

Compiler Design 19CSE401

Experiment 1E

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Aim:

To write a Lex program that identifies relational operators (==, !=, <, <=, >, >=) from the input.

Procedure:

- Open a terminal in your Linux environment (e.g., Ubuntu).
- Create a new Lex source file using a text editor like gedit, nano, or vim.
gedit relational_ops.l
- In the Lex file, define the patterns for relational operators using regular expressions.
- In the %% section, match each operator (==, !=, <=, >=, <, >) and print a descriptive message when matched.

- Define a main() function after the second %% that calls yylex() to start the lexical analysis.
- Compile the Lex program using lex and gcc.
- Run the executable program.
- Type or paste an expression with relational operators (e.g., a <= b && a != b) and press Ctrl + D to end input (EOF).
- Observe the output showing which relational operators were detected and their descriptions.

Program Code:

```
%%
```

```
"==" {
```

```
printf("Equal to operator: %s\n", yytext);
```

```
}
```

```
"!=" {
```

```
printf("Not equal to operator: %s\n", yytext); } "<="
```

```
{ printf("Less than or equal to operator: %s\n",  
yytext); } ">=" {
```

```
printf("Greater than or equal to operator: %s\n",
yytext); } "<" {

printf("Less than operator: %s\n", yytext);

} ">" {

printf("Greater than operator: %s\n", yytext);

} .|\n

{ /* Ignore other characters */

}

%%

int main() {

yylex();

return 0;

}
```

Output:

```

vboxuser@Ubuntu:~$ lex content_remover.l
lex: can't open content_remover.l
vboxuser@Ubuntu:~$ lex content_remove.l
vboxuser@Ubuntu:~$ gcc lex.yy.c -o content_remove -ll
vboxuser@Ubuntu:~$ ./content_remove input.c output.c
File open error: No such file or directory
vboxuser@Ubuntu:~$ ls input.c
ls: cannot access 'input.c': No such file or directory
vboxuser@Ubuntu:~$ ./content_remove your_real_input_file.c output.c
File open error: No such file or directory
vboxuser@Ubuntu:~$ ./content_remove input.c output.c
Total comment lines removed: 4
vboxuser@Ubuntu:~$ lex relational_ops.l
lex: can't open relational_ops.l
vboxuser@Ubuntu:~$ lex relational_op.l
vboxuser@Ubuntu:~$ gcc lex.yy.c -o relational_op -ll
vboxuser@Ubuntu:~$ ./relational_ops
bash: ./relational_ops: No such file or directory
vboxuser@Ubuntu:~$ ./relational_op
5+6-7 == 4 - 0
Equal to operator: ==
a <= b
Less than or equal to operator: <=
vboxuser@Ubuntu:~$

```

Result:

We had found out the relational operators present in the given expression using lex program.