

Modeling of Structures Using Programming Languages: Review

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Abstract- *The field of civil engineering is very wide and computer applications are not used properly even among professionals in developing countries. In this article, It has been shown how it can use it for computer applications as a tool that can improve delivery, especially with custom packages tailored to your specific problem. It shows how computer programming can be used for detailed design and fast machining to calculate complex force stresses in structures. Research paper highlights its applications for the automation of concrete structural member, clearly shows how a computer can obtain data through programming, and uses the data to determine the total design load, generated moments and key areas, and distributed reinforcement. It turns the information into a definitive analysis of the key structures it provides. In this research paper, several concepts are developed to describe the structure of program as it appears in programming languages. By writing for code civil engineering applications in language like C, C++, you can perform complex conclusion faster than in other languages.*

Keywords- Structural model, Programming Languages, Analysis, Engineering Applications

I. INTRODUCTION

The use of computers has changed the paradigm in almost every area of professional activity, including civil engineering. As the volume and complexity of information increases, the use of computers, which can be seen as wires in all engineering projects, especially in structural analysis and related data, is becoming more popular as the volume of information and control increases in facilities around the world. Technical details and customer data are equally important. We create construction companies that process this volume of data every day, and we need staff to process this sensitive data on a regular basis. The civil engineering industry, especially the construction sector, engages in various activities to maintain a stable economy and structure. In these industries, you are analyzing the complex effects of forces and their reactions, such as wind loads, live loads, static loads, and more. It is not easy to calculate. We model the problem of solving a code by calculating the probability of a program. similar to how a language model calculate the probability of a

natural statement in language. civil engineering software includes several tools to assist civil engineers through the design and construction process. The software supports all stage of the project, including preparation and documentation, design, visualization and analysis. All technical disciplines include calculations that can be performed using precise, fast, and precise programming.

Background Information

Depending on the task at hand and the planned way of accomplishing the task, three main areas of the computer application are organized. They can be classified as follows: (a) the use of common application software; (b) use of special application software; And (c) programming.

Generic Application Software

Generic software is a class program used to instruct a computer to perform a specific task. They are developed by a high-performance software company for various areas of human endeavor. The work is done and shortened using software created by a software company. Typical software applications include spreadsheets and equation solvers. It provides a useful balance between manual solutions and computer programming. Sample spreadsheets such as Microsoft Excel are easy to use and learn. They are structured and the data is presented in tables. Each cell can be changed or viewed at any time, making input and output easier. The included charting feature makes it easy to create charts with high quality presentations and visually visible trends. On the other hand, equation solvers include MathCAD and MATLAB. When you solve an equation, the user creates a list of equations and assigns values to known variables.

Specialized Engineering Application

A specific software package for a technical application is a commercial program designed for a specific technical problem. Since this program is written for working engineers, it is powerful and realistic. Professional technical application software products are suitable for specialized construction classes such as reinforced concrete and steel,

structural analysis or construction management. This software product can serve as an additional tool for comparing results using manual calculations. The obvious advantage of using this software product, especially when combined with graphics and simulation, is the ability to visualize complex system behavior. A wide range of software is available for a wide range of civil engineering specialties. Most of the construction practices fall into a special subgroup such as geotechnical engineering, structural engineering, transport engineering, hydraulic engineering.

Specific Area Of Application Of Computer Software Product

Infrastructure Design

A special part of computer applications is infrastructure design. It is based on estimates of load, pressure, drainage and flow. Several software companies have tried to provide integrated design software for various areas of infrastructure design. However, general purpose software can be used in the same way as part of the cost of design software. It is often used by consulting engineers when the software provides an overview of the problems associated with intersection services, for example: When designing a road, consider the presence of buried pipelines.

Maintenance

Another aspect of the software used by civil engineers is the maintenance as well as the use of the facility's infrastructure design. There are programs that engineers can use to monitor bridges for cracks and debris, and drainage networks for buried pipe damage using installed sensors. This allows engineers to eliminate some of the costs and responsibilities associated with inspectors. AutoCAD Civil 2012 enables you to optimize other Autodesk applications and products, making it easier and cheaper for engineers to work with others.

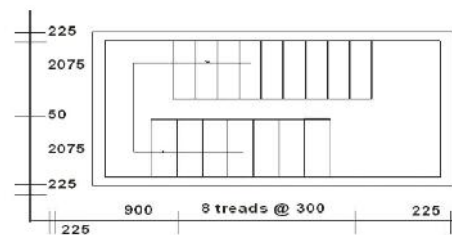
Computer Programming

Computer programming is the process of sending commands to a computer to complete tasks. This includes activities such as analyzing the problem leading to the algorithm, understanding and general solution, checking the requirements of the algorithm, including accuracy and resource consumption, programming, testing and implementing algorithms in the target language to solve problems (commonly called coding). Maintenance of errors and source code and implementation of system development. These algorithms are often only available in human readable

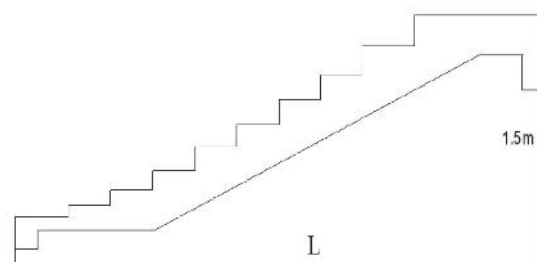
format and support the use of logic. The source code is written in one or more programming languages (for example, C, C++, FORTRAN, and others). The goal of programming is to find a set of instructions that automate the execution of a specific task or solve a problem. Therefore, the programming process often requires experience in various subjects, especially in the field of application.

Improving Structural Design With Application of Computer Programming

CAD programs are designed and implemented as a user-friendly, interactive, menu-driven system that can help civil engineers design and construct various parts of a building. This system was developed in the object-oriented programming language FORTRAN. The system basically consists of 3 steps besides viewing the home page during activation. During the design phase, concepts are transformed into detailed implementations. The new system design includes input and output, database / file structure and other related topics.



Stair case



Section through main stair

Comparing the conventional approach of designing structure with computer application by programming

As with other manually operated systems, the traditional approach to structural design has limitations. First, it takes too long to calculate structural forces and loads and build the model, coupled with the inevitable long delay in getting results for the part you are working on, determining how stress is distributed. Get a photo of your work. In addition, various analyzes of the data that need to be performed on a continuous basis can lead to fatigue, leading to

inaccurate reporting and data replacement. The manual approach is not suitable for many necessary projects that require strict adherence to project deadlines or duration. Some unscrupulous contractors use this manual time delay to increase the number of contracts, price fluctuations over the number of contracts earned during the auction. Computer options solve this problem, but they are initially expensive, but they are cost-effective and economical.

II. CONCLUSION

Computer-aided design systems have been designed with most of the limitations of manual design in mind. Operational limitations such as slow processing speed are minimized after system startup. The project begins with the definition of requirements, such as increased productivity or efficiency. However, there may be more than one “right” solution, but there may be several solutions, each with its own disadvantages, and civil engineers, at their discretion, will give professional recommendations for appropriate solutions. Then detailed design begins. The computer is very important here for the most rational calculations. One should try to computerize other subsystems such as steel structures, timber structures, etc.

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