

## **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"|"gms"|"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 { }
```

```
|
```

```
;
```

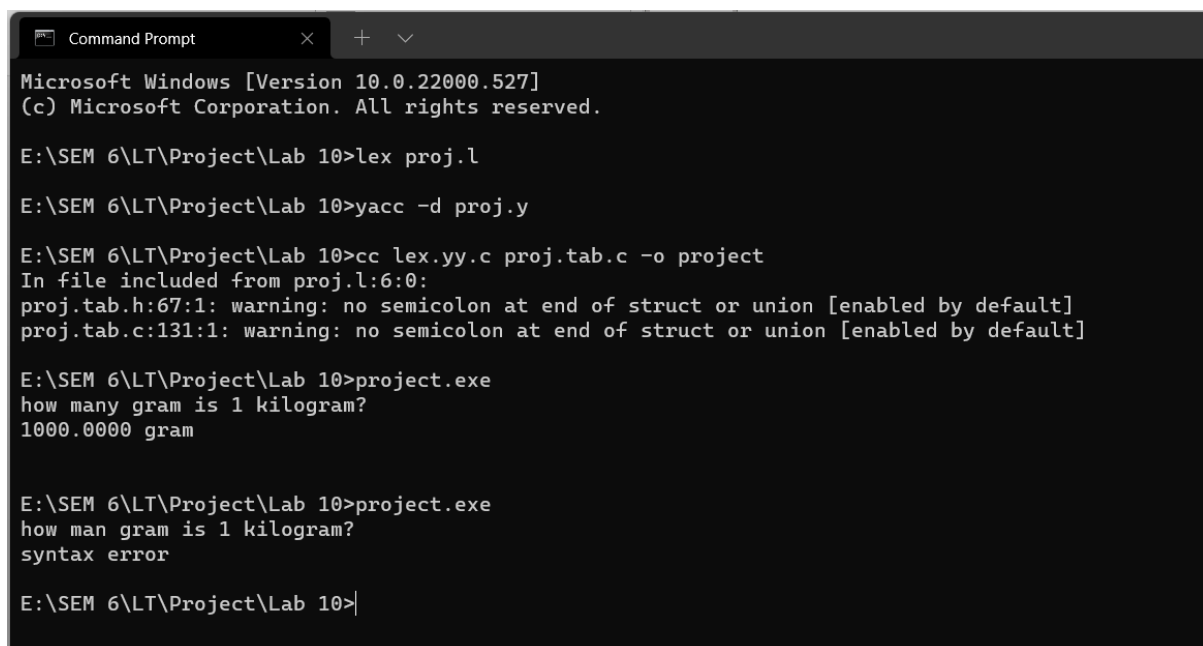
```
Start : 'h'o'w'm'a'n'y' UNIT 'i's' VALUE UNIT EOS '\n'
```

```

{ 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:



```

Microsoft Windows [Version 10.0.22000.527]
(c) Microsoft Corporation. All rights reserved.

E:\SEM 6\LT\Project\Lab 10>lex proj.l

E:\SEM 6\LT\Project\Lab 10>yacc -d proj.y

E:\SEM 6\LT\Project\Lab 10>cc lex.yy.c proj.tab.c -o project
In file included from proj.l:6:0:
proj.tab.h:67:1: warning: no semicolon at end of struct or union [enabled by default]
proj.tab.c:131:1: warning: no semicolon at end of struct or union [enabled by default]

E:\SEM 6\LT\Project\Lab 10>project.exe
how many gram is 1 kilogram?
1000.0000 gram

E:\SEM 6\LT\Project\Lab 10>project.exe
how man gram is 1 kilogram?
syntax error

E:\SEM 6\LT\Project\Lab 10>

```