Comp 301 Project 3

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Part – 1

Counter is set as a global variable and initialized with 0. Reset-counter function is defined to reset to counter back to 0. In the beginning of a program, first it resets the counter inside begin and executes the program. Counter is incremented by 1 with the help of set! function inside begin. String-append method is applied to create a string of # of procedure calls + counter as a number. Number->string method converted the counter value into a string. Once the entire string is obtained, output is printed on the console by display method.

Part – 2

Syntax of the proc-nested, call-nested, and letrec-nested are specified in lang.scm.

Translator for the LETREC language is implemented in the translator.scm.

Part – 3

Translator.scm is modified for LEXADDR language to fulfill the requirements of the given tasks. Occurences of variables are appended with their number of appearances.

Var-exp is implemented to get the symbol with the number. It uses symbol-num-combiner helper method which combines the symbol and numbers using string->symbol, string-append, symbol->string, and number->string.

Let-exp uses get-symbol-with-num helper method to handle the var parameter. Then, it takes the translation-of the exp1 and body with the given environment.

Proc-exp uses get-symbol-with-num helper method to handle the var parameter. Then, it takes the translation-of the body with the given environment.

Apply-senv-number uses a helper method of apply-senv-number-helper which increases the occurrence when it’s faced with the given variable, else it iterates through the elements.

**Workload Breakdown:**

Alkan was responsible for Part3.

Burak was responsible for Part1.

Each team member has successfully completed their responsibilities on time.

**References**

<https://docs.racket-lang.org/reference/index.html>