

ASSIGNMENT 6

// Assignment 6 program 1

/* Declare a class called logic_gate to represent logic gates.

The class has three data members - input1, input2 and input3 to represent three inputs to the logic gate.

The class also has a virtual function member called get_gate_output.

Derive two classes from the base class logic_gate, namely, and_gate and or_gate to represent 'logical and gate' and 'logical or gate' respectively.

Define function get_gate_output in both of these classes to get the output of the gate.

Show use of above classes and functions to demonstrate dynamic polymorphism in function main. */

```
#include<iostream>
```

```
#include<stdio.h>
```

```
#include<conio.h>
```

```
using namespace std;
```

```
class logic_gate{
```

```
    public:
```

```
        int input1,input2,input3;
```

```
        void get_input(){
```

```
            cout << "\n Enter three inputs :";
```

```
            cin >> input1 >> input2 >> input3;
```

```
        }
```

```
        virtual void get_gate_output()=0;
```

```
};
```

```
class and_gate:public logic_gate{
```

public:

```
void get_gate_output(){
```

```
    int o1;
```

```
    o1=input1 & input2 & input3;
```

```
    cout << "\n Output for the AND logic gate is :" << o1;
```

```
}
```

```
};
```

```
class or_gate:public logic_gate{
```

public:

```
void get_gate_output(){
```

```
    int o2;
```

```
    o2=input1 | input2 | input3;
```

```
    cout << "\n Output for the OR logic gate is :" << o2;
```

```
}
```

```
};
```

```
int main()
```

```
{
```

```
    logic_gate *ptr;
```

```
    and_gate ag;
```

```
    or_gate og;
```

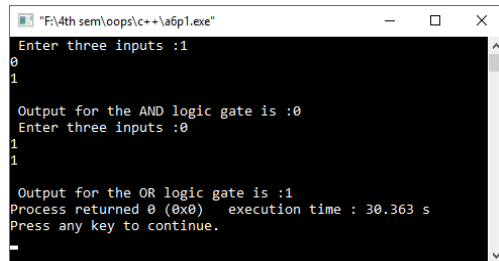
```
    ptr = &ag;
```

```
    ptr -> get_input();
```

```
    ptr -> get_gate_output();
```

```
    ptr = &og;
```

```
ptr -> get_input();  
  
ptr -> get_gate_output();  
  
    return 0;  
  
}
```



The screenshot shows a Windows command prompt window titled "F:\4th sem\oops\c++\a6p1.exe". The program prompts the user to "Enter three inputs :". The user enters "1", "0", and "1" on separate lines. The program then outputs "Output for the AND logic gate is :0". It prompts for inputs again, and the user enters "1", "1", and "1". The program outputs "Output for the OR logic gate is :1". Finally, it displays "Process returned 0 (0x0) execution time : 30.363 s" and "Press any key to continue." before the cursor.

```
"F:\4th sem\oops\c++\a6p1.exe"  
Enter three inputs :1  
0  
1  
  
Output for the AND logic gate is :0  
Enter three inputs :0  
1  
1  
1  
  
Output for the OR logic gate is :1  
Process returned 0 (0x0) execution time : 30.363 s  
Press any key to continue.  
_
```

/*Create class ITEM with item_code, item_rate and quantity as data members.

Create an array of pointers to objects of class ITEM.

Write a member function which will calculate the amount of item.

Print item_code and amount of item.*/

```
#include<iostream>
```

```
#include<conio.h>
```

```
using namespace std;
```

```
class item
```

```
{
```

```
int code;
```

```
float rate;
```

```
int quantity;
```

```
public:
```

```
void getdata(int c, float r, int q)
```

```
{
```

```
code = c; rate = r; quantity = q;
```

```
}
```

```
void calculate()
```

```
{
```

```
rate = quantity * rate;
```

```
}
```

```
void show()
```

```
{
```

```

cout << "\nCode : " << code << "\n";
cout << "Price: " << rate << "\n";
}
};

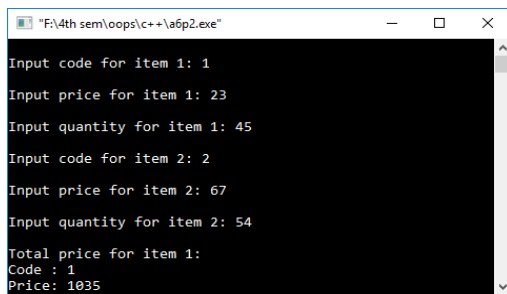
const int size = 2;

int main()
{
    item *p = new item[size];
    item *d = p;
    int x,z,i;
    float y;
    //system("cls");
    for(i=0; i<size; i++)
    {

        cout << "\nInput code for item " << i+1 << ": ";
        cin >> x;
        cout << "\nInput price for item " << i+1 << ": ";
        cin >> y;
        cout << "\nInput quantity for item " << i+1 << ": ";
        cin >> z;
        p -> getdata(x,y,z);
        p++;
    }
}

```

```
for(i=0; i<size; i++)  
{  
    cout << "\nTotal price for item " << i+1 << ": ";  
    d -> calculate();  
    d -> show();  
    d++;  
}  
getch();  
return 0;  
}
```



The screenshot shows a Windows command prompt window titled "F:\4th sem\oops\c++\a6p2.exe". The program prompts for input for two items. For item 1, the user enters code 1, price 23, and quantity 45. For item 2, the user enters code 2, price 67, and quantity 54. The program then displays the total price for item 1, which is 1035.

```
"F:\4th sem\oops\c++\a6p2.exe"  
Input code for item 1: 1  
Input price for item 1: 23  
Input quantity for item 1: 45  
Input code for item 2: 2  
Input price for item 2: 67  
Input quantity for item 2: 54  
Total price for item 1:  
Code : 1  
Price: 1035
```