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 Purpose:- Predicting Compressive Strength Of Concrete Using IBM Watson AutoAI Experiment
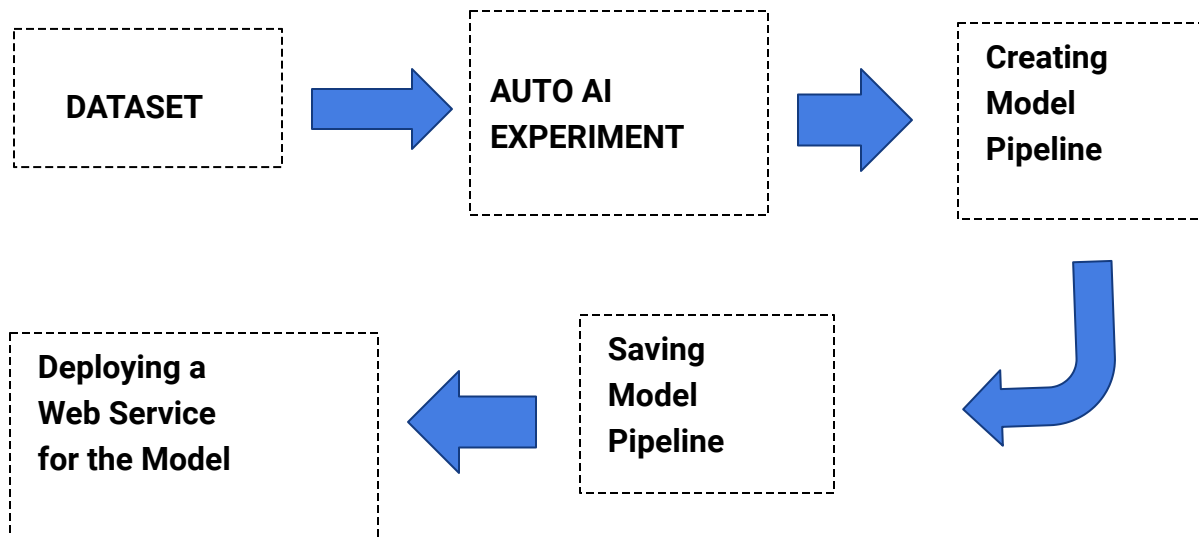
2. LITERATURE SURVEY:-

