

COMPRESSIVE STRENGTH OF CONCRETE

DESCRIPTION:

Compressive strength of concrete is the strength of hardened concrete measured by the compression test. The compression strength of concrete is a measure of the concrete's ability to resist loads which tend to compress it. The objective of this research is to make use of significant features, design a prediction algorithm using Machine learning and find the optimal classifier to give the closest result comparing to experimental outcomes. The proposed method aims to focus on selecting the attributes that plays an important role in defining compressive strength of concrete.

PURPOSE:

The main purpose of the project integrated with the machine learning model is to provide future insights to the doctor to early predict the patient may or may not be suffering from diabetes. Due to it a doctor can even carry out study and research work to know to how diabetes develops or what are the specifies that lead into the diabetes. It can make the study of concrete more easy and fast.

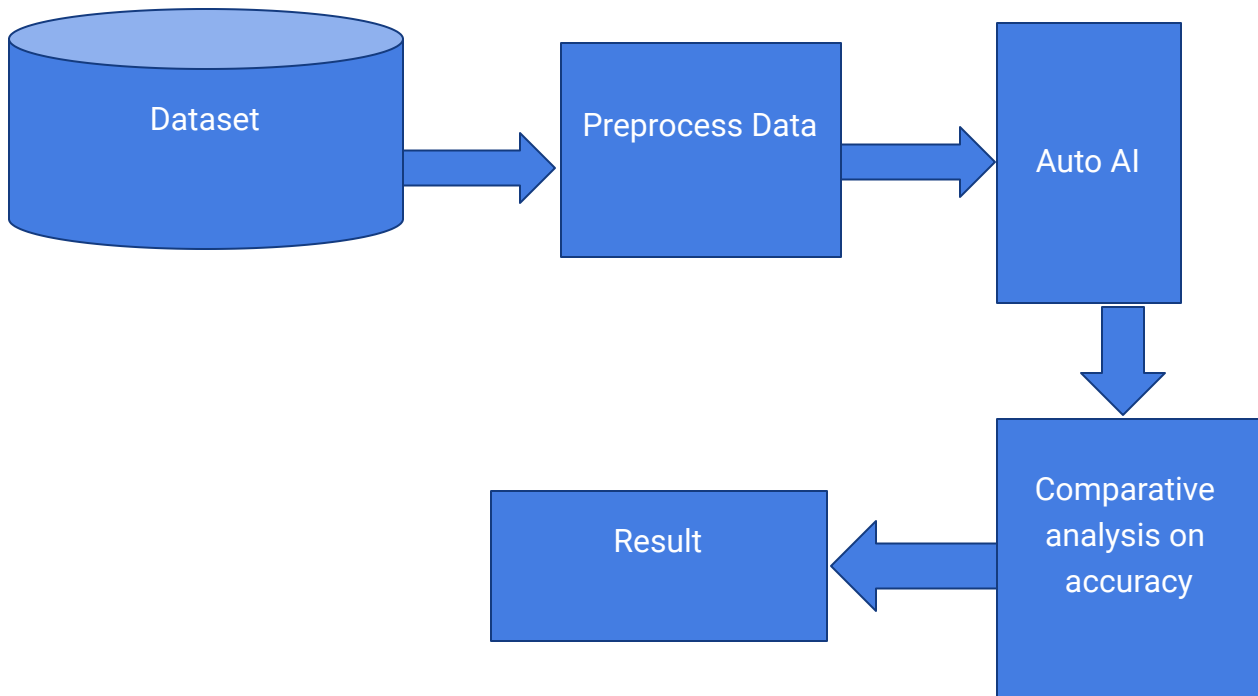
EXISTING PROBLEM:

There are various tests available for determining the compressive strength of concrete but it takes too much time. Also the processes used for this are very complex.

