COL 216 Computer Architecture

Lab-1

Evaluation of expressions without parenthesis

We wrote the code in C language and then converted it in assembly language. We used goto statements instead of loops, for the ease of conversion. The code is well commented. We have also submitted the code which was written in C.

The expression was loaded in register R2. Register R3 is used to maintain the index of string. R4 contains the final answer. R5 is used to read and store numbers. It is updated every time a new number is read. R6 keeps a track of which operation is to be performed. R7 stores the character extracted from expression. R8 is a temp register used for multiplication. R9 stores constant 10.

We extracted characters from the string in "start" label and checked if it's a digit or not. If it is a digit, then the control goes to "number" label where it is processed and stored in R5. If the character is a symbol then the control goes to label "Operation", where the symbol is compared, and the corresponding operation is performed on stored operands.

Note: We assumed that the expression only contains digits [0-9] and symbols {+, -, *}, as given in the assignment statement.

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