22BCE0682

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1. Write a lex program to check whether the given name is a valid variable name.
   (Note: The variable name should start with Uppercase letters, followed by a numeric value or alphabet of any case and only special character _)

CODE:

```
%{
#include<stdio.h>
%}

%%

[A-Z]([a-zA-Z0-9_])*    { printf("%s is a valid variable name\n", yytext); }
.                       { printf("%s is not a valid variable name\n", yytext); }

%%

int main() {
    printf("Enter the variable name:\n");
    yylex();
    return 0;
}

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

OUTPUT:

```
siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ lex 22bce0682.l
siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ gcc lex.yy.c

siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ ./a.out

Enter the variable name:
Sid@123
Sid is a valid variable name
@ is not a valid variable name
1 is not a valid variable name
2 is not a valid variable name
3 is not a valid variable name
```

2. Write a lex program to check whether the given mail id is an institutional mail id or Gmail or Outlook domain mail id. Also, print the number of characters present in the mail id.

CODE:

```
%{
#include<stdio.h>
int char_count = 0;
%}

%%

[a-zA-Z0-9._%+-]+@vitstudent\.ac\.in        { char_count = yyleng; printf("Institutional mail id with %d characters\n", char_count); }
[a-zA-Z0-9._%+-]+@gmail\.com                { char_count = yyleng; printf("Gmail id with %d characters\n", char_count); }
[a-zA-Z0-9._%+-]+@outlook\.com              { char_count = yyleng; printf("Outlook id with %d characters\n", char_count); }
[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,4}  { printf("Invalid mail id\n"); }

%%

int main() {
    printf("Enter the mail id:\n");
    yylex();
    return 0;
}

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

OUTPUT:

```
siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ lex 22bce0682.
siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ gcc lex.yy.c
siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ ./a.out
Enter the mail id:
siddhant@vitstudent.ac.in
Institutional mail id with 25 characters
```

3. Write a lex program to classify whether the given password is either strong, moderate, or weak.
(Note:
Strong Password: Min length 6 characters and a combination of uppercase letters, lowercase letters, numbers, and symbols.
Moderate Password: Min length 6 characters and a combination of uppercase letters, lowercase letters, and numbers.
Week Password: Min length 6 characters and a combination of uppercase letters, and lowercase letters.

CODE:

```
%{
#include <stdio.h>
#include <string.h>

int upper = 0, lower = 0, digit = 0, symbol = 0;
%}

%%

[A-Z]           { upper++; }
[a-z]           { lower++; }
[0-9]           { digit++; }
[!@#$%^&*()_+=\-{}\[\]|;:'",.<>?/`~] { symbol++; }
.               { /* Ignore other characters */ }

%%

int main() {
    char password[100];

    printf("Enter the password:\n");
    scanf("%s", password);

    // Send the password string to be processed by the lexer
    yy_scan_string(password);
    yylex();

    int length = strlen(password);

    // Check password strength based on the criteria
    if (length >= 6) {
        if (upper > 0 && lower > 0 && digit > 0 && symbol > 0) {
            printf("Strong password\n");
        } else if (upper > 0 && lower > 0 && digit > 0) {
            printf("Moderate password\n");
        } else if (upper > 0 && lower > 0) {
```

```c
    yy_scan_string(password);
    yylex();

    int length = strlen(password);

    // Check password strength based on the criteria
    if (length >= 6) {
        if (upper > 0 && lower > 0 && digit > 0 && symbol > 0) {
            printf("Strong password\n");
        } else if (upper > 0 && lower > 0 && digit > 0) {
            printf("Moderate password\n");
        } else if (upper > 0 && lower > 0) {
            printf("Weak password\n");
        } else {
            printf("Password does not meet the criteria\n");
        }
    } else {
        printf("Password too short\n");
    }

    return 0;
}

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

OUTPUT:

```
siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ lex 22bce0682.l
siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ gcc lex.yy.c
siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ ./a.out
Enter the password:
Sid@123
Strong password
siddhant-bhagat@siddhant-bhagat-HP-Spectre-x360-2-in-1-Laptop-14-ef0xxx:~/Desktop$ []
```