

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:

```

student : bash -- Konsole
File Edit View Bookmarks Settings Help
29901.y:5:3: note: include '<stdio.h>' or provide a declaration of 'printf'
[root@localhost student]# ./a.out
?#
valid
[root@localhost student]# ./a.out
#3
invalid
[root@localhost student]# vi 29902.y
[root@localhost student]# yacc 29902.y
[root@localhost student]# cc y.tab.c
29902.y:20:1: warning: return type defaults to 'int' [-Wimplicit-int]
yytexp(){}
^~~~~~
29902.y:29:1: warning: return type defaults to 'int' [-Wimplicit-int]
yyerror(char *s){
^~~~~~
29902.y:33:1: warning: return type defaults to 'int' [-Wimplicit-int]
main(){
^~~~~~
[root@localhost student]# ./a.out
Enter a variable : vaishnavi
accepted
[root@localhost student]# 299vaish
bash: 299vaish: command not found
[root@localhost student]# ./a.out
Enter a variable : 299vai
syntax error
[root@localhost student]#

```

student : bash

9:45 AM

RESULT: