TreeComprehensive **Experiment Report**

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**One. Experimental purpose**

1、Do linear list operations by using basic operations of tree or binary tree.

2、Handle file operations.

3、Deep the understanding of tree and binary tree, gradually develop the programming ability to solve practical problems.

**Two. Experimental environment**

Computers equipped with Visual C6.0/CFree.

The experiment lasted for 4 hours.

**Three. Experimental content**

1. design a "automatic calculator" as follows：

（1）The expression that needs to be calculated is stored in the text file in the TXT text；

（2）Each line in the text is an expression；

（3）Expressions include operands, operators such as addition, subtraction, multiplication and division, and parentheses；

For example： （34-72.3）\*54.7-82.4

（4）"Automatic calculator" calculates each expression in the text file according to the input file name, and writes every expression of the result to the original file name in the \_out.txt, you should use the method of covering and when saving the records. The format of each row is：

expression = result。

For example：the original file is: A1.txt

The file for output is： A1\_out.txt

The format of the text in A1\_out.txt is：

（34-72.3）\*54.7-82.4 = -2177.41

For all the calculated results, you'd keep 4 digits after the decimal point if it is decimal.

（5）Generate a statistical document after the calculation, its content is：

Execution time：xxxx-xx-xx hh:mm:ss

The total number of expressions is：XXX

The number of correct expressions is：XXX

The number of error expressions is：XXX

Naming rules for filenames：original file name :\_log.txt，Write files with append write method。

For example：A1.txt corresponding to the statistical file：A1\_log.txt

**Special remind**：★The calculation process requires transform the infix expression to the postfix expression and then transform the postfix expression to expression tree. Finally get the result by calculating the expressions.

(If you are getting into trouble in calculating decimal, you can only consider integer calculation.)

(see the instruction manual for the above three parts)

**Four. Important data structures**

二叉树，链表，结构体

**Five. Realization idea analysis**

二叉树的基本操作，如二叉树的建立、遍历、结点个数统计、树的深度计算等。

**Six. Program debugging problem analysis**

**Seven. Experimental summary**

**要对二叉树的基本操作熟练掌握，前中后序遍历，计算深度，计算节点个数等等**

**Eight. Crew Division**

|  |  |  |
| --- | --- | --- |
| **Group division** | | |
| **Member name** | **Work done** | **Completion situation** |
| **樊磊** | **文件操作** | **完成** |
| **雷登文** | **构建二叉树** | **完成** |
| **罗力铭** | **主函数** | **完成** |