# Project: Compressive strength of Concrete

## Team Details:

- **Team Name: V5**
- **Section: CSE-B**
  - Abhiramrao Samudrala (Team Leader)
  - Salla Saketh
  - Ambati Akshaya
  - Bathula Sai samyuktha
  - Kasam Sai Shivani

## Project Overview:

The project talks about "The compressive strength of Concrete" which tells about the quality of the Concrete, which is predicted by using Machine learning models.

## Requirements/Task(s):

- Dataset Collection
- Data preprocessing
- Training the data with ML models
- Finding the accuracy and picking the best models
- Creating the web app using Flask Application

## Summary:

The Compressive Strength of Concrete determines the quality of Concrete. This is generally determined by a standard crushing test on a concrete cylinder. This requires engineers to build small concrete cylinders with different combinations of raw materials and test these cylinders for strength variations with a change in each raw material. The recommended wait time for testing the cylinder is **28 days** to ensure correct results. This consumes a lot of time and requires a lot of labor to prepare different prototypes and test them. Also, this method is prone to human error and one small mistake can cause the wait time to drastically increase.

The other way of determining the quality is giving the information and getting the quality rate as the output. So, we are going to use different machine learning models on the acquired Dataset to train our model. We will calculate the accuracy of each model and select the best one of it and build the web application.

## Dataset Description:

The dataset consists of 1030 Rows with 9 Columns and has no missing values. There are 8 input variables and 1 output variable. Seven input variables represent the amount of raw material (measured in kg/m³) and one represents Age (in Days). The target variable is Concrete Compressive Strength measured in (MPa — Mega Pascal). We shall explore the data to see how input features are affecting compressive strength.

**Dataset:** [Concrete.csv](Concrete.csv)