IT041 Hiren Jadav

LT Experiment 10

YACC useful for your language / any other high-level language

Language: Weight Conversion

Lex File:

```
 %{
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
void yyerror(char *);
#include "proj.tab.h"
%}
%%
[0-9]+ { yylval.num = atoi(yytext); return INTEGER; }
[0-9]+[.][0-9]+ { yylval.val = atof(yytext); return FLOAT; }
"exit" { return EXIT; }
[isequalshowmany] { return *yytext; }
"kilograms"|"kgs"|"kilogram"|"kg"|"grams"|"gram"|"milligrams"|"milligram"|"g
ms"|"gm"|"mgs"|"mg" { yylval.str = strdup(yytext); return UNIT; }
"?" { return EOS; }
[!\n] { return *yytext; }
[ |\t] { /* Ignoring Whitespace */ }
. { yyerror("Unrecognized Character\n"); }
```

```
%%

void main(){
 yyparse();
}

int yywrap(){}

void yyerror(char *s) {
 fprintf(stderr, "%s\n", s);
}

void convert(float value, char *unit1, char *unit2)
{
double newValue = value;
 if(strcmp(unit1, "kg") == 0 || strcmp(unit1, "kilogram") == 0 ||  strcmp(unit1, "kgs") == 0 || strcmp(unit1, "kilograms") == 0)
        {
                if(strcmp(unit2, "gram") == 0 || strcmp(unit2, "grams") == 0 || strcmp(unit2,"gms") == 0 || strcmp(unit2,"gm") == 0)
                {
                        newValue = value * 1000.0;
                }
                else if(strcmp(unit2, "mgs") == 0 || strcmp(unit2, "mg") == 0 || strcmp(unit2,"milligram") == 0 || strcmp(unit2,"milligrams") == 0)
                {
                        newValue = value * 1000000.0;
                }
        }
```

```
 else if(strcmp(unit1, "gram") == 0 || strcmp(unit1, "grams") == 0 ||
strcmp(unit1,"gms") == 0 || strcmp(unit1,"gm") == 0)
        {
                if(strcmp(unit2, "kilogram") == 0 || strcmp(unit2, "kilograms") ==
0 || strcmp(unit2,"kgs") == 0 || strcmp(unit2,"kg") == 0)
                {
                        newValue = (value / 1000.0);
                }
                else if(strcmp(unit2, "milligram") == 0 || strcmp(unit2,
"milligrams") == 0 || strcmp(unit2,"mgs") == 0 || strcmp(unit2,"mg") == 0)
                {
                        newValue = (value * 1000.0);
                }

        }
 else if(strcmp(unit1, "milligrams") == 0 || strcmp(unit1, "milligram") == 0 ||
strcmp(unit1,"mgs") == 0 || strcmp(unit1,"mg") == 0)
        {
                if(strcmp(unit2, "kgs") == 0 || strcmp(unit2, "kilograms") == 0 ||
strcmp(unit2, "kg") == 0 || strcmp(unit2, "kilogram") == 0)
                {
                        newValue = (double) value / 1000000.0;
                }

                else if(strcmp(unit2, "gram") == 0 || strcmp(unit2, "grams") == 0 ||
strcmp(unit2,"gms") == 0 || strcmp(unit2,"gm") == 0)
                {
                        newValue = value / 1000.0 ;
                }
```

```
        }

printf("%.4f %s\n\n", newValue, unit2);
}
```

YACC File:

```
%{
 #include <stdio.h>
 #include <stdlib.h>
 #include <math.h>
 #include <string.h>
 int yylex(void);
 void yyerror(char *);
 void convert(float value, char *unit1, char *unit2 );
%}
%union{ int num; float val; char* str};
%token <num> INTEGER
%token <val> FLOAT
%token <str> UNIT
%token EOS
%token EXIT
%type <val> VALUE
%%
Program : Program Start {}
 |
 ;
Start : 'h"o"w"m"a"n"y' UNIT 'i"s' VALUE UNIT EOS '\n'
```

```
 { convert( $11, $12, $8 ); }
 | VALUE UNIT 'e"q"u"a"l"s"h"o"w"m"a"n"y' UNIT EOS '\n'
{ convert( $1, $2, $16 ); }
 | VALUE UNIT 'i"s' 'h"o"w' 'm"a"n"y' UNIT EOS '\n'
{ convert( $1, $2, $12 ); }
 | EXIT { exit(0); }
 ;
VALUE : INTEGER { $$ = (float)$1; }
 | FLOAT {}
 ;
%%
```

Output: