

# **Chronic kidney disease prediction using Watson Auto AI**

***PROJECT DOCUMENTATION***

***RSIP CAREER BASIC ML 030***

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# INTRODUCTION

## Overview

*The Project "Chronic kidney disease prediction using Watson Auto AI" predicts that if a person has Chronic kidney disease so that the patient can be treated. The project is based on IBM provided features. It consist of Watson studio Auto AI experment whic uses different pipelines and uses the best one. The prediction is shown using Node Red app dashboard.*

*The Chronic kideney disease condition depends on many factors such as BP, Sugar, other health condition. An Auto AI Experiment consider these parameters and apply best machine learning algorithm to get result process of getting the prediction if a person is having the diseases consist of authentication which uses servies credentials after the whole process the person can better treatment. thus machine learning algorithm can help in medical department*

## PURPOSE

*In Health Sector hospitals has to give treatment for the people, having information if a person maight have that diseases will be a help for the doctors so they can give treatment accourdingly so machine learning can be a tool for the future*

*Today, machine learning is helping to streamline administrative processes in hospitals, map and treat infectious diseases and personalize medical treatments. ... "It can also be used to demonstrate and educate patients on potential disease pathways and outcomes given different treatments.*

# LITERATURE SURVEY

## *Existing problem*

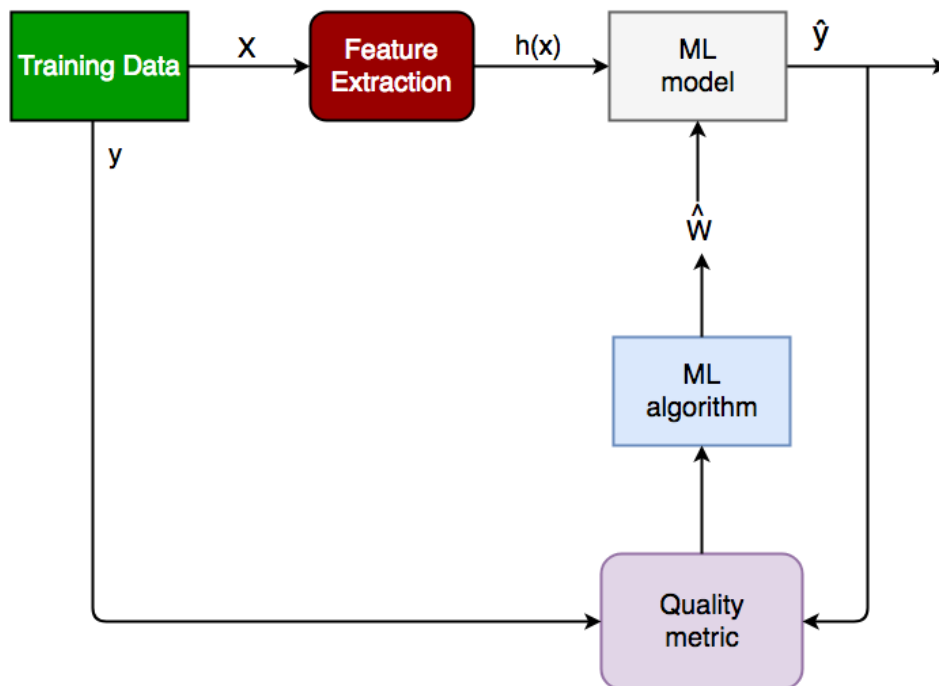
*In sosity their are many health related problemes in some of these problems time is key if a person is dected with that disease in the early stage he can be cured but if the disease for some reason has not been detected then the person may die because of that disease*

## *Proposed Solution*

*if we use machine learning then we can predict if a peson may get the diseases in future then we can give treatment accordingly by the help of machine learning we can save lives of the people*

# THEORETICAL ANALYSIS

## *Block Diagram*



***In Machine Learning according to these steps machine can predict the result also one more benefit is that when a large data is present, it's not possible for a human to analyze the huge data. So, it's preferable that a machine uses algorithms to analyze these data and predict the future data which can help in different ways.***

***The project uses Watson Auto AI Experiment Service. The project used XGB Classifier Algorithm to predict if the person has kidney disease. Auto AI Experiment implements 8 different pipelines and uses the best one. Also, a cloud object storage service is needed to store the dataset and machine learning service instance. Node Red App service is required to get authenticated easily and get predicted kidney disease. Node Red Dashboard or building UI Application.***

## ***HARDWARE/SOFTWARE***

***This project can be implemented using IBM Cloud Services on a PC. A machine learning service has to be created and also a Watson Studio, cloud storage service instance to store dataset. A Jupyter notebook can be added to the project & we have to write code to get authenticated which includes API key, instance ID, pre token etc.***

## ***Experimental Investigation***

***There are six steps in experimental investigation of a general project:***

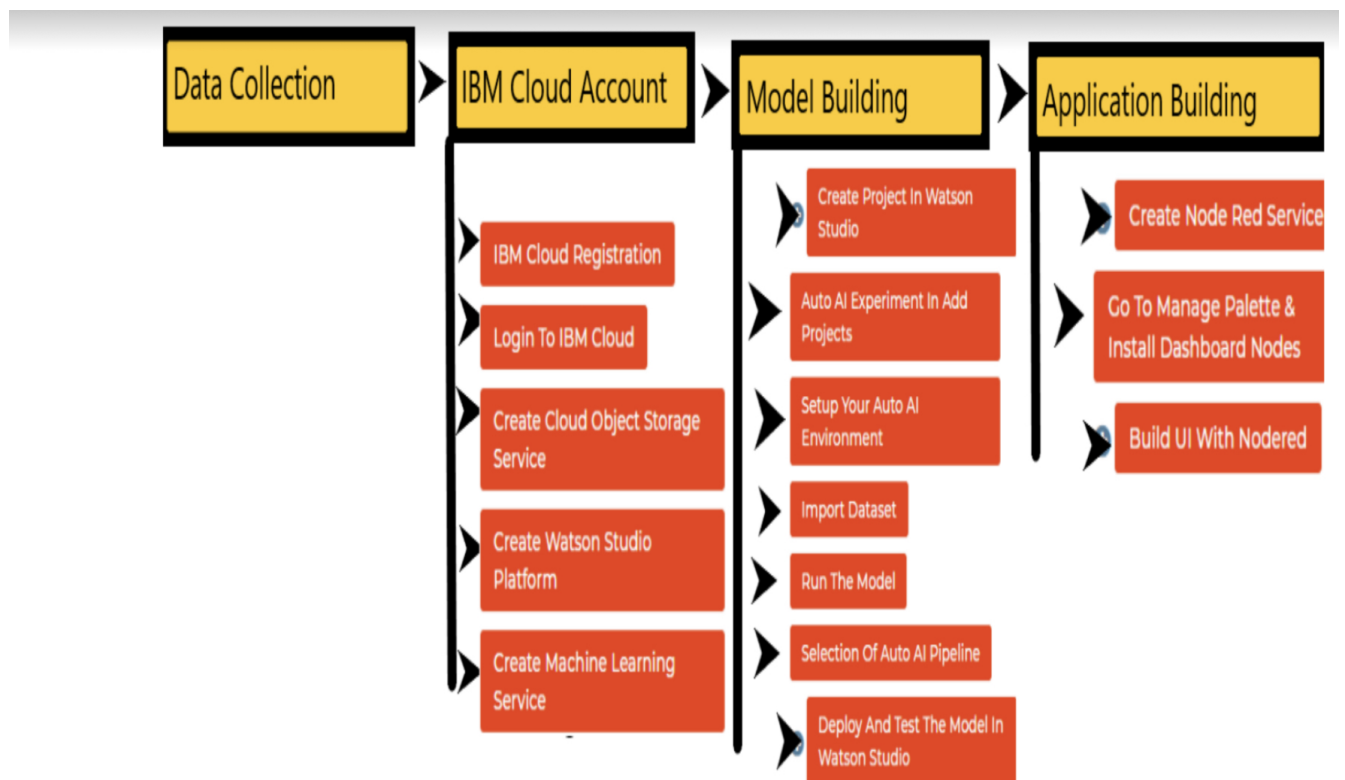
- 1. Choose a Project Idea***
- 2. Conduct Background Research***
- 3. Compose a Hypothesis***
- 4. Design your Experiment***

## 5. Collect Data

## 6. Analyse Data and Draw Conclusions

# FLOW CHART

## Chronic kidney disease prediction flow chart



## Result

***After the implimentation of the project the ui predicts at waht age he or she can get effected The Node Red UI provide us simple way to get the result of Auto AI Experiment. The Node Red User Interface can be a web application help the people to be aware of the health situation***

***Here is the Node Red UI which predicts age***

The screenshot shows a web browser window with multiple tabs. The active tab is 'Node-RED : node-red-pffj.e'. The address bar shows the URL 'node-red-pffj.eu-gb.mybluemix.net/ui/#!/?socketid=H8pbqzRlvPhv2n9pAAAK'. The page has a blue header with the word 'Home'. Below the header, there are two main sections. The left section is a form titled 'Default' with various input fields and their values. The right section is also titled 'Default' and displays the predicted age.

Default	
ID *	0
BP *	80
SG *	1.02
AL *	1
SU *	0
RBC *	normal
PC *	normal
PCC *	notpresent
BA *	notpresent
BGR *	121
BU *	36
SC *	1.2
SOD *	111

Default	
AGE	50.20881526049198

The Windows taskbar at the bottom shows the search bar, task view button, and several application icons. The system tray on the right indicates the time is 8:07 PM on 6/25/2020.

## Advantages and Disad

<b>Advantages</b>	<b>Disadvantages</b>
<i>Handling multi-dimensional and multi-variety data</i>	<i>Machine Learning requires massive data sets to train on, and these should be unbiased, and of good quality</i>
<i>It has a Wide application</i>	<i>It requires lot of Time and Resources</i>
<i>Machine learning can reduce costs</i>	<i>High error-susceptibility</i>



## APPLICATION

*Using The Auto AI Experiment, you can build and deploy a machine learning model with sophisticated training features and no coding. The tool does most of the work for you. In this project , the UI model building can help people a lot.*

*if we use machine learning then we can predict if a peson may get the diseases in future then we can give treatment accordingly by the help of machine learning we can save lives of the people*

*The Node Red service provide us a better user UI with the help of anyone can deploy machine learning model and get predicted results.*

## CONCLUSION

*In this project we have discussed the direct impact of machine learning on health systems, but have not explored the indirect effects of machine learning in basic sciences, drug discovery and other enabling technologies on health systems. Prediction is inherently difficult: technology modifies its environment and the environment then generates further opportunities and new constraints for the technology. Ultimately, general purpose intelligence will be possible, as a version of it already exists in human brains. However, an extrapolation of existing techniques to re-create general intelligence artificially appears unlikely in the next 5-10 years. However, what is immediately plausible, and should therefore be planned for, is a federation of 'narrow' and 'targeted' machine learning systems that are able to tackle core information processing problems across a health system by augmenting capabilities of human decision makers, and in so doing establishing new standards of effectiveness and efficiency in clinical and management operations. This is a significant opportunity for health system*

*transformation as the cost of augmenting decision-making capabilities across the health system is unlikely to be large. There is no other approach that offers such potential impact without commensurate scaling of cost. The fixed cost involved in developing machine learning solutions: the cost of research and development and of re-tooling a health system is considerable, but given the potential scalability, the rationale to invest is clear. An opportunity exists to seed growth in machine learning through the creation of high resolution clinical data sets and the necessary mechanisms for sharing of data and collaborative investigation to establish both efficacy and safety. What is currently missing in health systems is the leadership to do so. Whilst the issues raised are being actively discussed among the academic AI community, the academic AI community alone will not be able to solve them – it will require leadership from policy makers and the engagement of citizens, patients and clinicians. The fear of wholesale displacement of health workforce by AI is overstated, but where fear is warranted is in considering the opportunity cost of not embracing AI, of continuing business as usual with piecemeal implementation of AI that does not realize its potential for transformation of health systems.*

## **FUTURE SCOPE**

*AS this the early stages of machine learning their is a lot of scope in futur like we shold resolve a lot of disadvantages which we are having currently the we should also be able to use in all forms of sosity*

## **Bibliography**

*The whole project uses different services which are listed below*

*- IBM Cloud*

*-Watson Studio Auto AI*

**- Node Red Application**

**-Cloud Storage Service**

## **Source Code**

**Other AI Online Pla**

**orms :**

○ **Google AI Platform**

○ **TensorFlow**

○ **Microsoft Azure**

○ **Rainbird**