

# 1. INTRODUCTION:-

## ➤ 1.1 Overview:-

Concrete is a composite material composed of fine and coarse aggregate bonded together with a fluid cement (cement paste) that hardens (cures) over time. In the past limebased cement binders were often used, such as lime putty, but sometimes with other hydraulic cements, such as a calcium aluminate cement or with Portland cement to form Portland cement concrete (named for its visual resemblance to Portland stone). Many other non-cementitious types of concrete exist with other methods of binding aggregate together, including asphalt concrete with a bitumen binder, which is frequently used for road surfaces, and polymer concretes that use polymers as a binder.

## ➤ 1.2 Purose:-

Predicting Compressive Strength Of Concrete Using IBM Watson AutoAI Experiment

# 2. LITERATURE SURVEY:-

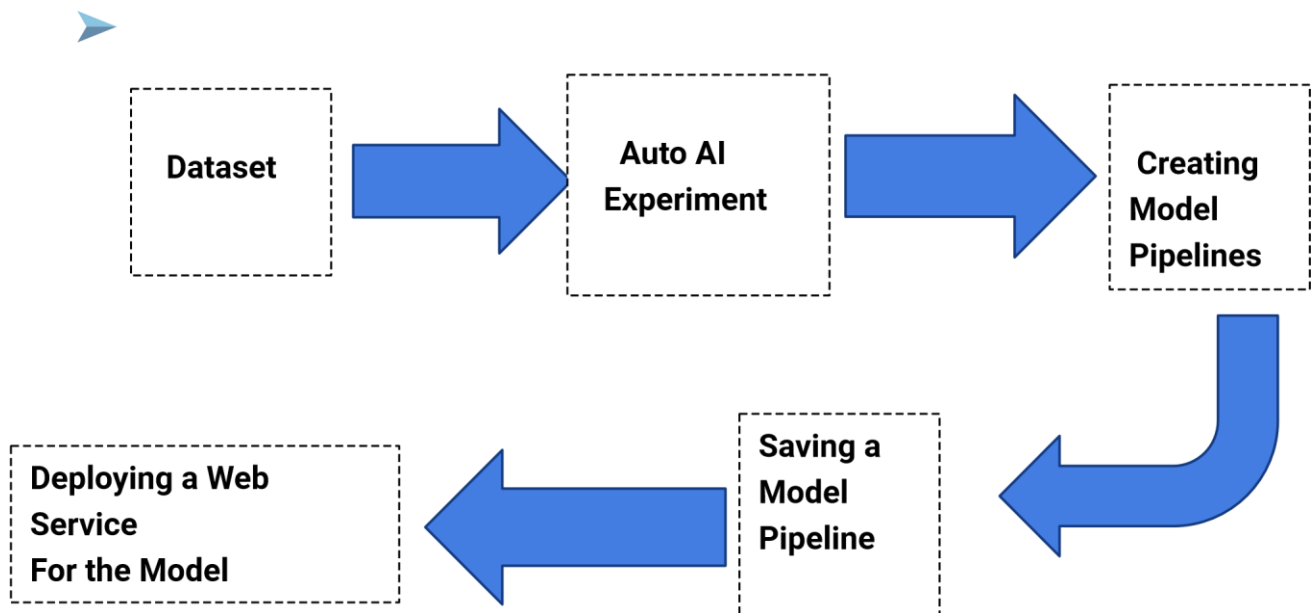
## ➤ 2.1 Existing Problem:-

1. Visual inspection of concrete will allow for the detection of distressed or deteriorated areas. Problems with concrete include construction errors, disintegration, scaling, cracking, efflorescence, erosion, spalling, and popouts.
2. It is important to wait 28 days to ensure the quality control of the process, although it is very time consuming.

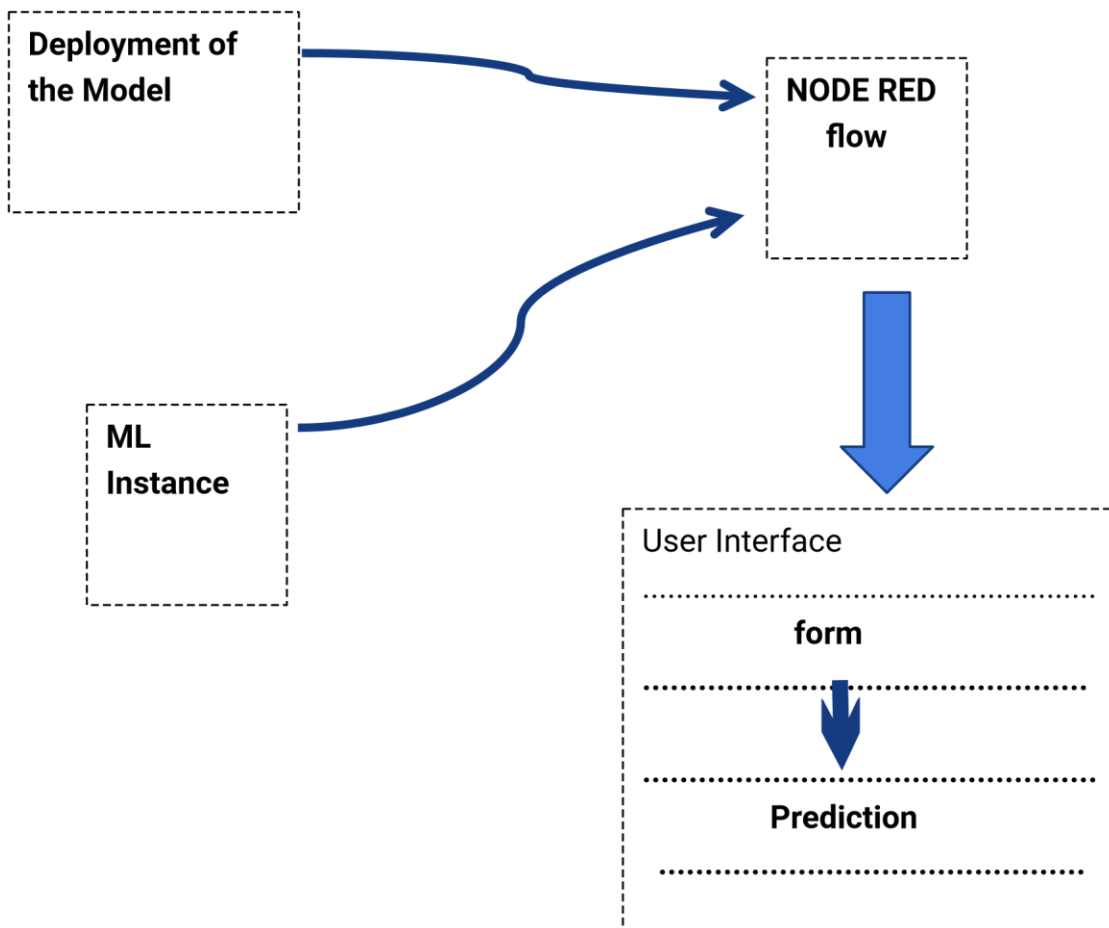
## ➤ 2.2 Proposed Solution:-

The main aim of this project is to create an appropriate machine learning model to analyse and predict the compressive strength of Concrete, So for that we will build a Machine Learning model to predict the strength of compressive concrete using IBM Watson, AutoAI Machine Learning Service. The model is deployed on IBM cloud to get scoring end point which will be used as API in mobile apps or web app building. We will develop a web application using node red service. We will use the scoring end point to give user input values to the deployed model. The model prediction will be showcased on User Interface.

# 3. THEORETICAL ANALYSIS-



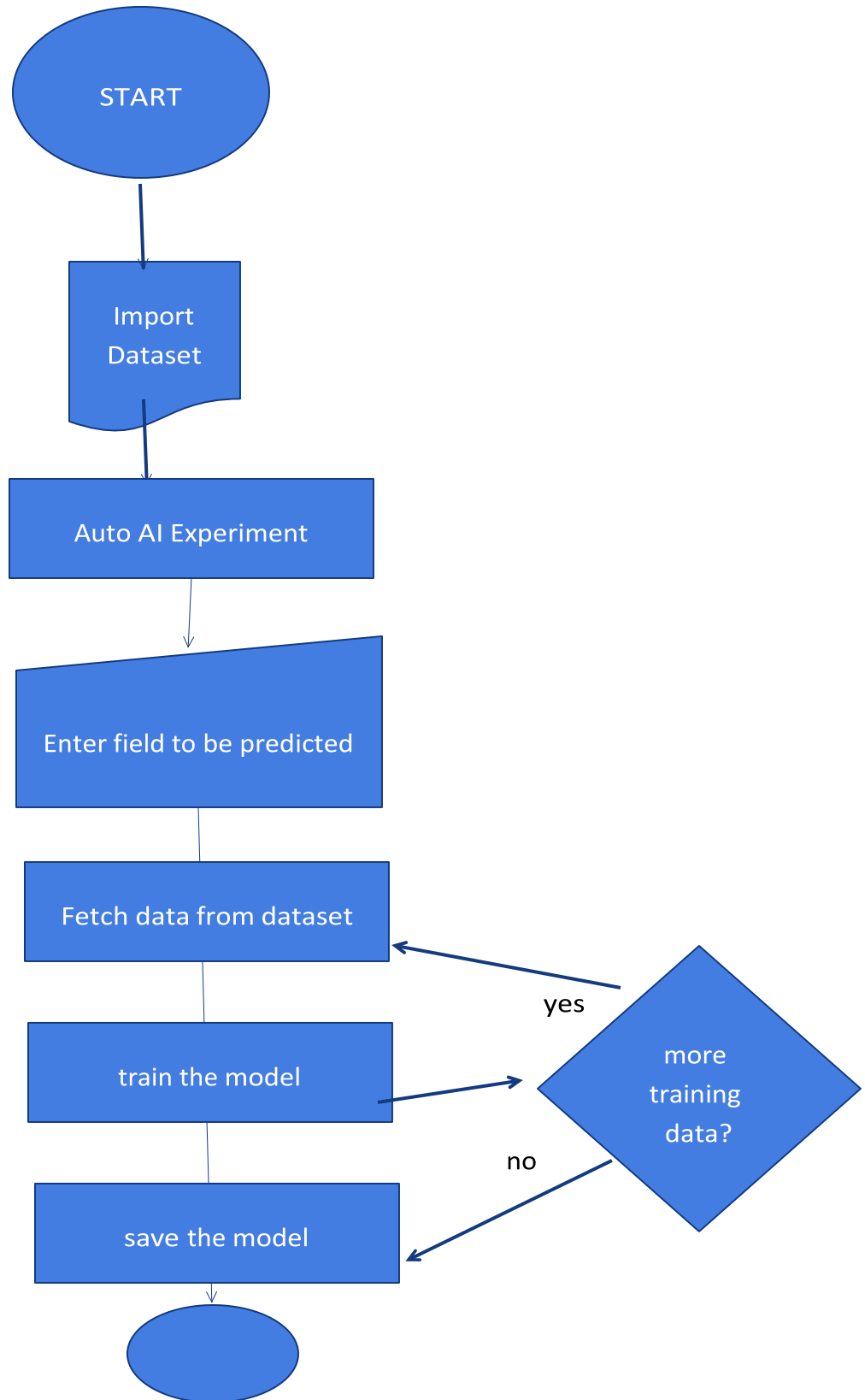
### ➤ 23. Software Designing:-

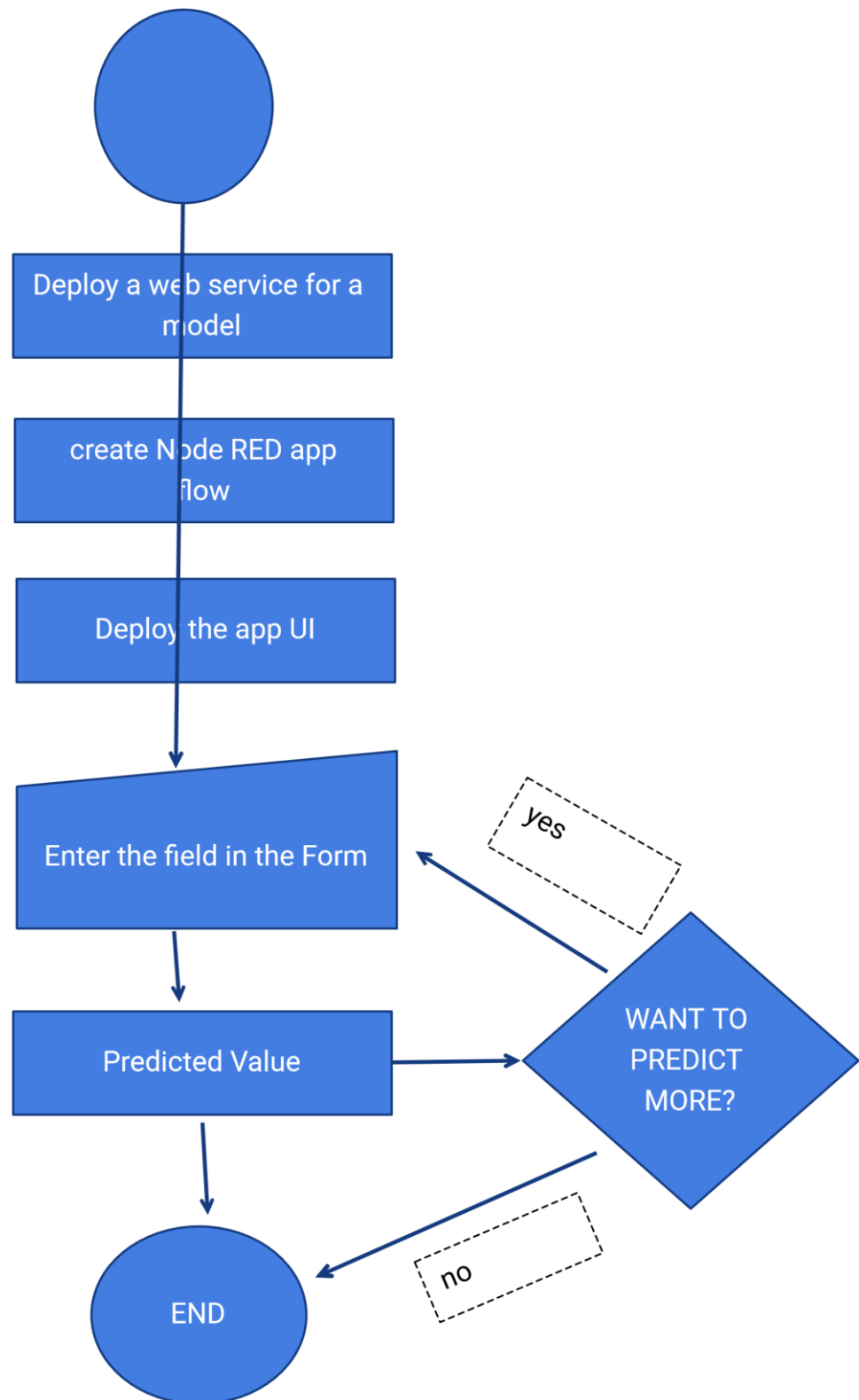


#### 4. EXPERIMENTAL INVESTIGATIONS:-

These Dataset consists of prediction of Compressive Strength of Concrete. This was recorded for people in the world along with the population. These data gives an idea of the builds made with concrete with respect to the following independent variables given in the dataset. Requirements of this model depending upon its demography and can be used to learn the requirement trends.

#### 5.FLOW CHART:-





## 6. Result:-

The model formed using auto AI services in IBM Watson studio can be used to predict the compressive strength of concrete. It is based on number of builds generally with the following data in the dataset. The Node RED app gives an User-Friendly interface to input the input the value and get prediction.

## 7. Advantages and Disadvantages:-

### ➤ Advantages:-

1. With the help of this UI, Efficient prediction of compressive strength that can be done in a easy way.
2. Machine learning techniques are progressively used to simulate the characteristic of concrete materials and have developed into an important research area
3. This study proposed comprehensive study using an advanced machine learning technique to predict the compressive strength of concrete from early age test results.
4. An ability to predict the compressive strength of concrete early allows constructors to quickly understand the concrete's probable weaknesses and make a decision to manage a destruction process or continue with construction.

### ➤ Disadvantages:-

1. Many times we do face a situation where we find an imbalance in data which leads to poor accuracy of models.

## 8. Applications:-

Our model can fit very well and reliably and rapidly predicting the results of a 28-day test would benefit all stakeholders as opposed to waiting the full, conventional, 28 days .  
And further by detecting it, will benefit both the producer and the purchaser.

## 9.Conclusion:-

The model is deployed successfully and was used to build a web UI using Node RED services.The model gave satisfactory results and the Web UI is working properly.

## 10.Future scope:-

Our study can further be done in new type of concrete:-

- There is a scope for further research to develop Self Compacting Concrete using Industrial Wastes and Byproducts and High volume ultrafine flyash with superpozzolona.
- Research is needed to study applicability of using blended superpozzolona (Metakaoline + Silica fume) for high strength and high durable concrete.
- Study on China clay (porcelain) waste can open new horizons in use of blended cement.
- High Alumina (Metakaoline, porcelain), High Iron (Millscale) cement can be the future entry in the blended cements.

## 11.Bibliography/ References:

### ➤ Source of Dataset:



<https://archive.ics.uci.edu/ml/machine-learning-databases/concrete/compressive/>

## 12.APPENDIX:-

### Screenshots

#### **A.1-Internship Project-**

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1.	SPS_APL_20200007552	RSIP Career Basic ML 171	07/22/2020	Approved	<a href="#">Go to Workspace</a>

flows (2).json

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BADGES

Internship Title : RSIP Career Basic ML 171

Project ID : SPS\_PRO\_287

Project Title : Predicting Compressive Strength of Concrete using IBM Watson AutoAI Experiment

Duration : 16 Days

Internship Description : [Click here to view the Internship Description](#)

Team : 

SS

Overall Project Progress

Assigned Tasks Progress

0%

0%

★ MENTOR INSTRUCTIONS

HIDE

- Click on Go to Workspace Option to access the Project Workspace.
- Total Internship duration is 1 month, within this time you have to complete the project in one week with the expected outcome.
- References & Learning resources are provided for every activity.
- Your login and logouts to the workspace are monitored, it is mandatory to maintain 5-days a week attendance.
- All the project deliverables shall be pushed to GitHub Repository & daily work status shall be updated to mentor via Slack Channel.
- Use Zoho Writer to update the project documentation regularly.
- Individual activity status shall be updated on the Kanban Board without fail.
- Use the commenting option on the activity card to communicate with the mentor in case of any query. Mentor replies can be accessed from the Mentor View tab.
- Once the mentor approves all activities, you have to capture a project demonstration video and upload it to the GitHub.
- Your profile shall be filled completely to get the Internship Certificate, you can access the certificate anytime from the dashboard.

