Project for Final

Department: Computer Science and Engineering (CSE)

Course Code:CSE-1360
Course Title: Object-Oriented Programming-1 Lab Work

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Introduction:

The provided C++ Project code implements a simple (Currency Converter) using an Object-Oriented approach. It defines a `CurrencyConverter` class that stores the latest exchange rates for 12 different currencies. The class includes a method to convert an amount from one currency to another based on the exchange rates. The `main()` function interacts with the user, allowing them to input the currency convert from & convert to , and the amount they wish to convert.

The Code:

Currency_Converter.cpp > main()

```cpp
#include <iostream>
using namespace std;

class CurrencyConverter
{
public:

    CurrencyConverter()
    {

        currencies[0] = ("USD", "usd"); //US Dollar
        exchangeRates[0] = 119.68;
        currencies[1] = ("EUR", "eur"); //Euro
        exchangeRates[1] = 133.29;
        currencies[2] = ("GBP", "gbp"); //British Pound
        exchangeRates[2] = 158.65;
        currencies[3] = ("JPY", "jpy"); //Japanese Yen
        exchangeRates[3] = 0.83;
        currencies[4] = ("AUD", "aud"); //Australian Dollar
        exchangeRates[4] = 81.56;
        currencies[5] = ("CAD", "cad"); //Canadian Dollar
        exchangeRates[5] = 88.23;
        currencies[6] = ("CHF", "chf"); //Swiss Franc
        exchangeRates[6] = 140.91;
        currencies[7] = ("CNY", "cny"); //Chinese Yuan
        exchangeRates[7] = 16.93;
        currencies[8] = ("ZAR", "zar"); //South African Rand
        exchangeRates[8] = 6.87;
        currencies[9] = ("INR", "inr"); //Indian Rupee
        exchangeRates[9] = 1.43;
        currencies[10] = ("BDT", "bdt"); //Bangladeshi Taka
        exchangeRates[10] = 1;
        currencies[11] = ("RUB", "rub"); //Russian Ruble
        exchangeRates[11] = 1.29;
    }

    double convert(const string &from, const string &to, double amount)
    {
        double fromRate = 0, toRate = 0;

        for (int i = 0; i < 12; ++i)
        {
            if (currencies[i] == from)
            {
                fromRate = exchangeRates[i];
            }
            if (currencies[i] == to)
            {
                toRate = exchangeRates[i];
            }
        }
```

```
        if (fromRate == 0 || toRate == 0)
        {
            cerr << "Invalid currency code.\n";
            return 0;
        }
        return amount * (fromRate / toRate);
    }

private:
    string currencies[12];
    double exchangeRates[12];
};


int main()
{
    CurrencyConverter converter;
    string fromCurrency, toCurrency;
    double amount;

    cout << "(USD) - United States Dollar" << endl;
    cout << "(EUR) - Euro (European Union)" << endl;
    cout << "(GBP) - British Pound Sterling" << endl;
    cout << "(JPY) - Japanese Yen" << endl;
    cout << "(AUD) - Australian Dollar" << endl;
    cout << "(CAD) - Canadian Dollar" << endl;
    cout << "(CHF) - Swiss Franc" << endl;
    cout << "(CNY) - Chinese Yuan" << endl;
    cout << "(ZAR) - South African Rand" << endl;
    cout << "(INR) - Indian Rupee" << endl;
    cout << "(BDT) - Bangladeshi Taka" << endl;
    cout << "(RUB) - Russian Ruble" << endl << endl;

    cout << "Enter the currency to convert from: ";
    cin >> fromCurrency;
    cout << "Enter the currency to convert to: ";
    cin >> toCurrency;
    cout << "Enter the amount: ";
    cin >> amount;

    double convertedAmount = converter.convert(fromCurrency, toCurrency, amount);

    if (convertedAmount != 0)
    {
        cout << amount << " " << fromCurrency << " is equivalent to " << convertedAmount
        << " " << toCurrency << endl;
    }
    else
    {
        cout << "Conversion failed. Please check the currency codes.\n";
    }
    return 0;
}
```

Output:

```
PS C:\Users\emrul\Desktop\Project for final> ./Currency_Converter
(USD) - United States Dollar
(EUR) - Euro (European Union)
(GBP) - British Pound Sterling
(JPY) - Japanese Yen
(AUD) - Australian Dollar
(CAD) - Canadian Dollar
(CHF) - Swiss Franc
(CNY) - Chinese Yuan
(ZAR) - South African Rand
(INR) - Indian Rupee
(BDT) - Bangladeshi Taka
(RUB) - Russian Ruble

Enter the currency to convert from: usd
Enter the currency to convert to: bdt
Enter the amount: 100
100 usd is equivalent to 11968 bdt
PS C:\Users\emrul\Desktop\Project for final>
```

Conclusion:

In this program, the `CurrencyConverter` class efficiently handles multiple currencies and their exchange rates, allowing users to easily perform conversions between them. By entering valid currency codes and an amount, the program calculates the equivalent value in the target currency, ensuring that any invalid inputs are caught and handled. This makes it a useful utility for basic currency conversion tasks.