EARLY PREDICTION FOR CHRONIC KIDNEY DISEASE

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INTRODUCTION

Overview:

- Chronic Kidney Disease is a progressive condition in which the kidneys gradually lose their function over time.
- Machine learning technique has become reliable for medical treatment.
- Chronic kidney disease, also known as **"Chronic renal disease"** or **"CKD"** is a condition characterized by a gradual loss of kidney function over time.

PURPOSE:

❖The purpose of using machine learning (ML) for Chronic Kidney Disease (CKD) is to improve patient outcomes by providing more accurate and personalized diagnosis, treatment, and management of the disease.

❖ML algorithms can be trained to analyze large datasets of patient information, such as electronic health records (EHRs) and medical imaging, to identify patterns and predict disease progression.

❖This can help healthcare providers to make more informed decisions about patient care, including early detection and prevention of CKD, more accurate diagnosis and staging of the disease, and better selection and monitoring of treatment options.

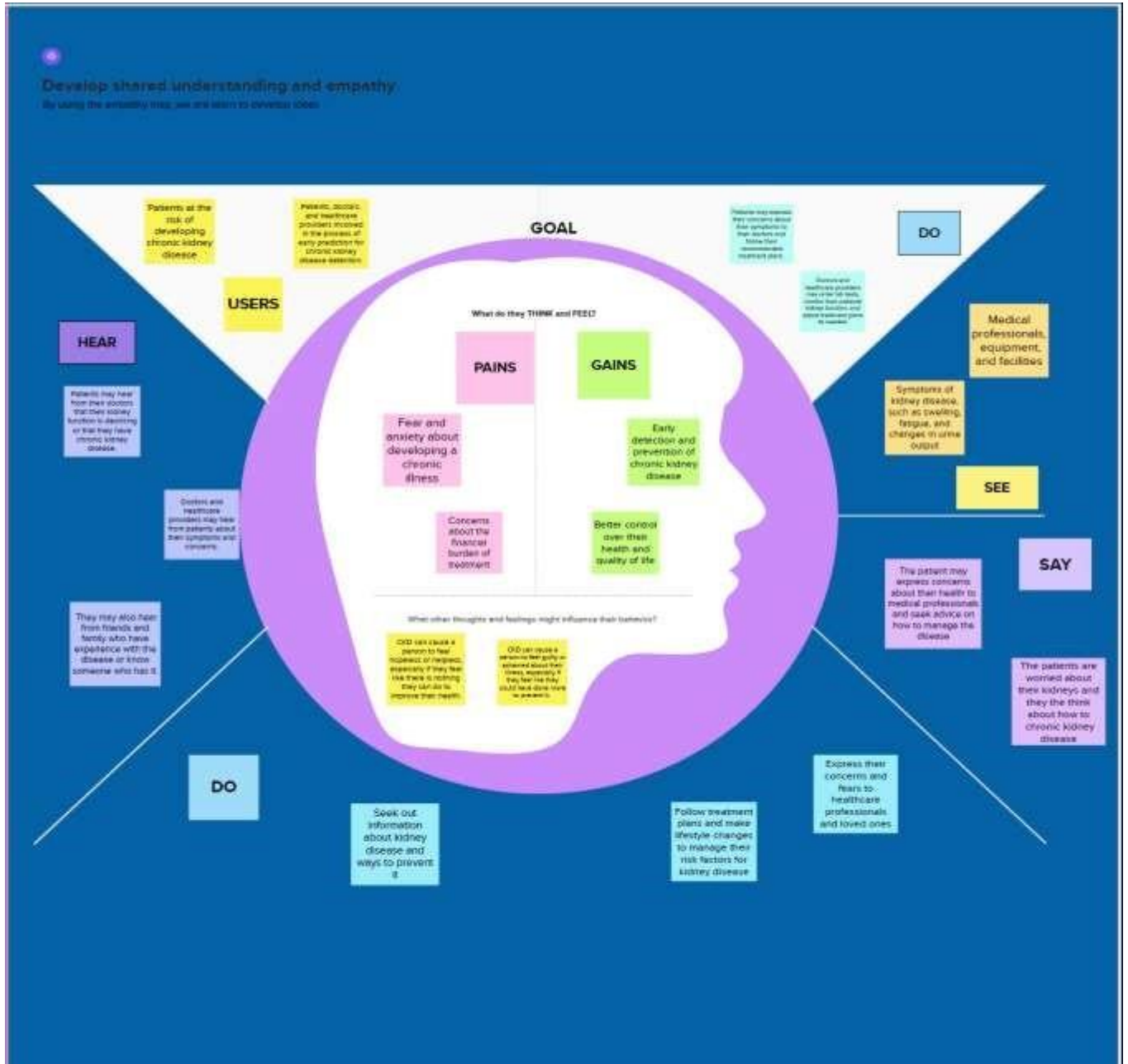
❖ML can also be used to identify patients at higher risk of developing CKD-related complications, such as cardiovascular disease, and provide personalized care plans to mitigate these risks.

