HIGH SECURE IMAGE STEGANOGRAPHY FOR SECRETE COMMUNICATION

BY

SP.ANITHA

(16PCS003)

Project Report Submitted

In Partial fulfillment of the requirements for the award of

Master's Degree in Computer Science

Department of Computer Science,

Avinashilingam Institute for Home Science and Higher Education for Women, (Deemed to be University),

Coimbatore-641043

April-2018

HIGH SECURE IMAGE STEGANOGRAPHY FOR SECRETE COMMUNICATION

BY

SP.ANITHA

(16PCS003)

Project Report Submitted

In Partial fulfillment of the requirements for the award of

Master's Degree in Computer Science

Department of Computer Science,

Avinashilingam Institute for Home Science and Higher Education for Women, (Deemed to be University),

Coimbatore-641043

Signature of the Head of the Department **Signature of the Supervisor**

Viva Voce Examination Held on: _____

Signature of the Examiners

CERTIFICATE

sparkMINDZ

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the student **MS. SP.ANITHA [16PCS003]** studying **M.Sc (Computer Science)** in **AVINASHILINGAM UNIVERSITY FOR WOMEN, Coimbatore** has completed to do her project entitled **"HIGH SECURE IMAGE STEGNOGRAPHY FOR SECRET COMMUNICATION"** work in our esteemed Organization **from December 2017 to April 2018**.

Spark Mindz Technology

Regards

#4/460, 8th Street, Aruna Nagar, Vadamadurai, Coimbatore – 641017,
TamilNadu, India. Phone: +91 74487 00926 Web: sparkmindz.com

ACKNOWLEDGEMENT

I would like to take this opportunity to thank **Padma Shri, Dr. P. R. Krishnakumar, Chancellor,** Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for his whole hearted support and giving me energetic, dynamic encouragement during the tenure of my study.

My sincere gratitude to **Dr. Premavathy Vijayan, Vice Chancellor**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for providing unlimited resourceful support which facilities me in completing the work qualitatively.

My heart full applaud to **Dr. S. Kowsalya, Registrar**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, who has provided unconditional grant to facilitate the work successfully.

I also thank **Dr. A. Parvathi, Dean Faculty of Science,** Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for granting the facility required.

I am also immensely grateful to **Dr. V. Radha, Professor and Head of the Department of Computer Science,** Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, who travelled along with me throughout the study and work, guiding me in breaking the bottle necks to ensure smooth flow to successful completion of work.

My heart filled honourable thanks to my project coordinator **Dr. G. Sudhamathy, Assistant Professor, Department of Computer Science,** Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for her value added suggestion which simulated me to complete my project productively.

Finally, I take pride to thank my beloved parents who gave me a lovely life, physically and mentally strong to take up this challenge professionally.

ABSTRACT

ABSTRACT

Steganography is the art of hiding the fact that communication is taking place, by hiding information in other information. Many different carrier file formats can be used, but digital images are the most popular because of their frequency on the Internet. For hiding secret information in images, there exists a large variety of steganographic techniques some are more complex than others and all of them have respective strong and weak points. Different applications have different requirements of the steganography technique used. For example, some applications may require absolute invisibility of the secret information, while others require a larger secret message to be hidden. This intends to give an overview of image steganography and it also attempts to identify the requirements of a good steganographic algorithm and briefly reflects on which steganographic techniques are more suitable for which applications.

CONTENT

TABLE OF CONTENT

INTRODUCTION

1. INTRODUCTION

Steganography is one of the ways used for secure transmission of information. Hacking can be prevented using Steganography and is an art and science of secret communication. It is the practice of encoding secret information in a manner such that the existence of the information is invisible. In image steganography the information is hidden exclusively in image.

INFORMATION HIDING

Information hiding is a branch of computer science that deals with concealing the existence of a message.It employs technologies from numerous science disciplines such as

- Digital Signal Processing (Images , Audio, Video)
- Steganography
- Data Compression
- Human Visual

There are four primary sub-disciplines of Information Hiding and are as follows

- Steganography
- Watermarking
- Covert Channels
- Anonymity

1.1. PROBLEM DEFINITION

The problem is to implement an intelligent steganalysis concept for the huge amount of secret information that is passing through internet. As the number of users is growing rapidly with negative thinking, loss associated with such illegal act of steganography is a challenging task for the law enforcement agencies. This illegal act of information hiding of vulnerable information can be overcome properly only by using intelligent algorithms when compared to standard encryption and decryption methods and when compared to using the existing commercial software which has limitations.

1.2 OBJECTIVES

The main objectives of the project are

- To find the dilemma of classical security methods by examine the technique of steganography for secure communication.
- To define the sender and receiver process.
- To define how secrete information can be encrypt and embedded in a cover media file to facilitate more secure communication.

1.3 SYSTEM SPECIFICATION

System specification that describes the nature of a project .This includes the hardware and software of the project that are presented in the following section.

1.3.1 HARDWARE SPECIFICATION

Processor	:	Pentium IV
Hard Disk	:	250 GB
Ram	:	1 GB
Monitor	:	15 SVGA Color
Mouse	:	Optical Mouse
Keyboard	:	102 Keys

1.3.2 SOFTWARE SPECIFICATION

Operating System	:	Windows 7 professional
Front End	:	ASP.Net with C#
Back End	:	MY-SQL

LITERATURE REVIEW

2. LITERATURE REVIEW

In the year of 2013 Prabakaran, G.; Bhavani, R. and Rajeswari P.S.Investigated on Medical records are extremely sensitive patient information a multi secure and robustness of medical image based steganography scheme is proposed. This methodology provides an efficient and storage security mechanism for the protection of digital medical images. Authors proposed a viable steganography method using Integer Wavelet Transform to protect the MRI medical image into a single container image. The patient's medical diagnosis image has been taken as secret image and Arnold transform was applied and scrambled secret image was obtained. In this case, the scrambled secret image was embedded into the dummy container image and Inverse IWT was taken to get a dummy secret image. It has been observed that the quality parameters are improved with acceptable PSNR compared to the existing algorithms.

In the year of 2012 Thenmozhi, S. and Chandrasekaran, M., presented the novel scheme embeds data in integer wavelet transform coefficients by using a cropping function in an 8×8 block on the cover image. The optimal pixel change process has been applied after embedding the message. Authors employed the frequency domain to increase the robustness of our steganography method. Integer wavelet transform avoid the floating point precision problems of the wavelet filter. Result shows that the method outperforms adaptive steganography technique based on integer wavelet transform in terms of peak signal to noise ratio and capacity.

The communication is the basic necessity of every growing area. The growth of modern communication technologies imposes a special means of security mechanisms especially in case of data networks. Everyone wants the secrecy and safety of their communicating data. Information security is a major issue of concern while exchanging a data in an open network, as internet is not only a single network it is worldwide collection of loosely network. The network security is becoming more important as the volume of data being exchanged over the Internet increases day by day. The two important techniques for providing security are cryptography and steganography.

2.1 IMAGE STEGANOGRAPHY

The process of concealing the secret message in an image file is known as image steganography, hiding the data by taking the cover object as image is referred as image steganography The several characteristics of information hiding discussed, has been suggested Steganography is the art of passing information in a manner that the very existence of the message is unknown. The goal of steganography is to avoid drawing suspicion to the transmission of a hidden message.

RSA is used to encrypt the message and is widely used for secure data transmission. A user of RSA creates and then publishes a public key based on two large prime numbers, along with an auxiliary value. The prime numbers must be kept secret. Anyone can use the public key to encrypt a message, but with currently published methods, and if the public key is large enough, only someone with knowledge of the prime numbers can decode the message feasibly. Breaking RSA encryption is known as the RSA problem.

Rijndael algorithm is used to encrypt the image and then hides the information within the images where as Triple DES algorithm is used to encrypt the data. Three times it generates the algorithm

SYSTEM DEVELOPMENT

3. SYSTEM DEVELOPMENT

Image steganography is mostly oriented towards tricking the human visual system into believe in that the perception of the image has not been manipulated in anyway. Similar rules applies to a whole field of digital media of setaganography, whose primary functions is trick the observer to believe that the forgery is indeed genuine .The communication aspect of the whole steganography algorithm is secondary to the process of embedding of the secrete data and it is carried out in four different modules which are explained in the following sessions.

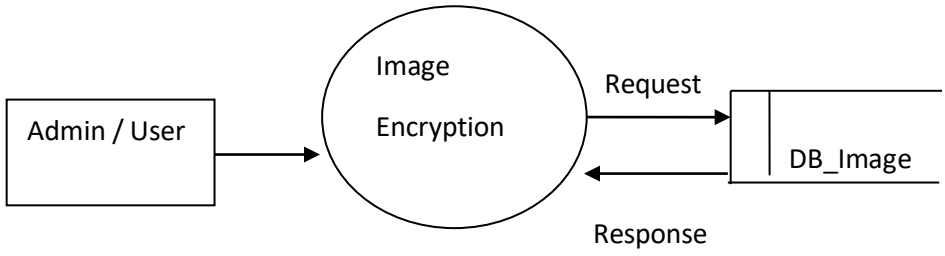
3.1 USER AUTHENTICATION

This module is used to provide security for the user. If the user wants to access this application, they must register with the application. Then only the user can login and access all the features of this application. It has the following features and that are presented in the form of Data flow diagram.

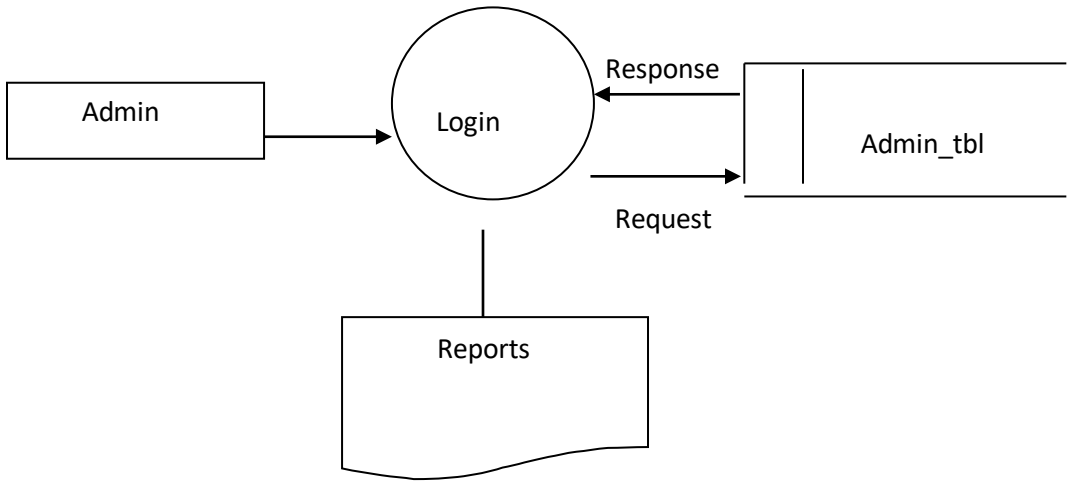
- Registration
- Login
- Forget Password
- Change Password

DATA FLOW DIAGRAM

LEVEL 0: Context Diagram



LEVEL: 1 ADMIN



The Figure 3.1 given below depicts the Home page of the High secure Image steganography for secrete communication.

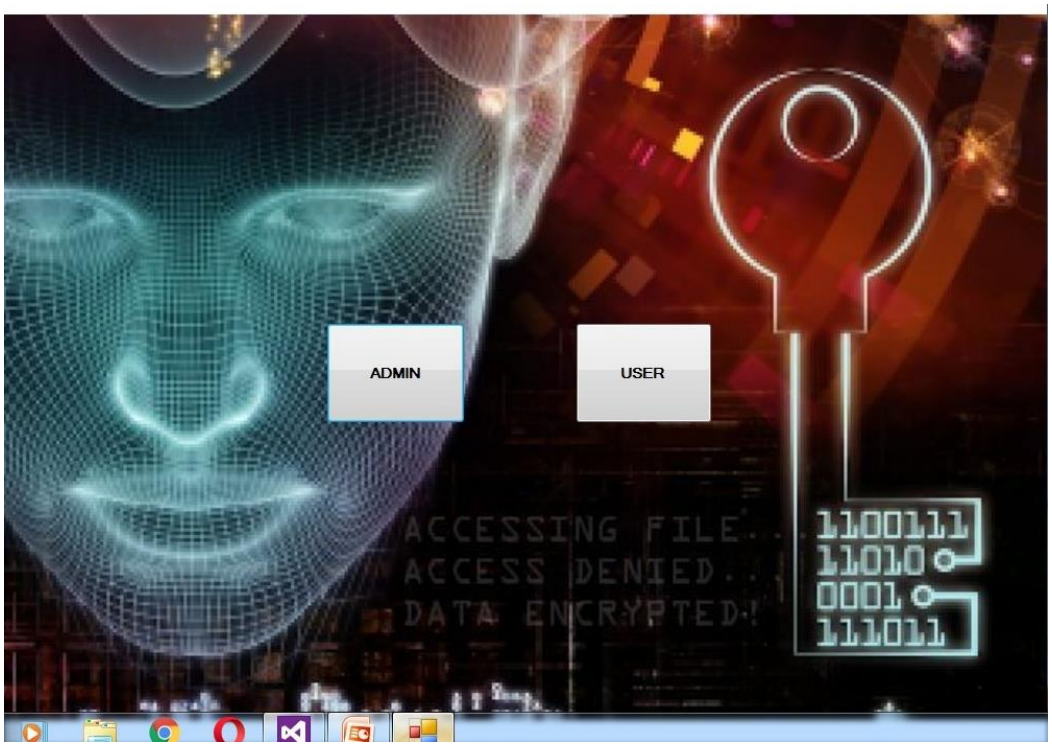


Figure 3.1: Home page

Admin must login with the help of username and the password as highlighted in the figure 3.2

Figure 3.2: Admin Login

The Admin home page having the options of creating the user, password and can view the activity of the user as highlighted in the figure 3.3

Figure 3.3: Admin Home Page

The user must login with the help of userid and password as shown in the figure 3.4 given below

Figure 3.4: User Login

Once the user login is authenticated, then the user can view the profile and reports. User can also change the password and they can send the encrypted mail as shown in the figure 3.5

Figure 3.5: User Form

3.2 MESSAGE COMPOSE WITH ENCRYPTION

User can compose and send text messages using this module. User only can send another user who are registered with this application. User sends the message to the receiver along with the transaction code then the receiver can view those messages with the help of the transaction code.

This module is used to access the message details such as,

- Received messages
- Sent Items
- Deleted Messages

User must load an image that can be encrypted and the text can also be encrypted as shown in the figure 3.6 given below

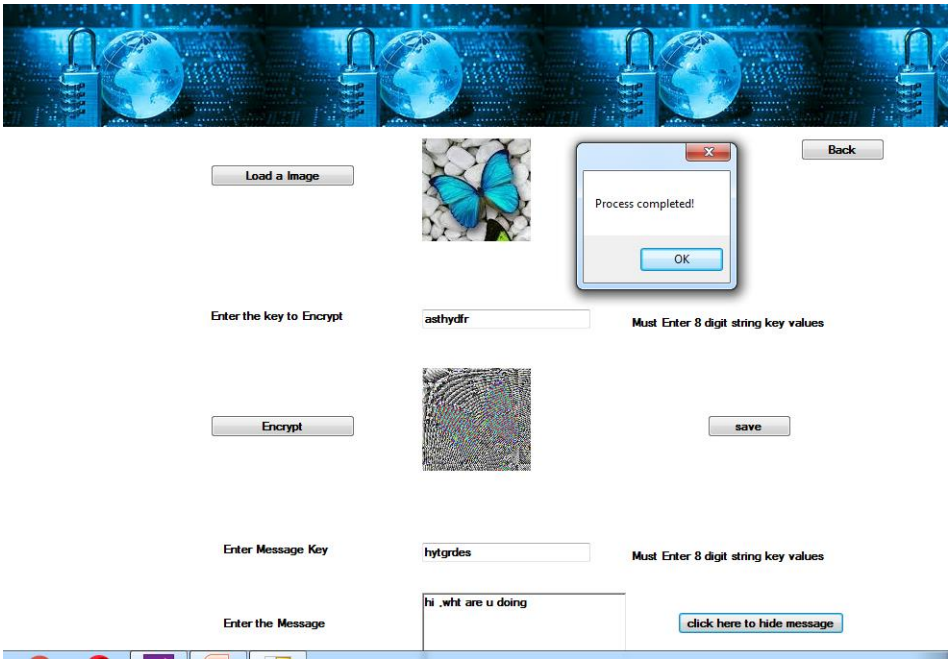


Figure 3.6 : Image Encryption Form

3.3 FILE SHARING

Password generation process is used generate the key for each and every text message and file sharing system. This feature provides full security for each message and every user. So the hacker could not hack easily.

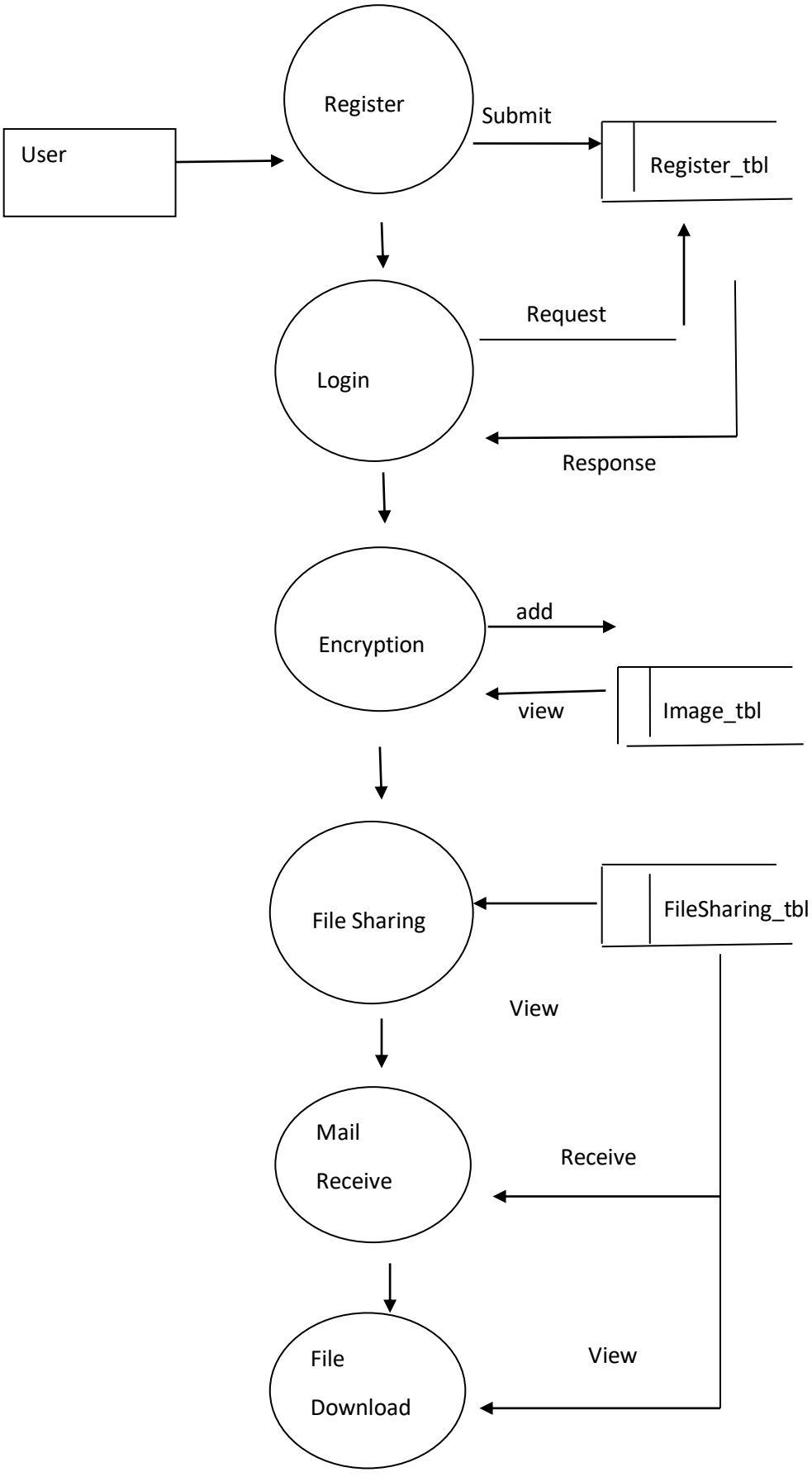
Once the Image encryption process is over, then the sender transfers the mail to the receiver as shown in the figure 3.7 as given below

Figure3.7: Mail Transfer Form

3.4 EMAIL ALERT WITH NOTIFICATION

Sender and receiver will receive alert notification, when unauthorized person are tries to access the file

LEVEL 2: USER


Register
Submit
User
Register_tbl
Request
Login
Response
Encryption
add
view
Image_tbl
File Sharing
FileSharing_tbl
View
Mail
Receive
Receive
File
Download
View

Receiver receives the mail with the transaction code as shown in the figure 3.8 given below

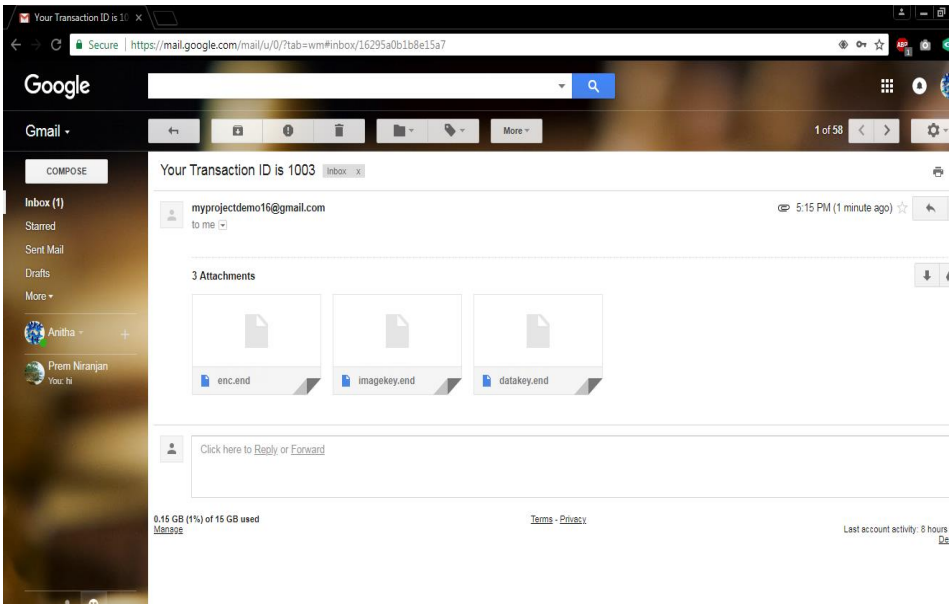


Figure 3.8 : Mail Received Form

Receiver cannot view the details what the sender sends and they cannot download the file as shown in the figure 3.9 given below

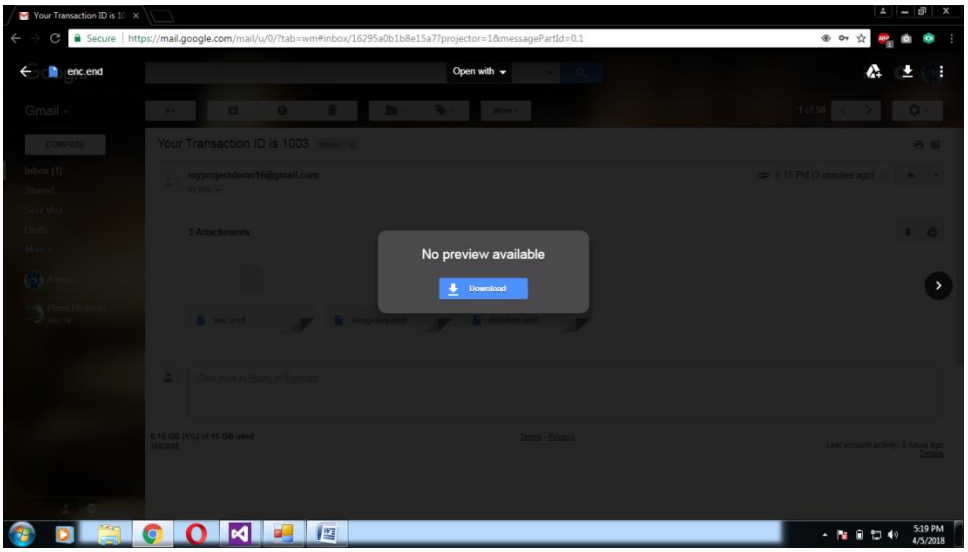


Figure 3.9: Download form

Both the admin and user can view the transaction report as shown in the figure3.10 given below

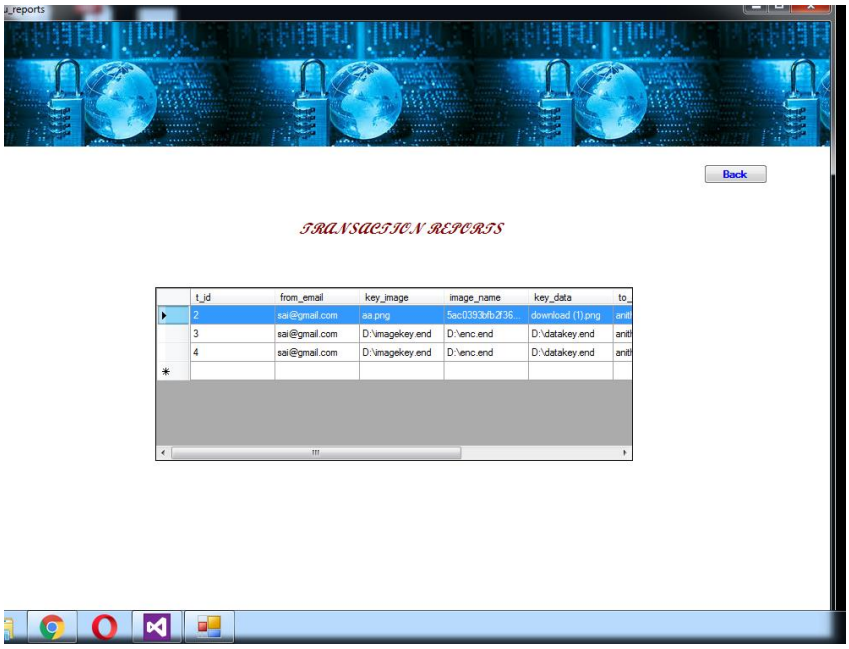


Figure 3.10: Transaction Report

Using the transaction code receiver can view the decrypted image and text as highlighted in the figure 3.11 given below

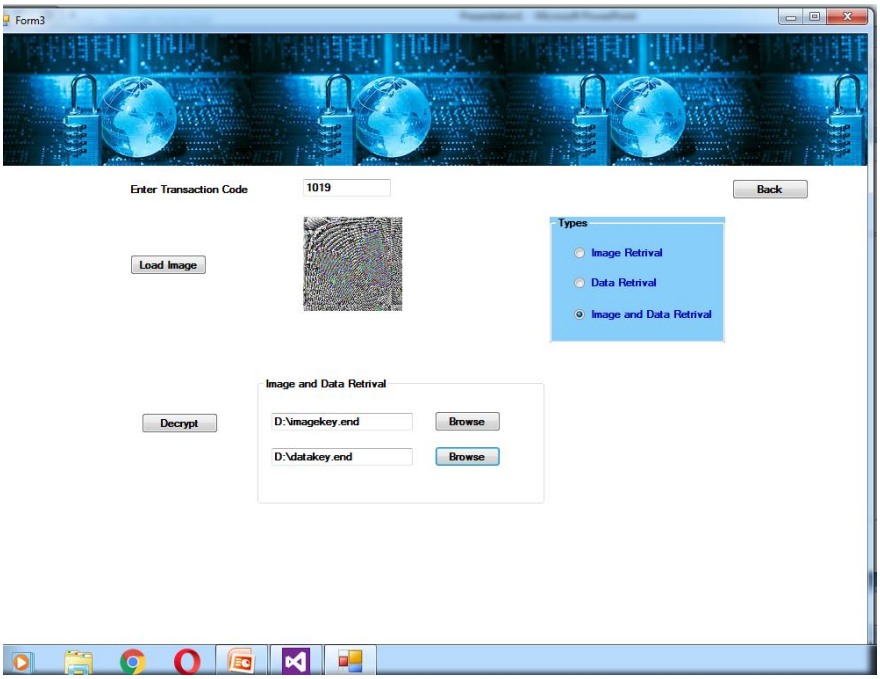


Figure 3.11: Decrypted Form

Decrypted result is shown in the figure 3.12 given below

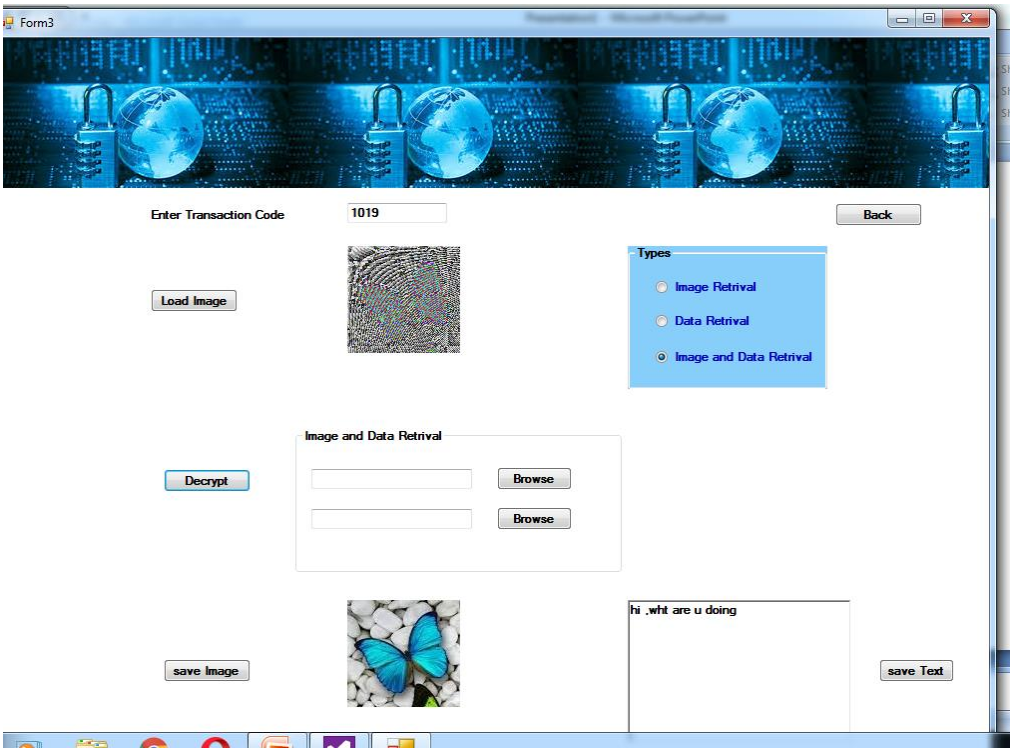


Figure 3.12: Decrypted Result

CONCLUSION

4. CONCLUSION

In the present world, the information transfers using internet is rapidly growing because it is so easier as well as faster to transfer the information to destination. Security is an important issue while transferring the information because any unauthorized can hack those information and make it useless or obtain information according to them. So steganography is the best way to transfer the information to one end to the another.

SCOPE FOR FUTURENHANCEMENT

5. SCOPE FOR FUTURE ENHANCEMENTS

- The scope of the project is to limit unauthorized access and provide better security during message transmission.
- In this project, the proposed system finds the suitable algorithm for embedding the data in an image using steganography which provides the better security for sending message through a network.

BIBLIOGRAPHY

BIBLIOGRAPHY

REFERENCES

- Prabakaran, G.; Bhavani, R.; Rajeswari, P.S., "Multi secure and robustness for medical image based steganography scheme," Circuits, Power and Computing Technologies (ICCPCT), 2013 International Conference on , vol., no., pp.1188,1193, 20-21 March 2013.
- Thenmozhi, S.; Chandrasekaran, M., "Novel approach for image stenography based on integer wavelet transform," Computational Intelligence & Computing Research (ICCIC), 2012 IEEE International Conference on, vol., no., pp.1,5, 18-20 Dec. 2012.

WEBSITES

- www.tutorialspoint.com/csharp
- http://www.asp.net/
- http://www.tutorialspoint.com/csharp/
- http://csharp-station.com/Tutorial/CSharp/SmartConsoleSetup.aspx
- http://learncs.org/
- http://zetcode.com/lang/csharp/
- https://mva.microsoft.com/en-US/training-courses/c-fundamentals-for-absolute-beginners-16169?l=Lvld4EQIC_2706218949

APPENDIX

APPENDIX

SAMPLE CODING

```
using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Text;

using System.Windows.Forms;

using System.IO;

using System.Data.SqlClient;

namespace image_texthide

{

   public partial class Form1 : Form

   {

SqlConnection con = new SqlConnection("Data Source=PRAVINKUMAR;Initial Catalog=data_hide;Integrated Security=True");

       string uid="";

       string keyimage;

       public Form1(string id )

       {
```

```
    uid=id;
    InitializeComponent();
}
private void button1_Click(object sender, EventArgs e)
{
    string fname1 = "";
    OpenFileDialog o = new OpenFileDialog();
    if (o.ShowDialog() == DialogResult.OK)
    {
        fname1 = o.FileName;
        pictureBox1.Visible = true;
        Bitmap img1 = new Bitmap(fname1);
        pictureBox1.Image = img1;
        Int32 p_width = pictureBox1.Image.Width;
        Int32 p_height = pictureBox1.Image.Height;
        pictureBox1.Width = p_width;
        pictureBox1.Height = p_height;
        textBox1.Visible = true;
        label1.Visible = true;
        label4.Visible = true;
```

```
            button3.Visible = true;
        }
        else
           {
              MessageBox.Show("Cancelled");
           }
      }
        private void button3_Click(object sender, EventArgs e)
       {
         int tid;
        string n = textBox1.Text
       SqlDataAdapter adap2 = new SqlDataAdapter("select key_image from enc_key where key_image='"+textBox1.Text+"'", con);
            DataSet ds2 = new DataSet();
            adap2.Fill(ds2);
            if (ds2.Tables[0].Rows.Count == 0)
            {
               if (n.Length == 8)
               {
                  pictureBox2.Visible = true;
```

```
Int32 p_width = pictureBox1.Image.Width;

Int32 p_height = pictureBox1.Image.Height;

Bitmap imgx = new Bitmap(pictureBox1.Image);

Bitmap img2 = new Bitmap(pictureBox1.Image);

keyimage = textBox1.Text;

int enc_val = 0;

int k = num(textBox1.Text);

SqlDataAdapter adap = new SqlDataAdapter("select t_id from enc_key", con);

DataSet ds = new DataSet();

adap.Fill(ds);

if (ds.Tables[0].Rows.Count != 0)

{

    SqlDataAdapter adap1 = new SqlDataAdapter("select max(t_id) from enc_key", con);

   DataSet ds1 = new DataSet();

   adap1.Fill(ds1);

   int id = Convert.ToInt16(ds1.Tables[0].Rows[0].ItemArray[0].ToString());

   tid = id + 1;

}

else
```

```
{
    tid = 1001;
}
con.Open();
SqlCommand cmd = new SqlCommand("insert into enc_key(u_id,key_image,t_id) values('" + uid + "','" + textBox1.Text + "','" + tid + "')", con);
cmd.ExecuteNonQuery();
con.Close();
string k1 = "";
int c;
for (c = 1; c <= n.Length; c++)
{
    string s = n.Substring(c - 1, 1);
    int d = Convert.ToChar(s);
    k1 = k1 + "!" + d;
 }
 File.Delete("D://imagekey.end");
File.AppendAllText("D://imagekey.end", k1.ToString() + Environment.NewLine);
 for (int i = 0; i < p_width; i++)
{
```

```
for (int j = 0; j < p_height; j++)
{
    Color PixelColor = img2.GetPixel(i, j);

    if (k <= 50)
    {
        k = k + 5;
    }
    else
    {
        k = 1;
    }
    enc_val = (i * j) % 200 + k;
    int enc_gray1 = PixelColor.R ^ enc_val;
    int enc_gray2 = PixelColor.G ^ enc_val;
    int enc_gray3 = PixelColor.B ^ enc_val;
Color PixelColor1 = Color.FromArgb(PixelColor.A, enc_gray1, enc_gray2, enc_gray3);
    // File.AppendAllText("D://enc1.end", PixelColor.A + Environment.NewLine + enc_gray1 + Environment.NewLine + enc_gray2 + Environment.NewLine + enc_gray3 + Environment.NewLine);
    imgx.SetPixel(i, j, PixelColor1);
```

```
            pictureBox2.Image = imgx;
            pictureBox2.Width = p_width;
            pictureBox2.Height = p_height;

        }
        }
        button4.Visible = true;
        button5.Visible = true;
        textBox2.Visible = true;
        richTextBox1.Visible = true;
        label2.Visible = true;
        label3.Visible = true;
        label5.Visible = true;
        MessageBox.Show("Your Transaction Id is " + tid);
    }
    else
    {
        textBox1.Text = "";
        MessageBox.Show("Must Enter 8 digit");
    }
```

```
            }
            else
            {
                textBox1.Text = "";
                MessageBox.Show("Alreday Key Exist");
            }
        }
        private void button4_Click(object sender, EventArgs e)
        {
            SqlDataAdapter adap2 = new SqlDataAdapter("select key_data from enc_key where key_data='"+textBox2.Text+"'", con);
            DataSet ds2 = new DataSet();
            adap2.Fill(ds2);
            if (ds2.Tables[0].Rows.Count == 0)
            {
            string m_key = textBox2.Text;
            con.Open();
            SqlCommand cmd = new SqlCommand("update enc_key set key_data='"+textBox2.Text+"' where  key_image='"+ keyimage+"'", con);
            cmd.ExecuteNonQuery();
            con.Close();
```

```
if (m_key.Length == 8)
{
    string m_text = richTextBox1.Text;
    string mlen_text = "";
    int m_len = m_text.Length;
    if (m_len <= 9)
    {
        mlen_text = "00" + m_len.ToString() + m_text;
    }
    else if (m_len <= 99)
    {
        mlen_text = "0" + m_len.ToString() + m_text;
    }
    else if (m_len <= 999)
    {
        mlen_text = m_len.ToString() + m_text;


    }
    else
    {
```

```
    MessageBox.Show("Hidden Text Message is too large");
    //Application.Exit();
 }
 int k = num(m_key);
//int m = num(m_text);
 //Int64 exor = k ^ m;
 //Int64 b_value = ToBinary(exor);
string k1 = "";
 int c1;
 for (c1 = 1; c1 <= m_key.Length; c1++)
 {
    string s = m_key.Substring(c1 - 1, 1);
    int d = Convert.ToChar(s);
   k1 = k1 + "!" + d;
  }
 File.Delete("D://datakey.end");
 File.AppendAllText("D://datakey.end",  k1.ToString() + Environment.NewLine);
 Bitmap img2 = new Bitmap(pictureBox2.Image);
 int c = 1;
 Int32 p_width = pictureBox2.Image.Width;
```

```
Int32 p_height = pictureBox2.Image.Height;

File.Delete("D://enc.end");

File.AppendAllText("D://enc.end", p_width.ToString() + Environment.NewLine + p_height.ToString() + Environment.NewLine);

for (int i = 0; i < p_width; i++)

{

   for (int j = 0; j < p_height; j++)

   {

    Color PixelColor = img2.GetPixel(i, j);

      int n, v = PixelColor.A;

      if (c <= mlen_text.Length)

      {

         string s = mlen_text.Substring(c - 1, 1);

         c++;

         n = Convert.ToChar(s);

         v = k ^ n;

      }

      Color PixelColor1 = Color.FromArgb(v, PixelColor.R, PixelColor.G, PixelColor.B);
```

```
                File.AppendAllText("D://enc.end", v + Environment.NewLine + PixelColor.R + Environment.NewLine + PixelColor.G + Environment.NewLine + PixelColor.B + Environment.NewLine);

                img2.SetPixel(i, j, PixelColor1);

                pictureBox2.Image = img2;

                pictureBox2.Width = p_width;

                pictureBox2.Height = p_height;

               }

            }

            MessageBox.Show("Process completed!");

 }

        else

        {

            textBox2.Text = "";

            MessageBox.Show("Must Enter 8 digit");

        }

            }

            else

            {

                textBox1.Text = "";

                MessageBox.Show("Alreday Key Exist");
```

```
        }
}
        private Int64 ToBinary(Int64 Decimal)
{
 // Declare a few variables we're going to need
  Int64 BinaryHolder;
  char[] BinaryArray;
   string BinaryResult = "";
   while (Decimal > 0)
    {
       BinaryHolder = Decimal % 2;
       BinaryResult += BinaryHolder;


        Decimal = Decimal / 2;
      }
