Cryptography as a Web Service

A WCF implementation

4/5/2013
Rochester Institute of Technology : CS Department
Karan Moodbidri

Table of Contents

Introduction

The Music Information and Song Retrieval Web Service has been realized using the Windows Communication Foundation (WCF) version .NET 4.5.

Path to Create a WCF project:

1. Open Visual Studio
2. Click File
3. Click New
4. Click Project
5. Select WCF Service Application from list of available projects for Visual C#
6. Give Name for Project Below

This is how you create the WCF project.

In the Solution Explorer in the right hand side of Visual Studio you will see the files generated for the project.

Technologies

There was no external API that was used in the process of building this web service.

Usage of Web Service

Encrypt using Substitution Cipher

```
public string EncryptCaeserCipher(string plainText, int disposition)
```

Input Parameters **:**

plainText: The string submitted by the user to be encrypted.

disposition : The amount a character is displaced from original value.

This Web Service call will return the encrypted string which is required by the user.

Decrypt using Substitution Cipher

```
public string DecryptCaeserCipher(string plainText, int disposition)
```

Input Parameters **:**

plainText: The string submitted by the user to be decrypted.

disposition : The amount a character is displaced from original value.

This Web Service call will return the encrypted string which is required by the user.

Encrypting using Affine Cipher

```
public string EncryptAffineCipher(string plainText, int a, int b)
```

Input Parameters :

plainText: The numbers to be sorted which are submitted by the user.

a : value of a for equation $(ax + b) mod\ n$

b: value of b for equation $(ax + b) mod\ n$

This Web Service call will return the encrypted string which is required by the user.

Decrypting using Affine Cipher

```
public string DecryptAffineCipher(string plainText, int a, int b)
```

Input Parameters :

plainText: The numbers to be sorted which are submitted by the user.

a : value of a for equation $a^{-1}(x-b)mod\ m$

b: value of b for equation $a^{-1}(x-b)mod\ m$

This Web Service call will return the decrypted string which is required by the user.

Class Structure

IService1.cs

Contains the OperationContracts i.e. the definition of the possible set of operations that can be performed using this web service.

Service1.svc.cs

Contains the implantations of the OperationContracts i.e. the implementations of the possible set of operations that can be performed using this web service.