Web Services Stage 2 Report

Banner IDs: B00294711 B00294646

1. Prerequisite

In order to use our Web Services System, the following things need to be done in advanced:

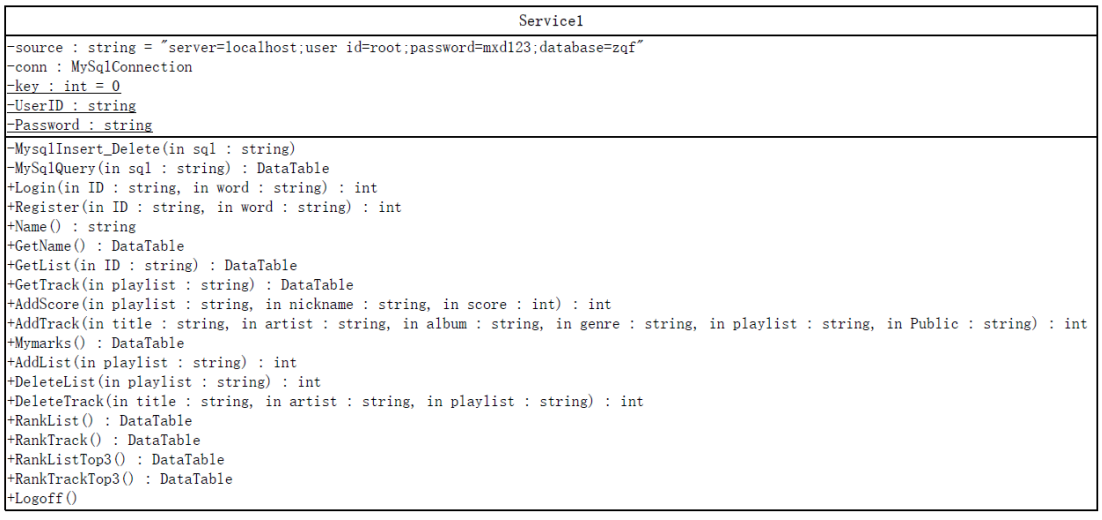
1. Install MySQL version 5.6 or above.
2. Install Visual Studio 2010 or above, with Microsoft Chart Controls for Microsoft .NET Framework 3.5(The installation package is available among the files attached).
3. Configure MySQL as what the attached document file "mysql configuration.txt" wrote.

2. Server

The server in our Web Services System has two missions. The first one is to convey information from client to MySQL databases and vice versa. The second one is to protect information in the databases. To be more specific, our server protect users' privilege and privacy.

Class diagrams

The class diagram of our server is below:



Members marked as "–" are Private methods, for internal class use.

Members marked as "+ "are Public web methods.

Service Code

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.Services;
using MySql.Data.MySqlClient;// to load this namespace, MySql.Data.dll is needed.
using System.Data;

namespace WebService5
{

    [WebService(Namespace = "http://functional.com")]
    [WebServiceBinding(ConformsTo = WsiProfiles.BasicProfile1_1)]
    [System.ComponentModel.ToolboxItem(false)]

    // [System.Web.Script.Services.ScriptService]
    public class Service1 : System.Web.Services.WebService
    {
        private string source = "server=localhost;user
id=root;password=mxd123;database=zqf";
       // The class which is used to connect mysql
        private MySqlConnection conn;
        //static variable, which can be used through out the process.
        private static int key = 0;
        //storage Users' identity information
        private static String UserID;
        private static String Password;

        //Private method by which server can insert or delete data from mysql databases
        private void MysqlInsert_Delete(String sql)
        {
            try
            {
                //creae MySqlConnection object;
                conn = new MySqlConnection(source);
                conn.Open();
                MySqlCommand cmd = new MySqlCommand(sql, conn);
                MySqlDataReader reader = cmd.ExecuteReader();

                conn.Close();
```

```
            }
            catch (MySql.Data.MySqlClient.MySqlException ex)
            {
                throw ex;
            }
        }
        //Private method by which server can query data from mysql databases
        private DataTable MySqlQuery(String sql)
        {
            //  string source = "server=localhost;user
id=root;password=mxd123;database=zqf";
            DataTable dt = new DataTable();
            try
            {
                conn = new MySqlConnection(source);
                conn.Open();
                MySqlCommand cmd = new MySqlCommand(sql, conn);
                MySqlDataReader reader = cmd.ExecuteReader();
                dt.Load(reader);
                conn.Close();
            }
            catch (MySql.Data.MySqlClient.MySqlException ex)
            {
                throw ex;
            }
            return dt;
        }
        //This method check whether users had registered or not, and give respond. if
Yes, storage users' userid and password in order to authorize users.
        [WebMethod]
        public int Login(String ID, String word)
        {
            String str = "select * from register where UserID ='" + ID + "' and
Password='" + word + "';";
            DataTable dt = MySqlQuery(str);
            if (dt.Rows.Count == 1&&ID!=""&&word!="")
            {
                key = 1;
                UserID = ID;
                Password = word;
            }
            return key;
        }
        //register a new account,and authorize users. If the ID has been occupied,
```

```
return 0.
        [WebMethod]
        public int Register(String ID, String word)
        {
           String str1 = "select * from register where UserID ='" + ID+"';";
            DataTable dt = MySqlQuery(str1);
            int num = dt.Rows.Count;
            if (num == 1||ID==""||word=="")
            {
                return 0;
            }
            else
            {
                String str2 = "insert into register values('" + ID + "','" + word +
"');";
                MysqlInsert_Delete(str2);
                UserID = ID;
                Password = word;
                key = 1;
                return key;

            }
        }
//if tbe users have been authorized, return users' ID.
        [WebMethod]
        public String Name()
        {
            if (key == 1)
            {
                return UserID;

            }
            else
            {
                return "";
            }
        }
        //return the list of all users.
        [WebMethod]
        public DataTable GetName()
        {
            DataTable dt = new DataTable();
            if (key == 1)
            {
```

```
            String str = "select UserID from register;";
            dt = MySqlQuery(str);
        }
        return dt;

    }
    //return the list of all playlists.
    [WebMethod]
    public DataTable GetList(String ID)
    {
        DataTable dt = new DataTable();
        if (key == 1)
        {
            String str = "select * from list where nickname='"+ID+"';";
            dt = MySqlQuery(str);
        }
        return dt;
    }
    //return the list of tracks in certurn playlist.
    [WebMethod]
    public DataTable GetTrack(String playlist)
    {
        DataTable dt = new DataTable();
        if (key == 1)
        {
            String str1 = "select title,artist,album,genre from track where
playlist='" + playlist + "';";
            String str2 = "select title,artist,album,genre from track where
playlist='" + playlist + "' and public='Y';";
            String str = "select * from list where nickname='"+UserID+"' and
playlist='"+playlist+"';";
            DataTable dt_test = MySqlQuery(str);
            if (dt_test.Rows.Count == 0)
            {
                dt = MySqlQuery(str2);
            }
            else
            {
                dt = MySqlQuery(str1);
            }
        }
        return dt;
    }
    // Add a score of playlist into databases
```

```
        [WebMethod]
        public int AddScore(String playlist, String nickname, int score)
        {
            if (key == 1)
            {
                String str1 = "select * from playlist_score where playlist='" +
playlist + "' and nickname='" + nickname + "' and scoring_person='" + UserID + "';";
                DataTable dt = MySqlQuery(str1);
                if (dt.Rows.Count == 0)
                {
                    String str2 = "insert into playlist_score values('" + playlist +
"','" + nickname + "','" + UserID + "'," + score.ToString() + ");";
                    MysqlInsert_Delete(str2);
                    return 1;
                }
                else
                {
                    return 0;
                }
            }
            else
            {
                return 0;
            }
        }
      //Add a track into databases
        [WebMethod]
        public int AddTrack(String title, String artist, String album,String
genre,String playlist,String Public)
        {
            if (key == 1)
            {
                String str1 = "select * from track where title='" + title + "' and
artist='" + artist + "' and playlist='" + playlist + "';";
                DataTable dt = MySqlQuery(str1);
                if (dt.Rows.Count == 0)
                {
                    String str2 = "insert into track values('" + title + "','" + artist
+ "','" + album + "','" + genre + "','" + playlist + "','" + Public + "');";
                    MysqlInsert_Delete(str2);
                    return 1;
                }
                else
                {
```

