

Solving Nonlinear Equations of the Design and Implementation of Software

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At present, the non-linear equations have become a very important subject. In this paper, according to the actual needs, we use numerical analysis and computer-related knowledge. We design and implement solving nonlinear equations' software, from the needs analysis, a summary of the design and analysis of three aspects of the test. What's more, the software is a free and open software, so all users can directly use it.

I. INTRODUCTION

In the development of the nature and human society, and in the study of its internal law in the various fields of science, there is a mathematical tools, which can more profound and more precise description of its internal law, that is, non-linear equations. In physics, mechanics, chemistry, control theory and other scientific fields, non-linear equations are frequent anywhere. Even if in the field of life sciences, non-linear equations are also used to describe the life processes of energy, information, materials transfer process. Therefore, the solvent to the non-linear equations has been a very important subject. Based on these, we designed this software. Under the help of this software, the solution of polynomial equations is not a difficult problem, so people no longer have to worry about Based that trouble. The software can be done in the calculator, which can be used as the future solution of polynomial equations. There is no doubt that great convenience can be brought to all of people.

II. SYSTEM COMPONENTS

The system includes three parts: needs analysis, a summary of the design and test analysis. In the needs analysis, according to the algorithm from numerical analysis, we use a computer to simulate root approximation equation. Based on this, we designed and developed procedures to solve nonlinear equations, so that we can understand numerical analysis better. At the same time, through the development of the software, we can familiar with object-oriented software engineering and grasp the scientific method of software development to guide future work in preparation.

The summary of the design document, the only design document, plays a crucial impact on the back of the development, testing, implementation and maintenance. Norm-setting, the code system, interface of the Statute, and the rules of naming are load a solid foundation for future joint operations. With the development of norms and procedures and project modules of the interface between the members of the rules, modalities, methods, and we will have a common working language, a common working platform so that the whole software development work can be carried out in an orderly manner.

The purpose of the compilation of test documentation is to verify non-linear equations to solve the correctness of software, portability, robustness, and modification, in order to make software that contains fewer errors, to facilitate future maintenance, debugging, running the software more stable and delivered to the user a satisfactory, stable, and difficult to go wrong software. The reader is expected to include the future software maintenance and modification personnel, the use of advanced users of the software, as well as most of the software testers. Through testing the system, we should identify the failure, improve the software and achieve consistency with the demand.

III. THE SYSTEM ACHIEVE PROCESS

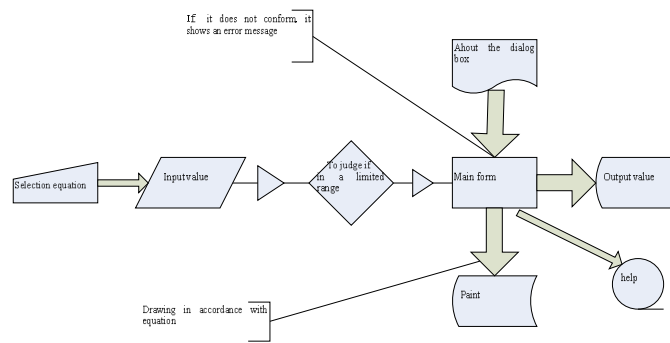


Figure 1.process

IV. THE CONCLUSION

In the dichotomy, Newton method, string cut-off law

- 1) If the input data is out of the limit range, display the error. This shows that we achieve the desired purpose.
- 2) Enter the data which is in the cycle number's text box, if it is beyond the range, it will display the error. This can prevent the overflow, and show that this software achieved the desired purpose.
- 3) If the input range has no roots, the error will display and show that this software achieved the desired purpose; in the drawing template, after selecting the corresponding equation, you can draw the corresponding curve. This shows that the software achieved the desired purpose, and we can draw it using the color curve lines.

On the template, when enter the main interface window, set 5 seconds, then enter into the main form. This shows that this software achieved the desired purpose.

In the Help files template, there are three buttons, each can be achieved the corresponding function. This shows that this software achieved the desired purpose.

The software has reached a redetermined goal, the various functions can meet the needs of users, but the software can not deal with the equations which are inputed by the uses. This software needs further improvements. In addition, the software can only use the known functions, but do not have intelligence.

V. Prospects and Outlook

We hope that in the continuous development process, the software, for the equations which are entered by uses, can be intelligent; We should join the software menu to this software. This can make uses more convenient to use; In order to meet the different needs of users, it is recommended to use more methods to achieve.

The twenty-first century is the non-linear century, we expect that the method and the computer software which is compiled by this method must demonstrate its seductive charm.