EMPATHY MAP:

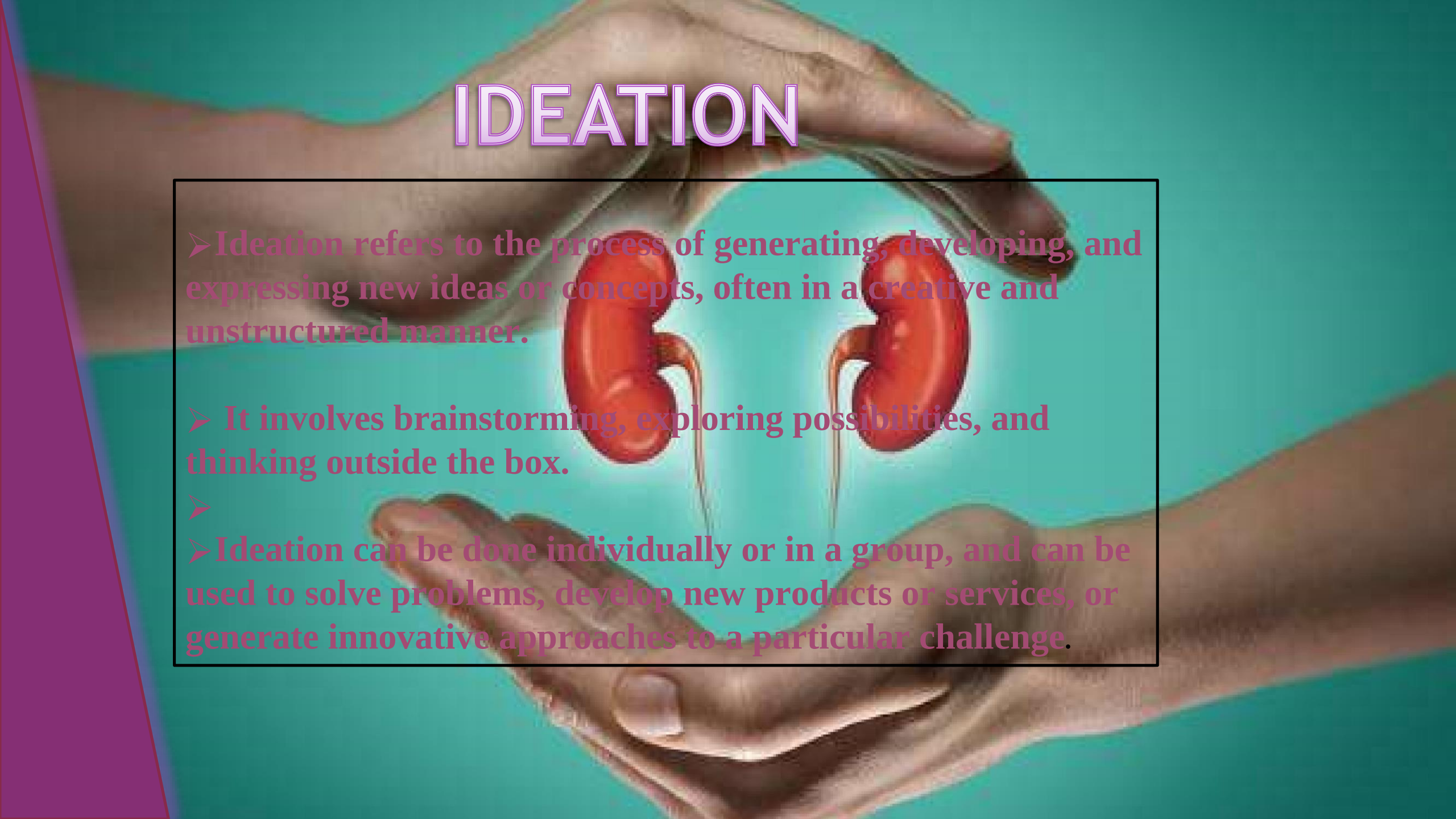
- An empathy map **helps to map what a design team knows about the potential audience**. This tool helps to understand the reason behind some actions a user takes deeply. This tool helps build Empathy towards users and helps design teams shift focus from the product to the users who are going to use the product

