Code

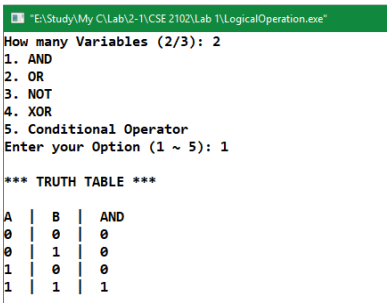
```
#include<iostream>
#include<cmath>
using namespace std;

int a[8]={0,0,0,0,1,1,1,1};
int b[8]={0,0,1,1,0,0,1,1};
int c[8]={0,1,0,1,0,1,0,1};
int x[4]={0,0,1,1};
int y[4]={0,1,0,1};
int v;

void AND()
{
   if(v==3)
   {
      cout<<"\nA  |  B  |  C  |  AND"<<endl;
      for(int i=0;i<pow(2,v);i++)
         cout<<a[i]<<"  |  "<<b[i]<<"  |  "<<c[i]<<"  |  "<<((a[i]&b[i])&c[i])<<endl;
   }
   else if(v==2)
   {
      cout<<"\nA  |  B  |  AND"<<endl;
      for(int i=0;i<pow(2,v);i++)
         cout<<x[i]<<"  |  "<<y[i]<<"  |  "<<(x[i]&y[i])<<endl;
   }
}

void OR()
{
   if(v==3)
   {
      cout<<"\nA  |  B  |  C  |  OR"<<endl;
      for(int i=0;i<pow(2,v);i++)
      {
         cout<<a[i]<<"  |  "<<b[i]<<"  |  "<<c[i]<<"  |  "<<((a[i]|b[i])|c[i])<<endl;
      }
   }
   else if(v==2)
   {
      cout<<"\nA  |  B  |  OR"<<endl;
      for(int i=0;i<pow(2,v);i++)
      {
         cout<<x[i]<<"  |  "<<y[i]<<"  |  "<<(x[i]|y[i])<<endl;
      }
   }
}
```

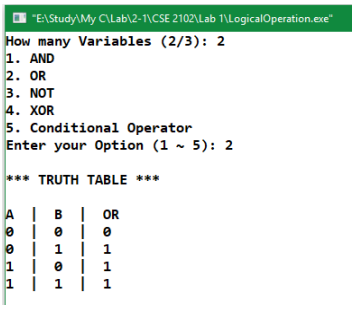
```
void NOT()
{
   cout<<"\nA  |  NOT of A"<<endl;
   for(int i=0;i<2;i++)
   {
      cout<<i<<"  |  "<<!i<<endl;
   }
}

void XOR()
{
   if(v==3)
   {
      cout<<"\nA  |  B  |  C  |  XOR"<<endl;
      for(int i=0;i<pow(2,v);i++)
      {
         cout<<a[i]<<"  |  "<<b[i]<<"  |  "<<c[i]<<"  |  "<<((a[i]^b[i])^c[i])<<endl;
      }
   }
   else if(v==2)
   {
      cout<<"\nA  |  B  |  XOR"<<endl;
      for(int i=0;i<pow(2,v);i++)
      {
         cout<<x[i]<<"  |  "<<y[i]<<"  |  "<<(x[i]^y[i])<<endl;
      }
   }
}

void CO()
{
   if(v==3)
   {
      cout<<"\nA  |  B  |  C  |  (A -> B) -> C"<<endl;
      for(int i=0;i<pow(2,v);i++)
      {
         cout<<a[i]<<"  |  "<<b[i]<<"  |  "<<c[i]<<"  |  "<<(!((!a[i])|(b[i]))|(c[i]))<<endl;
      }
   }
   else if(v==2)
   {
      cout<<"\nA  |  B  |  A -> B"<<endl;
      for(int i=0;i<pow(2,v);i++)
         cout<<x[i]<<"  |  "<<y[i]<<"  |  "<<((!x[i])|(y[i]))<<endl;
   }
}
```