We wish you all the best!!

flows (2).json

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Go to Git Repository | Go to Slack Channel | 3 Days 3:24:44

### PROJECT DETAILS

Predicting Compressive Strength Of Concrete Using IBM Watson AutoAI Experiment

### TASK & PROGRESS

**BASIC**

### Predicting Compressive Strength Of Concrete Using IBM Watson AutoAI Experiment

**Category:** Machine Learning

**Skills Required:**  
Python, Python For Data Analysis, Python For Data Visualization, Exploratory Data Analysis, IBM Cloud, IBM Watson

**Project Description:**  
Concrete is a material used in construction that has great versatility and which is used across the globe. Concrete has several advantages, including good compressive strength, durability, work ability, construction availability, and low cost. Determining accurate concrete strength is a major civil engineering problem. Test results of 28-day concrete cylinder represent the characteristic strength of the concrete that has been prepared and cast to form the concrete work. It is important to wait 28 days to ensure the quality control of the process, although it is very time-consuming. Machine learning techniques are progressively used to simulate the

flows (2).json | Show all

## ➤ A.2 Data Collection:-

.xls format

Concrete\_Data [Compatibility Mode] - Excel

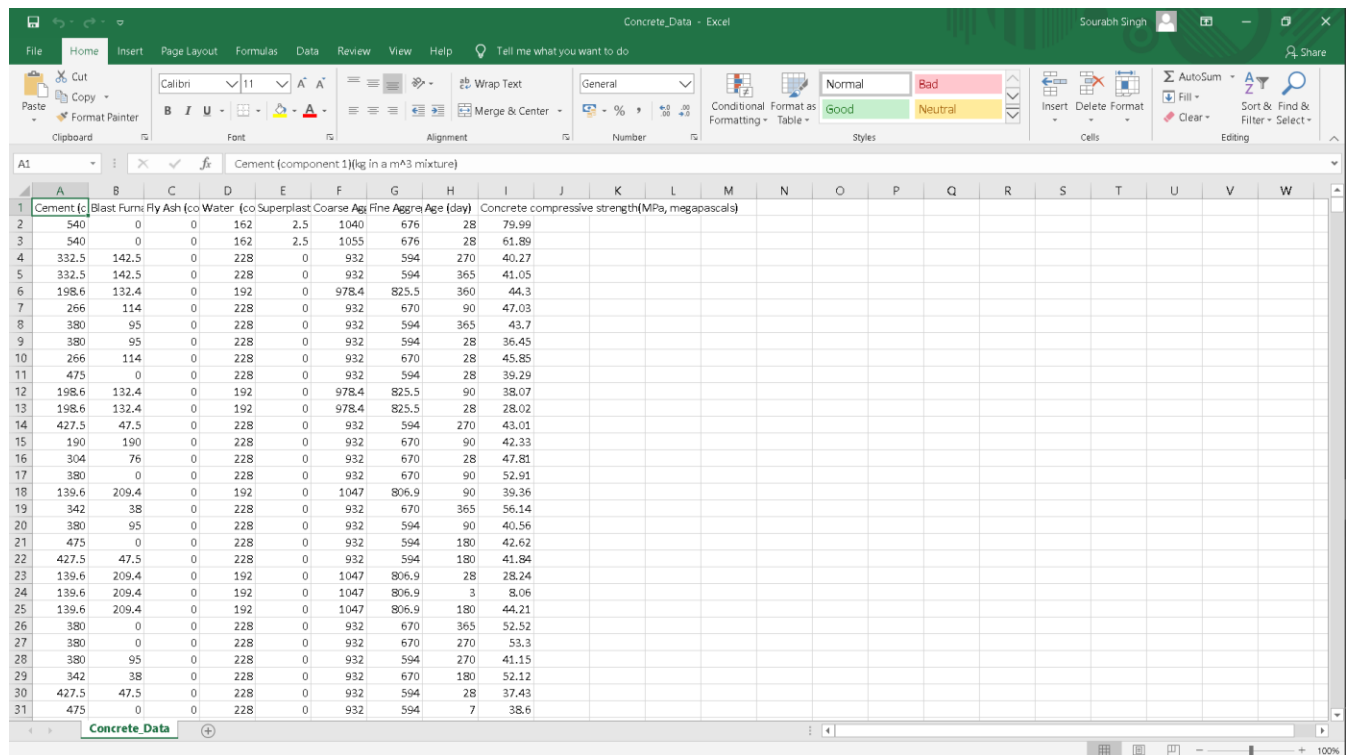
File | Home | Insert | Page Layout | Formulas | Data | Review | View | Help | Tell me what you want to do

Clipboard | Font | Alignment | Number | Styles | Cells | Editing

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	Cement (component 1)(kg in a m <sup>3</sup> mixture)	Blast Furnace Slag (component 2)(kg in a m <sup>3</sup> mixture)	Fly Ash (component 3)(kg in a m <sup>3</sup> mixture)	Water (component 4)(kg in a m <sup>3</sup> mixture)	Superplasti- cizer (component 5)(kg in a m <sup>3</sup> mixture)	Coarse Aggregate (component 6)(kg in a m <sup>3</sup> mixture)	Fine Aggregate (component 7)(kg in a m <sup>3</sup> mixture)	Age (day)	Concrete compressive strength(MPa, megapascal)											
1																				
2	540.0	0.0	0.0	162.0	2.5	1040.0	676.0	28	79.99											
3	540.0	0.0	0.0	162.0	2.5	1055.0	676.0	28	61.89											
4	332.5	142.5	0.0	228.0	0.0	932.0	594.0	270	40.27											
5	332.5	142.5	0.0	228.0	0.0	932.0	594.0	365	41.05											
6	198.6	132.4	0.0	192.0	0.0	978.4	825.5	360	44.30											
7	266.0	114.0	0.0	228.0	0.0	932.0	670.0	90	47.03											
8	380.0	95.0	0.0	228.0	0.0	932.0	594.0	365	43.70											
9	380.0	95.0	0.0	228.0	0.0	932.0	594.0	28	36.45											
10	266.0	114.0	0.0	228.0	0.0	932.0	670.0	28	45.85											
11	475.0	0.0	0.0	228.0	0.0	932.0	594.0	28	39.29											
12	198.6	132.4	0.0	192.0	0.0	978.4	825.5	90	38.07											
13	198.6	132.4	0.0	192.0	0.0	978.4	825.5	28	28.02											
14	427.5	47.5	0.0	228.0	0.0	932.0	594.0	270	43.01											
15	190.0	190.0	0.0	228.0	0.0	932.0	670.0	90	42.33											
16	304.0	76.0	0.0	228.0	0.0	932.0	670.0	28	47.81											
17	380.0	0.0	0.0	228.0	0.0	932.0	670.0	90	52.91											
18	139.6	209.4	0.0	192.0	0.0	1047.0	806.9	90	39.36											
19	342.0	38.0	0.0	228.0	0.0	932.0	670.0	365	56.14											
20	380.0	95.0	0.0	228.0	0.0	932.0	594.0	90	40.56											
21	475.0	0.0	0.0	228.0	0.0	932.0	594.0	180	42.62											
22	427.5	47.5	0.0	228.0	0.0	932.0	594.0	180	41.84											
23	139.6	209.4	0.0	192.0	0.0	1047.0	806.9	28	28.24											
24	139.6	209.4	0.0	192.0	0.0	1047.0	806.9	3	8.06											
25	139.6	209.4	0.0	192.0	0.0	1047.0	806.9	180	44.21											

Sheet1 | Sheet2 | Sheet3

.csv format



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	Cement (component 1)(kg in a m <sup>3</sup> mixture)																						
2	Blast Furnace Gas (B)	540	0	0	162	2.5	1040	676	28	79.99													
3	540	0	0	162	2.5	1055	676	28	61.89														
4	332.5	142.5	0	228	0	932	594	270	40.27														
5	332.5	142.5	0	228	0	932	594	365	41.05														
6	198.6	132.4	0	192	0	978.4	825.5	360	44.3														
7	266	114	0	228	0	932	670	90	47.03														
8	380	95	0	228	0	932	594	365	43.7														
9	380	95	0	228	0	932	594	28	36.45														
10	266	114	0	228	0	932	670	28	45.85														
11	475	0	0	228	0	932	594	28	39.29														
12	198.6	132.4	0	192	0	978.4	825.5	90	38.07														
13	198.6	132.4	0	192	0	978.4	825.5	28	28.02														
14	427.5	47.5	0	228	0	932	594	270	43.01														
15	190	190	0	228	0	932	670	90	42.33														
16	304	76	0	228	0	932	670	28	47.81														
17	380	0	0	228	0	932	670	90	52.91														
18	139.6	209.4	0	192	0	1047	806.9	90	39.36														
19	342	38	0	228	0	932	670	365	56.14														
20	380	95	0	228	0	932	594	90	40.56														
21	475	0	0	228	0	932	594	180	42.62														
22	427.5	47.5	0	228	0	932	594	190	41.94														
23	139.6	209.4	0	192	0	1047	806.9	28	28.24														
24	139.6	209.4	0	192	0	1047	806.9	3	8.06														
25	139.6	209.4	0	192	0	1047	806.9	180	44.21														
26	380	0	0	228	0	932	670	365	52.52														
27	380	0	0	228	0	932	670	270	53.3														
28	380	95	0	228	0	932	594	270	41.15														
29	342	38	0	228	0	932	670	180	52.12														
30	427.5	47.5	0	228	0	932	594	28	37.43														
31	475	0	0	228	0	932	594	7	38.6														

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Sourabh Singh

**Language**

Browser detects English.

**User ID**

sourabh99x@gmail.com

**Password**

\*\*\*\*\*

**Contact information**

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**Email**

sourabh99x@gmail.com

**Primary phone number**

None

**Alternate phone number**

None


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Resource list

Create resource +

Name	Group	Location	Offering	Status	Tags
Filter by name or IP address...Filter by group or org...Filter...Filter...Filter...Filter...					
Clusters (0)					
Cloud Foundry apps (1)					
Node RED EAMFP	sourabh99x@gmail.com / dev	London	SDK for Node.js™	Started	—
Cloud Foundry services (1)					
node-red-eamfp-cloudant-159556915...	sourabh99x@gmail.com / dev	London	Cloudant	Provisioned	—
Services (4)					
Continuous Delivery	Default	Dallas	Continuous Delivery	Active	—
Watson Studio-s1	Default	Dallas	Watson Studio	Active	—
node-red-eamfp-cloudant-159556915...	Default	London	Cloudant	Active	—
pm-20-px	Default	Dallas	Machine Learning	Active	cpda...
Storage (1)					
cloud-object-storage-ow	Default	Global	Cloud Object Storage	Active	—
Network (0)					

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MODIFIED Jul 16, 2020

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Watson Studio

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CSVConcrete\_Data.csvData AssetSourabh SinghJul 24, 2020, 10:58 AM

AutoAI experimentsNew AutoAI experiment

Name	Status	Model type	Last modified
MyMLAlgo	Completed	Regression	Jul 24, 2020, 11:06 AM

Deep learning experimentsNew deep learning experiment

Name	Last Modified
You don't have any Deep learning experiments yet	

ModelsImport model

Watson Machine Learning model

Name	Type	Runtime	Last modified
MyMLAlgo - P2 GradientBoostingRegressorEstimator	wml-hybrid_0.1	hybrid_0.1	Jul 24, 2020

Data

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CSVConcrete\_Data.csvData AssetSourabh SinghJul 24, 2020, 10:58 AM

AutoAI experimentsNew AutoAI experiment

Name	Status	Model type	Last modified
MyMLAlgo	Completed	Regression	Jul 24, 2020, 11:06 AM

Deep learning experimentsNew deep learning experiment

Name	Last Modified
You don't have any Deep learning experiments yet	

ModelsImport model

Watson Machine Learning model

Name	Type	Runtime	Last modified
MyMLAlgo - P2 GradientBoostingRegressorEstimator	wml-hybrid_0.1	hybrid_0.1	Jul 24, 2020

Data

LoadFilesCatalog

Drop files here or browse for files to upload.

Choose asset type

Available asset types

AutoAI experimentFully automated approach to building a classification or regression model.

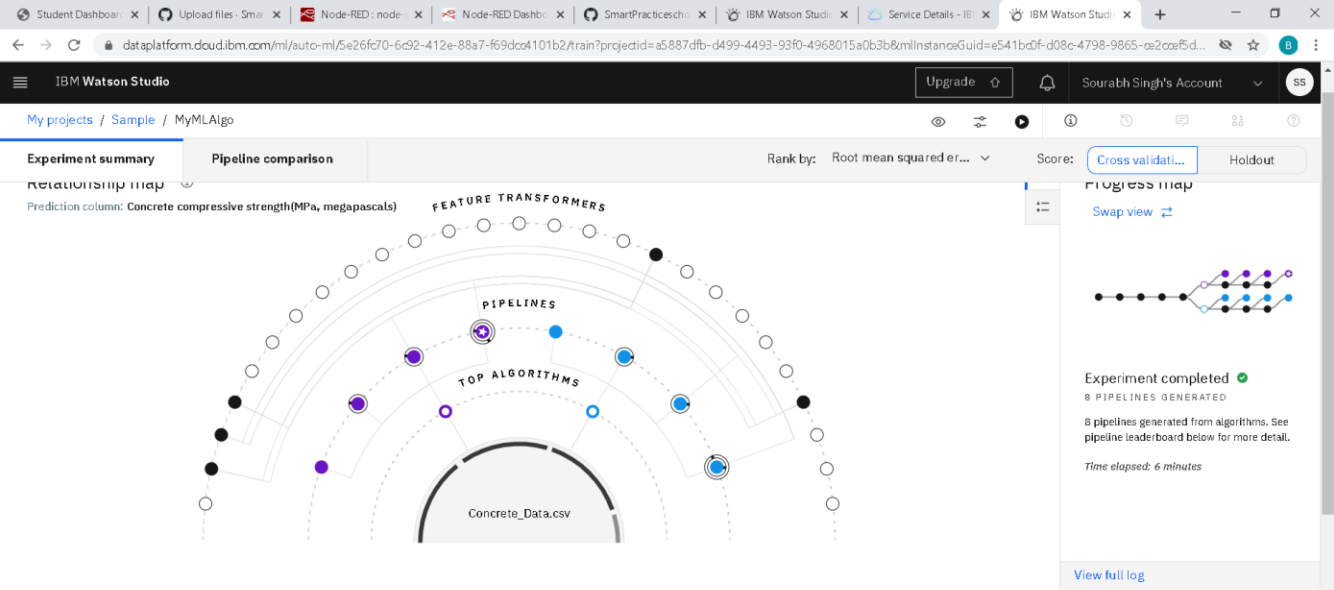
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AutoAI experimentNotebookDashboard