```
                    return 0;
                }
            }
            else
            {
                return 0;
            }
        }
        //return all the mark the authorized users made
        [WebMethod]
        public DataTable Mymarks()
        {
            DataTable dt = new DataTable();
            if (key == 1)
            {
                String str = "select playlist,nickname,score from playlist_score where
scoring_person='"+UserID+"';";
                dt = MySqlQuery(str);
            }
            return dt;
        }
        //add a new playlist
        [WebMethod]
        public int AddList(String playlist)
        {
            String nickname = UserID;
            if (key == 1)
            {
                String str1 = "select * from list where playlist='" + playlist + "' and
nickname='" + nickname + "';";
                DataTable dt = MySqlQuery(str1);
                if (dt.Rows.Count == 0)
                {
                    String str2 = "insert into list values('" + playlist + "','" +
nickname + "');";
                    MysqlInsert_Delete(str2);
                    return 1;
                }
                else
                {
                    return 0;
                }
            }
            else
```

```
            {
                return 0;
            }
        }

        //delete one whole playlist
        [WebMethod]
        public int DeleteList(String playlist)
        {
            String nickname = UserID;
            if (key == 1)
            {
                String str1 = "select * from list where playlist='" + playlist + "' and
nickname='" + nickname + "';";
                DataTable dt = MySqlQuery(str1);
                if (dt.Rows.Count != 0)
                {
                    String str2 = "delete from list where playlist='" + playlist + "'
and nickname='" + nickname + "';";
                    MysqlInsert_Delete(str2);
                    return 1;
                }
                else
                {
                    return 0;
                }
            }
            else
            {
                return 0;
            }
        }

        [WebMethod]
        //delete one track
        public int DeleteTrack(String title, String artist, String playlist)
        {
            if (key == 1)
            {
                String str1 = "select * from track where title='" + title + "' and
artist='" + artist + "' and playlist='" + playlist + "';";
                DataTable dt = MySqlQuery(str1);
                if (dt.Rows.Count != 0)
                {
```

```
                    String str2 = "delete from track where title='" + title + "' and
artist='" + artist + "' and playlist='" + playlist + "';";
                    MysqlInsert_Delete(str2);
                    return 1;
                }
                else
                {
                    return 0;
                }
            }
            else
            {
                return 0;
            }
        }
       //return the ranking list of playlist.
        [WebMethod]
        public DataTable RankList()
        {
            DataTable dt = new DataTable();
            if (key == 1)
            {
                String str = "select playlist,AVG(score) as rank from playlist_score
group by playlist order by AVG(score) desc;";
                dt = MySqlQuery(str);
            }
            return dt;
        }
          //return the ranking list of tracks
        [WebMethod]
        public DataTable RankTrack()
        {
            DataTable dt = new DataTable();
            if (key == 1)
            {
                String str = "select title,count(playlist) as rank from track group by
title order by count(playlist) desc;";
                dt = MySqlQuery(str);
            }
            return dt;
        }
       //return TOP 3 of playlists
        [WebMethod]
        public DataTable RankListTop3()
```

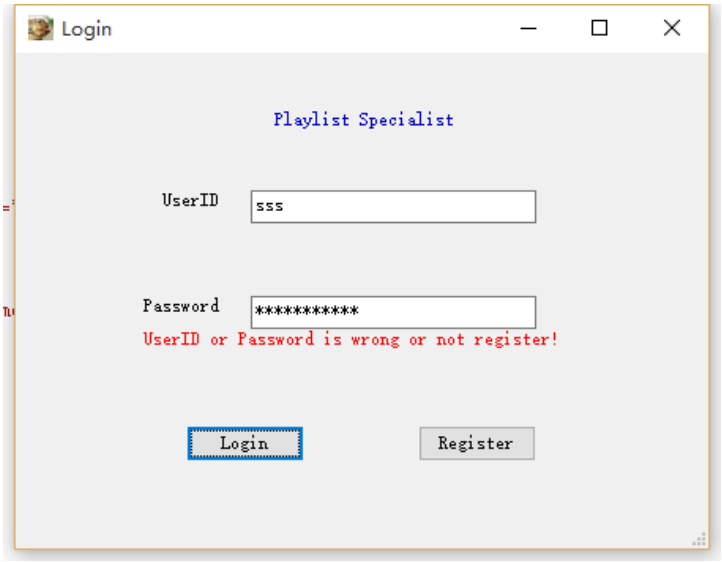
```
        {
            DataTable dt = new DataTable();
            if (key == 1)
            {
                String str = "select playlist,AVG(score) as rank from playlist_score
group by playlist order by AVG(score) desc limit 3;";
                dt = MySqlQuery(str);
            }
            return dt;
        }
        //return TOP 3 of tracks
        [WebMethod]
        public DataTable RankTrackTop3()
        {
            DataTable dt = new DataTable();
            if (key == 1)
            {
                String str = "select title,count(playlist) as rank from track group by
title order by count(playlist) desc limit 3;";
                dt = MySqlQuery(str);
            }
            return dt;
        }
        //Log off and clear the local data.
        [WebMethod]
        public void Logoff()
        {
        key=0;
        UserID="";
        Password = "";
        }
    }
}
```

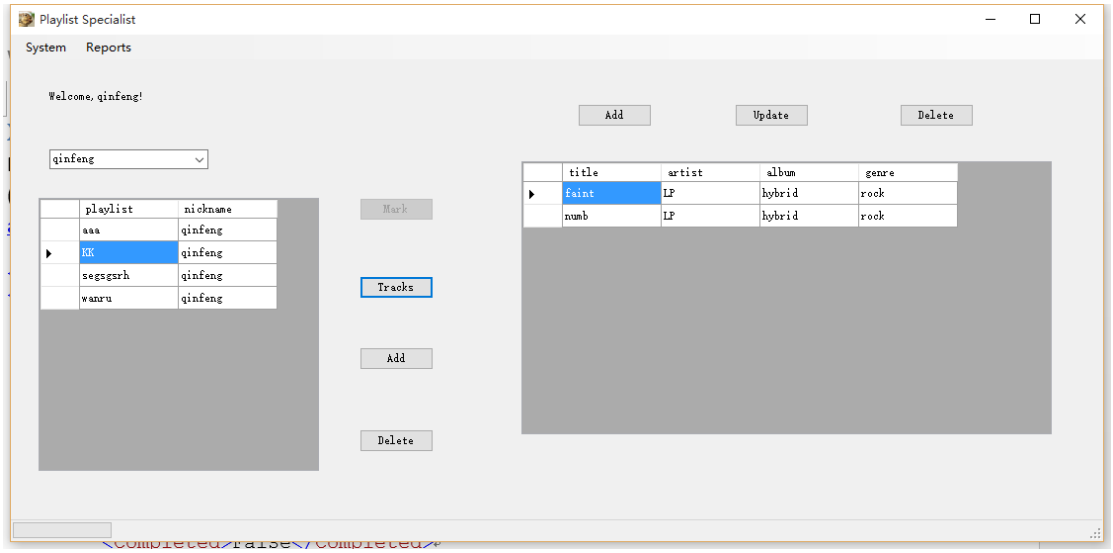
3. Client

Our Client is versatile. It can not only provide users with a convenient user interface to manage their information, or giving users intuitive comprehension by graphic chart, but also limit unsafe manipulations which may let the system break down.

Client User Interface

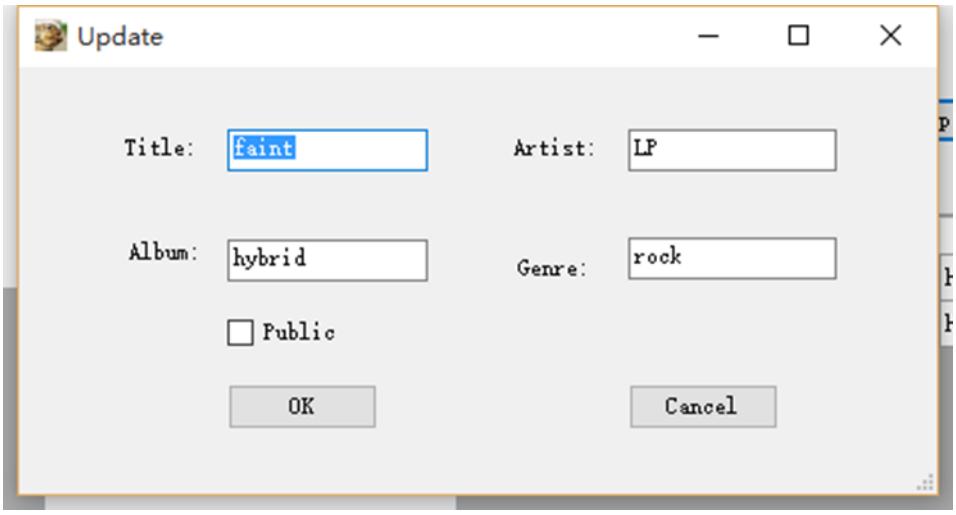
We design a multi-page client user interface.
In the Login page, the users can use exist UserID to enter into the System, or register a new one. Even if the user had logged in, he or she can log off, and use other UserID to log in or Register a new one.



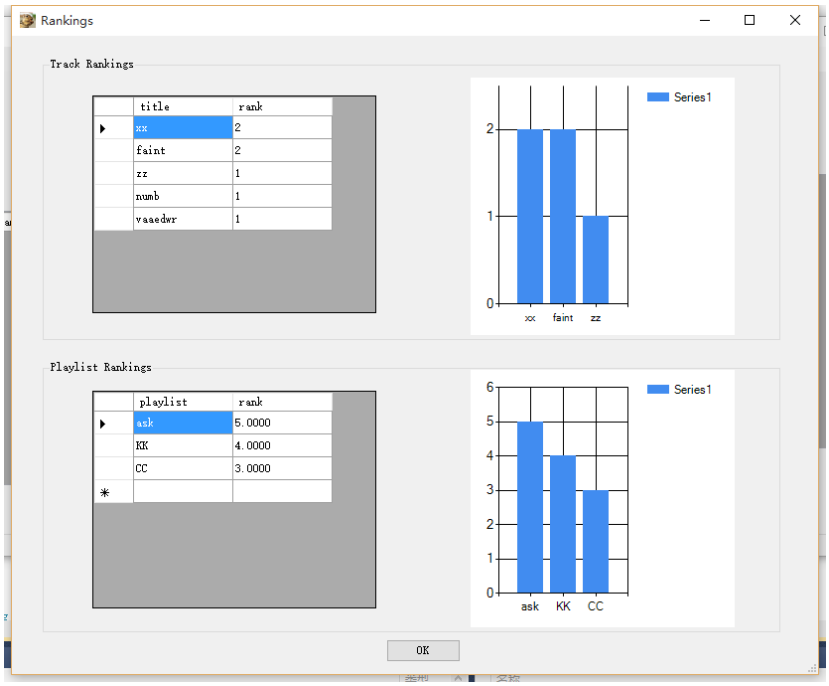


The main form connects all the functions the System offered. In the main form, people can check information from the two DataGridViews. The left one is the list of playlist, while the right one is the list of tracks. People can freely check others' information, only if those information is set to be public by the owner. The buttons on this form are only enabled on the correct occasions.

People can update their tracks, and the old information will appear on the Unpadate Forms.



