

Ex No: 6

Date:

RECOGNIZE A VALID VARIABLE WITH LETTERS AND DIGITS USING LEX AND YACC

AIM:

To recognize a valid variable which starts with a letter followed by any number of letters or digits.

ALGORITHM:

- Include necessary headers and declarations within `%{ %}` in the lexer file.
- Define rules to match identifiers (starting with a letter or underscore, followed by letters, digits, or underscores) and return token `letter`.
- Define a rule to match digits (single digit) and return token `digit`.
- Define a rule to match any other character and return it.
- Define a rule to match newline character and return 0 to indicate end of input.
- Implement `yywrap()` function to return 1, indicating end of input.
- In the parser file, include necessary headers and declarations within `%{ %}`.
- Define tokens `digit` and `letter`.
- Specify grammar rules for parsing identifiers recursively.
- Implement `yyerror()` function to handle parsing errors, setting `valid` flag to 0.
- In `main()` function, prompt the user to enter a name to test for an identifier.
- Call `yyparse()` to initiate parsing.
- If `valid` flag is set, print "It is an identifier", else print "It is not an identifier".

PROGRAM:

variable.l:

```
%{
    #include "y.tab.h"
%}
%%
[a-zA-Z_][a-zA-Z_0-9]* return letter;
[0-9]          return digit;
.              return yytext[0];
\n            return 0;
```

```
%%  
int yywrap(){  
return 1;  
}
```

variable.y:

```
% {  
    #include<stdio.h>  
    int valid=1;  
% }  
%token digit letter  
%%  
start : letter s  
s :    letter s  
    | digit s  
    |  
    ;  
%%  
int yyerror()  
{  
    printf("\nIts not an identifier!\n");  
    valid=0;  
    return 0;  
}  
int main() {  
    printf("\nEnter a name to test for an identifier: ");  
    yyparse();  
    if(valid) {  
        printf("\nIt is an identifier!\n");  
    } }  
}
```

OUTPUT:

```
[root@fedora student]# vi exp6_271.l
[root@fedora student]# vi exp6_271.y
[root@fedora student]# lex exp6_271.l
[root@fedora student]# yacc -d exp6_271.y
[root@fedora student]# cc lex.yy.c y.tab.c
[root@fedora student]# ./a.out

Enter a name to test for an identifier: sur

It is a identifier!
```

RESULT: