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:

- Define lexical rules in variable.l with regex to match valid variables: start with a letter, followed by letters or digits. Tokenize input, distinguishing letters and digits.
- Use lexer (variable.l) to tokenize input into meaningful units like letters and digits.
- Implement grammar rules in parser (variable.y) for recognizing valid variable names using context-free grammar. Incorporate lexer tokens into parsing.
- In parser, implement error handling to detect invalid variable names. Set a flag (e.g., valid) to mark invalid identifiers.
- Check validity post-parsing; if flag remains true, indicate valid identifier. Otherwise, display message for invalid input.

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 a identifier!\n");
   valid=0;
   return 0;
}
int main() {
   printf("\nEnter a name to test for an identifier: ");
   yyparse();
   if(valid) {
      printf("\nIt is a identifier!\n");
   } }
```

OUTPUT:

```
tarun@Ubuntu4:~/210701285$ lex exe6.l
tarun@Ubuntu4:~/210701285$ yacc -d exe6.y
tarun@Ubuntu4:~/210701285$ cc lex.yy.c y.tab.c
tarun@Ubuntu4:~/210701285$ ./a.out

Enter a name to test for an identifier: var

It is a identifier!
tarun@Ubuntu4:~/210701285$ ./a.out

Enter a name to test for an identifier: 2

Its not a identifier!
tarun@Ubuntu4:~/210701285$
```

RESULT: