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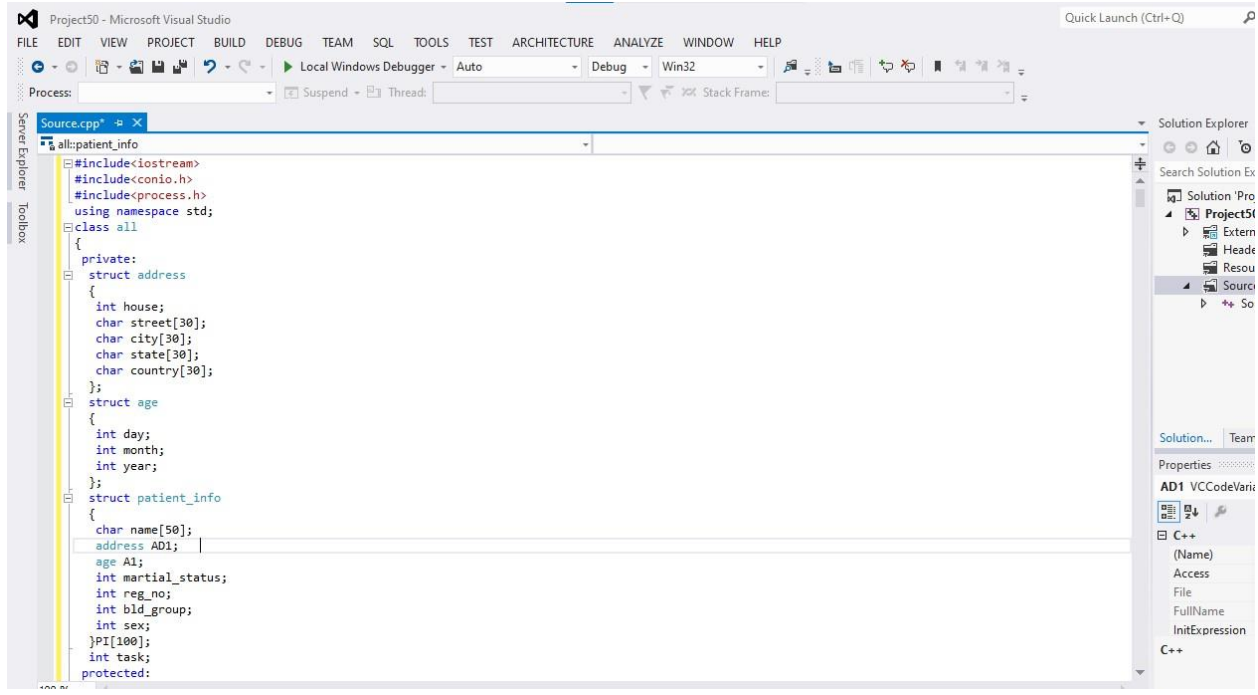
**Roll Number: 19P1664**

**Subject: Software Design and Architecture**

**Lab Task:15**

**Instructor: Usama Musharraf**

## Code of design:



The image shows a screenshot of a C++ IDE. The top menu bar includes 'E', 'EDIT', 'VIEW', 'PROJECT', 'BUILD', 'DEBUG', 'TEAM', 'SQL', and 'TOO'. Below the menu bar is a toolbar with icons for undo, redo, save, and other standard IDE functions. A status bar at the top right shows 'Local Windows Debugge'. Below the status bar is a 'Process:' dropdown menu and a 'Suspend' button. The main editor window is titled 'Source.cpp\*' and shows the following code:

```
all::patient_info
{
    int regis;
    int attempt;
    int temp;
    int show_count=0;
    void enter_patient_info();
    void show_patient_detail();
public:
    void software_detail();
    void tasks();
    char answer;
    char answer1;
    char ch;
    int serial;
};

class date
{
private:
    int date;
    int month;
    int year;
public:
    void enter_date();
    void show_date();
};

class dob
{
private:
    struct dob1
    {
        int date;
        int month;
```