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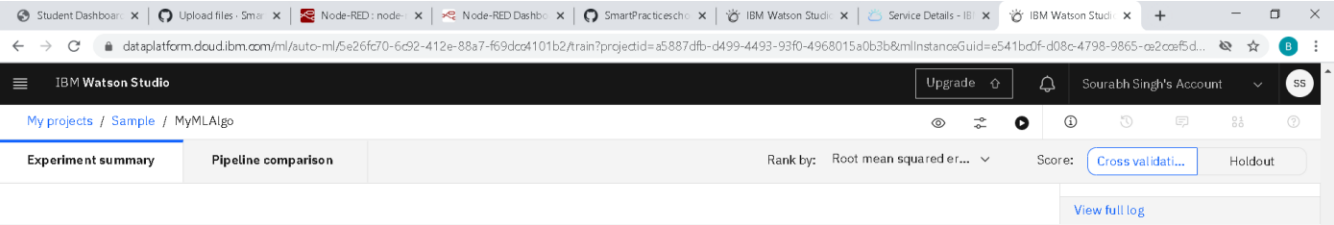
Deep learning exper...Data ReplicationModeler flow

Data Refinery flowStreams flowDecision Optimizatio...



Pipeline leaderboard

Rank	Name	Algorithm	RMSE (Optimized)	Enhancements	Build time
1	Pipeline 4	Gradient Boosting Regressor	4.502	HPO-1 FE HPO-2	00:00:25



Pipeline leaderboard

Rank	Name	Algorithm	RMSE (Optimized)	Enhancements	Build time
1	Pipeline 4	Gradient Boosting Regressor	4.502	HPO-1 FE HPO-2	00:00:25
2	Pipeline 3	Gradient Boosting Regressor	4.598	HPO-1 FE	00:02:20
3	Pipeline 2	Gradient Boosting Regressor	4.878	HPO-1	00:00:12
4	Pipeline 1	Gradient Boosting Regressor	5.330	None	00:00:01
5	Pipeline 7	Random Forest Regressor	5.471	HPO-1 FE	00:00:41
6	Pipeline 8	Random Forest Regressor	5.471	HPO-1 FE HPO-2	00:00:42
7	Pipeline 5	Random Forest Regressor	5.843	None	00:00:01
8	Pipeline 6	Random Forest Regressor	5.843	HPO-1	00:00:12

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My projects / Sample / MyMLAlgo

Experiment summary Pipeline comparison Rank by: Root mean squared er... Score: Cross validati... Holdout

Pipeline leaderboard

Rank	↑	Name	Algorithm	RMSE (Optimized)	Explained v...	Mean abso...	Mean squar...	Mean squar...	Median abs...	Root mean s...	R <sup>2</sup>
★ 1		Pipeline 4	Gradient Boosting Regressor	4.502	0.927	3.068	20.331	0.021	2.030	0.143	0.
2		Pipeline 3	Gradient Boosting Regressor	4.598	0.924	3.163	21.201	0.021	2.133	0.145	0.
3		Pipeline 2	Gradient Boosting Regressor	4.878	0.915	3.402	23.808	0.023	2.436	0.152	0.
4		Pipeline 1	Gradient Boosting Regressor	5.330	0.899	3.888	28.424	0.026	2.934	0.162	0.
5		Pipeline 7	Random Forest Regressor	5.471	0.893	3.855	29.936	0.032	2.693	0.179	0.
6		Pipeline 8	Random Forest Regressor	5.471	0.893	3.855	29.936	0.032	2.693	0.179	0.
7		Pipeline 5	Random Forest Regressor	5.843	0.877	4.073	34.163	0.033	2.805	0.182	0.
8		Pipeline 6	Random Forest Regressor	5.843	0.877	4.073	34.163	0.033	2.805	0.182	0.

Student Dashboard x Upload files - Smart x Node-RED: node x Node-RED Dashb x SmartPracticesch x IBM Watson Studi x Service Details - IB x IBM Watson Studi x

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ConcreteModel

Overview Implementation Test

Enter input data

87

Coarse Aggregate (component 6)(kg in a m^3 mixture)

87

Fine Aggregate (component 7)(kg in a m^3 mixture)

87

Age (day)

21

Predict

```
{  "predictions": [    {      "fields": [        "prediction"      ],      "values": [        [          44.83375294284063        ]      ]    }  ]}
```

## ➤ Application Building and Web UI:-

The screenshot displays the IBM Cloud Catalog interface. The browser address bar shows the URL: `cloud.ibm.com/catalog?search=label%3ABoilerplate#software`. The left sidebar contains a navigation menu with categories like Analytics, Databases, Developer Tools, Logging and Monitoring, Integration, Security, and Mobile. Under the 'Software' section, 'Starter kits' is selected. The main content area shows a search bar and a list of starter kits under the filter 'Starter kits'. The 'Node-RED App' is highlighted with a blue border. Below the main content, a URL is visible: `https://cloud.ibm.com/developer/appservice/starter-kits/59c9d5bd-4d31-3611-897a-f94ee80dc9f/node-red`.