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.
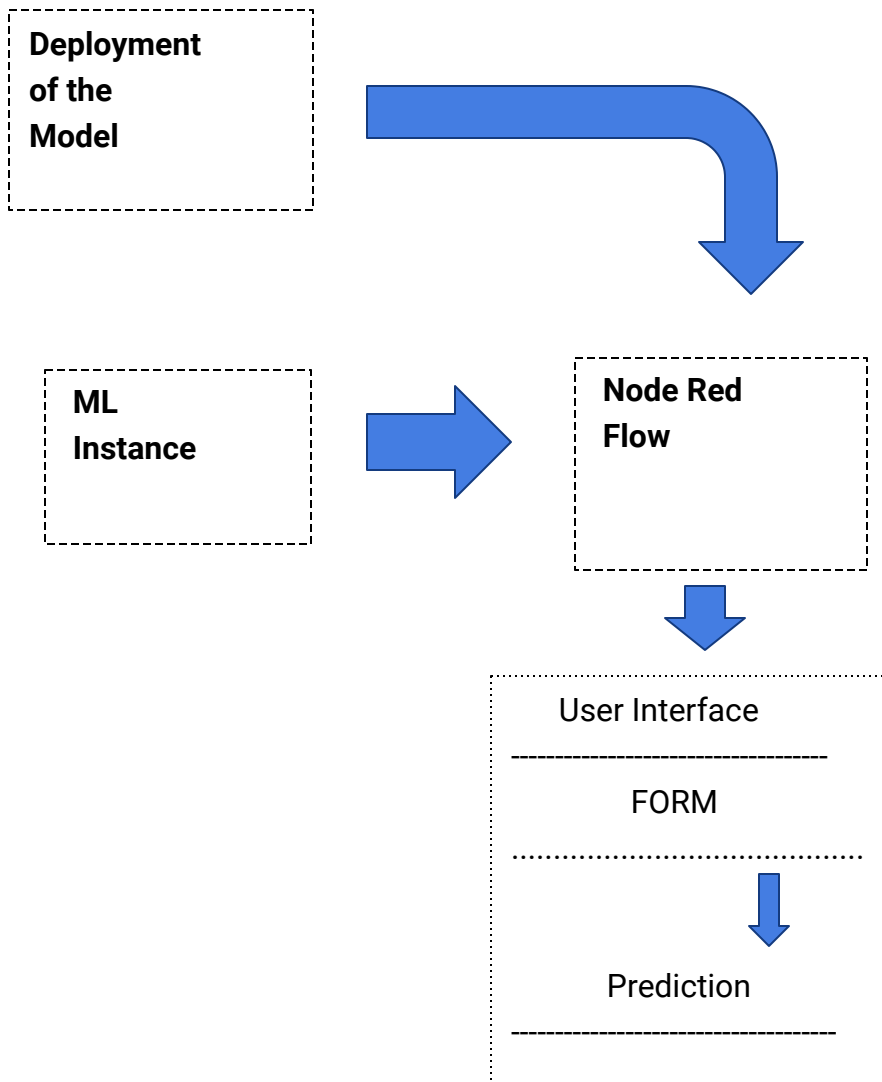
2.2 Proposed Solution:-
The main aim of this project is to create an appropriate machine learning model to analyse and predict the compressive strength of Concrete, So for that we will build a Machine Learning model to predict the strength of compressive concrete using IBM Watson, AutoAI Machine Learning 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.
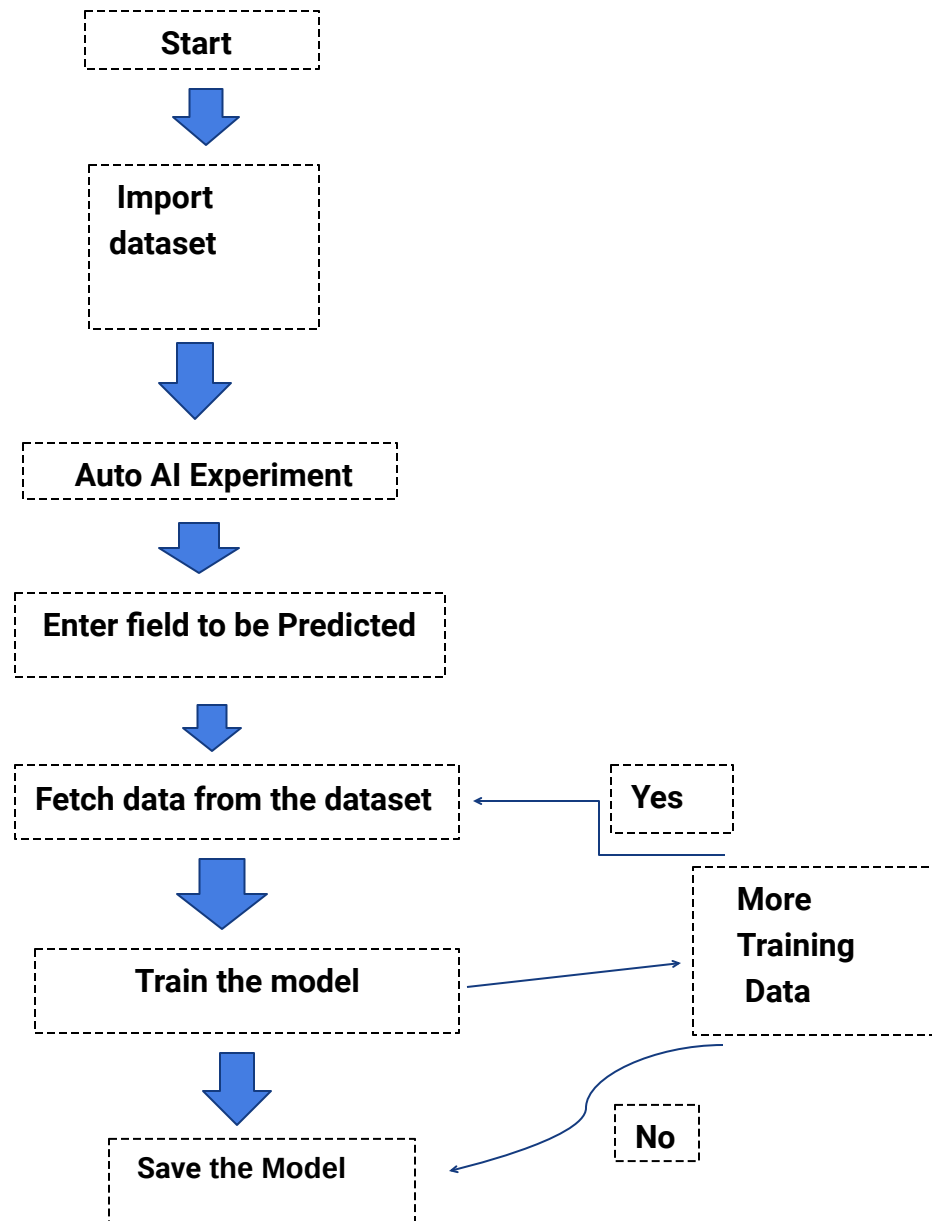
THEORETICAL ANALYSIS:-

DATASET → AUTO AI EXPERIMENT → Creating Model Pipeline

Deploying a Web Service for the Model ← Saving Model Pipeline ←

SOFTWARE DESIGNING:-

Deployment of the Model →

ML Instance → Node Red Flow

↓

User Interface

FORM
....
↓
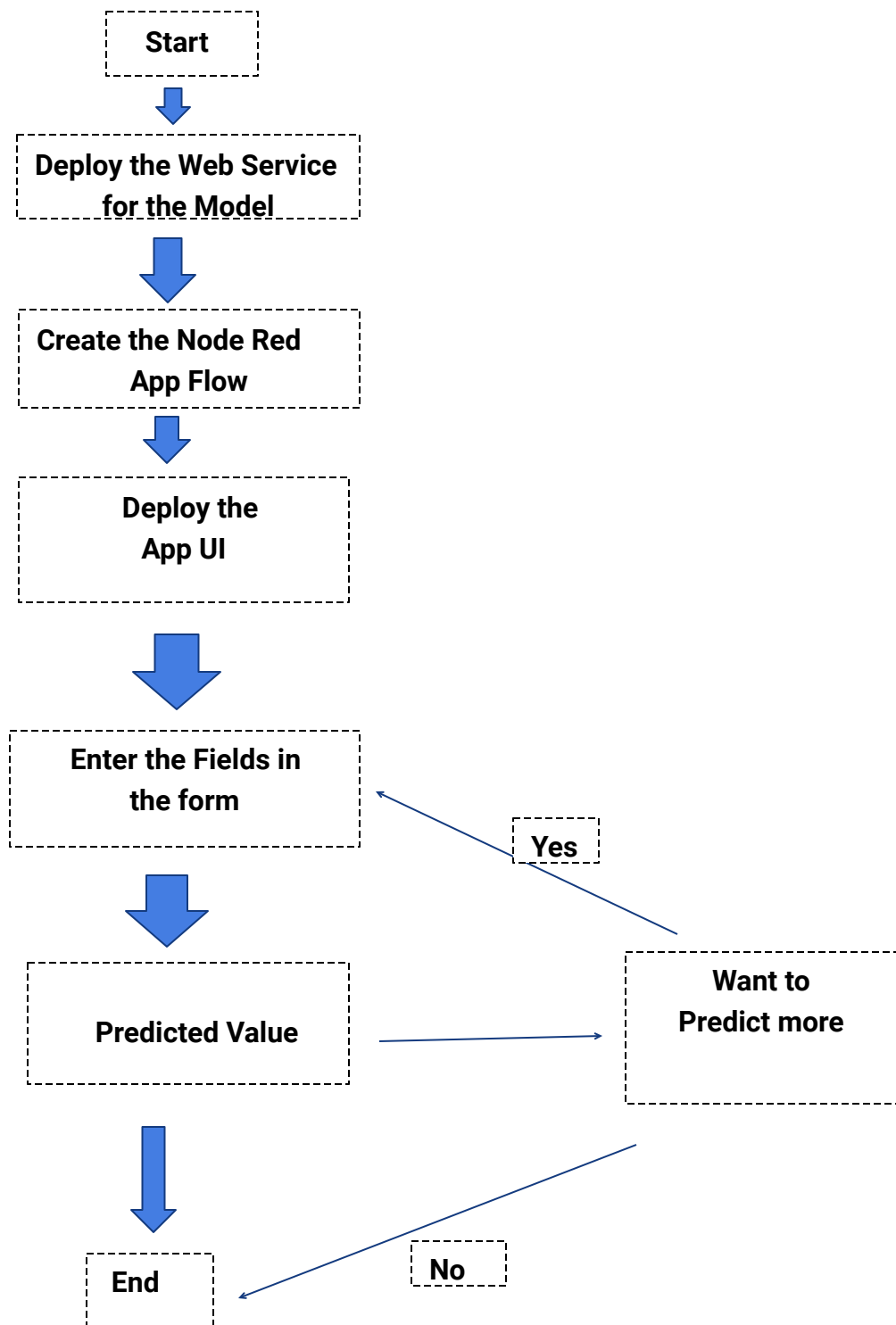Prediction
----

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 . Requrements of this model depending upon its demography and can be used to learn the requirement trends.

FLOW CHART:-

```
        ┌─────────────┐
        │    Start     │
        └─────────────┘
               │
               ▼
        ┌─────────────┐
        │   Import     │
        │   dataset    │
        └─────────────┘
               │
               ▼
        ┌──────────────────┐
        │ Auto AI Experiment │
        └──────────────────┘
               │
               ▼
        ┌──────────────────────┐
        │ Enter field to be Predicted │
        └──────────────────────┘
               │
               ▼
        ┌──────────────────────────┐          ┌───────┐
        │ Fetch data from the dataset │ ◄──────│  Yes  │
        └──────────────────────────┘          └───────┘
               │                                    ▲
               ▼                              ┌──────────┐
        ┌──────────────────┐                  │   More    │
        │  Train the model  │ ────────────►   │ Training  │
        └──────────────────┘                  │   Data    │
               │                              └──────────┘
               ▼                                    │
        ┌──────────────────┐          ┌───────┐    │
        │  Save the Model   │ ◄───────│  No   │◄───┘
        └──────────────────┘          └───────┘
```

```
                    Start

                      ↓

          Deploy the Web Service
              for the Model

                      ↓

          Create the Node Red
               App Flow

                      ↓

               Deploy the
                 App UI

                      ↓

          Enter the Fields in
              the form                  ←──── Yes

                      ↓

                                              Want to
          Predicted Value    ──────→        Predict more

                      ↓

               End        ←──── No
```

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.

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:-

 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.

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.

Future scope:- Our study can further be done in new type of conctrete:- • 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,
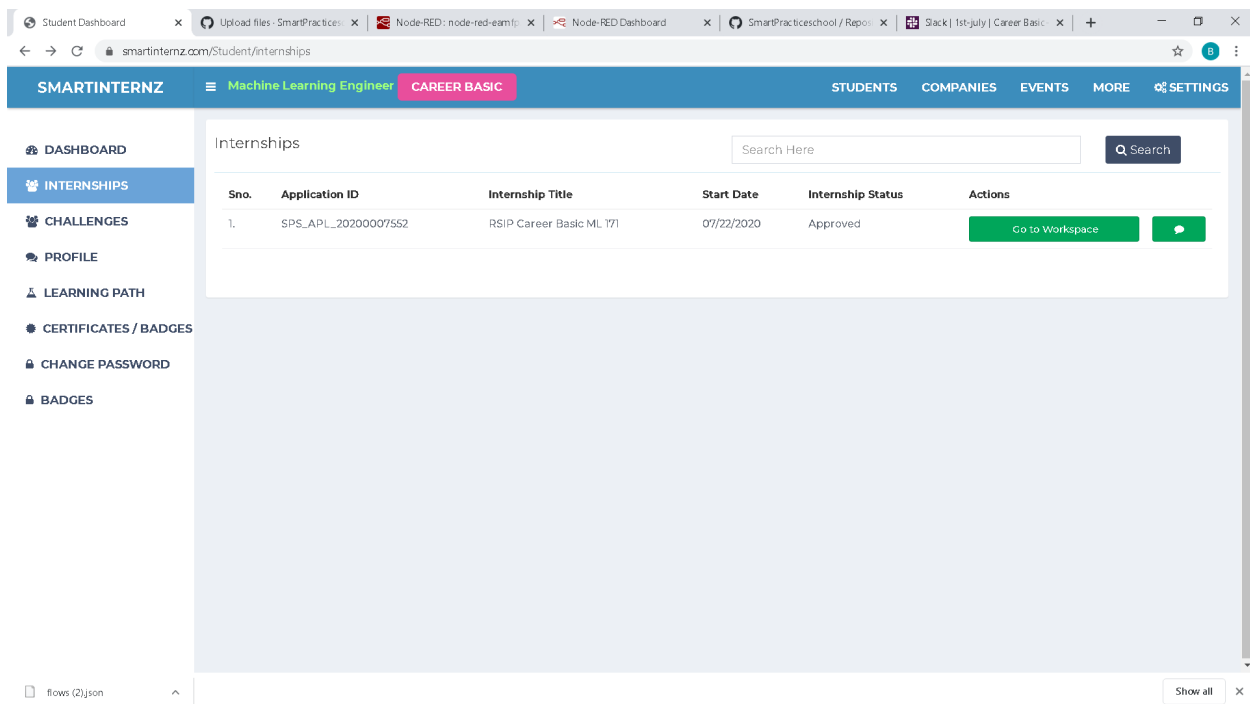
porcelain), High Iron (Millscale) cement can be the future entry in the blended cements.

.Bibliography/ References:
Source of Dataset:
https://archive.ics.uci.edu/ml/machine-learning-databases/concrete/compressive/

SCREENSHOTS:-

◎ Go to Git Repository   **✿ Go to Slack Channel**   **3 Days 3:2:44**

| PROJECT DETAILS | TASK & PROGRESS | MENTOR REVIEW |

⊕ **Predicting Compressive Strength Of Concrete Using IBM Watson AutoAI Experiment**

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   ×

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🎲 DASHBOARD

👥 INTERNSHIPS

👥 CHALLENGES

💬 PROFILE

⚖ LEARNING PATH

❀ CERTIFICATES / BADGES

🔒 CHANGE PASSWORD

🔒 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   **0%**

Assigned Tasks Progress   **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   ^   Show all   ×

.XLS FORMAT

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)	Concrete compressive strength(MPa, megapascals)
540.0	0.0	0.0	162.0	2.5	1040.0	676.0	28	79.99
540.0	0.0	0.0	162.0	2.5	1055.0	676.0	28	61.89
332.5	142.5	0.0	228.0	0.0	932.0	594.0	270	40.27
332.5	142.5	0.0	228.0	0.0	932.0	594.0	365	41.05
198.6	132.4	0.0	192.0	0.0	978.4	825.5	360	44.30
266.0	114.0	0.0	228.0	0.0	932.0	670.0	90	47.03
380.0	95.0	0.0	228.0	0.0	932.0	594.0	365	43.70
380.0	95.0	0.0	228.0	0.0	932.0	594.0	28	36.45
266.0	114.0	0.0	228.0	0.0	932.0	670.0	28	45.85
475.0	0.0	0.0	228.0	0.0	932.0	594.0	28	39.29
198.6	132.4	0.0	192.0	0.0	978.4	825.5	90	38.07
198.6	132.4	0.0	192.0	0.0	978.4	825.5	28	28.02
427.5	47.5	0.0	228.0	0.0	932.0	594.0	270	43.01
190.0	190.0	0.0	228.0	0.0	932.0	670.0	90	42.33
304.0	76.0	0.0	228.0	0.0	932.0	670.0	28	47.81
380.0	0.0	0.0	228.0	0.0	932.0	670.0	90	52.91
139.6	209.4	0.0	192.0	0.0	1047.0	806.9	90	39.36
342.0	38.0	0.0	228.0	0.0	932.0	670.0	365	56.14
380.0	95.0	0.0	228.0	0.0	932.0	594.0	90	40.56
475.0	0.0	0.0	228.0	0.0	932.0	594.0	180	42.62
427.5	47.5	0.0	228.0	0.0	932.0	594.0	180	41.84
139.6	209.4	0.0	192.0	0.0	1047.0	806.9	28	28.24
139.6	209.4	0.0	192.0	0.0	1047.0	806.9	3	8.06
139.6	209.4	0.0	192.0	0.0	1047.0	806.9	180	44.21

.CSV FORMAT

Cement (c	Blast Furna	Fly Ash (co	Water (co	Superplast	Coarse Agg	Fine Aggre	Age (day)	Concrete compressive strength(MPa, megapascals)
540	0	0	162	2.5	1040	676	28	79.99
540	0	0	162	2.5	1055	676	28	61.89
332.5	142.5	0	228	0	932	594	270	40.27
332.5	142.5	0	228	0	932	594	365	41.05
198.6	132.4	0	192	0	978.4	825.5	360	44.3
266	114	0	228	0	932	670	90	47.03
380	95	0	228	0	932	594	365	43.7
380	95	0	228	0	932	594	28	36.45
266	114	0	228	0	932	670	28	45.85
475	0	0	228	0	932	594	28	39.29
198.6	132.4	0	192	0	978.4	825.5	90	38.07
198.6	132.4	0	192	0	978.4	825.5	28	28.02
427.5	47.5	0	228	0	932	594	270	43.01
190	190	0	228	0	932	670	90	42.33
304	76	0	228	0	932	670	28	47.81
380	0	0	228	0	932	670	90	52.91
139.6	209.4	0	192	0	1047	806.9	90	39.36
342	38	0	228	0	932	670	365	56.14
380	95	0	228	0	932	594	90	40.56
475	0	0	228	0	932	594	180	42.62
427.5	47.5	0	228	0	932	594	180	41.84
139.6	209.4	0	192	0	1047	806.9	28	28.24
139.6	209.4	0	192	0	1047	806.9	3	8.06
139.6	209.4	0	192	0	1047	806.9	180	44.21
380	0	0	228	0	932	670	365	52.52
380	0	0	228	0	932	670	270	53.3
380	95	0	228	0	932	594	270	41.15
342	38	0	228	0	932	670	180	52.12
427.5	47.5	0	228	0	932	594	28	37.43
475	0	0	228	0	932	594	7	38.6

IBM CLOUD SERVICE AND MODEL BUILDING:-

dataplatform.cloud.ibm.com/home2?context=cpdaas&apps=data_science_experience&nocache=true

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---

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

⌄ **Deep learning experiments** — New deep learning experiment +

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

⌄ **Models**

Watson Machine Learning model — Import model +

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MyMLAlgo - P2 GradientBoostingRegressorEstimator	wml-hybrid_0.1	hybrid_0.1	Jul 24, 2020	

IBM Watson Studio

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Available asset types

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	Connection	Connected data
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Deep learning exper...	Data Replication **NEW**	Modeler flow
Data Refinery flow	Streams flow	Decision Optimizatio... **NEW**

Name | Status

MyMLAlgo   ✓ Completed

⌄ Deep learning experiments

Name

⌄ Models

Watson Machine Learning model

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

IBM Watson Studio

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ConcreteModel

Overview | Implementation | **Test**

Enter input data

87

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

87
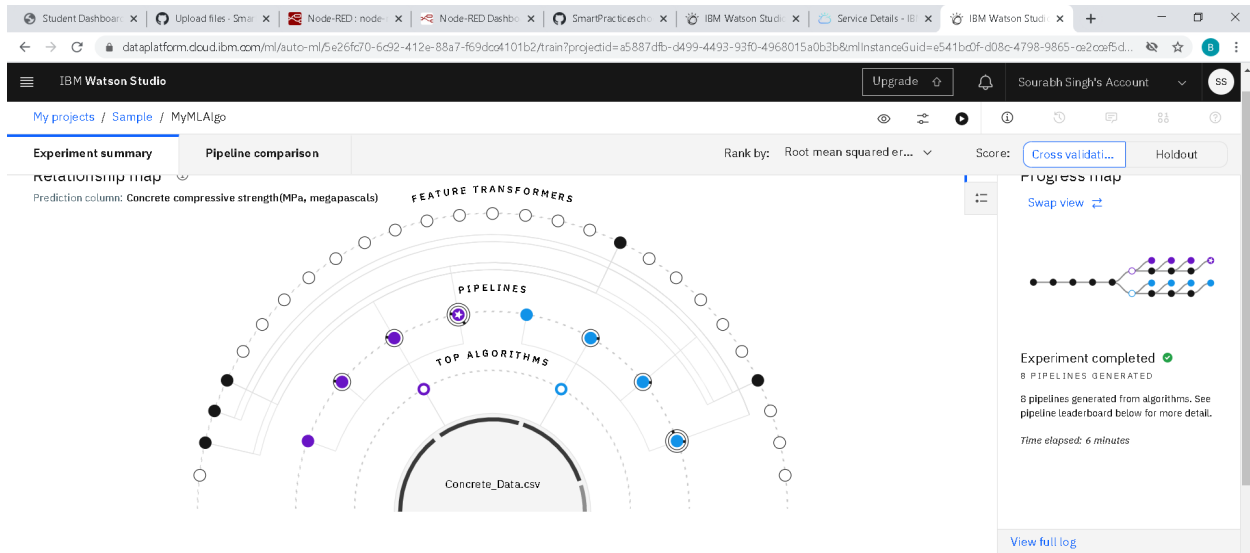
Fine Aggregate (component 7)(kg in a m^3 mixture)

87

Age (day)

21

Predict

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    ],
    "values": [
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      44.83375294284063
    ]
    ]
  }
  ]
}

IBM Watson Studio

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Experiment summary | Pipeline comparison

Rank by: Root mean squared er... ⌄ | Score: | Cross validati... | Holdout

Relationship map ⓘ

Prediction column: Concrete compressive strength(MPa, megapascals)

FEATURE TRANSFORMERS

PIPELINES

TOP ALGORITHMS

Concrete_Data.csv

Progress map

Swap view ⇄

Experiment completed ✓

8 PIPELINES GENERATED

8 pipelines generated from algorithms. See pipeline leaderboard below for more detail.

Time elapsed: 6 minutes

View full log

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

View full log

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	Save as ⌄
>	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	

Pipeline leaderboard

Rank ↑	Name	Algorithm	RMSE (Optimized)	Explained v...	Mean absol...	Mean squar...	Mean squar...	Median abs...	Root mean s...	R²
★ 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.

APPLICATION BUILDING AND UI:-

cloud.ibm.com/apps/751fe975-3fcd-4501-a8d3-57cd56oeafab?ace_config=%7B"region"%3A"eu-gb"%2C"cm"%3A"crn%3Av1%3Abluemix%3Apublic%3Acf%3Aeu-gb%3As%2F2192cc4a-d3ca-4584-b0c...

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Resource list /

Node RED EAMFP   ● Running   Visit App URL   Add tags ✎

Details   Actions... ⌄

Getting started	
Overview	
Runtime	
Connections	
Logs	
API Management	
Autoscaling	
Availability Monitoring	

Instances   Edit ✎

Health   Instances

100%   1   ⬍

1/1 instance(s) are running

MB memory per instance

0 ———————————●—— 256   256

Runtime

SDK for Node.js™

256
Total MB allocation

0 MB still available
■ Used   ■ Free

Runtime cost
Current and estimated cost excludes connected services.

$**0.00** $**0.00**

Current charges for billing period   Estimated total for billing period
                                          Jul 1, 2020 - Jul 31, 2020

Connections (1)

🔵 node-red-eamfp-cloudant-1595569156344-92221

Full details ⧉   Create connection →

FEEDBACK

🔒 node-red-eamfp.eu-gb.mybluemix.net

Node-RED on IBM Cloud

Node-RED
Flow-based programming for the Internet of Things

Node-RED is a programming tool for wiring together hardware
devices, APIs and online services in new and interesting ways.

This instance is running as an IBM Cloud application, giving it access
to the wide range of services available on the platform.

More information about Node-RED, including documentation, can be
found at nodered.org.

Go to your Node-RED flow editor

Learn how to customise Node-RED

Customising your instance of Node-RED

https://node-red-eamfp.eu-gb.mybluemix.net/red/   instance of Node-RED is enough to get you started creating flows.

Student Dashboard × | Upload files - SmartPra × | Node-RED : node-red- × | Node-RED Dashboard × | SmartPracticeschool / ! × | Application Details - IBM × | Service Details - IBM Cl × +

cloud.ibm.com/services/pm-20/crn%3Av1%3Abluemix%3Apublic%3Apm-20%3Aus-south%3Aa%2F5c2e615d305a4038afa0103f73cab931%3Ae541bc0f-d08c-4798-9865-ce2ccef5d29f%3A%3A?paneId...

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Resource list /

pm-20-px ● Active   cpdaas ✎

Details   Actions... ⌄

Manage

Service credentials

Service credentials

Plan

Connections

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 - 10:52:18 AM	⎘	🗑
⌃	☐	Service credentials-1	JUL 24, 2020 - 12:34:37 PM	⎘	🗑

```
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  "url": "https://us-south.ml.cloud.ibm.com"
}
```

FEEDBACK

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dataplatform.cloud.ibm.com/ml/deployments/efb7ed6b-46db-4e17-9f08-adc0caad6828/implementation?projectid=a5887dfb-d499-4493-93f0-4968015a0b3b&mlinstanceGuid=e541bc0f-d08c-4798-...

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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 WML authentication 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 described here
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

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))
```

Code by Sourabh Singh

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":"superplacticizer","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","type":"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\nglobal.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.s et(\"age\",msg. payload.age)\nvar apikey=\"O9q45abh6VwouokTMpUtiMNRwF10S3Jg0JwnGQb3Pfx\";\nmsg.headers={\"contenttype\":\"application/x-www-formurlencoded\"}\nmsg.payload={\"grant_type\":\"urn:ibm:params:oauth:granttype: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":"https://iam.cloud.ibm.com/identity/token","tls":"","persist":false,"proxy":"","authType":"","x":410,"y":260,"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-ce2ccef5d29f\"\nmsg.headers={'Content-Type': 'application/json',\"Authorization\":\"Bearer \"+token,\"ML-Instance-ID\":instance_id}\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]]}]}\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,"wir es":[["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 varaible\n\nmsg.payload=msg.payload.predictions[0].values[0][0]\nreturn msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","x":840,"y":120,"wires":[["42c38eb6.da3e d"]]},{ "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":"rowspre ad","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":"746e1f82.9a15 2","typ e":"comment","z":"61e6a4d6.fd769c","name":"Code by Sourabh Singh","info":"Here we made our prediction with the given dataset\nwith the help of waatson-studio AI \nand used that in depoying our project to the internet\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.e8056 7a","typ e":"ui_tab","z":"","name":"Home","icon":"dashboard","disabled":false,"hidden":false}]

"THANK YOU"