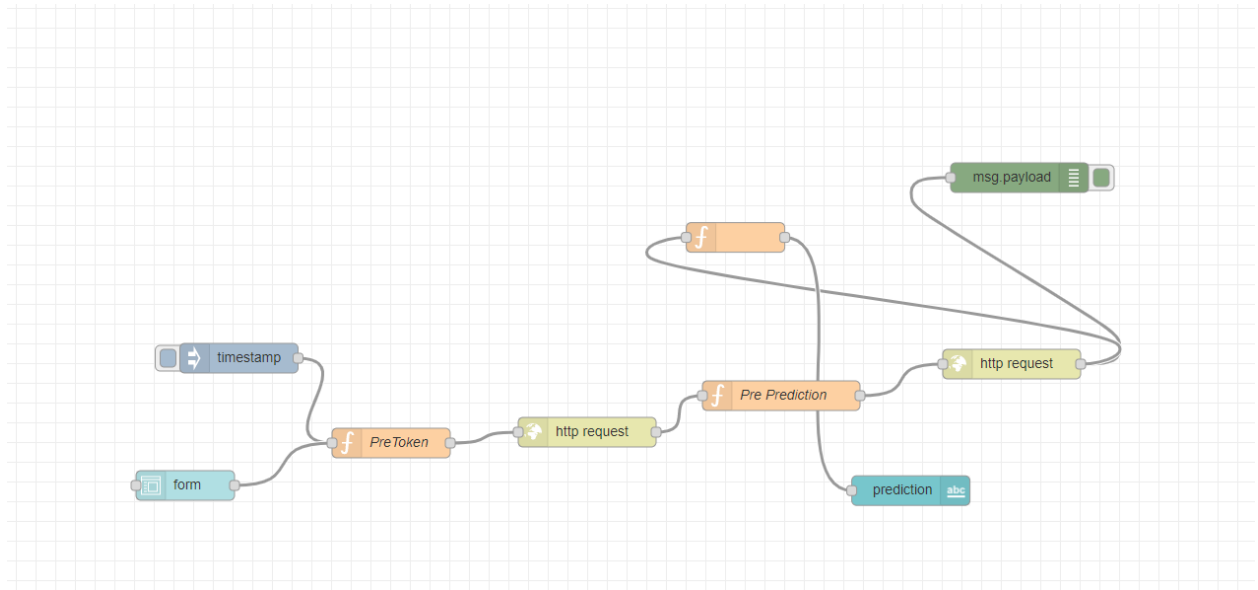
PROPOSED SOLUTION:

Taking into the account the various parameters involved and changed developed in the lump area a machine learning model is developed that help to predict the compressive strength of concrete as early as possible. The machine learning model is based on the various properties of different types of concrete . Machine learning model takes into consideration various parameters like Fly Ash, Water , Age(days) , Cement , Blast Furnace and thereby predicts the strength of Concrete.

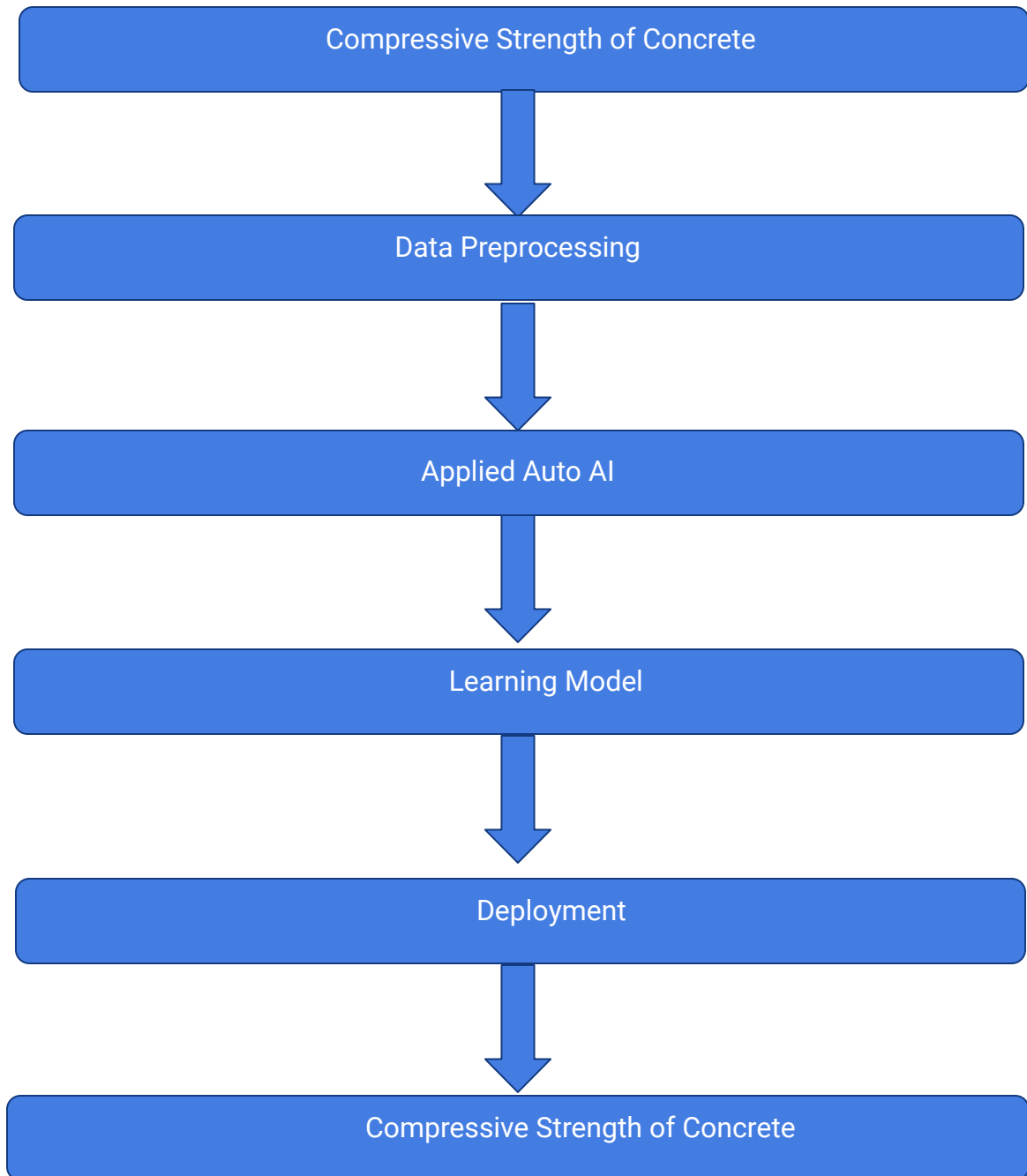
BLOCK DIAGRAM:



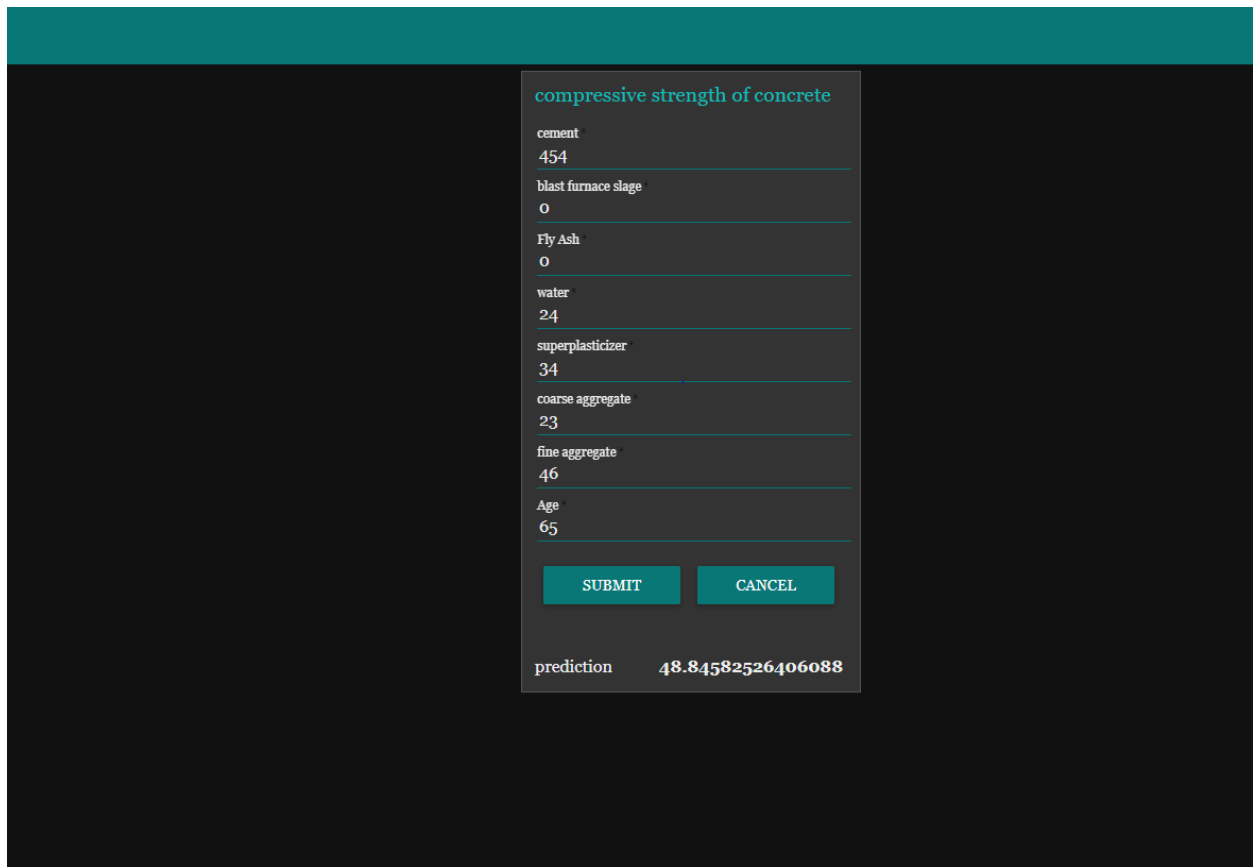
SOFTWARE DESIGNING:



FLOWCHART:



User Interface



compressive strength of concrete

cement
454

blast furnace slag
0

Fly Ash
0

water
24

superplasticizer
34

coarse aggregate
23

fine aggregate
46

Age
65

SUBMIT CANCEL

prediction 48.84582526406088

RESULT:

The model is built and also deployed successfully with the help of Auto AI and Nodered with accuracy 79.54%. This model will be very helpful to engineering field as concrete has a vast use in today's world.

ADVANTAGES:

The main advantage of the entire process of machine learning is that it does not need any gigantic environment. A well trained model can fulfill all the requirements and even it can produce accurate results. It can further help Engineers to understand the patterns in various properties of Concrete and thereby come up with some threshold parameters. It can help engineers to find compressive strength of concrete in early.

DISADVANTAGES:

At the present stage the only disadvantage associated with the machine learning model is that it does not give the extreme exact accuracy but however with the bigger datasets the entire accuracy can be marginally increased.

APPLICATION:

1. The major application of entire model is that it help to engineers to predict the Compressive Strength of Concrete.
2. It can help to engineering field to gain insights to understand the pattern of some properties of Concrete and come forward to greater solution.

CONCLUSION:

The ability of this model to predict compressive strength of Concrete, using the results with research results is high with satisfactory sensitivity. These models can be built into an online computer program to help engineers in predicting various properties of concrete which provide various aspects to concrete.

FUTURE SCOPE:

The machine learning model can thus predict the compressive strength of concrete and further prove to be a milestone in engineering field. It can provide newer insights to the engineers so that will be used in more fields . In future the accuracy can be increased marginally by training the model with huge dataset.

BIBLIOGRAPHY:

1. <https://www.kaggle.com/>
2. <https://journalofbigdata.springeropen.com/> 3. <https://www.frontiersin.org/>
- 4 <https://www.sciencedirect.com/>