

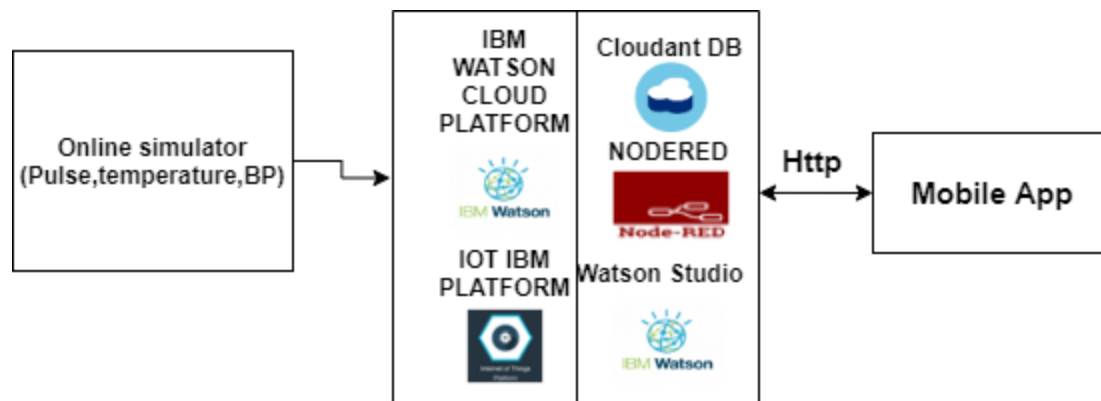
Project Title : Remote Health Monitoring System with Analytics Dashboard

Introduction: Remote health monitoring systems with analytics dashboard play a vital role which will help in early detection of the diseases which can reduce the suffering and medical costs. In this Health monitoring system we will be detecting the level of illness of the person and would recommend few medications using Machine learning and Internet of things tools.

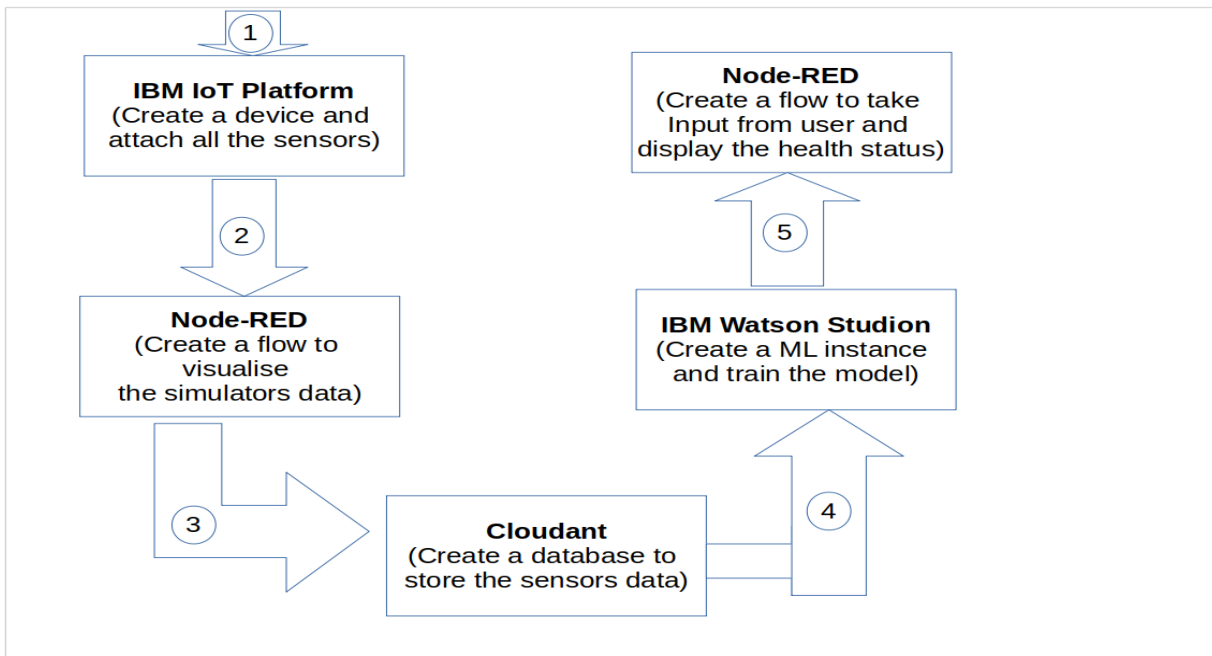
Required Services:

- a) IoT Cloud Platform
- b) Node-RED
- c) IBM Watson Studio
- d) IBM Cloudant DB

Pictorial representation of the complete flow:



Block Diagram of the used Tools in the Project:



Details of the Project:

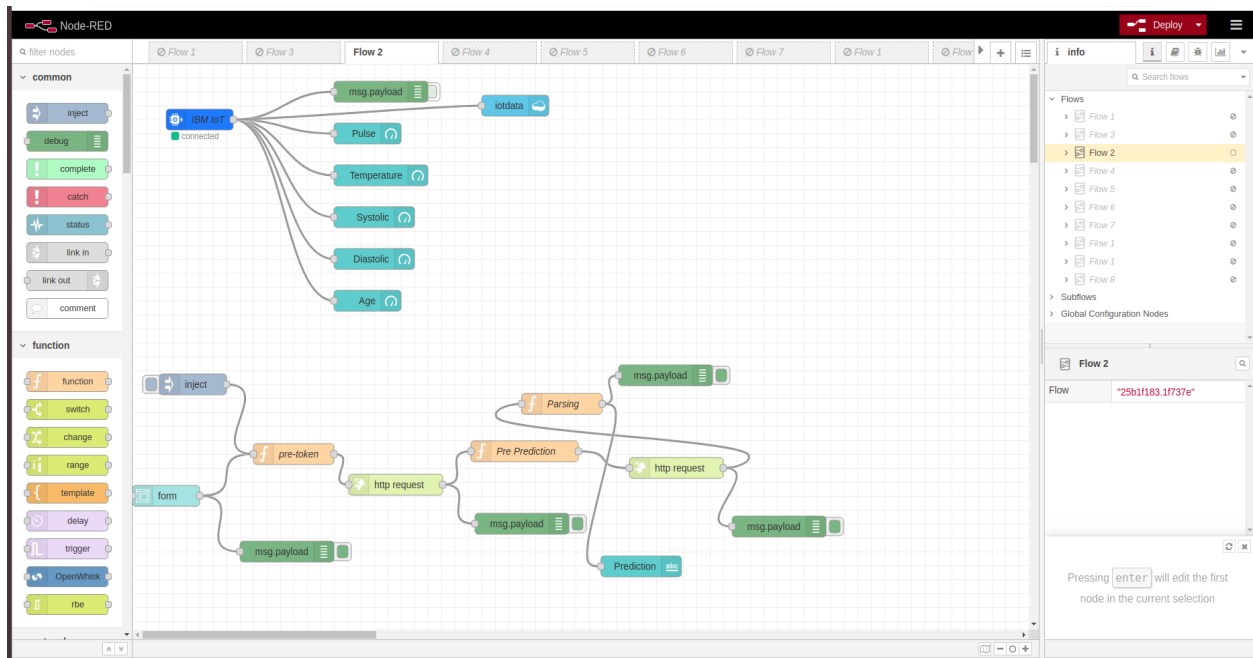
The details workflow of the projects are discussed below-

1. Initially we have to create a device using IBM IoT Platform and attached all the sensors (Temperature, Systolic, Diastolic and Pulse).

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area is titled 'Browse Devices' and shows a table of devices. The table has columns for Device ID, Status, Device Type, Class ID, Date Added, Descriptive Location, Added By, and Device Class. A single device is listed with ID 1234, Status Disconnected, Device Type nodemcu, Class ID Device, Date Added Oct 1, 2020 5:00 PM, Descriptive Location, Added By bikashchoudhury@rkmgc.ac.in, and Device Class. The bottom status bar indicates '0 Simulations running'.

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By	Device Class
1234	Disconnected	nodemcu	Device	Oct 1, 2020 5:00 PM		bikashchoudhury@rkmgc.ac.in	

2. Next, to visualize the sensors data we have to create a flow in Node-RED



3. Next, we create a database using IBM Cloudant to store the simulated sensors data and attached in the created Node-RED flow.

iotdata

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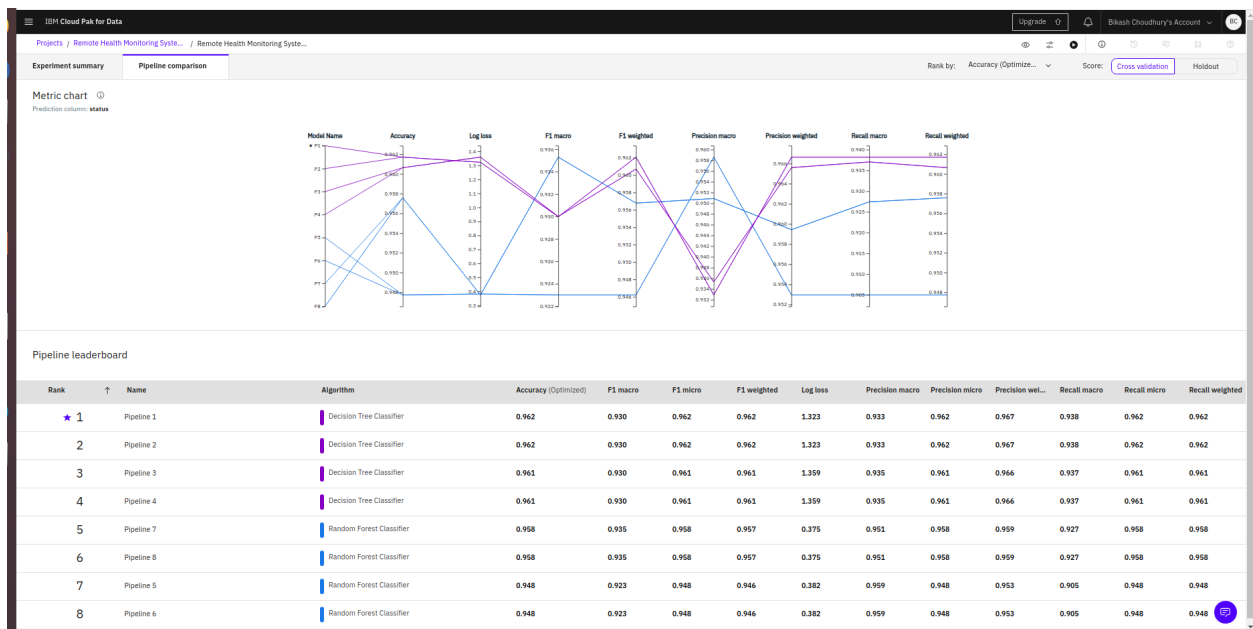
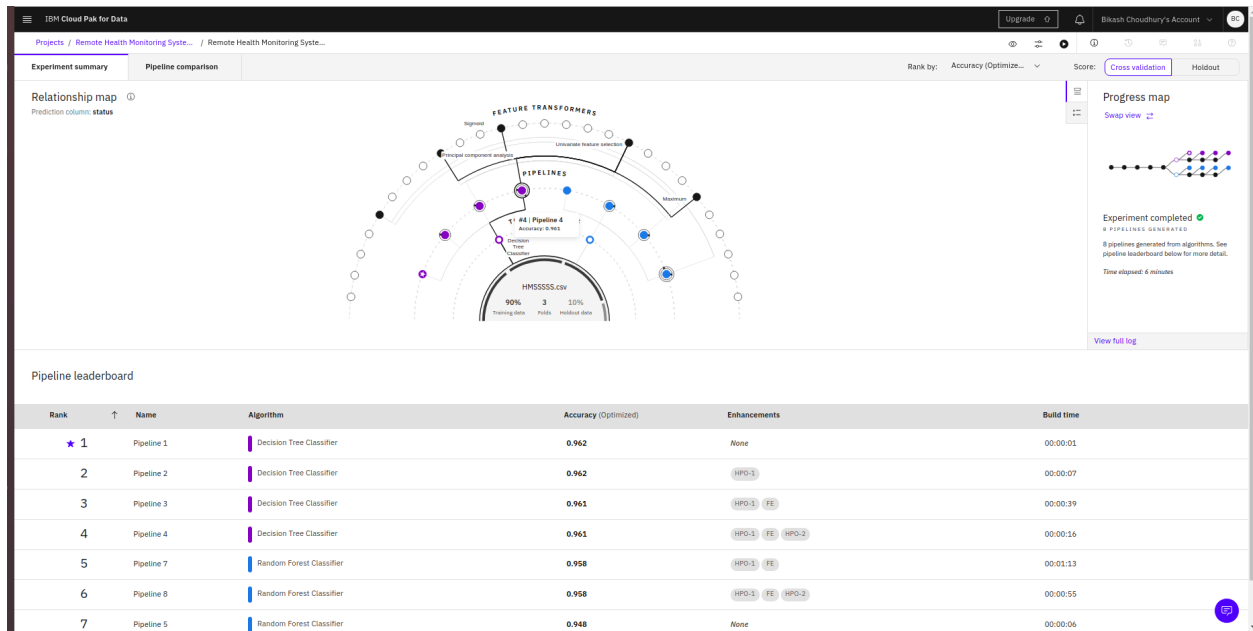
Create Document

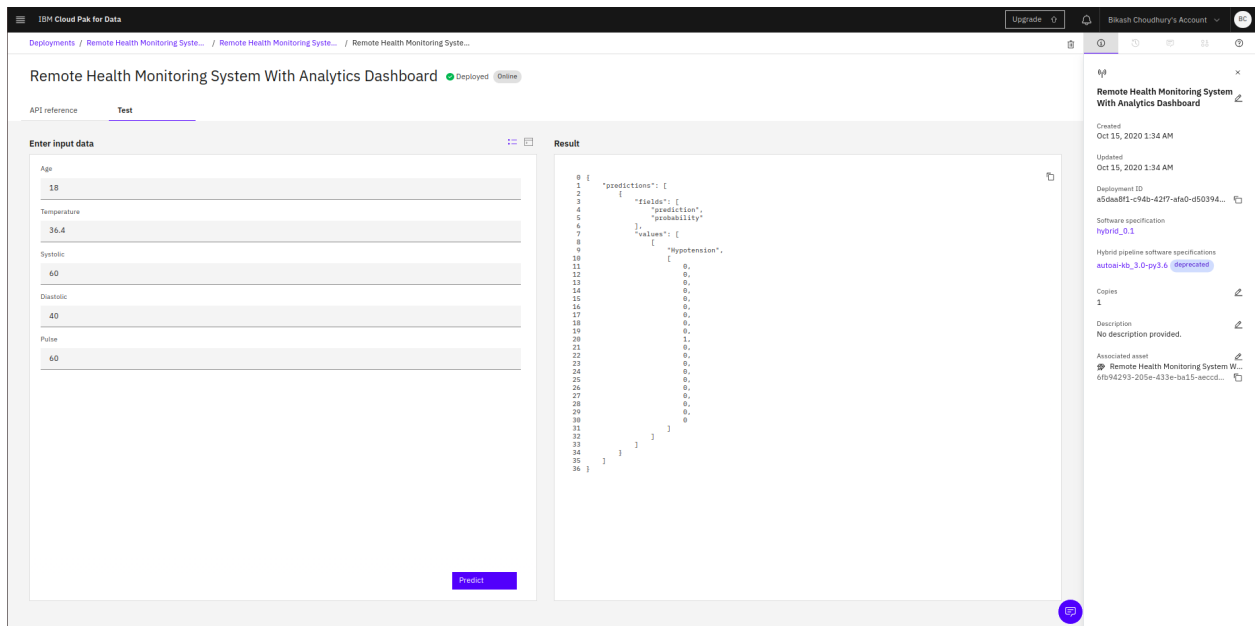
	Age	Diastolic	Pulse	Systolic	Temperature
<input type="checkbox"/>	99	92	37	99	59
<input type="checkbox"/>	8	22	1	36	97
<input type="checkbox"/>	25	28	54	59	52
<input type="checkbox"/>	71	21	32	26	72
<input type="checkbox"/>	64	69	45	11	15
<input type="checkbox"/>	95	83	28	43	25
<input type="checkbox"/>	90	31	96	67	38
<input type="checkbox"/>	76	22	55	87	23
<input type="checkbox"/>	73	30	12	82	27
<input type="checkbox"/>	71	65	88	31	39
<input type="checkbox"/>	17	83	90	28	87
<input type="checkbox"/>	57	58	34	39	33
<input type="checkbox"/>	38	8	1	60	58
<input type="checkbox"/>	51	94	81	88	46
<input type="checkbox"/>	8	79	23	51	94
<input type="checkbox"/>	75	90	26	69	57
<input type="checkbox"/>	16	4	68	77	1
<input type="checkbox"/>	52	13	10	18	63

Showing 5 of 7 columns. ☐ Show all columns.

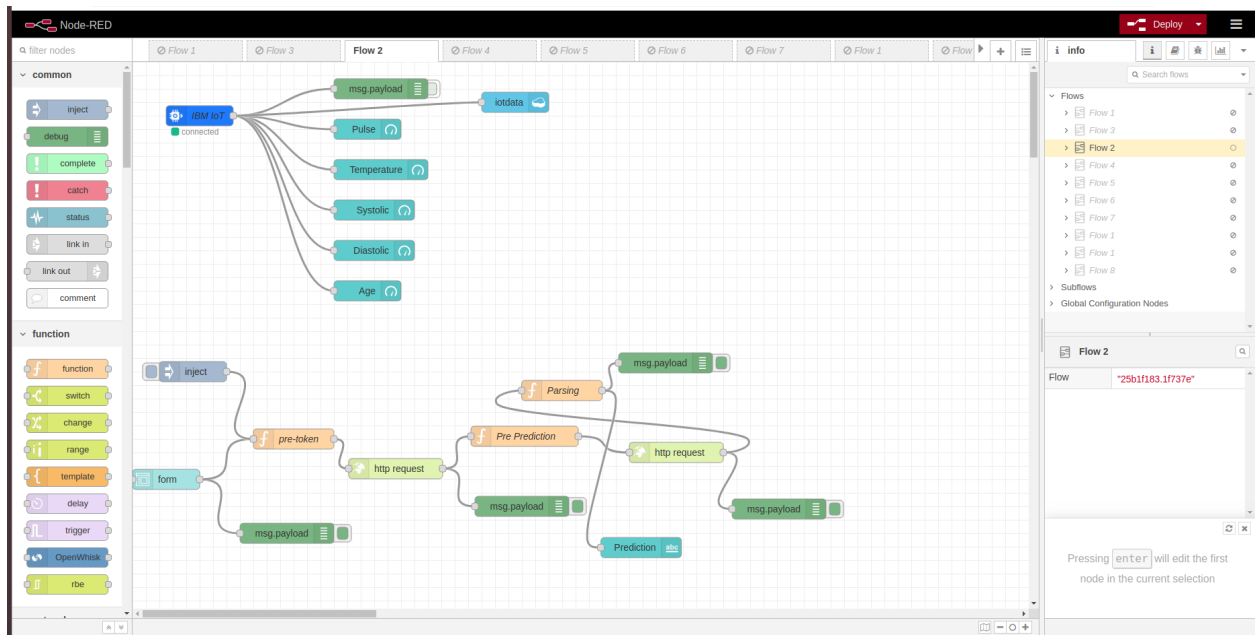
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4. Next, we have to create a machine learning instance using IBM Watson Studio and trained the model using auto AI.





5. Create a flow in Node-RED to take the user health related parameters and display the present health status.



Output of the Project:

First output shows the sensors simulated data and second output shows the users present health status.



The "Remote Health Prediction" form contains input fields for five health metrics. Below the fields are "SUBMIT" and "CANCEL" buttons. The prediction result is displayed at the bottom.

Field	Value
Age *	45
Temperature *	36.4
Systolic *	121
Diastolic *	81
Pulse *	82

Prediction: **Prehypertension**

Summary:

In this project we have implemented a Remote health monitoring system with analytics dashboard using IBM Cloud services. The outcome of the project is an application which helps the user to predict their present health status. This application will help to reduce the time and cost of the users.