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SURIYA PRAKASH.S

*UG Scholar /Dept. Of CSE, Angel College of Engineering & Technology, Tirupur – India.,
Suriyaprakash71@gmail.com*

MOHANA. E

*UG Scholar /Dept. Of CSE, Angel College of Engineering & Technology, Tirupur – India.,
ohmmohana@gmail.com*

MEGALA .S

*UG Scholar /Dept. Of CSE, Angel College of Engineering & Technology, Tirupur – India.,
megalas@gmail.com*

SAKTHI BAALAJI.T

*UG Scholar /Dept. Of CSE, Angel College of Engineering & Technology, Tirupur – India.,
sakthibaalajit@gmail.com*

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EASYC -AN INTERACTIVE TEXT EDITOR FOR C

SURIYA PRAKASH.S¹, MOHANA.E², MEGALA.S³ & SAKTHI BAALAJI.T⁴

^{1,2,3&4}UG Scholar /Dept. Of CSE, Angel College of Engineering & Technology,Tirupur – India.
Email:Suriyaprakash71@gmail.com, ohmmohana@gmail.com

Abstract: EasyC is an interactive text editor for C language. It is developed using PHP and JavaScript. So we can upload it as online web application .The basic idea is that instead of making the user to type all the lines of program let them to click options, so that the corresponding syntax will be pasted. EasyC reduces the typing work up to 90% and thus saves the time up to 75%.EasyC provides things which are all related to typing reduction but the compilation area is separate which is standard in TurboC compiler. EasyC removes 99% of syntax errors before submitting the program to the compiler.

I. INTRODUCTION

Most of compilers are strong in compilation side but not in editing side. (i.e.) we have to type the entire program by manually unreasonably it takes too much time. This means typing time is more than the thinking time. To reduce the typing time and also to reduce the errors we require one solution. Our tool is EasyC is designed based on the error reduction and less time consumption concept. We implemented many algorithms for error reduction. The errors we remove from the source program are as follows

- Semi colon missing
- Argument missing
- Type mismatch
- Parenthesis mismatch
- Lvalue required
- Linker errors
- Header file not found

The method of removing the errors stated above are explained in the below section.

A.SEMI COLON MISSING:

To remove semi colon missing error, first we have to analyze what are the places where the semicolon is must. In C, following are the places where semicolon is must.

- Function declaration
- Function call
- Variable declaration
- Assignment operation
- Looping and control statements

(1). Function declaration and function call:

If ‘)’ is found and the next character is not ‘{’ then it automatically adds ‘;’ as next character to ‘)’.

(2). Variable declaration:

Only certain keywords a variable in C program . While the user program through this EasyC if those keywords are found and the Semicolon is missed before the next keyword is found then it automatically insert ‘;’.

(3).Assignment operation:

If the type of variable followed by “=” operator is found and the next immediate character should be any type of value (int,float,string or any type) but if the “;” is missed at end of those statement it automatically insert it.

(4).Looping and control statements:

Control statements such as “break , continue” is found then it automatically inserts “;”.Control statement such as “goto” is found and it shows then next statement should be label.

II. ARGUMENT MISSING

Argument missing error is fully reduced because if user clicks an predefined function it automatically shows the number of arguments and type of argument..When any pre-defined function is clicked, not only the name of the function is pasted but also the datatype of arguments separated by commo’s.Thus the user knows number of arguments.

III.TYPE MISMATCH

If the user gives type of variable or arguments in function, it automatically shows what type of value should to give. Through this we can reduce the type mismatch.

When the user doesn’t pass right arguments to a function, then there are two possibilities.

Case 1: If the datatype are compatible then the user given values will be converted to desired type values.

Case 2: If the data types are not compatible then swapping between the arguments will be tried for right order.

IV.PARANTHESIS MISMATCH

Immediately user clicks an compile button, before it starts compilation EasyC counts the number of parenthesis opened and closed if there is no equal number of parenthesis it shows mismatch and also we user have to insert the parenthesis.

If the number of open and close braces is not equal, then there are two possibilities.

Case 1: If the user program is in structured manner then it is easy to find the position of the missed parenthesis.

Case 2: If the user program is not structured then the only way is to add the missed parenthesis at the end of the program.

V. LVALUE REQUIRED

Users suppose to give value to a variable. That variable is declared at the beginning so that the variable is used for particular type is represented .So EasyC reduces the Lvalue require error.

VII. LINKER ERRORS

When the function is miss spelled, the linker error occurs. In EasyC when a function is clicked the appropriate word is pasted correctly. So it is no chance for typing the function misspelled

VIII. HEADER FILE NOT FOUND ERROR

The predefined functions are used only the user clicks the corresponding header file. If the user clicks the header file button then the corresponding functions are loaded then by clicking the required function automatically the header file is added. So there is no chance for header file require error.In EasyC, initially the function list will be empty. If the user selects any header file then only the corresponding list of functions will be loaded.So it is no chance for using function before the corresponding header file is imported.