    // The algoritm gives us the binary number in reverse order (mirrored)
    // We store it in an array so that we can reverse it back to normal
     BinaryArray = BinaryResult.ToCharArray();
     Array.Reverse(BinaryArray);
     BinaryResult = new string(BinaryArray);
```

```
      return Convert.ToInt64(BinaryResult);
      }
     private void button5_Click(object sender, EventArgs e)
 {
     SaveFileDialog s = new SaveFileDialog();
     s.Filter = "Image|*.JPeg";
    if (s.ShowDialog() == DialogResult.OK)
     {
       pictureBox2.Image.Save(s.FileName, System.Drawing.Imaging.ImageFormat.Jpeg);
     }
     else
     {
        MessageBox.Show("cancelled");
     }
}
     private void button2_Click(object sender, EventArgs e)
 {
  Int32 p_width = pictureBox2.Image.Width;
  Int32 p_height = pictureBox2.Image.Height;
  Bitmap imgx = new Bitmap(pictureBox2.Image);
```

```
 for (int i = 0; i < p_width; i++)
   {
      for (int j = 0; j < p_height; j++)
      {
         Color PixelColor = imgx.GetPixel(i, j);
  }
   }
}
     public int num(string keyvalue)
{
   string t1;
   t1 = keyvalue;
   string s;
   s = t1.ToUpper();
 char[] c = new char[] { 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S',
'T', 'U', 'V', 'W', 'X', 'Y', 'Z','0','1','2','3','4','5','6','7','8','9' };
   int sum = 0;
   for (int i = 0; i < s.Length; i++)
   {
      for (int j = 0; j < c.Length; j++)
```

```
        {
            char[] f = s.ToCharArray();
            char f1 = f[i];
            char g = c[j];
            if (f1.Equals(g))
            {
                sum += j + 1;
                break;
            }
        }
      }
     int n = 0;
     while (sum != 0)
     {
        n += sum % 10;
        sum /= 10;
     } return n;
  }
    private void button2_Click_2(object sender, EventArgs e)
{
```

```
        curvelet.userhome h = new curvelet.userhome(uid);
        h.Show();
        this.Hide();
      }
   }
}
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Text;
using System.Windows.Forms;
using System.IO;
using System.Data.SqlClient;
namespace image_texthide
{

   public partial class Form3 : Form
   {
      SqlConnection con = new SqlConnection("Data Source=PRAVINKUMAR;Initial
Catalog=data_hide;Integrated Security=True");
      string uid = "";
      DataSet ds = new DataSet();
      string fname = "";
      public Form3(string id)
      {
```

```
        uid = id;
        InitializeComponent();
    }
      private void button1_Click(object sender, EventArgs e)
    {
        richTextBox1.Text = "";

        if (textBox1.Text != ""|| textBox2.Text != ""  || textBox2.Text != ""|| textBox4.Text != "")
        {

            if (radioButton1.Checked)
            {
                string x = keyname(textBox1.Text);

                string d_ikey = "";

                SqlDataAdapter adap = new SqlDataAdapter("select key_image from enc_key
where t_id='"+ textBox5.Text +"'", con);
                adap.Fill(ds);
                if (ds.Tables[0].Rows.Count != 0)
                {
                    d_ikey = ds.Tables[0].Rows[0]["key_image"].ToString();
                }
               if(d_ikey==x)
               {

                    pictureBox2.Visible = true;
                    richTextBox1.Visible = false;
                    string[] lines = File.ReadAllLines("D://enc.end");
```

```
int c = 0;
int w = Convert.ToInt16(lines[c++]);
int h = Convert.ToInt16(lines[c++]);
pictureBox1.Width = w;
pictureBox1.Height = h;
//double p_width = pictureBox1.Image.Width;
//double p_height = pictureBox1.Image.Height;
Bitmap imgx = new Bitmap(pictureBox1.Image);
Bitmap img2 = new Bitmap(pictureBox1.Image);
int enc_val = 0;
int k = num(x);
for (int i = 0; i < w; i++)
{
    for (int j = 0; j < h; j++)
    {
        if (k <= 50)
        {
            k = k + 5;
        }
        else
        {
            k = 1;
        }
        enc_val = (i * j) % 200 + k;
        Color PixelColor = img2.GetPixel(i, j);
        int enc_gray1 = PixelColor.R ^ enc_val;
        int enc_gray2 = PixelColor.G ^ enc_val;
        int enc_gray3 = PixelColor.B ^ enc_val;
```

```
                    Color PixelColor1 = Color.FromArgb(255, enc_gray1, enc_gray2,
enc_gray3);
                     imgx.SetPixel(i, j, PixelColor1);
                     pictureBox2.Image = imgx;
                     pictureBox2.Width = w;
                     pictureBox2.Height = h;
                     button4.Visible = true;

                  }
                }
              }
              else
              {
                 MessageBox.Show("Invalid Key");
              }
            }
               else if (radioButton2.Checked)
          {
            string x = keyname(textBox2.Text);
            string key_val = File.ReadAllText("D://datakey.end");
            string sy = key_val.Substring(0, 3);
            string d_ikey = "";
            SqlDataAdapter adap = new SqlDataAdapter("select key_data from enc_key where
t_id='" + textBox5.Text + "'", con);
              DataSet ds1 = new DataSet();
              adap.Fill(ds1);
              if (ds1.Tables[0].Rows.Count != 0)
              {
                 d_ikey = ds1.Tables[0].Rows[0]["key_data"].ToString();
```

```
        }
            if(d_ikey==x)
           {
            pictureBox2.Visible = false;
            richTextBox1.Visible = true;
           string[] lines = File.ReadAllLines("D://enc.end");
           string data_value = "";
           for (int i = 14; i < lines.Length; i++)
            {
                int data = Convert.ToInt16(lines[i]);
                if (data == 255)
                {
                    break;
                }
                int key_data = num(x);
                int exor = data ^ key_data;
               data_value = data_value + Convert.ToChar(exor);
                i = i + 3;
             }
           richTextBox1.Text = data_value;
           button8.Visible = true;}
        else
        {
           MessageBox.Show("Invalid Key");
        }
          }
       else if (radioButton3.Checked)
{
```

```
            string x = keyname(textBox3.Text);
            string key_val = File.ReadAllText("D://imagekey.end");
            string sy = key_val.Substring(0, 3);
            string x1 = keyname(textBox4.Text);
            string key_val1 = File.ReadAllText("D://datakey.end");
            string sy1 = key_val1.Substring(0, 3);
            string d_ikey = "";
            string d_dkey = "";
            SqlDataAdapter adap = new SqlDataAdapter("select key_image,key_data from
enc_key where t_id='" + textBox5.Text + "'", con);
            DataSet ds1 = new DataSet();
            adap.Fill(ds1);
            if (ds1.Tables[0].Rows.Count != 0)
            {
               d_ikey = ds1.Tables[0].Rows[0]["key_image"].ToString();
               d_dkey = ds1.Tables[0].Rows[0]["key_data"].ToString();
            }
            if(d_ikey==x && d_dkey==x1)
            {
                pictureBox2.Visible = true;
                richTextBox1.Visible = true;
              //double p_width = pictureBox1.Image.Width;
               //double p_height = pictureBox1.Image.Height;
               string[] lines1 = File.ReadAllLines("D://enc.end");
               int c = 0;
               int w = Convert.ToInt16(lines1[c++]);
               int h = Convert.ToInt16(lines1[c++]);
               pictureBox1.Width = w;
               pictureBox1.Height = h;
```

```
Bitmap imgx = new Bitmap(pictureBox1.Image);
Bitmap img2 = new Bitmap(pictureBox1.Image);
int enc_val = 0;
int k = num(x);
