Dharmsinh Desai University, Nadiad

Faculty of Technology

Department of Computer Engineering

B. Tech. CE Semester – VI

Subject: (CE – 619) **SERVICE ORIENTED COMPUTING**

Project Title: ***Instagram Replica WCF Service***

Submitted by:

Name: **Swar Patel**
Roll No: **CE096**
ID: **17CEUOG132**

Name: **Priyank Chaudhari**
Roll No: **CE104**
ID: **17CEUTG028**

Name: **Vyom Pathak**
Roll No: **CE099**
ID: **17CEUON038**

Guided By:

Prof. Ankit P. Vaishnav
Assistant Professor, CE Dept.,
Dharmsinh Desai University

Dharmsinh Desai University, Nadiad

Faculty of Technology, Department of Computer Engineering

CERTIFICATE

This is to certify that Service Oriented Computing's project entitled "**Instagram Replica WCF Service**" is the bonafied report of work carried out by

1) **Patel Swar (17CEUOG132)**
2) **Priyank Chaudhari (17CEUTG028)**
3) **Pathak Vyom (17CEUON038)**

Of Department of Computer Engineering, Semester VI, academic year 2019-20,

under our supervision and guidance.

Guide	HOD
Prof. Ankit P. Vaishnav	**Dr. C. K. Bhensdadia**
Assistant Professor of Department of Computer Engineering, Dharmsinh Desai University, Nadiad.	Head of the Department of Department of Computer Engineering, Dharmsinh Desai University, Nadiad.

Overview:

Instagram Replica WCF Service was made to provide basic functionality of instagram i.e. users can create their accounts, post photos and comments on different posts. User can also follow other users and like/dislike-e the posts. The basic application is made using the Windows Form Application. The business logic is compartmentalized into different services which are essentially WCF services which are hosted on a host application and the proxy of the host is used whenever any operation is to be called from the original application.

Contribution by Each Member:

Swar Patel - Created the Host Application. Created the User Post Service and its related operation's business logic.

Priyank Chaudhari - Created the Windows form application that will include the host proxy and will contain all the UI related to the application. Created the User Comment Post Service and its related operation's business logic.

Vyom Pathak – Created the User Management Service and all its related operation's business logic.

Introduction

The main object of this project is learn how to build a WCF service and host it on a host application and call it from different application. The project definition is ‘Instagram Replica WCF Service’. The functionalities include the following: User can create, update and delete their account. User can follow/unfollow other users. User can search other users using different parameters. User can post photos and add different parameters to it. User can also update an existing post as well as delete an existing post. User can like/dislike on his/her own post as well on other user’s post that he/she is following. User can comment on posts and can also update an already create comment by that particular user on some post. User can also delete a comment from a particular post.

Technology Used:

- Windows Form Application to create application.
- WCF Service for handling user, post and comment CRUD operations.
- Microsoft Sql Server as database. [MSSQL]
- UMLET for Designing Different UML Diagram.

Tools Used:

- We used Github as a version control method and to manage the project.
- We used Visual Studio for development of the code.

Software Requirement Specification

Instagram Replica WCF Service

FUNCTIONAL REQUIREMENTS:

R1. Manage User:

DESCRIPTION: Users can login and can create new account and view others users by searching using the username and using email address and delete his/her account. User can follow other users. User can update his/her profile details.

R1.1 Sign-Up User:

DESCRIPTION: Users can register to the application by providing his/her details like password, username, email address and date of birth information.

INPUT: Users information.

OUTPUT: Registration successful message.

R1.2 Sign-In User:

DESCRIPTION: Users can sign-in to his/her account using his/her email and password or using his/her username.

INPUT: User information.

OUTPUT: Sign-In to respective user profile.

R1.3 Delete User:

DESCRIPTION: User can delete his/her account from the application by selecting the delete account option.
Input: User selection

Output: Success message is displayed.

R1.4 Search User:

DESCRIPTION: User can search other user using username or using user email-address.

R1.4.1 Search using username:

Input: User gives username as input

Output: User with the given username is displayed

R1.4.2 Search using Email-address:

Input: User gives email address as input.

Output: User with the given email-address is displayed.

R1.5 Update User Details:

DESCRIPTION: User provides the necessary details to be updated and selects the update option.

Input: User information

Output: Success message is displayed.

R2 Manage Posts:

DESCRIPTION: User can create new post, user can delete a post and user can update an existing post. User can see all the posts of the users he/she is following. User can like and unlike his/her posts and all the user's posts that he/she is following.

R2.1 Create Post:

DESCRIPTION: User inputs information like post caption, post location, post image.

Input: Post Information.

Output: Confirmation Message will be displayed.

R2.2 Update Post:

DESCRIPTION: User can update his/her post and give the new post information to be updated and select the update option.

Input: Post Information.

Output: Confirmation Message will be displayed.

R2.3 Delete Post:

DESCRIPTION: User selects the post to be deleted and select the delete option to delete it.

Input: User selection

Output: Confirmation Message will be displayed.

R2.4 View Posts:

DESCRIPTION: User can see all other user’s posts as soon he/she sign-ins.

Input: User selection

Output: All the posts of the following users are displayed.

R2.5 Like/Unlike Posts:

DESCRIPTION: Users can select the like button to like/ dislike other user’s posts.

Input: User selection

Output: Post is liked/disliked according to user selection.

R3. Manage Comments:

Description: This functionality allows users to comment on other user’s that he/she is following. It also allows users to delete his/her comments. It also allows users to update comments done by him/her on the posts. User can also view all the comments on the selected post.

R3.1 Create Comment:

DESCRIPTION: User selects the appropriate post to comment on and enters the comment text and selects the create option to create comment on that post.

Input: User selection and comment information.

Output: Created comment will be displayed.

R3.2 Update Comment:

DESCRIPTION: User can update the comment text that he/she wishes to change on a particular post.

Input: User selection and Comment information.

Output: Update message will be prompted and updated comment will be displayed.

R3.3 View Comment:

DESCRIPTION: User can select the post and see the comments on the selected post.

Input: User selection.

Output: Comments on the selected post will be displayed.

R3.4 Delete Comment:

DESCPRTION: User can select the post and select the comment which he/she wants to delete.

Input: User selections

Output: Confirmation message will be displayed.

R4. Manage Followers:

DESCRIPTION: User can follow other users. User can unfollow other users. User can also see the list of users he/she is following.

R4.1 Follow User:

DESCRIPITION: User selects the user to be followed by him/her.

Input: User Selection.

Output: Success message is displayed.

R4.2 Unfollow User:

DESCRIPITION: User can select the user to be unfollowed by him/her.

Input: User selection.

Output: Success message is displayed.

R4.3 View Following Users:

DESCIPITION: User can see other users which he/she is following.

Input: User selection

Output: List of users he/she is following is displayed.

NON FUNCTIONAL REQUIREMENTS:

SOFTWARE: Visual Studio, Github Desktop

OS: Windows

Design Documents

1. Use Case Diagram:

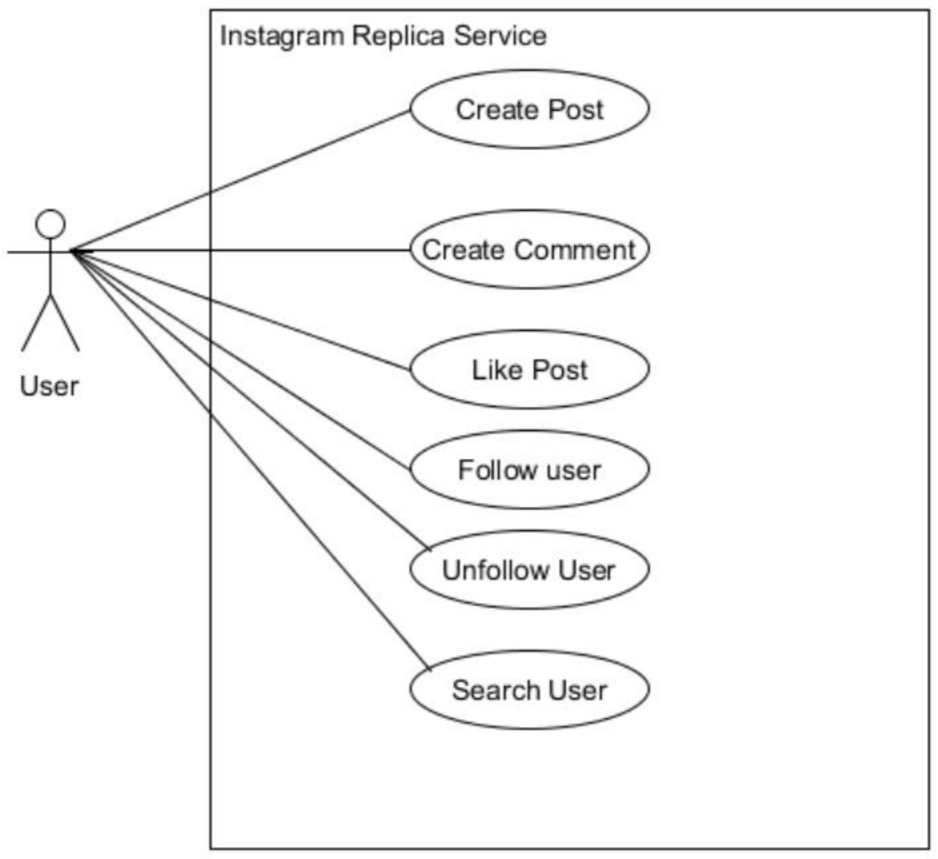


Figure 1 : Use Case Diagram

2. Class Diagram:

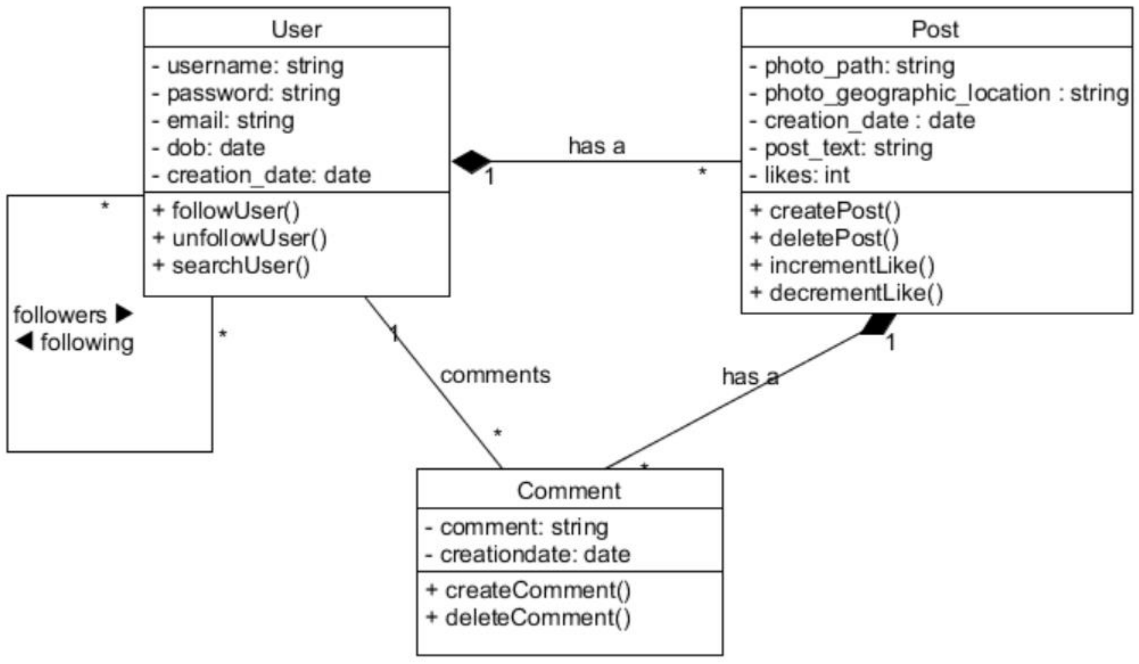


Figure 2 : Class Diagram

3. Sequence Diagram:

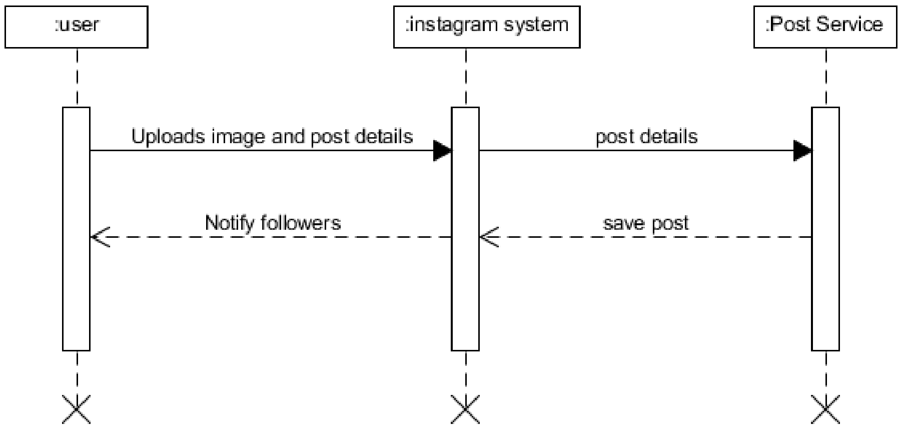


Figure 3 : Sequence Diagram

Creating post

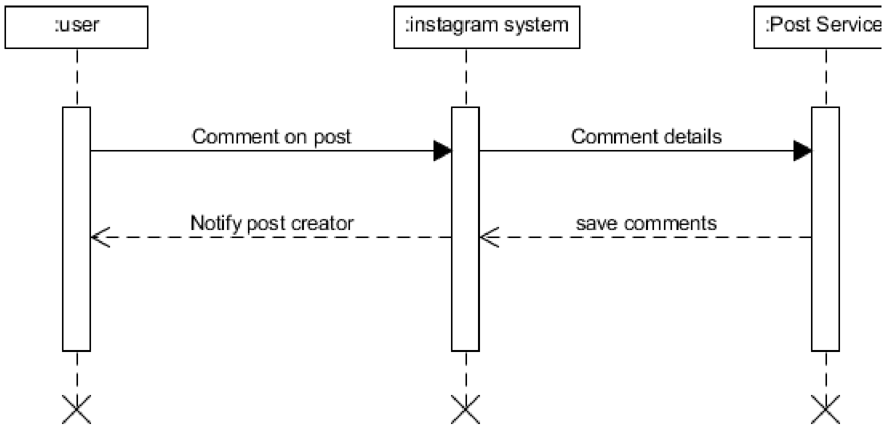


Figure 4 : Sequence Diagram

Commenting on post

4. Activity Diagrams :

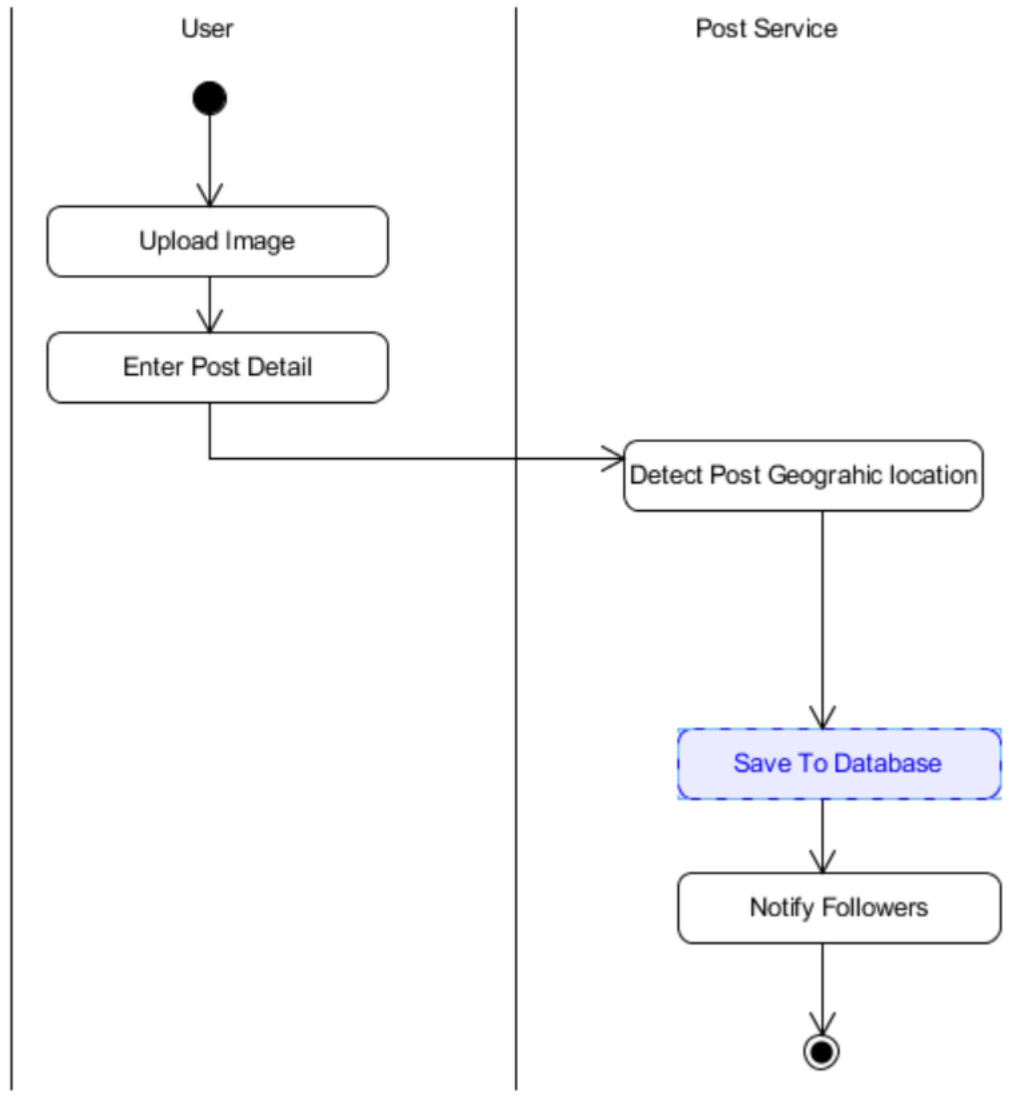
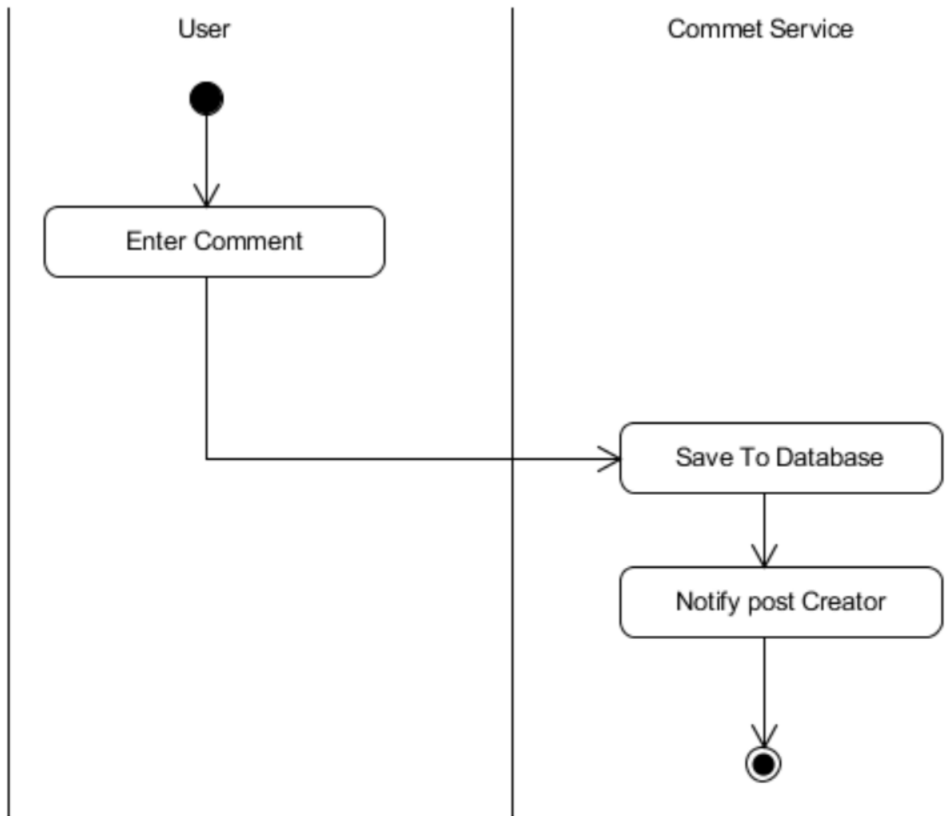