- Using this empathy map canvas, a early predicton of chronic kidney disease using machine learning can be designed to address the needs and concerns of the user


Template
Empathy map canvas
Using this empathy map canvas, a early predicton of chronic kidney disease using machine learning can be designed to address the needs and concerns of the user


Develop shared understanding and empathy
GOAL
USERS
Patients at the risk of developing chronic kidney disease
What do they THINK and FEEL?
PAINS
GAINS
Fear and anxiety about developing a chronic illness
Concerns about the financial burden of treatment
Early detection and prevention of chronic kidney disease
Better control over their health and quality of life
HEAR
Patients may hear from their doctors that their kidney function is declining or that they have chronic kidney disease.
They may also hear from friends and family who have experience with the disease or know someone who has it.
DO
Seek out information about kidney disease and ways to prevent it
DO
Medical professionals, equipment, and facilities
Symptoms of kidney disease, such as swelling, fatigue, and changes in urine output
SEE
SAY
The patient may express concerns about their health to medical professionals and seek advice on how to manage the disease
The patients are worried about their kidneys and they the think about how to chronic kidney disease
Follow treatment plans and make lifestyle changes to manage their risk factors for kidney disease
Express their concerns and fears to healthcare professionals and loved ones

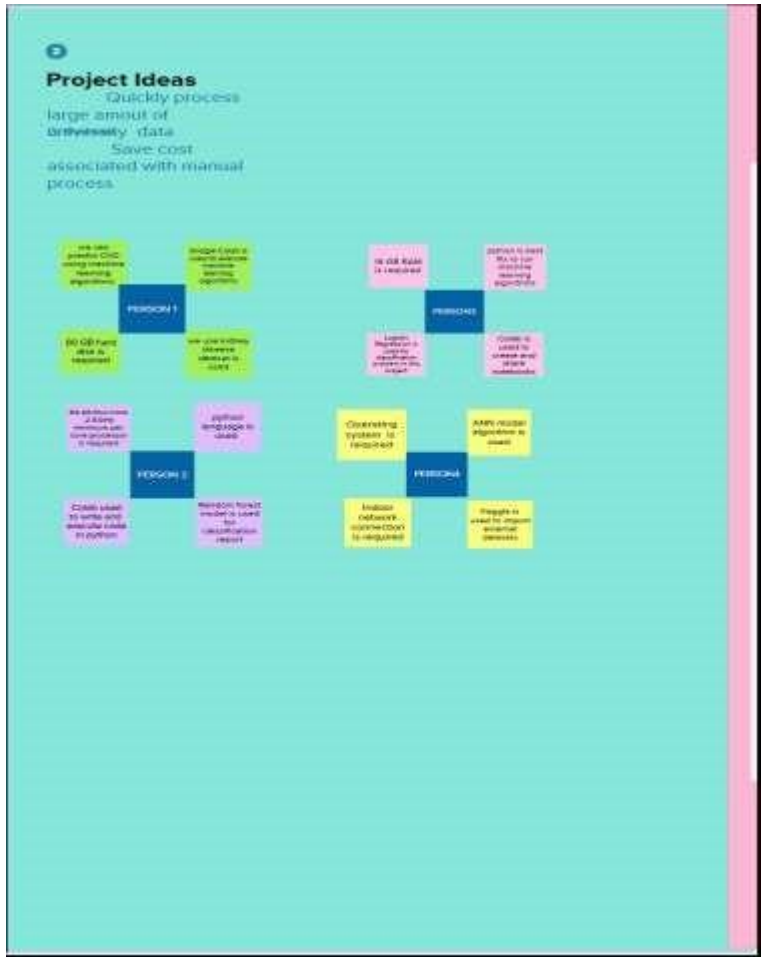
IDEATION



- Ideation refers to the process of generating, developing, and expressing new ideas or concepts, often in a creative and unstructured manner.

- It involves brainstorming, exploring possibilities, and thinking outside the box.

- Ideation can be done individually or in a group, and can be used to solve problems, develop new products or services, or generate innovative approaches to a particular challenge.


Project Ideas
Quickly process large amout of data
Save cost associated with manual process


Group ideas
Dataset
Classification algorithm
Dataset
LANGUAGE
GOOGLE COLAB

BRAINSTORMING MAP

- A brainstorming map, also known as a mind map, is a visual diagram that represents ideas and concepts in a non-linear and hierarchical manner. It is a tool used for brainstorming, organizing thoughts, and generating new ideas. The map typically starts with a central idea or topic, and branches out into related sub-topics or ideas.

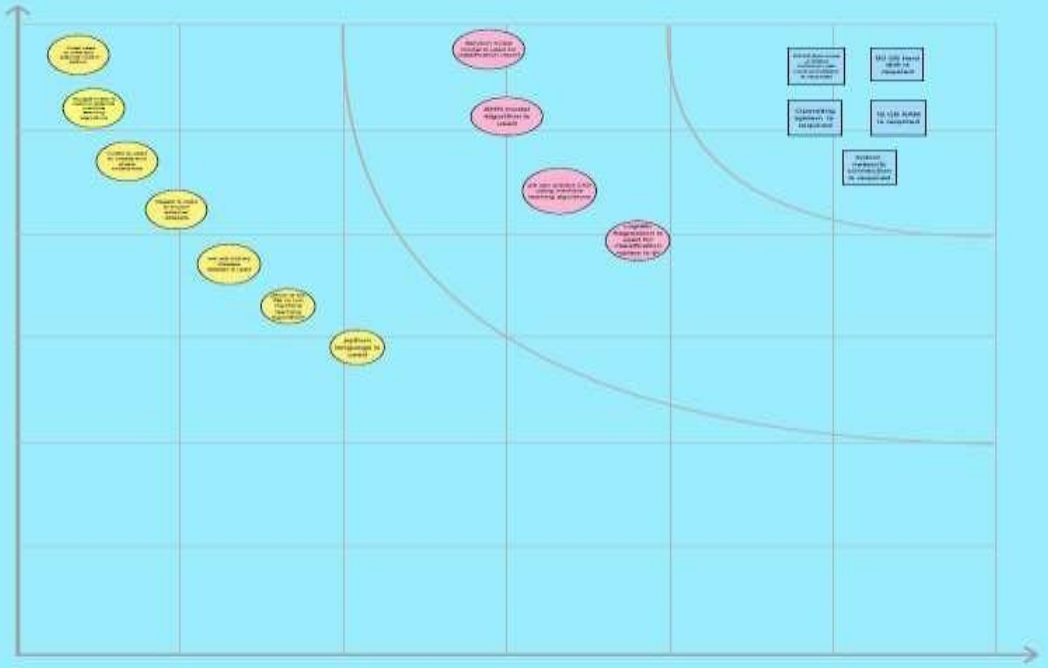
- Brainstorming maps are often used to help individuals or teams think creatively, organize their thoughts, and gain a better understanding of complex topics or problems.

4

Prioritize

we prioritize the ideas based on the project requirements

20 minutes



RESULT

- Save the best model
- Integrate with Web Framework

we will be build a web application using Four html templates or pages

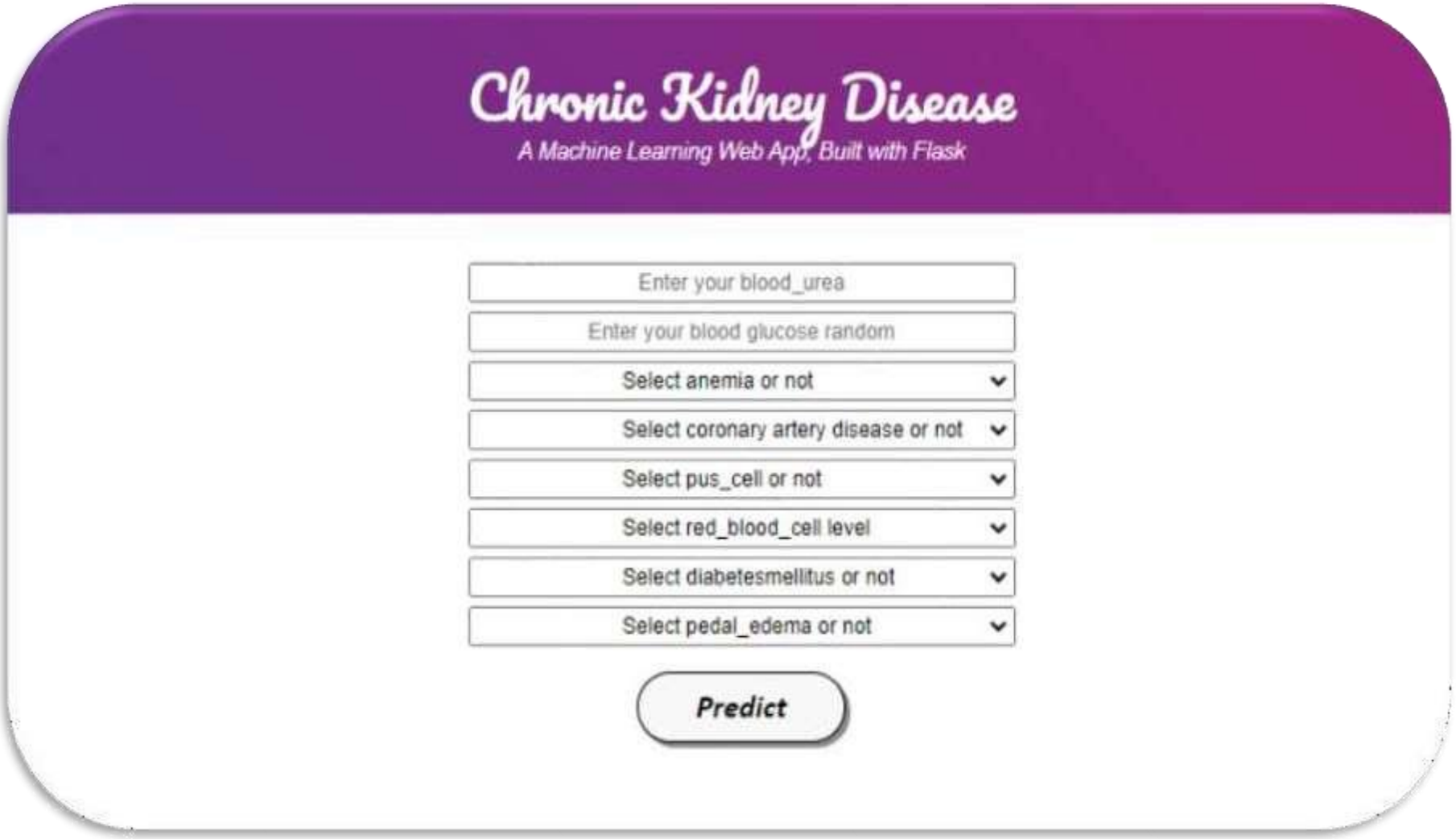
- home.html
- index1.html
- indexnew.html
- result.html

RUN THE WEB APPLICATION

Run the web application using anaconda prompt

HOME PAGE

WEB PAGE


Chronic Kidney Disease
A Machine Learning Web App, Built with Flask
Enter your blood_urea
Enter your blood glucose random
Select anemia or not
Select coronary artery disease or not
Select pus_cell or not
Select red_blood_cell level
Select diabetesmellitus or not
Select pedal_edema or not
Predict

PREDICTION PAGE

Chronic Kidney Disease

A Machine Learning Web App, Built with Flask

Prediction: Oops! You have Chronic Kidney Disease.

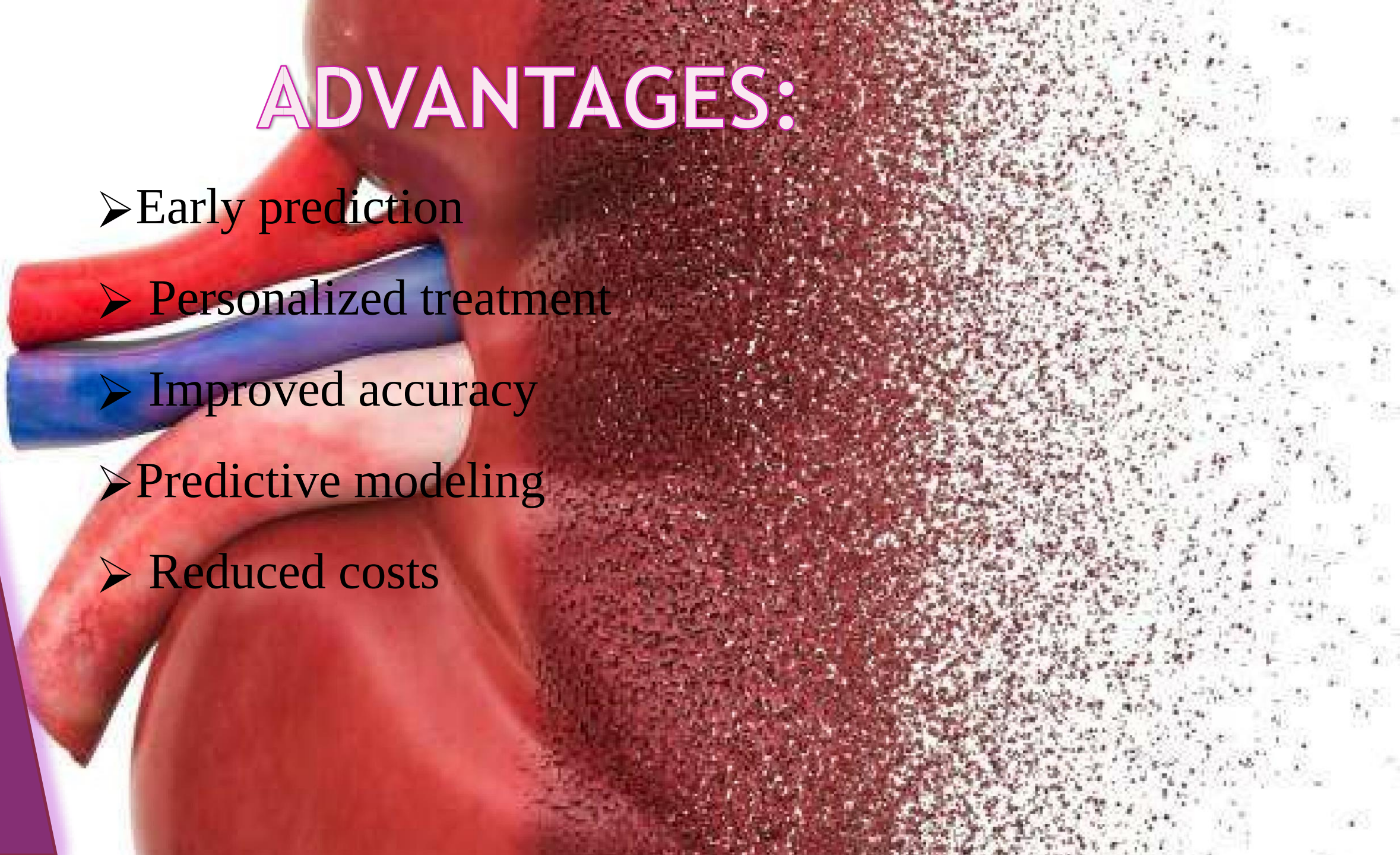
Chronic Kidney Disease

A Machine Learning Web App, Built with Flask

Prediction: Great! You DON'T have Chronic Kidney Disease

ADVANTAGES:

- Early prediction
- Personalized treatment
- Improved accuracy
- Predictive modeling
- Reduced costs



DISADVANTAGES

1.Data Bias

2.Lack of Clinical Context

3.Limited Generalizability

4.Lack of Interpretability

5.Data Quality

APPLICATIONS

- **Early detection and diagnosis of CKD**

Machine learning models can analyze patient data such as lab test results, medical history, and demographic information to identify early signs of CKD.

- **Prediction of CKD progression**

Machine learning models can predict the progression of CKD and identify patients who are at risk of developing complications.

- **Personalized treatment plans**

Machine learning models can analyze patient data to recommend personalized treatment plans that are tailored to the patient's specific needs.

