Using interface 3

```csharp
/*
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by Herbert Schildt

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*/
using System;

// An encryption interface.
public interface ICipher {
string encode(string str);
string decode(string str);
}

/* A simple implementation of ICipher that codes
a message by shifting each character 1 position
higher. Thus, A becomes B, and so on. */
class SimpleCipher : ICipher {

// Return an encoded string given plaintext.
public string encode(string str) {
string ciphertext = "";

for(int i=0; i < str.Length; i++) ciphertext = ciphertext +
(char) (str[i] + 1); return ciphertext; } // Return an decoded
string given ciphertext. public string decode(string str) {
string plaintext = ""; for(int i=0; i < str.Length; i++)
plaintext = plaintext + (char) (str[i] - 1); return plaintext;
} } /* This implementation of ICipher uses bit manipulations
and key. */ class BitCipher : ICipher { ushort key; // Specify
a key when constructing BitCiphers. public BitCipher(ushort k)
{ key = k; } // Return an encoded string given plaintext.
public string encode(string str) { string ciphertext = "";
for(int i=0; i < str.Length; i++) ciphertext = ciphertext +
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(char) (str[i] ^ key); return ciphertext; } // Return an
decoded string given ciphertext. public string decode(string
str) { string plaintext = ""; for(int i=0; i < str.Length;
i++) plaintext = plaintext + (char) (str[i] ^ key); return
plaintext; } } // Use ICipher. // A class for storing unlisted
telephone numbers. class UnlistedPhone { string pri_name; //
supports name property string pri_number; // supports number
property ICipher crypt; // reference to encryption object
public UnlistedPhone(string name, string number, ICipher c) {
crypt = c; // store encryption object pri_name =
crypt.encode(name); pri_number = crypt.encode(number); }
public string Name { get { return crypt.decode(pri_name); }
set { pri_name = crypt.encode(value); } } public string Number
{ get { return crypt.decode(pri_number); } set { pri_number =
crypt.encode(value); } } } // Demonstrate UnlistedPhone public
class UnlistedDemo { public static void Main() { UnlistedPhone
phone1 = new UnlistedPhone("Tom", "555-3456", new
BitCipher(27)); UnlistedPhone phone2 = new
UnlistedPhone("Mary", "555-8891", new BitCipher(9));
Console.WriteLine("Unlisted number for " + phone1.Name + " is
" + phone1.Number); Console.WriteLine("Unlisted number for " +
phone2.Name + " is " + phone2.Number); } } [/csharp]
```