*A. Some of the snapshots of our EasyC tool:
Main page:*

This page includes only the option to create a file and to open the already created file.

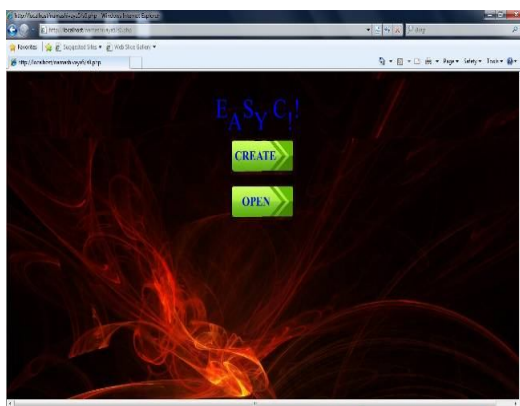


Fig 1: Page to create a new file & open the existing file.

In this page we can create new file is created by using “create” button. Also we can open the already created

file by using “open” button. Once the user click the create button the page to create file will open and that is shown in fig 2,



Fig 2: Page for user new file creation:.

Here user can create a new file by giving the file name in textbox. Once the file is created it will be stored in our BIN folder and the file name will be stored in separate table and that can be accessed using “MYSQL”.

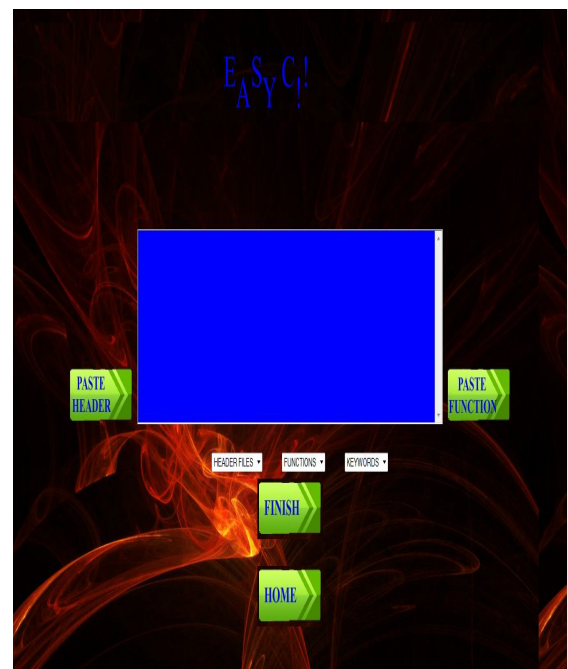


Fig 3: The page where the user can program.

In this page we included four combo boxes one for “header files” another for “functions” another one for “keywords” and another one for “loops” and “finish” button which loads the file into compiler and “home” Button which makes the user to go home page.

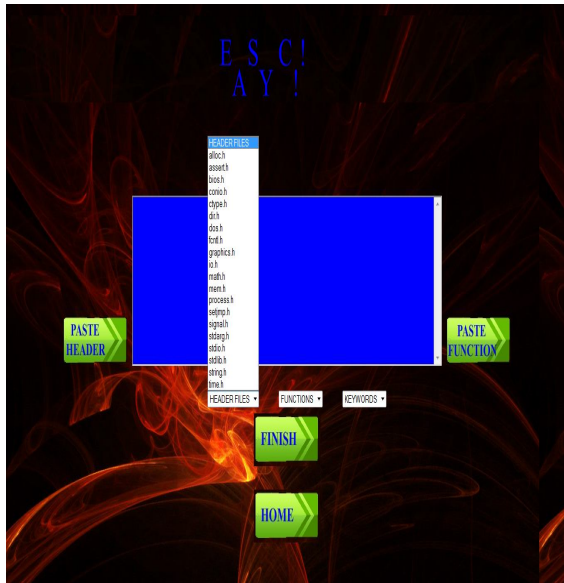


fig 4:combo box that loads al the header files .

Once the user click the header file combo box all the header files available in C will be loaded. The corresponding functions will be loaded in “functions” combo box.

X. LOGICAL CONCEPTS

It is impossible to remove a logical error which deals with programmer’s understanding of the problem. So in logical side we planned to create animated trace over of program execution and corresponding values updation of variables inside and outside the loop and it will implemented in future using “Flash ActionScript”.

XI. CONCLUSION

All of the concepts of EasyC are implemented using JavaScript expect file handling which is the only concept implemented using PHP. The main principle behind the implementation of EasyC is text processing. The tool has complete control over the source program developed by the user.

We added the above logical concept principle (i.e.),”animative trace if variable value updation”as our future extension. We planned to do this using Flash ActionScript.Runtime error handling will also our future extension.

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XIII.WEBSITES

- [1]<http://www.w3schools.com/php/default.asp>
- [2]<http://en.wikipedia.org/wiki/JavaScript>
- [3]http://en.wikipedia.org/wiki/Text_editor