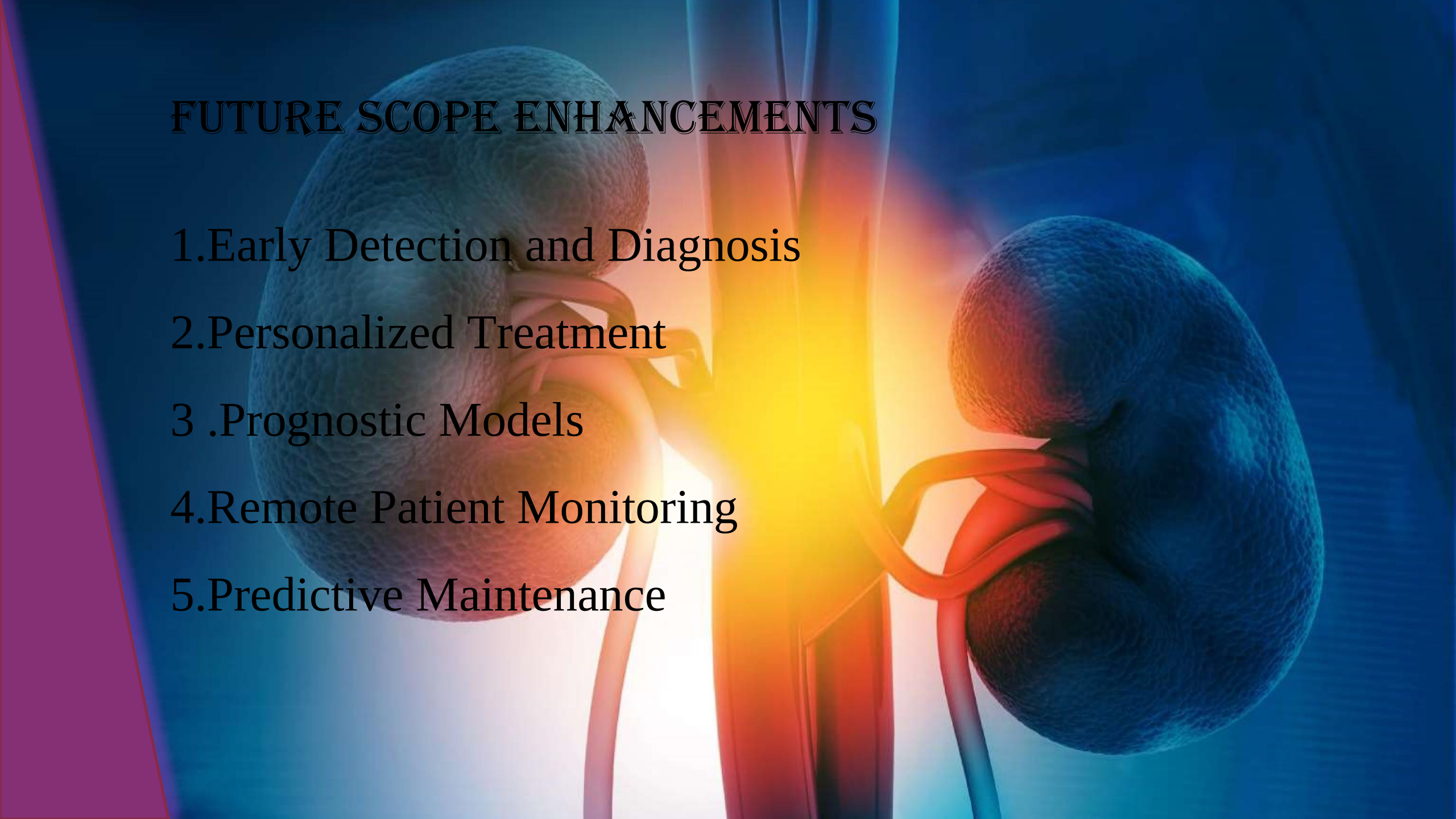
- **Identification of novel biomarkers**

Machine learning can help identify new biomarkers that can be used to diagnose and monitor CKD.

CONCLUSION

- Machine learning has shown great promise in the field of Chronic Kidney Disease (CKD) management.
- Through the use of various machine learning techniques such as decision trees, support vector machines, neural networks, and others, CKD prediction, diagnosis, and management can be significantly improved.
- Machine learning models have the potential to analyze large amounts of data, identify complex patterns, and provide personalized predictions for CKD risk, progression, and treatment response.
- These models can also aid in the early detection of CKD, allowing for timely interventions to prevent or delay disease progression, and ultimately improve patient outcomes.

FUTURE SCOPE ENHANCEMENTS



1.Early Detection and Diagnosis

2.Personalized Treatment

3 .Prognostic Models

4.Remote Patient Monitoring

5.Predictive Maintenance