Our System calculates the rankings information MySQL databases and show it in a graphic manner. The left two table shows the whole rankings, despite the tracks or lists which no one are willing to mark. The right histograms show the TOP 3 in tracks and playlists respectively.



They are not all about our System. For more about our system, you could contact us or simply try yourself.

Client Code

The code of our Client is extremely long (It includes 8 forms). So we only copy the Main Form code there:

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace WindowsFormsApplication1
{
    public partial class Playlist_Specialist : Form
    {
```

```
//define object abc
public  myservice.Service1SoapClient abc = new myservice.Service1SoapClient();


public Playlist_Specialist()
{

    Form1 form1 = new Form1();

  //Load form1
    if (form1.ShowDialog() != DialogResult.OK)
  {
      Environment.Exit(Environment.ExitCode);
      return;
  }

  InitializeComponent();

  label1.Text = "Welcome," + abc.Name() + "!";

  DataTable name = abc.GetName();
  //ergodic process,which loads all the usersID.
    foreach (DataRow row in name.Rows)
  {
      foreach (DataColumn column in name.Columns)
      {
          this.namelist.Items.Add(row[column]);
      }
  }



      DataTable dt1 = abc.GetList(abc.Name());
      dataGridView1.DataSource = dt1;
    // if the list is vacant, some buttons are not available.
      if (dt1.Rows.Count ==0)
      {
          Tracks.Enabled = false;
          Delete_List.Enabled = false;
      }
  this.namelist.Text = abc.Name();
}
```

```
 private void label1_Click(object sender, EventArgs e)
{

}



public void button1_Click(object sender, EventArgs e)
{




}

private void closeToolStripMenuItem_Click(object sender, EventArgs e)
{


    this.Close();
}

private void logOffToolStripMenuItem_Click(object sender, EventArgs e)
{
  // log off process
    abc.Logoff();
    Form1 form2 = new Form1();
   this.Hide();
    if (form2.ShowDialog() != DialogResult.OK)
    {
        Environment.Exit(Environment.ExitCode);
        return;
    }
    label1.Text = "Welcome," + abc.Name() + "!";
    dataGridView1.DataSource = abc.GetList(abc.Name());
    this.namelist.Text = abc.Name();
    DataTable dt = new DataTable();
    dataGridView2.DataSource = dt;
    this.Show();

}
```

```
        private void label1_Click_1(object sender, EventArgs e)
        {

        }

        private void comboBox1_SelectedIndexChanged(object sender, EventArgs e)
        {

            DataTable dt1=abc.GetList(this.namelist.SelectedItem.ToString());
            dataGridView1.DataSource = dt1;
            // if the selection is changed, some buttons are not available.
            if (this.namelist.SelectedItem.ToString() == abc.Name() ||
dt1.Rows.Count==0)
            {
                Mark.Enabled = false;
            }
            else
            {
                Mark.Enabled = true;
            }
             if (dt1.Rows.Count ==0)
           {
                Tracks.Enabled = false;

           }
             else
             {
              Tracks.Enabled = true;

             }
             if (this.namelist.SelectedItem.ToString() == abc.Name())
             {
                 Add_List.Enabled = true;
             }
             else
             {
                 Add_List.Enabled = false;
             }
             if (this.namelist.SelectedItem.ToString() != abc.Name() ||
dt1.Rows.Count == 0)
             {
                 Delete_List.Enabled = false;
             }
```

```
                else
                {
                    Delete_List.Enabled = true;
                }
                if (dt1.Rows.Count == 0 || this.namelist.SelectedItem.ToString() !=
abc.Name())
                {

                    Update_Track.Enabled = false;
                    Delete_Track.Enabled = false;
                }
                else
                {
                    Update_Track.Enabled = true;
                    Delete_Track.Enabled = true;
                }
                if (this.namelist.SelectedItem.ToString() != abc.Name())
                {
                    Add_Track.Enabled = false;
                }
                else
                {
                    Add_Track.Enabled = true;
                }
            }

            private void statusStrip1_ItemClicked(object sender,
ToolStripItemClickedEventArgs e)
            {

            }



            private void dataGridView1_CellContentClick(object sender,
DataGridViewCellEventArgs e)
            {

            }

            private void button1_Click_1(object sender, EventArgs e)
            {
              //add a playlist
                Add_Playlist form6 = new Add_Playlist(abc);
```

```
            if (form6.ShowDialog() == DialogResult.OK)
            {
                DataTable dt1 = abc.GetList(abc.Name());
                dataGridView1.DataSource = dt1;
                MessageBox.Show("Add successfully!");


            }
        }

        private void Tracks_Click(object sender, EventArgs e)
        {
            // check the track of a selected playlist
            String ID =
dataGridView1.Rows[dataGridView1.CurrentRow.Index].Cells["playlist"].Value.ToString();
            DataTable dt1 = abc.GetTrack(ID);
            dataGridView2.DataSource = dt1;
            if (dt1.Rows.Count == 0 || this.namelist.SelectedItem.ToString() !=
abc.Name())
            {

                Update_Track.Enabled = false;
                Delete_Track.Enabled = false;
            }
            else
            {
                Update_Track.Enabled = true;
                Delete_Track.Enabled = true;
            }
            if (this.namelist.SelectedItem.ToString() != abc.Name())
            {
                Add_Track.Enabled = false;
            }
            else
            {
                Add_Track.Enabled = true;
            }

        }

        private void Delete_List_Click(object sender, EventArgs e)
        {
            // delete selected list.
            String ID =
```

```
dataGridView1.Rows[dataGridView1.CurrentRow.Index].Cells["playlist"].Value.ToString();
                int k = abc.DeleteList(ID);
                DataTable dt1 = abc.GetList(abc.Name());
                dataGridView1.DataSource = dt1;
                if (k == 1)
                {

                    MessageBox.Show("Delete successfully!");
                }
                else
                {
                    MessageBox.Show("Fail to delete or non-exist!");
                }
            }

            private void Mark_Click(object sender, EventArgs e)
            {
               // mark the playlist
                Mark form4 = new Mark();

                if (form4.ShowDialog() == DialogResult.OK)
               {
                    String playlist =
dataGridView1.Rows[dataGridView1.CurrentRow.Index].Cells["playlist"].Value.ToString();