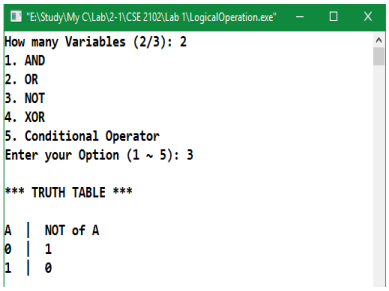
```
void BCO()
{
   if(v==3)
   {
      cout<<"\nA  |  B  |  C  |  (A <-> B) <-> C"<<endl;
      for(int i=0;i<pow(2,v);i++)
      {
         cout<<a[i]<<"  |  "<<b[i]<<"  |  "<<c[i]<<"  |
"<<(((!((!a[i])|(b[i]))|(c[i]))&(!(c[i])|((!b[i])|(a[i]))))<<endl;
      }
   }
   else if(v==2)
   {
      cout<<"\nA  |  B  |  A <-> B"<<endl;
      for(int i=0;i<pow(2,v);i++)
         cout<<x[i]<<"  |  "<<y[i]<<"  |  "<<(((!x[i])|(y[i]))&((!y[i])|(x[i])))<<endl;
   }
}


void menu()
{
   int op;
   cout<<"1. AND"<<endl;
   cout<<"2. OR"<<endl;
   cout<<"3. NOT"<<endl;
   cout<<"4. XOR"<<endl;
   cout<<"5. Conditional Operator"<<endl;
   cout<<"6. Bi-Conditional Operator"<<endl;
   cout<<"Enter your Option (1 ~ 5): ";
   cin>>op;
   cout<<"\n*** TRUTH TABLE ***"<<endl;
   switch(op)
   {
   case 1:
      AND();
      break;
   case 2:
      OR();
      break;
   case 3:
      NOT();
      break;
   case 4:
      XOR();
      break;
   case 5:
      CO();
```

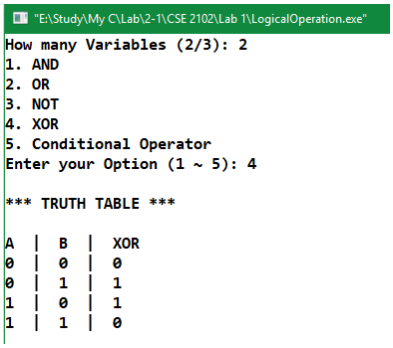
```
      break;
   case 6:
      BCO();
      break;
   default:
      cout<<"Please Choose between 1 to 6"<<endl;
      break;
   }
}

int main()
{
   cout<<"How many Variables (2/3): ";
   cin>>v;
   menu();
   return 0;
}
```

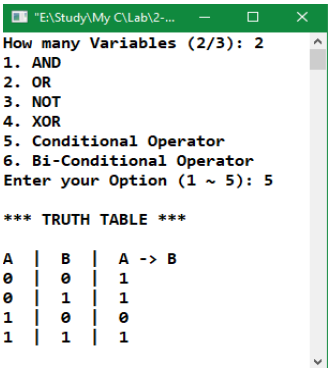
Output

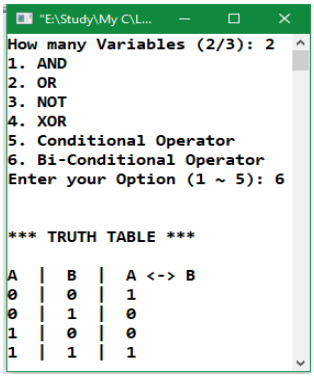

"E:\Study\My C\Lab\2-1\CSE 2102\Lab 1\LogicalOperation.exe"
How many Variables (2/3): 2
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
Enter your Option (1 ~ 5): 1
*** TRUTH TABLE ***
A | B | AND
0 | 0 | 0
0 | 1 | 0
1 | 0 | 0
1 | 1 | 1

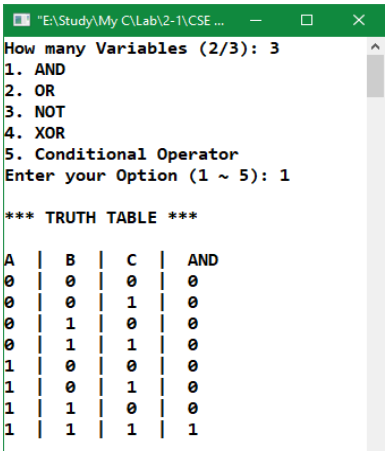

"E:\Study\My C\Lab\2-1\CSE 2102\Lab 1\LogicalOperation.exe"
How many Variables (2/3): 2
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
Enter your Option (1 ~ 5): 2
*** TRUTH TABLE ***
A | B | OR
0 | 0 | 0
0 | 1 | 1
1 | 0 | 1
1 | 1 | 1

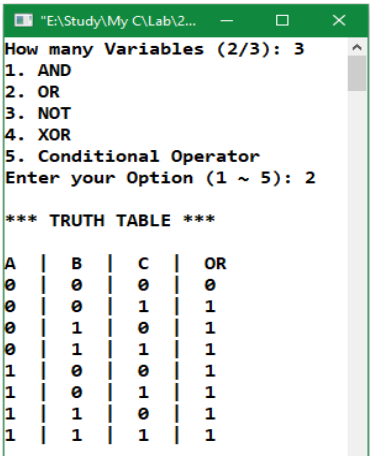

"E:\Study\My C\Lab\2-1\CSE 2102\Lab 1\LogicalOperation.exe"
How many Variables (2/3): 2
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
Enter your Option (1 ~ 5): 3
*** TRUTH TABLE ***
A | NOT of A
0 | 1
1 | 0

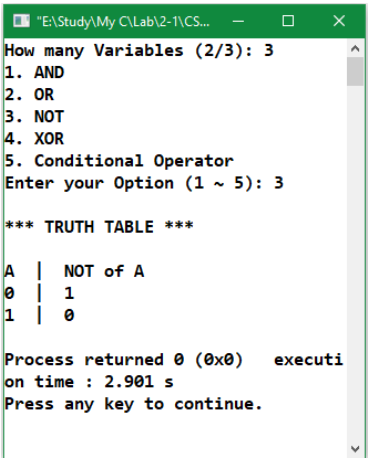

"E:\Study\My C\Lab\2-1\CSE 2102\Lab 1\LogicalOperation.exe"
How many Variables (2/3): 2
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
Enter your Option (1 ~ 5): 4
*** TRUTH TABLE ***
A | B | XOR
0 | 0 | 0
0 | 1 | 1
1 | 0 | 1
1 | 1 | 0

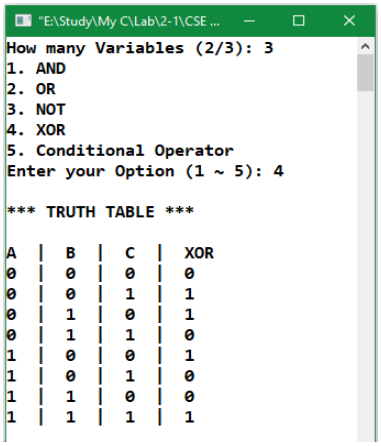

"E:\Study\My C\Lab\2-...
How many Variables (2/3): 2
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
6. Bi-Conditional Operator
Enter your Option (1 ~ 5): 5
*** TRUTH TABLE ***
A | B | A -> B
0 | 0 | 1
0 | 1 | 1
1 | 0 | 0
1 | 1 | 1

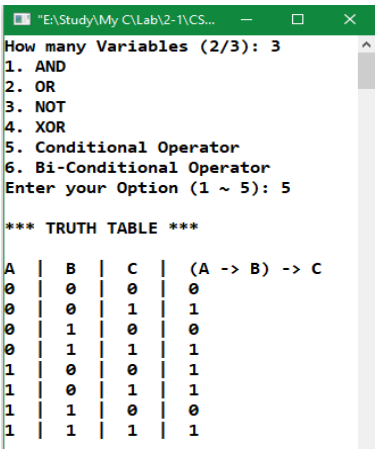

"E:\Study\My C\L...
How many Variables (2/3): 2
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
6. Bi-Conditional Operator
Enter your Option (1 ~ 5): 6
*** TRUTH TABLE ***
A | B | A <-> B
0 | 0 | 1
0 | 1 | 0
1 | 0 | 0
1 | 1 | 1

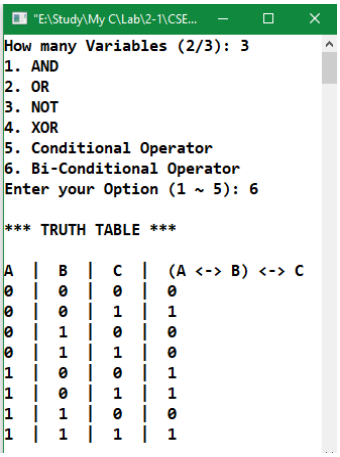

"E:\Study\My C\Lab\2-1\CSE ...
How many Variables (2/3): 3
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
Enter your Option (1 ~ 5): 1
*** TRUTH TABLE ***
A | B | C | AND
0 | 0 | 0 | 0
0 | 0 | 1 | 0
0 | 1 | 0 | 0
0 | 1 | 1 | 0
1 | 0 | 0 | 0
1 | 0 | 1 | 0
1 | 1 | 0 | 0
1 | 1 | 1 | 1


"E:\Study\My C\Lab\2...
How many Variables (2/3): 3
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
Enter your Option (1 ~ 5): 2
*** TRUTH TABLE ***
A | B | C | OR
0 | 0 | 0 | 0
0 | 0 | 1 | 1
0 | 1 | 0 | 1
0 | 1 | 1 | 1
1 | 0 | 0 | 1
1 | 0 | 1 | 1
1 | 1 | 0 | 1
1 | 1 | 1 | 1


"E:\Study\My C\Lab\2-1\CS...
How many Variables (2/3): 3
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
Enter your Option (1 ~ 5): 3
*** TRUTH TABLE ***
A | NOT of A
0 | 1
1 | 0
Process returned 0 (0x0) executi
on time : 2.901 s
Press any key to continue.


"E:\Study\My C\Lab\2-1\CSE ...
How many Variables (2/3): 3
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
Enter your Option (1 ~ 5): 4
*** TRUTH TABLE ***
A | B | C | XOR
0 | 0 | 0 | 0
0 | 0 | 1 | 1
0 | 1 | 0 | 1
0 | 1 | 1 | 0
1 | 0 | 0 | 1
1 | 0 | 1 | 0
1 | 1 | 0 | 0
1 | 1 | 1 | 1


"E:\Study\My C\Lab\2-1\CS...
How many Variables (2/3): 3
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
6. Bi-Conditional Operator
Enter your Option (1 ~ 5): 5
*** TRUTH TABLE ***
A | B | C | (A -> B) -> C
0 | 0 | 0 | 0
0 | 0 | 1 | 1
0 | 1 | 0 | 0
0 | 1 | 1 | 1
1 | 0 | 0 | 1
1 | 0 | 1 | 1
1 | 1 | 0 | 0
1 | 1 | 1 | 1


"E:\Study\My C\Lab\2-1\CSE...
How many Variables (2/3): 3
1. AND
2. OR
3. NOT
4. XOR
5. Conditional Operator
6. Bi-Conditional Operator
Enter your Option (1 ~ 5): 6
*** TRUTH TABLE ***
A | B | C | (A <-> B) <-> C
0 | 0 | 0 | 0
0 | 0 | 1 | 1
0 | 1 | 0 | 0
0 | 1 | 1 | 0
1 | 0 | 0 | 1
1 | 0 | 1 | 1
1 | 1 | 0 | 0
1 | 1 | 1 | 1