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(57) Abstract :
The aim of the work is to develop REpresentational State Transfer Application Programming Interface (REST API in short) which will serve as a Design Aid for finding the Reinforcement percentage pt for singly reinforced rectangular beam sections. The general method employed to calculate the Reinforcement percentage pt by Indian structural designers is to refer to Flexure Charts or Tables given in IS : SP 16 : 1980. SP 16 : 1980 contains Design Aids for Reinforced Concrete Code IS : 456-1978. These Flexure charts and tables in SP 16 are given for only three grades of steel (Fe 250, Fe 415 and Fe 500) and four grades of concrete (M 15, M 20, M25 and M 30). Without these flexure charts and tables, the percentage of reinforcement needs to be calculated using a complex formula. The need was felt to develop a REST API which will generate the Reinforcement percentage pt data for various combinations of grade of concrete (fck), grade of reinforcement steel (fy) and Mu/bd2 (where Mu is factored moment, b is width of the beam and d is the effective depth of the beam). An REST API application was developed using JavaScript and Node.js for this purpose and deployed on a cloud platform named Heroku. The link for accessing the data is https://rcc-design-apis.herokuapp.com/api/v1/beams . The data is returned in JavaScript Object Notation (JSON) format. The data is similar to the one used to create the Flexure Tables in SP 16 : 1980. Various freely available tools like Tableau Public Desktop or Power BI Desktop can used to view the JSON data in Tabular format similar to that given in SP 16 : 1980.

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