Q: Use operator overloading to do complete the following functions:

```
Main Menu
        1.Equality
        2.String Copy
        3.Concat
        4.Show
        5.Reverse
        6.Palindrome
        7.Sub String
        8.Exit

Please Enter your choice:
```

Answer:

Source Code:

#include<iostream>

#include<cstring>

using namespace std;

class String{

    private:

        char str[30];

    public:

        void input();

        void show();

        void operator==(String s);

        void operator=(String s);

        void operator+(String s);

        void operator<<(String s);

        void operator>>(String s);

        void operator~();

        int operator/(String s);

};

void String::input(){

    cout<<"Enter String: ";

    cin.clear();

```cpp
    cin.sync();

    cin.getline(str,30);

}


void String::show(){

    for(int i=0;str[i]!='\0';i++){

        cout<<str[i];

    }

}


void String::operator==(String s){

    int i=0;

    bool equal=true;

    while(*(str+i)!='\0' && *(s.str + i)!='\0' ){

        if(*(str+i)!=*(s.str+i)){

            equal=false;

            break;

        }

        i++;

    }

    if(equal && *(str+i)!='\0' && *(s.str+i)!='\0') cout<<"Both String are equal\n";

    else cout<<"Strings are not equal\n";

}


void String::operator=(String s){

    int i=0,len= sizeof(s.str)/sizeof(char);

    for(int i=0;i<len;i++){

        *(str+i)= *(s.str+i);

        // str[i]=s.str[i];

    }

    *(str+len )='\0';

}
```

```cpp
void String::operator+(String s){
    int len=0;
    while(this->str[len]!='\0') len++;
    for(int i=0;s.str[i]!='\0';++i,++len){
        this->str[len] = s.str[i];
    }
    this->str[len] = '\0';
}


void String::operator<<(String s){
    cout<<"Sring:\t";
    s.show();
    cout<<"\n";
}


void String::operator>>(String s){
    cout<<"Reverse String:\t";
    for(int i=strlen(s.str);i>=0;i--){
        cout<<s.str[i];
    }
    cout<<"\n";
}


void String::operator~(){
    bool ans=true;
    int len = strlen(str)-1;
    for(int i=0;i<=len/2;i++){
        // cout<<str[i]<<" "<<str[len-i]<<endl;
        if(str[i]!=str[len-i]){
            ans=false;
            break;
```

```cpp
        }
    }
    if(ans) cout<<"Yes It is palindrome\n";
    else cout<<"No it is not palindrome\n";
}


int String::operator/(String s)
{
    int flag=0,k,i,j,len=strlen(str),len1=strlen(s.str)-1;
    for(i=0;i<len;i++)
     {
       if(str[i]==s.str[0])
        {
         if(str[i+len1]==s.str[len1])
          {
           for(j=i,k=0;j<i+len1+1,k<len1;j++,k++)
            {
             if(str[j]==s.str[k])
               flag=1;
             else
              {
                flag=0;
                break;
              }
            }
          }
        }
     }
    if(flag==0)
     return 0;  //not a substring


     return 1;  //it is a substring
```

```
}

int main(){

    while(true){

        int choice=8,br=0,c;

        String a,b;

        a.input();

        b.input();

        cout<<"Main Menu\n\t1. Equality\n\t2. String copy\n\t3. Concat\n\t4. Show\n\t5. Reverse\n\t6. Palindrome\n\t7.
Sub String\n\t8. Exit\nPlease enter your choice\t";

        cin>>choice;

        switch (choice)

        {

        case 1:

            a==b;

            break;

        case 2:

            b=a;

            cout<<"The String is copied: ";

            b.show();

            cout<<endl;

            break;

        case 3:

            a+b;

            a.show();

            cout<<"\n";

            break;

        case 4:

            b<<a;

            break;

        case 5:

            b>>a;
```

```cpp
            break;
        case 6:
            ~a;
            break;
        case 7:
            c=a/b;
            if(c){
                cout<<"YES\n";
            }else cout<<"NO\n";
            break;
        case 8:
            br=1;
            break;
        default:
            cout<<"Enter Valid option\n";
            break;
        }
        if(br) break;
    }
    return 0;
}
```

Output:

```
PS D:\sem-5\oop_Lab> cd "d:\sem-5\oop_Lab\" ; if ($?) { g++ 8.cpp -o 8 } ; if ($?) { .\8 }
Enter String: level
Enter String: q
Main Menu
        1. Equality
        2. String copy
        3. Concat
        4. Show
        5. Reverse
        6. Palindrome
        7. Sub String
        8. Exit
Please enter your choice       6
Yes It is palindrome
Enter String: tanmay
Enter String: a
Main Menu
        1. Equality
        2. String copy
        3. Concat
        4. Show
        5. Reverse
        6. Palindrome
        7. Sub String
        8. Exit
Please enter your choice       6
No it is not palindrome
```