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Read/Write Class Objects from/to File in C++

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Given a file "Input.txt" in which every line has values same as instance variables of a class. Read the values into the class's object and do necessary operations.

Theory :

The data transfer is usually done using '>>' and '<<' operators. But if you have a class with 4 data members and want to write all 4 data members from its object directly to a file or vice-versa, we can do that using following syntax :

To write object's data members in a file :

```
// Here file_obj is an object of ofstream
file_obj.write((char *) & class_obj, sizeof(class_obj));
```

To read file's data members into an object :

```
// Here file_obj is an object of ifstream
file_obj.read((char *) & class_obj, sizeof(class_obj));
```

Examples:

Input :

Input.txt :

Michael 19 1806

Kemp 24 2114

Terry 21 2400

Operation : Print the name of the highest

rated programmer.

Output :

Terry

C++

```
// C++ program to demonstrate read/write of class
// objects in C++.
#include <iostream>
#include <fstream>
using namespace std;

// Class to define the properties
class Contestant {
public:
    // Instance variables
    string Name;
    int Age, Ratings;

    // Function declaration of input() to input info
    int input();

    // Function declaration of output_highest_rated() to
    // extract info from file Data Base
    int output_highest_rated();
};

// Function definition of input() to input info
int Contestant::input()
{
    // Object to write in file
    ofstream file_obj;

    // Opening file in append mode
    file_obj.open("Input.txt", ios::app);

    // Object of class contestant to input data in file
    Contestant obj;

    // Feeding appropriate data in variables
    string str = "Michael";
    int age = 18, ratings = 2500;

    // Assigning data into object
    obj.Name = str;
    obj.Age = age;
    obj.Ratings = ratings;

    // Writing the object's data in file
    file_obj.write((char*)&obj, sizeof(obj));

    // Feeding appropriate data in variables
```

```
    str = "Terry";
    age = 21;
    ratings = 3200;

    // Assigning data into object
    obj.Name = str;
    obj.Age = age;
    obj.Ratings = ratings;

    // Writing the object's data in file
    file_obj.write((char*)&obj, sizeof(obj));

    //close the file
    //It's always a good practice to close the file after opening them
    file_obj.close();

    return 0;
}

// Function definition of output_highest_rated() to
// extract info from file Data Base
int Contestant::output_highest_rated()
{
    // Object to read from file
    ifstream file_obj;

    // Opening file in input mode
    file_obj.open("Input.txt", ios::in);

    // Object of class contestant to input data in file
    Contestant obj;

    // Reading from file into object "obj"
    file_obj.read((char*)&obj, sizeof(obj));

    // max to store maximum ratings
    int max = 0;

    // Highest_rated stores the name of highest rated contestant
    string Highest_rated;

    // Checking till we have the feed
    while (!file_obj.eof()) {
        // Assigning max ratings
        if (obj.Ratings > max) {
            max = obj.Ratings;
            Highest_rated = obj.Name;
        }

        // Checking further
        file_obj.read((char*)&obj, sizeof(obj));
    }

    // close the file.
    //It's always a good practice to close the file after opening them
    file_obj.close();
}
```

```
// Output is the highest rated contestant
cout << Highest_rated;
return 0;
}

// Driver code
int main()
{
    // Creating object of the class
    Contestant object;

    // Inputting the data
    object.input();

    // Extracting the max rated contestant
    object.output_highest_rated();

    return 0;
}
```

Output:

Terry

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AD

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