Extended Basic Calculator

Compiler Design Mini Project

K Vagdevi (201501029)
Ch Nagalakshmi (201501012)

Guided by:
Prof. Viswanath, IIIT Sricity.

Basic Calculator:

This is a mini-prototype of the “bc” tool that is provided by the Free Software Foundation, Inc, for the Linux users in the terminal.

We have implemented this prototype using the lex and yacc tools.

The basic arithmetics like addition, subtraction, multiplication and division could be well performed.

Basic Calculator : Examples of implementations

```
vubuntu@vubuntu:~/Documents/Sem-6/CD/intermediate$ ./a.out
a=10;
b=20;
c=a+b;
print c;
30

a=2;
a=a+1;
print a;
3

s=a*2;
print s;
6

print s/3;
2

print s-a;
3
```

Extended Basic Calculator :

Our implementation of the extended basic calculator contains:

1. Factorial
2. Min and Max operations
3. if else condition
4. while loop

Extended Basic Calculator : Examples of implementations - factorial

```
vubuntu@vubuntu:~/Documents/Sem-6/CD/intermediate$ ./a.out
x=factorial(4);
print x;
24

s=factorial(3)+factorial(4);
print s;
30

a=factorial(factorial(3));
print a;
720

b=factorial(factorial(3)+1);
print b;
5040

c=6;
d=factorial(c)+10;
print d;
730
```

Extended Basic Calculator : Examples of implementations - if, else, while

```
vubuntu@vubuntu:~/Documents/Sem-6/CD/intermediate$ ./a.out

a=1;
while(a<10)
{
print a;
a=a+2;
}
1
3
5
7
9

a=2;
while(a<5)
{
if(a==2)
{
print a*2;
}
else
{
print a*10;
}
a=a+2;
}
4
40
```

Extended Basic Calculator : Examples of implementations - min and max

```
vubuntu@vubuntu:~/Documents/Sem-6/CD/MiniProject_Calc$ ./a.out
d=max(-6,max(0,9,8),7);
print d;
9

a=min(-100,min(2,3));
print a;
-100

s=min(min(-1,-2),3);
print s;
-2

t=min(-1,-2,-3,0,1,2,3);
print t;
-3

f=max(min(1,2),9);
print f;
9

s=min(max(10,20),min(-9,-100));
print s;
-100

d=max(-6,max(0,9,8),7);
print d;
9
```

Overall kind example:

```
vubuntu@vubuntu:~/Documents/Sem-6/CD/MiniProject_Calc$ ./a.out
i=min(2,3,4);
j=max(2,3,4);
while(i<j)
{
if(i==2)
{
print factorial(i);
}
else
{
print factorial(j);
}
i=i+1;
}
2
24
```