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<conio.h>

using namespace std;

class logic\_gate

{

public:

int i1,i2,i3;

void input()

{

cout << "\nInput three binary values: ";

cin >> i1 >> i2 >> i3;

}

virtual void get\_gate\_output() = 0; // pure virtual

};

class and\_gate : public logic\_gate

{

public:

void get\_gate\_output()

{

int o1;

o1 = i1 & i2 & i3;

cout << "\nResult of AND gate : " << o1;

}

};

class or\_gate : public logic\_gate

{

public:

void get\_gate\_output()

{

int o2;

o2 = i1 | i2 | i3;

cout << "\nResult of OR gate : " << o2;

}

};

int main()

{

logic\_gate \*lptr;

and\_gate ag;

or\_gate og;

lptr = &ag;

lptr -> input();

lptr -> get\_gate\_output();

lptr = &og;

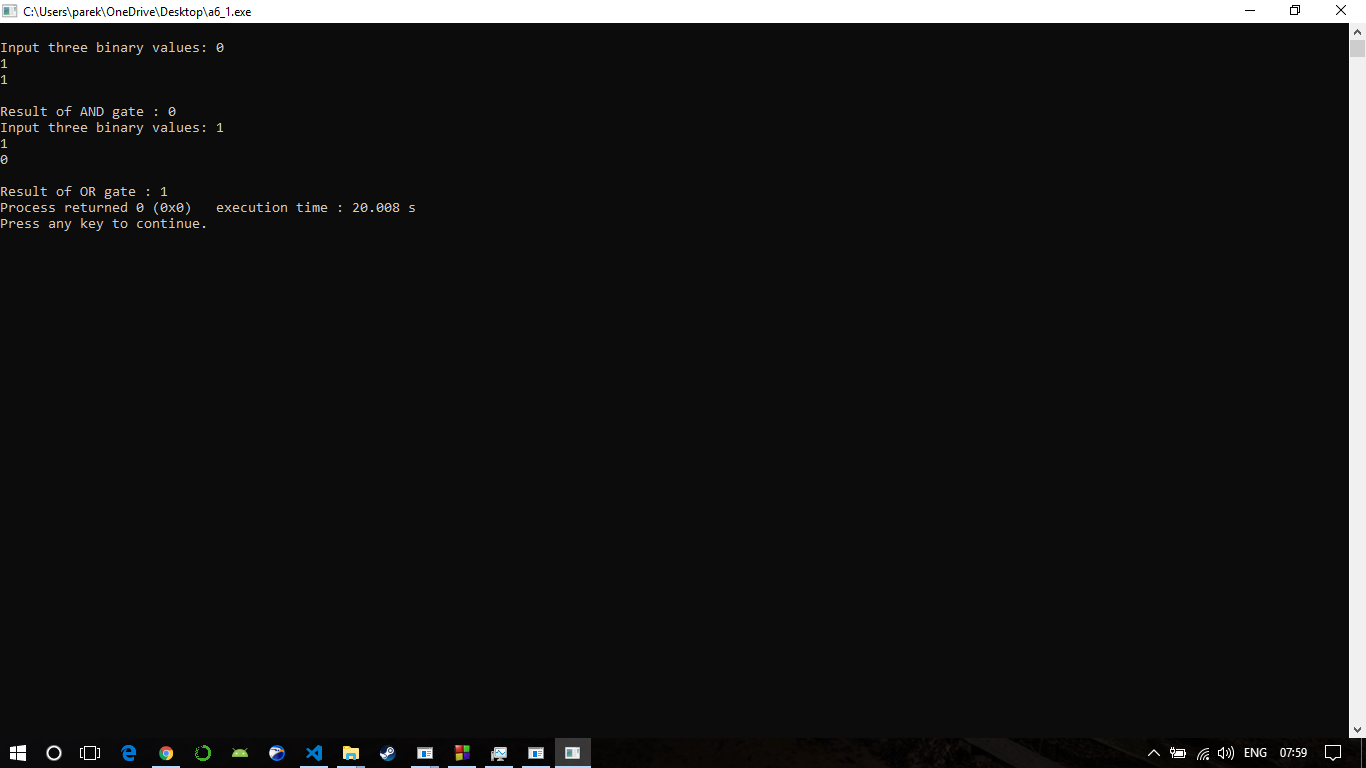
lptr -> input();

lptr -> get\_gate\_output();

getch();

return 0;

}



**Program 2**

/\*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;

}