for (int i = 0; i <w; i++)
{
    for (int j = 0; j < h; j++)
    {
        if (k <= 50)
        {
            k = k + 5;
        }
        else
        {
            k = 1;
        }
        enc_val = (i * j) % 200 + k;
        Color PixelColor = img2.GetPixel(i, j);
        int enc_gray1 = PixelColor.R ^ enc_val;
        int enc_gray2 = PixelColor.G ^ enc_val;
        int enc_gray3 = PixelColor.B ^ enc_val;
        Color PixelColor1 = Color.FromArgb(255, enc_gray1, enc_gray2,
enc_gray3);
        imgx.SetPixel(i, j, PixelColor1);
        pictureBox2.Image = imgx;
        button4.Visible = true;
        pictureBox2.Width = w;
        pictureBox2.Height = h;
    }
```

```
        }
        string[] lines = File.ReadAllLines("D://enc.end");
        string data_value = "";
        for (int i1 = 14; i1 < lines.Length; i1++)
        {
            int data = Convert.ToInt16(lines[i1]);
            if (data == 255)
            {
                break;
            }
            int key_data = num(x1);
            int exor = data ^ key_data;
            data_value = data_value + Convert.ToChar(exor);
            i1 = i1 + 3;}
        richTextBox1.Text = data_value;
        button8.Visible = true;
    }else
    {
        MessageBox.Show("Invalid Key");
        pictureBox2.Visible = false;
    }
      }else
{
    MessageBox.Show("Please select Type");
}
textBox1.Text = "";
textBox2.Text = "";
textBox3.Text = "";
```

```
            textBox4.Text = "";
        }
            else
        {

            MessageBox.Show("Please browse a key to encrypt");
        }
}
    public string keyname(string path)
    {
        string key_val = File.ReadAllText(path);
        string[] w;
        int wc;
        w = key_val.Split('!');
        wc = w.Length;
        string h = "";
        for (int c1 = 1; c1 < wc ; c1++)
        {
            string s = w[c1];
            int a = Convert.ToInt16(s);
            h = h + Convert.ToChar(a);
        }
        return h;}
       private void button3_Click(object sender, EventArgs e)
    {
        curvelet.userhome h = new curvelet.userhome(uid);
        h.Show();
        this.Hide();
```

```
  }
     private void button4_Click(object sender, EventArgs e)
  {
     SaveFileDialog s = new SaveFileDialog();
     s.Filter = "Image|*.JPeg";
    if (s.ShowDialog() == DialogResult.OK)
     {
    pictureBox2.Image.Save(s.FileName, System.Drawing.Imaging.ImageFormat.Jpeg);
   }
     else
     {
        MessageBox.Show("cancelled");
}


  }
  private void button5_Click(object sender, EventArgs e)
  {
    OpenFileDialog o1 = new OpenFileDialog();
    if (o1.ShowDialog() == DialogResult.OK)
     {
        fname = o1.FileName;
        Bitmap imgx = new Bitmap(pictureBox1.Image);
         long c = 0;
        string[] lines = File.ReadAllLines(fname);
        int w = Convert.ToInt16(lines[c++]);
        int h = Convert.ToInt16(lines[c++]);
        pictureBox1.Width = w;
        pictureBox1.Height = h;
```

```
            for (Int32 x = 0; x < w; x++)
             { for (Int32 y = 0; y < h; y++)
                {
                   int ArgbColor1 = Convert.ToInt16(lines[c++]);
                   int ArgbColor2 = Convert.ToInt16(lines[c++]);
                   int ArgbColor3 = Convert.ToInt16(lines[c++]);
                   int ArgbColor4 = Convert.ToInt16(lines[c++]);
                   Color PixelColor1 = Color.FromArgb(ArgbColor1, ArgbColor2, ArgbColor3,
ArgbColor4);
                   imgx.SetPixel(x, y, PixelColor1);
                  pictureBox1.Image = imgx; }


        }
            button2.Visible = true;
             button6.Visible = true;
             button7.Visible = true;
             button9.Visible = true;
             textBox1.Visible = true;
             textBox2.Visible = true;
             textBox3.Visible = true;
             textBox4.Visible = true;
             radioButton1.Visible = true;
             radioButton2.Visible = true;
             radioButton3.Visible = true;
             groupBox1.Visible = true;
         }
         else
         {
            MessageBox.Show("cancelled");
```

```
        }
    }
      public int num(string keyvalue)
    {
        string t1;
        t1 = keyvalue;
        string s;
        s = t1.ToUpper();
        char[] c = new char[] { 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q',
'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z' };
        int sum = 0;
       for (int i = 0; i < s.Length; i++)
        {
            for (int j = 0; j < c.Length; j++)
            {
                char[] f = s.ToCharArray();
                char f1 = f[i];
                char g = c[j];
                if (f1.Equals(g))
                {
                    sum += j + 1;
                    break;
                }

            }

        }

        int n = 0;
```

```
        while (sum != 0)
        {
            n += sum % 10;
            sum /= 10;
        } return n;
}
      private void button2_Click(object sender, EventArgs e)
   {
        string fname = "";
        OpenFileDialog o1 = new OpenFileDialog();
        if (o1.ShowDialog() == DialogResult.OK)
        {
            fname = o1.FileName;
            textBox1.Text = fname.ToString();
     }
        else
        {
            MessageBox.Show("cancelled");
        }
 }
    private void button6_Click(object sender, EventArgs e)
   {
        string fname = "";
        OpenFileDialog o1 = new OpenFileDialog();
        if (o1.ShowDialog() == DialogResult.OK)
        {
            fname = o1.FileName;
            textBox2.Text = fname.ToString();
```

```
}
    else
    {
        MessageBox.Show("cancelled");
    }
  }
    private void button7_Click(object sender, EventArgs e)
{
    string fname = "";
    OpenFileDialog o1 = new OpenFileDialog();
     if (o1.ShowDialog() == DialogResult.OK)
    {
        fname = o1.FileName;
        textBox3.Text = fname.ToString();}
    else
    {
        MessageBox.Show("cancelled");
    }


}private void button9_Click(object sender, EventArgs e)
{
    string fname = "";
    OpenFileDialog o1 = new OpenFileDialog();
    if (o1.ShowDialog() == DialogResult.OK)
    {
        fname = o1.FileName;
        textBox4.Text = fname.ToString() }
```

```
    else
    {
        MessageBox.Show("cancelled");
    }
}
    private void radioButton1_CheckedChanged(object sender, EventArgs e)
{
    groupBox2.Visible = true;
    groupBox3.Visible = false;
    groupBox4.Visible = false;
    button1.Visible = true;
    pictureBox2.Visible = false;
    richTextBox1.Visible = false;
}

private void radioButton2_CheckedChanged(object sender, EventArgs e)
{
    groupBox3.Visible = true;
    groupBox2.Visible = false;
    groupBox4.Visible = false;
    button1.Visible = true;
    pictureBox2.Visible = false;
    richTextBox1.Visible = false;
}

private void radioButton3_CheckedChanged(object sender, EventArgs e)
{
    groupBox4.Visible = true;
```

```
            groupBox3.Visible = false;
            groupBox2.Visible = false;
            button1.Visible = true;
            pictureBox2.Visible = false;
            richTextBox1.Visible = false;
        }

        private void button8_Click(object sender, EventArgs e)
        {
            SaveFileDialog s = new SaveFileDialog();
            if (s.ShowDialog() == DialogResult.OK)
            {
                richTextBox1.SaveFile(s.FileName, RichTextBoxStreamType.PlainText);
            }
            else
            {
                MessageBox.Show("cancelled");
            }
        }
    }
}
```