confirmation: Conversations may highlight the importance of consulting healthcare professionals to validate the model's predictions.

Educational Value: Users might emphasize the educational aspect, mentioning that these models have helped them become more informed about health and medical conditions.

Varied Experiences: Experiences with these models vary, with some users finding them helpful, while others have doubts about their accuracy and reliability.

GOAL

What do they THINK and FEEL?

PAINS

What are their fears, frustrations, and anxieties?

Lack of Personalized Care: May not offer the same personalization as professional healthcare.

Technological Barriers: Inaccessible to individuals without internet access or technology literacy.

Misdiagnosis: May not consider rare or unusual conditions, leading to potential misdiagnosis.

Accuracy Concerns: Varying accuracy levels can result in false positives or negatives.

Algorithm Bias: May inherit biases present in training data, leading to potential disparities in healthcare outcomes.

User Dependency: Over-reliance on these models can lead to individuals neglecting traditional healthcare check-ups and consultations with medical professionals

Lack of Physical Examination: Models cannot replace the physical examination and feedback a doctor provides.

User Trust Concerns: Users may have concerns or doubts about the reliability, accuracy, impacting their willingness to rely on it for health guidance.

Limited Scope: Models may not cover all possible diseases and conditions

GAINS

What are their wants, needs, hopes, and dreams?

Early Detection: Detect diseases at an early stage for better treatment.

Cost Reduction: Reduce healthcare costs through prevention and early intervention.

Accessible 24/7: These models are available round the clock, offering healthcare guidance at any time,

Quick Assessments: Provide rapid health assessments, especially in emergencies

Remote Areas: Particularly beneficial for individuals in remote or isolated areas with limited healthcare access.

Scalability: Can be scaled to serve large populations, making healthcare guidance more accessible.

Medical Education: Disease prediction models using symptoms serve as valuable educational tools for medical students.

Decision Support: Healthcare professionals can use the models for more accurate and timely diagnoses

Research: Medical researchers use the data generated by these models for disease studies and model improvement.

What other thoughts and feelings might influence their behavior?

Fear and Anxiety: Alarming predictions can lead to fear and anxiety,

Empowerment: Feeling empowered by the model can make users more proactive in managing their health

Cultural Beliefs: Cultural beliefs and practices can influence how users interpret and respond to the model's recommendations.

Technological Mistrust: A general mistrust of technology can make some users hesitant to rely on these models.

Privacy Concerns: Worries about data privacy and security may make users cautious about using the model.

What do they DO?

What do they do today?
What behavior have we observed?
What can we imagine them doing?

Frequent online searches for health-related topics. Engage in preventative health measures like exercising or dietary changes.

Search for information: Users may research online to gather information about their symptoms, potential diseases, and treatment options.

Share personal data: Users may provide their medical history and personal information when interacting with the model.

Trust the machine learning model: Users may rely on the model's predictions and recommendations for early disease detection.

Take proactive measures: Users could adopt healthier lifestyle choices if the model predicts higher disease risk.

What do they need to DO?

What do they need to do differently?
What job(s) do they want or need to get done?
What decision(s) do they need to make?
How will we know they were successful?

Registration:

Users must sign up and create a profile to participate in the community.

Provide Feedback:

Encourage users to provide feedback about their experience with the model,so that we can make continuous improvements in the model.

To prevent the misuse of the platform for non-serious or inappropriate purposes, users are encouraged to engage with respect, empathy, and a genuine focus on health and support.

Report Issues:

Users should report any inappropriate content or behavior of the model

Stay Informed About Updates: Keeping up with updates, new features, and changes in model guidelines ensures effective use of the platform.

They read reviews and ratings of healthcare providers, services, or products to gauge the experiences of others.

In their immediate environment, users see local healthcare facilities, air quality, weather conditions

In the marketplace, people may notice others not taking necessary precautions or adopting certain behaviors related to health and well-being.

What do they SEE?

What do they see in the marketplace?
What do they see in their immediate environment?
What do they see others saying and doing?
What are they watching and reading?

Regulatory Bodies: We need to establish clear guidelines for the ethical use of ML in disease prediction.

Patients: concerned about privacy; how the health information is being used in the prediction process

What do they SAY?

What have we heard them say?
What can we magine them saying?

Patients: Detailed explanations for the predictions to understand the reasoning behind them.

Regulatory Bodies:

We need to establish clear guidelines for the ethical use of ML in disease prediction.

Healthcare Professionals: ML can assist us in analyzing vast datasets and identifying patterns that may not be apparent manually.