IBM Cloud

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Filters: Starter kits Clear all

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**Custom Vision Model for Core ML with Watson**  
IBM • AI / Machine Learning  
Create Apple Core ML Models using the Watson Visual Recognition service to process and tag images locally.  
Starter kits

**Go Gin App**  
IBM • Developer Tools  
Start building your next Go Gin app on IBM Cloud.  
Starter kits • IBM Kubernetes Service • Red Hat OpenShift

**Java Liberty App**  
IBM • Developer Tools  
Start building your next Java Liberty app on IBM Cloud.  
Starter kits • IBM Kubernetes Service • Red Hat OpenShift

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**Swift Kitura App**

**Visual Recognition Node.js App**

FEEDBACK

<https://cloud.ibm.com/developer/appservice/starter-kits/59c9d5bd-4d31-3611-897a-f94ee80dc9f/node-red>





Student Dashboard x Upload files - SmartPr x Node-RED: node-red x Node-RED Dashboard x SmartPracticeschool x Application Details - IB x Service Details - IBM Cl x

dcloud.ibm.com/services/pm-20/cm%3Av1%3Abluemix%3Apublic%3Apm-20%3Aus-south%3Aa%2F5c2e615d305a4038afa0103f73cab931%3Ae541bc0f-d08c-4798-9865-ce2cce5d29f63A%3Apanelid...

IBM Cloud Search resources and offerings...

Resource list / pm-20-px Active cpdaas Details Actions...

Manage Service credentials Plan Connections

**Service credentials**

You can generate a new set of credentials for cases where you want to manually connect an app or external consumer to an IBM Cloud™ service. [Learn more](#)

Search credentials... New credential +

Key name	Date created
wdp-writer	JUL 24, 2020 - 10:52:16 AM
Service credentials-1	JUL 24, 2020 - 12:34:37 PM

```
{
  "apikey": "0-9q45abh6VwoukTMpUtiMNRwF16S3Jg0Jwn6Qb3Pfx",
  "iam_apikey_description": "Auto-generated for key 738bd62f-b784-4062-81fe-4ed6d3747777",
  "iam_apikey_name": "Service credentials-1",
  "iam_role_crn": "crn:v1:bluemix:public:iam:::serviceRole:Writer",
  "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity::a/5c2e615d305a4038afa0103f73cab931::serviceid:ServiceId-578f6054-1efa-4563-89e1-04712309829f",
  "instance_id": "e541bc0f-d08c-4798-9865-ce2cce5d29f",
  "url": "https://us-south.ml.cloud.ibm.com"
}
```

Student Dashboard x Upload files - Sm x Node-RED: node-red x Node-RED Dashbo x SmartPracticescho x Application Detail x Service Details - IB x IBM Watson Studi x

dataplatfrom.dcloud.ibm.com/ml/deployments/efb7ed6b-46db-4e17-9f08-adc0caad6828/implementation?projectId=a5887dfb-d499-4493-93f0-4968015a0b3b&mlInstanceGuid=e541bc0f-d08c-4798-...

IBM Watson Studio Upgrade Sourabh Singh's Account

My projects / Sample / MyMLAlgo - P2 GradientBoostin... / ConcreteModel

Overview Implementation Test

**Implementation** View API Specification

Scoring End-point	https://us-south.ml.cloud.ibm.com/v4/deployments/efb7ed6b-46db-4e17-9f08-adc0caad6828/predictions
Authorization: Bearer <token>	Review the <a href="#">WML authentication</a> documentation for details about generating IAM tokens.
ML-Instance-ID	The "ML-Instance-ID" HTTP header must be populated with the WML instance id, which can be obtained as <a href="#">described here</a>
Content-type: application/json	Required if the request body is sent in JSON format.

**Code Snippets**

cURL Java JavaScript Python Scala

```
import urllib3, requests, json

# NOTE: generate iam_token and retrieve ml_instance_id based on provided documentation
header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + iam_token, 'ML-Instance-ID': ml_instance_id}

# NOTE: manually define and pass the array(s) of values to be scored in the next line
payload_scoring = {'input_data': [{'fields': ['Cement (component 1)(kg in a m^3 mixture)', 'Blast Furnace Slag (component 2)(kg in a m^3 mixture)', 'Fly Ash (component 3)(kg in a m^3 mixture)', 'Water (component 4)(kg in a m^3 mixture)', 'Supplementary Cementitious Material (component 5)(kg in a m^3 mixture)']}]

response_scoring = requests.post('https://us-south.ml.cloud.ibm.com/v4/deployments/efb7ed6b-46db-4e17-9f08-adc0caad6828/predictions', json=payload_scoring, headers=header)
print("Scoring response")
print(json.loads(response_scoring.text))
```

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node-red-eampf.eu-gb.mybluemix.net/red/#f61e6a4d6.f769c

palette.filter

Flow 2

common

- inject
- debug
- complete
- catch
- status
- link in
- link out
- comment

function

- function
- switch
- change
- range
- template
- delay

Code by Sourabh Singh

form

PreToken

httpin.httpreq

Pre Prediction

httpin.httpreq

function.function

Strength

msg.payload

debug.sidebar

node-red debug sidebar filterAll

7/26/2020, 1:26:10 PM node: d01db95a.345478  
msg.payload: Object

- object
  - predictions: array[1]
    - 0: object
      - fields: array[1]
        - values: array[1]
          - 0: array[1]
            - 0: 19.07554148821758

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node-red-eampf.eu-gb.mybluemix.net/red/#f61e6a4d6.f769c

Node-RED

filter nodes

Flow 2

Flow 3

common

- inject
- debug
- complete
- catch
- status
- link in
- link out
- comment

function

- function
- switch
- change
- range
- template
- delay

form

PreToken

User Settings

View

Nodes

Install

Keyboard

sort: 17 a-z recent

node-red-dash

node-red-dash

A set of dashboard nodes for Node-RED

2.23.0 2 weeks ago

installed

node-red-node-ui-list

Node-RED Dashboard UI widget node for simple list

0.3.1 1 month ago

install

node-red-node-ui-vega

Node-RED UI widget node for Vega visualization grammar

0.1.2 10 months ago

install

node-red-node-ui-table

Table UI widget node for Node-RED Dashboard

0.3.3 6 days ago

install

node-red-node-ui-microphone

A Node-RED ui node to record audio on a dashboard.

0.1.4 2 months ago

install

node-red-node-ui-lineargauge

A Node-RED ui node to display a linear gauge on the dashboard.

0.3.6 11 months ago

install

info

Search flows

Flows

- Flow 2
- Flow 3

Subflows

- Global Configuration Nodes

Flow 2

Flow

"61e6a4d6.f769c"

https://node-red-eampf.eu-gb.mybluemix.net/red/#

Home

**Default**

Cement \*  
12

Blast Furnace \*  
687

Fly Ash \*  
89

water \*  
76

superplasticizer \*  
89

Coarse Aggregate \*  
89

Fine Aggregate \*  
98

Age \*  
12

**SUBMIT** **CANCEL**

Strength **19.07554148821758**

## A.2 Flow.Json file Source Code:-

```
[{"id":"61e6a4d6.fd769c","type":"tab","label":"Flow
2","disabled":false,"info":"","},{id:"322c179b.2d43c8","type":"ui_form","z":"61e6a4d6.fd769c","name
":"","label":"","group":"113c44e7.f7415b","order":1,"width":0,"height":0,"options":[{"label":"Cement
","value":"cem","type":"number","required":true,"rows":null},{label":"Blast
Furnace","value":"bf","type":"number","required":true,"rows":null},{label":"Fly
Ash","value":"fa","type":"number","required":true,"rows":null},{label":"water","value":"water","type
":"number","required":true,"rows":null},{label":"superplasticizer","value":"sup","type":"number","re
quired":true,"rows":null},{label":"Coarse
Aggregate","value":"ca","type":"number","required":true,"rows":null},{label":"Fine
Aggregate","value":"fag","type":"number","required":true,"rows":null},{label":"Age","value":"age","t
ype":"number","required":true,"rows":null}],"formValue":{"cem":"","bf":"","fa":"","water":"","sup":"","
","ca":"","fag":"","age":""},"payload":"","submit":"submit","cancel":"cancel","topic":"","x":140,"y":280,
"wires":[["a335be72.e3e94"]]},{"id":"a335be72.e3e94","type":"function","z":"61e6a4d6.fd769c","nam
e":"PreToken","func":"\n//taking the values from form and assigning it to
global\n\nnglobal.set(\"cement\",msg.payload.cement)\nglobal.set(\"bfg\",msg.payload.bfg)\nglobal.s
et(\"fa\",msg.payload.fa)\nglobal.set(\"water\",msg.payload.water)\nglobal.set(\"sup\",msg.payload.
sup)\nglobal.set(\"ca\",msg.payload.ca)\nglobal.set(\"fag\",msg.payload.fag)\nglobal.set(\"age\",msg.
payload.age)\nvar apikey=\"O-
9q45abh6VwouokTMpUtiMNRwF10S3Jg0JwnGQb3Pfx\";\nmsg.headers={\"content-
type\":\"application/x-www-form-
urlencoded\"}\nmsg.payload={\"grant_type\":\"urn:ibm:params:oauth:grant-
type:apikey\", \"apikey\":apikey}\nreturn
```

```

msg;,"outputs":1,"noerr":0,"initialize":"","finalize":"","x":260,"y":400,"wires":[["f7ae60d3.c0e4b"]]],{
"id":"f7ae60d3.c0e4b","type":"http
request","z":"61e6a4d6.fd769c","name":"","method":"POST","ret":"obj","paytoqs":"ignore","url":"htt
ps://iam.cloud.ibm.com/identity/token","tls":"","persist":false,"proxy":"","authType":"","x":410,"y":2
60,"wires":[["590d8604.9edb08"]]],{"id":"590d8604.9edb08","type":"function","z":"61e6a4d6.fd769c"
,"name":"Pre Prediction","func":"//setting the values here\n\nvar cement = global.get('cement')\nvar
bfg = global.get('bfg')\nvar fa = global.get('fa')\nvar water = global.get('water')\nvar sup =
global.get('sup')\nvar ca = global.get('ca')\nvar fag = global.get('fag')\nvar age = global.get('age')\nvar
token=msg.payload.access_token\nvar instance_id=\"e541bc0f-d08c-4798-9865-
ce2cce5d29f\"\n\nmsg.headers={'Content-Type': 'application/json','Authorization':\"Bearer
\"+token,\"ML-Instance-ID\":instance_id}\n\nmsg.payload={\"input_data\": [{\"fields\": [\"Cement
(component 1)(kg in a m^3 mixture)\", \"Blast Furnace Slag (component 2)(kg in a m^3 mixture)\",
\"Fly Ash (component 3)(kg in a m^3 mixture)\", \"Water (component 4)(kg in a m^3 mixture)\",
\"Superplasticizer (component 5)(kg in a m^3 mixture)\", \"Coarse Aggregate (component 6)(kg in a
m^3 mixture)\", \"Fine Aggregate (component 7)(kg in a m^3 mixture)\", \"Age (day)\", \"values\":
[[cement,bfg,fa,water,sup,ca,fag,age]]]}\n\nreturn
msg;,"outputs":1,"noerr":0,"initialize":"","finalize":"","x":520,"y":420,"wires":[["24feb0d7.5d667"]]],{
"id":"24feb0d7.5d667","type":"http
request","z":"61e6a4d6.fd769c","name":"","method":"POST","ret":"obj","paytoqs":"ignore","url":"htt
ps://us-south.ml.cloud.ibm.com/v4/deployments/efb7ed6b-46db-4e17-9f08-
adc0caad6828/predictions","tls":"","persist":false,"proxy":"","authType":"","x":690,"y":300,"wires":[["
8341a742.a576b8","d01db95a.345478"]]],{"id":"8341a742.a576b8","type":"function","z":"61e6a4d6.f
d769c","name":"","func":"//getting the prdictions values from api and storing to to our msg
variable\n\nmsg.payload=msg.payload.predictions[0].values[0][0]\n\nreturn
msg;,"outputs":1,"noerr":0,"initialize":"","finalize":"","x":840,"y":120,"wires":[["42c38eb6.da3ed"]]],{
"id":"42c38eb6.da3ed","type":"ui_text","z":"61e6a4d6.fd769c","group":"113c44e7.f7415b","order":2,
"width":0,"height":0,"name":"","label":"Strength","format":"{{msg.payload}}","layout":"row-
spread","x":920,"y":260,"wires":[[]]],{"id":"d01db95a.345478","type":"debug","z":"61e6a4d6.fd769c",
"name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"payload","targetT
ype":"msg","statusVal":"","statusType":"auto","x":910,"y":440,"wires":[[]]],{"id":"746e1f82.9a152","typ
e":"comment","z":"61e6a4d6.fd769c","name":"Code by Sourabh Singh","info":"Here we made our
prediction with the given dataset\n\nwith the help of waatson-studio AI \n\nand used that in depoying our
project to the internet\n\n\n<-- Code by\n Sourabh Singh--
>","x":530,"y":100,"wires":[[]]],{"id":"113c44e7.f7415b","type":"ui_group","z":"","name":"Default","tab
":"36b085c.e80567a","order":1,"disp":true,"width":"6","collapse":false},{id":"36b085c.e80567a","typ
e":"ui_tab","z":"","name":"Home","icon":"dashboard","disabled":false,"hidden":false}]

```

***"THANK YOU"***