Project50 - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST

Local Windows Debugger Auto

Process: Suspend Thread:

Source.cpp\* X

all::patient\_info

```
public:
    void enter_date();
    void show_date();
};

all A1;           //object declared
date D1;          //object declared
dob DOB1;         //object declared

void main()
{
    int count=0;
    cout<<"Welcome to..."<<" ";
    cout<<" ***HOSPITAL MANAGEMENT SOFTWARE***"<<" ";
    D1.enter_date();
    A1.tasks();
}

void all::tasks()
{
    attempt=0;
    D1.show_date();
    cout<<" ***HOSPITAL MANAGEMENT SOFTWARE***"<<" ";
    cout<<" **Hospital Management Tasks** "<<" ";
    cout<<" *****"<<" ";
    cout<<" Please select a task to do...."<<" ";
    cout<<" 1. Enter a new patient information ."<<" ";
    cout<<" 2. View detail of existing patient ."<<" ";
    cout<<" 3. View detail about the program ."<<" ";
    cout<<" 4. Exit from the program ."<<" ";
    cout<<" Enter your task serial :"<<" ";
    cin>>task;
    switch(task)
```

Project00 - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST AR

Local Windows Debugger Auto

Process: Suspend Thread:

Source.cpp\* X

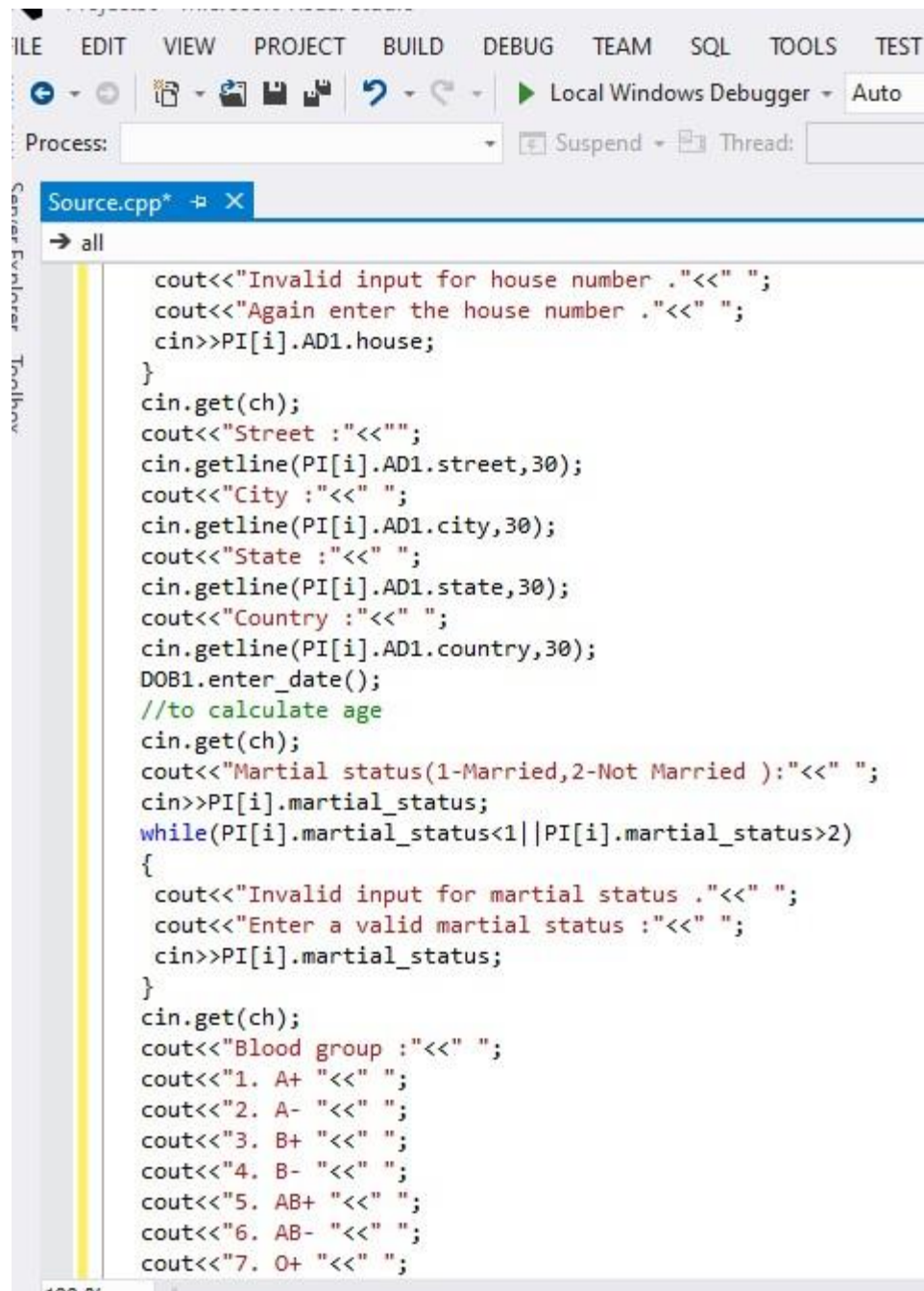
all::patient\_info

```
{
    case 1:{
        A1.enter_patient_info();
        break;
    }
    case 2:{
        A1.show_patient_detail();
        break;
    }
    case 3:{
        A1.software_detail();
        break;
    }
    case 4:{
        cout<<" Thank You for trying this program !!!"<<" ";
        cout<<" This is the end of program...."<<" ";
        cout<<" Press any key to exit....."<<" ";
        getch();
        exit(0);
        break;
    }
    default:{
        cout<<" Invalid task serial ."<<" ";
        cout<<"Press any key to continue...."<<" ";
        getch();
        A1.tasks();
    }
}

void all::enter_patient_info()
{
    answer='y';
```

The screenshot shows a C++ IDE with a menu bar (FILE, EDIT, VIEW, PROJECT, BUILD, DEBUG, TEAM, SQL, TOOLS, TEST, ARCHITECTURE) and a toolbar with icons for undo, redo, save, and run. The 'Local Windows Debugger' is set to 'Auto'. The 'Process' dropdown is empty, and 'Suspend' and 'Thread' buttons are visible. The 'Server Explorer' and 'Toolbox' are on the left. The main editor window shows 'Source.cpp' with the following code:

```
void all::enter_patient_info()
{
    answer='y';
    if(count==0)
    {
        serial=1;
    }
    else
    {
        i=serial;
    }
    for(i=serial;answer=='y' || answer=='Y';i++)
    {
        PI[i].reg_no=i;
        temp=serial;
        cout<<" ***ENTERING INFORMATION FOR PATIENT SERIAL NUMBER "<<i<<"*****"<<" ";
        cin.get(ch);
        cout<<" Registration Number : "<<PI[i].reg_no<<" ";
        cout<<"Enter the name of patient : "<<" ";
        cin.getline(PI[i].name,50);
        cout<<"Sex (1-Male 2-Female) : "<<" ";
        cin>>PI[i].sex;
        while(PI[i].sex!=1&&PI[i].sex!=2)
        {
            cout<<"Invalid input for sex of patient!!!"<<" ";
            cout<<"Sex : "<<" ";
            cin>>PI[i].sex;
        }
        cout<<" ***ENTERING ADDRESS***"<<" ";
        cout<<"House number : "<<" ";
        cin>>PI[i].AD1.house;
        while(PI[i].AD1.house<=0)
        {
```



The screenshot shows a C++ IDE with a menu bar (FILE, EDIT, VIEW, PROJECT, BUILD, DEBUG, TEAM, SQL, TOOLS, TEST) and a toolbar with icons for file operations and debugging. The 'Local Windows Debugger' is selected. Below the toolbar, there are fields for 'Process:', 'Suspend', and 'Thread:'. The main editor window is titled 'Source.cpp\*' and contains the following C++ code:

```
cout<<"Invalid input for house number . "<<" ";
cout<<"Again enter the house number . "<<" ";
cin>>PI[i].AD1.house;
}
cin.get(ch);
cout<<"Street : "<<" ";
cin.getline(PI[i].AD1.street,30);
cout<<"City : "<<" ";
cin.getline(PI[i].AD1.city,30);
cout<<"State : "<<" ";
cin.getline(PI[i].AD1.state,30);
cout<<"Country : "<<" ";
cin.getline(PI[i].AD1.country,30);
DOB1.enter_date();
//to calculate age
cin.get(ch);
cout<<"Martial status(1-Married,2-Not Married ):"<<" ";
cin>>PI[i].martial_status;
while(PI[i].martial_status<1|PI[i].martial_status>2)
{
    cout<<"Invalid input for martial status . "<<" ";
    cout<<"Enter a valid martial status : "<<" ";
    cin>>PI[i].martial_status;
}
cin.get(ch);
cout<<"Blood group : "<<" ";
cout<<"1. A+ "<<" ";
cout<<"2. A- "<<" ";
cout<<"3. B+ "<<" ";
cout<<"4. B- "<<" ";
cout<<"5. AB+ "<<" ";
cout<<"6. AB- "<<" ";
cout<<"7. O+ "<<" ";
```



Project50 - Microsoft Visual Studio

EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE

Local Windows Debugger Auto  
Process: Suspend Thread:

source.cpp\* X

all

```
switch(PI[i].bld_group)
{
    case 1:
    case 2:
    case 3:
    case 4:
    case 5:
    case 6:
    case 7:
    case 8:{
        break;
    }
    default:{

while(PI[i].bld_group!=1&&PI[i].bld_group!=2&&PI[i].bld_group!=3&&
PI[i].bld_group!=4&&PI[i].bld_group!=5&&PI[i].bld_group!=6&&
PI[i].bld_group!=7&&PI[i].bld_group!=8)
    {
        cout<<"Invalid input !"<<" ";
        cout<<"Blood Group : "<<" ";
        cin>>PI[i].bld_group;
    }
    break;
}

cin.get(ch);
cout<<" Want to enter information for another patient ? "<<" ";
cin>>answer;
count++;
serial++;
}
A1.tasks();
```

100 %



Project50 - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS

Local Windows Debugger

Process: Suspend Thread:

Source.cpp\* X

all

```
}

void dob::enter_date()
{
    cout<<" Date of birth"<<" ";
    cout<<" Year :";
    cin>>DOB11[temp].year;
    if(DOB11[temp].year<=0||DOB11[temp].year>10000)
    {
        do
        {
            clrerr();
            cout<<"Invalid input for year !"<<"\n";
            cout<<"Please enter the year correctly :"<<"\n";
            cin>>DOB11[temp].year;
        }while(DOB11[temp].year<=0||DOB11[temp].year>10000);
    }
    clrerr();
    cout<<"Month :";
    clrerr();
    cin>>DOB11[temp].month;
    if(DOB11[temp].month<=0||DOB11[temp].month>12)
    {
        do
        {
            clrerr();
            cout<<"Invalid input for month !"<<"\n";
            cout<<"Again enter the month :"<<"\n";
            clrerr();
            if(count!=0)
            {
                clrerr();
            }
            cin>>DOB11[temp].month;
        }while(DOB11[temp].month<=0||DOB11[temp].month>12);
    }
    cout<<"Date :";
    clrerr();
    switch(DOB11[temp].month)
    {
        case 1:
```

Project50 - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL

Local Windows Debug

Process: Suspend Threads

Source.cpp\* X

all

```
case 3:
case 5:
case 7:
case 8:
case 10:
case 12:{
    cin>>DOB11[temp].date;
    while(DOB11[temp].date<1||DOB11[temp].date>31)
    {
        clrerr();
        cout<<"Invalid date !"<<"\n";
        cout<<"Again enter the date : "<<"\n";
        clrerr();
        cin>>DOB11[temp].date;
    }
    break;
}
case 2:{
    cin>>DOB11[temp].date;
    if(DOB11[temp].year%4==0)
    {
        while(DOB11[temp].date<0||DOB11[temp].date>29)
        //for leap year
        {
            clrerr();
            cout<<"Invalid date !"<<"\n";
            cout<<"Again enter the date : "<<"\n";
            clrerr();
            cin>>DOB11[temp].date;
        }
    }
    else
    {
        while(DOB11[temp].date<0||DOB11[temp].date>28)
        //for non-leap year
        {
            clrerr();
            cout<<"Invalid date !"<<"\n";
            cout<<"Again enter the date : "<<"\n";
            clrerr();
        }
    }
}
```



The image shows a screenshot of the Visual Studio Code editor interface. The top menu bar includes FILE, EDIT, VIEW, PROJECT, DEBUG, TEAM, and SQL. Below the menu is a toolbar with icons for running, debugging, and other functions. The 'Local Windows Debug' button is highlighted. Below the toolbar, there is a 'Process:' dropdown menu and buttons for 'Suspend' and 'Threa'. The main editor window displays a C++ file named 'Source.cpp'. The code is as follows:

```
default:{
    cin>>DOB11[temp].date;
    while(DOB11[temp].date<1||DOB11[temp].date>30)
    {
        clrerr();
        cout<<"Invalid date !"<<"
        cout<<"Again enter the date : "<<"
        clrerr();
        cin>>DOB11[temp].date;
    }
    break;
}
//end of switch
clrerr();
}

void date::enter_date()
{
    cout<<"
    First of all I need the current date ..."<<"
    cout<<"
    Year :
    cin>>year;
    if(year<=0||year>10000)
    {
        do
        {
            cout<<"Invalid input for year !"<<"
            cout<<"Please enter the year correctly : "<<"
            cin>>year;
        }while(year<0||year>10000);
    }
    cout<<"Month : ";
    cin>>month;
    if(month<=0||month>12)
    {
        do
        {
            cout<<"Invalid input for month !"<<"
            cin>>month;
        }while(month<=0||month>12);
    }
}
```

Project: Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL

Local Windows D

Process: Suspend

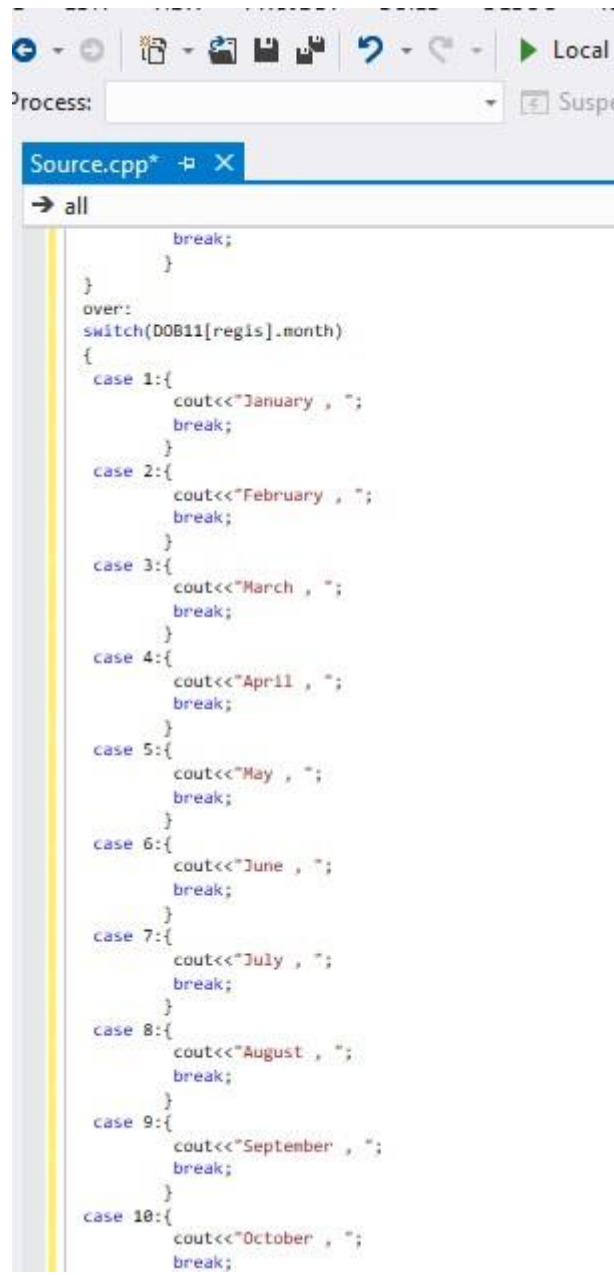
Source.cpp

→ all

```
cout<<"Date :";
switch(month)
{
    case 1:
    case 3:
    case 5:
    case 7:
    case 8:
    case 10:
    case 12:{
        cin>>date;
        while(date<1||date>31)
        {
            cout<<"Invalid date !"<<"\n";
            cout<<"Again enter the date : "<<"\n";
            cin>>date;
        }
        break;
    }
    case 2:{
        cin>>date;
        if(year%4==0)
        {
            while(date<0||date>29) //for leap year
            {
                cout<<"Invalid date !"<<"\n";
                cout<<"Again enter the date : "<<"\n";
                cin>>date;
            }
        }
        else
        {
            while(date<0||date>28) //for non-leap year
            {
                cout<<"Invalid date !"<<"\n";
                cout<<"Again enter the date : "<<"\n";
                cin>>date;
            }
        }
    }
}
```



```
Local Windows Debugger  
Process:   
Suspend Thread:   
source.cpp*   
all  
}  
  
void date::show_date() //remove the goto statements in this function  
{  
    clrscr();  
    cout<<"Hello...."  
    It's ";  
    cout<<date;  
    rem=date%10;  
    switch(date)  
    {  
        case 11:  
        case 12:  
        case 13:  
        case 14:  
        case 15:  
        case 16:  
        case 17:  
        case 18:  
        case 19:  
        case 20:{  
            cout<<"th ";  
            goto over;  
        }  
    }  
    switch(rem)  
    {  
        case 1:{  
            cout<<"st ";  
            break;  
        }  
        case 2:{  
            cout<<"nd ";  
            break;  
        }  
        case 3:{  
            cout<<"rd ";  
            break;  
        }  
        default:{  
            cout<<"th ";  
            break;  
        }  
    }  
    over:  
    switch(month)
```



The screenshot shows a C++ IDE with a toolbar at the top containing icons for navigation and execution. Below the toolbar is a 'Process:' dropdown menu and a 'Suspend' button. The main editor window, titled 'Source.cpp\*', displays a C++ code snippet. The code uses a switch statement to print the names of the first ten months of the year. The code is as follows:

```
        break;
    }
}
over:
switch(DOB11[regis].month)
{
    case 1:{
        cout<<"January , ";
        break;
    }
    case 2:{
        cout<<"February , ";
        break;
    }
    case 3:{
        cout<<"March , ";
        break;
    }
    case 4:{
        cout<<"April , ";
        break;
    }
    case 5:{
        cout<<"May , ";
        break;
    }
    case 6:{
        cout<<"June , ";
        break;
    }
    case 7:{
        cout<<"July , ";
        break;
    }
    case 8:{
        cout<<"August , ";
        break;
    }
    case 9:{
        cout<<"September , ";
        break;
    }
    case 10:{
        cout<<"October , ";
        break;
    }
}
```