Object Oriented Programming

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Assignment #3

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BSE-2B

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Question: The Human Resource Department of a university wants to digitally manage details of two categories of staff members: teaching and non-teaching. You are assigned the task of creating a software module that allows the entry and display of information related to both types of staff, while keeping shared information unified and non-redundant.

Each staff member has a name and ID. Teaching staff also have a subject they teach and the number of research papers they've published. Non-teaching staff belong to a specific department and work in a particular shift (morning, evening, or night).

Your task is to develop a program that can manage and display the details of **three teaching** and **three non-teaching** staff members. The system should avoid repetition of shared staff details and must be structured properly to accommodate both types of staff.

Input and output operations must be done using well-organized program design.

Code:

```cpp
#include <iostream>
#include <string>
using namespace std;
class Staff {
protected:
        string name;
        int ID;
public:
        void inputBasicInfo()
        {
                cout << "Enter Name: ";
                getline(cin, name);
                cout << "Enter ID: ";
                cin >> ID;
                cin.ignore();
        }
        void displayBasicInfo()
        {
                cout << "Name: " << name << endl;
                cout << "ID: " << ID << endl;
        }
};
class TeachingStaff : public Staff {
private:
```

```cpp
        string subject;
        int researchPaperPublished;
public:
        void inputInfo()
        {
                inputBasicInfo();
                cout << "Enter subject: ";
                getline(cin, subject);
                cout << "Enter No. of research paper published: ";
                cin >> researchPaperPublished;
                cin.ignore();
                cout << endl;
        }
        void displayInfo()
        {
                displayBasicInfo();
                cout << "Subject: " << subject << endl;
                cout << "Research paper published: " << researchPaperPublished <<
endl;
        }
};
class NonTeachingStaff : public Staff {
private:
        string department;
        string shift;
public:
        void inputInfo()
        {
                inputBasicInfo();
                cout << "Enter department: ";
                getline(cin, department);
                cout << "Enter shift (Morning/Evening/Night): ";
                getline(cin, shift);
                cin.ignore();
        }
        void displayInfo()
        {
                displayBasicInfo();
```

```cpp
                cout << "Department: " << department << endl;
                cout << "Shift: " << shift << endl;
        }
};
int main()
{
        TeachingStaff teaching[3];
        NonTeachingStaff nonteaching[3];
        cout << "---Enter Information for teaching staff---" << endl;
        for (int i = 0; i < 3; i++)
        {
                cout << "Staff " << i + 1 << ": " << endl;
                teaching[i].inputInfo();
        }

        cout << "---Enter Information for Non-teaching staff---" << endl;
        for (int i = 0; i < 3; i++)
        {
                cout << "Staff " << i + 1 << ": " << endl;
                nonteaching[i].inputInfo();
        }

        cout << "*---Displaying staff information---*" << endl << endl;
        cout << "   ===Teaching Staff===" << endl;
        for (int i = 0; i < 3; i++)
        {
                teaching[i].displayInfo();
                cout << "--------------------------" << endl;
        }

        cout << "   ===Non-Teaching Staff===" << endl;
        for (int i = 0; i < 3; i++)
        {
                nonteaching[i].displayInfo();
                cout << "--------------------------" << endl;
        }
        return 0;
}
```

Output:

```
---Enter Information for teaching staff---
Staff 1:
Enter Name: Umar Farooq
Enter ID: 1
Enter subject: OOP
Enter No. of research paper published: 2

Staff 2:
Enter Name: Ahtesham khan
Enter ID: 2
Enter subject: Discrete Structure
Enter No. of research paper published: 3

Staff 3:
Enter Name: Shahzeb Qamar
Enter ID: 3
Enter subject: Introduction to software engineering
Enter No. of research paper published: 8

---Enter Information for Non-teaching staff---
Staff 1:
Enter Name: Saad Ali
Enter ID: 4
Enter department: Software engineering
Enter shift (Morning/Evening/Night): Morning

Staff 2:
Enter Name: Daniyal khan
Enter ID: 5
Enter department: Electrical engineering
Enter shift (Morning/Evening/Night): Night

Staff 3:
Enter Name: Mustafa hussain
Enter ID: 6
Enter department: Computer science
Enter shift (Morning/Evening/Night): Evening
```

```
*---Displaying staff information---*

   ===Teaching Staff===
Name: Umar Farooq
ID: 1
Subject: OOP
Research paper published: 2
--------------------------
Name: Ahtesham khan
ID: 2
Subject: Discrete Structure
Research paper published: 3
--------------------------
Name: Shahzeb Qamar
ID: 3
Subject: Introduction to software engineering
Research paper published: 8
--------------------------
   ===Non-Teaching Staff===
Name: Saad Ali
ID: 4
Department: Software engineering
Shift: Morning
--------------------------
Name: Daniyal khan
ID: 5
Department: Electrical engineering
Shift: Night
--------------------------
Name: Mustafa hussain
ID: 6
Department: Computer science
Shift: Evening
--------------------------

E:\source\Project12\x64\Debug\Project12.exe (process 8320
```