                    String nickname =
dataGridView1.Rows[dataGridView1.CurrentRow.Index].Cells["nickname"].Value.ToString();
                    if (abc.AddScore(playlist, nickname, form4.score) == 1)
                    {
                        MessageBox.Show("Mark successfully!");
                    }
                    else
                    {
                        MessageBox.Show("Fail to mark or had marked!");

                    }
               }
            }

            private void myMarksToolStripMenuItem_Click(object sender, EventArgs e)
            {
                DataTable dt = abc.Mymarks();
                MyMarks form5 = new MyMarks(dt);

                form5.ShowDialog();
```

```
        }

        private void Add_Track_Click(object sender, EventArgs e)
        {
            String ID =
dataGridView1.Rows[dataGridView1.CurrentRow.Index].Cells["playlist"].Value.ToString();
         //convey the object abc and ID as parameters
            Add_Track form7 = new Add_Track(abc,ID);
            if (form7.ShowDialog() == DialogResult.OK)
            {
                MessageBox.Show("Add successfully!");
                DataTable dt1 = abc.GetTrack(ID);
                dataGridView2.DataSource = dt1;

            }


        }

        private void Delete_Track_Click(object sender, EventArgs e)
        {
            String ID =
dataGridView1.Rows[dataGridView1.CurrentRow.Index].Cells["playlist"].Value.ToString();
            String title =
dataGridView2.Rows[dataGridView2.CurrentRow.Index].Cells["title"].Value.ToString();
            String artist =
dataGridView2.Rows[dataGridView2.CurrentRow.Index].Cells["artist"].Value.ToString();

            int k = abc.DeleteTrack(title,artist,ID);
            DataTable dt1 = abc.GetTrack(ID);
            dataGridView2.DataSource = dt1;
            if (k == 1)
            {

                MessageBox.Show("Delete successfully!");
            }
            else
            {
                MessageBox.Show("Fail to delete or non-exist!");
            }
        }

        private void Update_Track_Click(object sender, EventArgs e)
        {
```

```
                String ID =
dataGridView1.Rows[dataGridView1.CurrentRow.Index].Cells["playlist"].Value.ToString();
                String title =
dataGridView2.Rows[dataGridView2.CurrentRow.Index].Cells["title"].Value.ToString();
                String artist =
dataGridView2.Rows[dataGridView2.CurrentRow.Index].Cells["artist"].Value.ToString();
                String genre =
dataGridView2.Rows[dataGridView2.CurrentRow.Index].Cells["genre"].Value.ToString();
                String album =
dataGridView2.Rows[dataGridView2.CurrentRow.Index].Cells["album"].Value.ToString();
                Update form8 = new Update(abc,ID,title,artist,album,genre);
                if (form8.ShowDialog() == DialogResult.OK)
                {
                    MessageBox.Show("Update successfully!");
                    DataTable dt1 = abc.GetTrack(ID);
                    dataGridView2.DataSource = dt1;

                }

            }

            private void scoresToolStripMenuItem_Click(object sender, EventArgs e)
            {
                Rankings form9 = new Rankings(abc);

                form9.ShowDialog();
            }

            private void Playlist_Specialist_Load(object sender, EventArgs e)
            {

            }

        }
    }
```