

Q.13>>Tokenize identifier, integer and float using finite automata.

Using NFA

```
%s A B C D E
```

```
%%
```

```
<INITIAL>[0-9] BEGIN A;
```

```
<A>[0-9] BEGIN A;
```

```
<A>\n BEGIN INITIAL; printf("\n int\n");
```

```
<INITIAL>\n BEGIN INITIAL; printf("\n invalid token\n");
```

```
<INITIAL>[0-9] BEGIN B;
```

```
<B>[0-9] BEGIN B;
```

```
<B>. BEGIN C;
```

```
<C>[0-9] BEGIN D;
```

```
<D>[0-9] BEGIN D;
```

```
<D>\n BEGIN INITIAL; printf("\n float\n");
```

```
<C>\n BEGIN INITIAL; printf("\n invalid token\n");
```

```
<INITIAL>[a-zA-Z] BEGIN E;
```

```
<E>[a-zA-Z0-9_] BEGIN E;
```

```
<E>\n BEGIN INITIAL; printf("\n identifier\n");
```

```
. ;
```

```
%%
```

```
int main()
```

```
{
```

```
    printf("enter string using {a,b} - ");
```

```
    yylex();
```

```
    return 0;
```

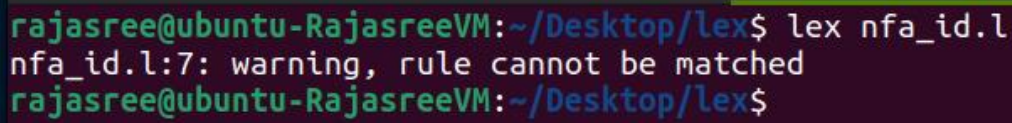
```
}
```

```
int yywrap()
```

```
{
```

```
return 1;
```

```
}
```

A terminal window with a dark purple background. The prompt is 'rajasree@ubuntu-RajasreeVM:~/Desktop/lex\$'. The user enters 'lex nfa_id.l'. The output is 'nfa_id.l:7: warning, rule cannot be matched'. The prompt returns to 'rajasree@ubuntu-RajasreeVM:~/Desktop/lex\$'.

Using DFA

```
%s A B C D
```

```
%%
```

```
<INITIAL>[0-9] BEGIN A;
```

```
<INITIAL>\n BEGIN INITIAL; printf("\n invalid token\n");
```

```
<A>[0-9] BEGIN A;
```

```
<A>\n BEGIN INITIAL; printf("\n int\n");
```

```
<A>. BEGIN B;
```

```
<B>[0-9] BEGIN C;
```

```
<B>\n BEGIN INITIAL; printf("\n invalid token\n");
```

```
<C>[0-9] BEGIN C;
```

```
<C>\n BEGIN INITIAL; printf("\n float\n");
```

```
<INITIAL>[a-zA-Z] BEGIN D;
```

```
<D>[a-zA-Z0-9_] BEGIN D;
```

```
<D>\n BEGIN INITIAL; printf("\n identifier\n");
```

```
. ;
```

```
%%
```

```
int main()
```

```
{
```

```
    printf("enter string using {a,b} - ");
```

```
    yylex();

    return 0;

}

int yywrap()

{

    return 1;

}
```

```
rajasree@ubuntu-RajasreeVM:~/Desktop/lex$ lex dfa_id.l
rajasree@ubuntu-RajasreeVM:~/Desktop/lex$ gcc lex.yy.c
rajasree@ubuntu-RajasreeVM:~/Desktop/lex$ ./a.out
enter string using {a,b} - 22

    int
56.09

    float
aff

    identifier
56.

    invalid token
56.aa

    invalid token
rajasree@ubuntu-RajasreeVM:~/Desktop/lex$
```