Everest Engineering College
Sanepa-2, Lalitpur

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Subject: Object Oriented Programming in C++

Lab-12

Title: File handling in C++

Objective:
To be familiar with file handling in C++

Theory:

- **File handling and its importance**
- **File input and output streams**
- **Stream class Hierarchy**

Lab exercises (please code yourself and show the output to instructor)

1. Write a program to input Book_name, Publication and price. Now store these information in a file named "Library.dat" and display it.
   [Hint: use constructor to open( ) files]
   OR
   Write a program that prompts the user to enter their name and age. Write the entered data into a file named "userinfo.txt", read details from "userinfo.txt" and display the data on console.
   [Hint: use constructor to open( ) files]

2. Write a single program to implement the following details:

✓ Create a file named "fruits" and write Apple, Mango, Banana to the file and read from the file and display it.
✓ Create a file named "vegetable" and Write Potato, Cauliflower, Cabbage to the file and read from the file and display it.
[Hint: Use Open( ) method to work with multiple files.]
OR
Write a program to illustrate reading and writing into multiple files.

3. Write a program that stores the object of student class. (Assume that data members are roll, name and university_name) into a file and read values from the file and display the data in console.
4. Write a C++ program to input records of n students(name, address and roll) and save to the file. Display the record of only those student whose address is "Kathmandu" after reading from the file.

5. Create a class named Employee with data members: emp_id, name, position and salary. Now, input the records of n employees and store them in a file named "employee.dat". After writing the data to the file, read the records from the file and display the information of those employees whose salary is greater than 25,000.

Solution of some questions:

1. **Create a class named Employee with data members: emp_id, name, position and salary. Now, input the records of n employees and store them in a file named "employee.dat". After writing the data to the file, read the records from the file and display the information of those employees whose salary is greater than 25,000.**

```
#include <iostream>
#include <fstream>
using namespace std;
class Employee
{
private:
    int emp_id;
    char name[50];
    char position[30];
    float salary;
public:
    void input()
        {
        cout<<"Enter employee ID"<<endl;
        cin>>emp_id;
        cout<<"Enter name"<<endl;
        cin>>name;
        cout<<"Enter position"<<endl;
        cin>>position;
        cout<<"Enter salary"<<endl;
        cin>>salary;
    }
   void display()
   {
    if(salary>25000)
    {
    cout<<"Employee ID:"<<emp_id<<endl;
    cout<<"Name:"<<name<<endl;
    cout<<"Position:"<<position<<endl;
    cout<<"Salary:"<<salary<<endl;
    }
}
};
```

```
int main()
{
    Employee e[100];
    int n;
    cout << "Enter the number of employees"<<endl;
    cin>>n;
    fstream file;
    file.open("employee.dat",ios::in|ios::out|ios::binary);
    cout<<"Enter details for"<<n<<"employees:"<<endl;
    for (int i=0;i<n;i++)
    {
        e[i].input();
        file.write((char*)&e[i],sizeof(e[i]));
    }
    file.seekg(0);
 cout<<"Details of employees with salary greater than 25,000
are:"<<endl;
   for(int i=0;i<n;i++)
    {
        file.read((char*)&e[i], sizeof(e[i]));
        e[i].display();
    }
    file.close();
    return 0;
}
```

2. **Write a program that stores object of student class (assume data members are roll, name and university name) into a file and read values from the file and display data in console**.

```
#include<iostream>
#include<fstream>
using namespace std;
class student
{
private:
int roll;
char name[20];
char university_name[20];
public:
void readata()
{
cout<<"Enter the roll number"<<endl;;
cin>>roll;
cout<<"Enter the name"<<endl;
cin>>name;
cout<<"Enter the university name"<<endl;
cin>>university_name;
}
```

```
void writedata()
{
cout<<"Roll number="<<roll<<endl;
cout<<"Name="<<name<<endl;
cout<<"University name="<<university_name<<endl;
}
};
int main()
{
student st[100];
int n;
cout<<"Enter the number of students"<<endl;
cin>>n;
fstream file;
file.open("student.dat",ios::in|ios::out|ios::binary);
cout<<"Enter details for n studetns"<<endl;
for(int i=0;i<n;i++)
{
st[i].readata();
file.write((char*)&st[i],sizeof(st[i]));
}
file.seekg(0);
cout<<"Details of students stored in file are:"<<endl;
for(int i=0;i<n;i++)
{
file.read((char*)&st[i],sizeof(st[i]));
st[i].writedata();
}
file.close();
return 0;
}
```

3. **Write a C++ program to input records of n students (name, address and roll) and save to a file. Display the record of only those student whose address is "Kathmandu" after reading from the file.**

```
#include<iostream>
#include<fstream>
#include<string.h>
using namespace std;
class student
{
private:
char name[20];
char address[20];
int roll;
```

```
public:
void readata()
{
cout<<"Enter the name"<<endl;
cin>>name;
cout<<"Enter the address"<<endl;
cin>>address;
cout<<"Enter the roll number"<<endl;;
cin>>roll;
}
void writedata()
{
      if(strcmp(address,"kathmandu")==0)
      {
      cout<<"Name="<<name<<endl;
      cout<<"Address="<<address<<endl;
      cout<<"Roll number="<<roll<<endl;
      }
}
};

int main()
{
student st[100];
int n;
cout<<"Enter the number of students"<<endl;
cin>>n;
fstream file;
file.open("student.dat",ios::in|ios::out);
cout<<"Enter details for n students"<<endl;
for(int i=0;i<n;i++)
{
st[i].readata();
file.write((char*)&st[i],sizeof(st[i]));
}
file.seekg(0);
cout<<"Details of students whose address is kathmandu are:"<<endl;
for(int i=0;i<n;i++)
{
file.read((char*)&st[i],sizeof(st[i]));
st[i].writedata();
}
file.close();
return 0;
}
```

Alternative solution

```
#include<iostream>
#include<fstream>
#include<string.h>
using namespace std;
class student
{
private:
char name[20];
char address[20];
int roll;
public:
void readata()
{
cout<<"Enter the name"<<endl;
cin>>name;
cout<<"Enter the address"<<endl;
cin>>address;
cout<<"Enter the roll number"<<endl;;
cin>>roll;
}
void writedata()
{
      cout<<"Name="<<name<<endl;
      cout<<"Address="<<address<<endl;
      cout<<"Roll number="<<roll<<endl;
}
 char* getaddress()
 {
      return address;
 }
};
int main()
{
student st[100];
int n;
cout<<"Enter the number of students"<<endl;
cin>>n;
fstream file;
file.open("student.dat",ios::in|ios::out|ios::binary);
cout<<"Enter details for n studetns"<<endl;
```

```
for(int i=0;i<n;i++)
{
st[i].readata();
file.write((char*)&st[i],sizeof(st[i]));
}
file.seekg(0);
cout<<"Details of students whose address is kathmandu are:"<<endl;
for(int i=0;i<n;i++)
{
     file.read((char*)&st[i], sizeof(st[i]));
    if (strcmp(st[i].getaddress(), "kathmandu") == 0)
{
    st[i].writedata();
    }
}
file.close();
return 0;
}
```

4. **Write a program that prompts the user to enter their name and age. Write the entered data into a file named "userinfo.txt", read details form "userinfo.txt" and display the data on the console.**

```
#include<iostream>
#include<fstream>
using namespace std;
int main()
{
ofstream outfile("userinfo.txt");
char name[20];
int age;
cout<<"Enter the name:";
cin>>name;
outfile<<name<<endl;
cout<<"Enter the age:";
cin>>age;
outfile<<age<<endl;
outfile.close();
ifstream infile("userinfo.txt");
infile>>name;
infile>>age;
cout<<"User name:"<<name<<endl;
cout<<"Age:"<<age<<endl;
infile.close();
return 0;
}
```