Figure 5 : Activity Diagram

Create Post



Create Comment

Figure 6 : Activity Diagram

5. Data Dictionary:

	User		
Attributes	Datatype	Size	Feature
userId	Int	20	AUTO_INC [PK]
username	nvarchar	50	
email	nvarchar	50	
dob	Datetime	20	
creation date	Datetime	20	
password	nvarchar	50	

Table 1 : Data Dictionary

	Post		
Attributes	Datatype	Size	Feature
postId	Int	20	AUTO_INC [PK]
userId	Int	20	FK
photopath	nvarchar	MAX	
location	nvarchar	50	
creation date	Datetime	20	
post text	nvarchar	MAX	
likes	Int	20	

Table 2 : Data Dictionary

	Comment		
Attributes	Datatype	Size	Feature
commentId	Int	20	AUTO_INC [PK]
userId	Int	20	FK
postId	Int	20	FK
comment	nvarchar	MAX	
creation date	Datetime	20	

Table 3 : Data Dictionary

	User Follow		
Attributes	Datatype	Size	Feature
userId1	Int	20	FK
userId2	Int	20	FK

Table 4 : Data Dictionary

Implementation Details

Sign In And Sign Up Module: User sign-In is done by calling the user service to check for the provided email and password from the database and if it correct than the User's object is created and used for that particular session. For sign-up functionality, user provides his/her information and the details will be stored into the database using the user service operation.

Search User Module: User can search other user by typing in the email address or by typing username and the query will call the user service operation appropriately to find the user detail from the database and will return the user detail.

Delete User Module: Whenever user wishes to delete his/her account the appropriate user service operation is called and that particular user information is removed from the database.

Update User Module: Whenever user wants to update his/her details appropriate user service operation is called and the user information is updated into the database.

Post CRUD Module: User can create, view other people's post, update his/her own post and delete his/her own post. All the functionalities was completed using the Post Service and by calling the appropriate operation of the service to complete the task and the database was updated accordingly.

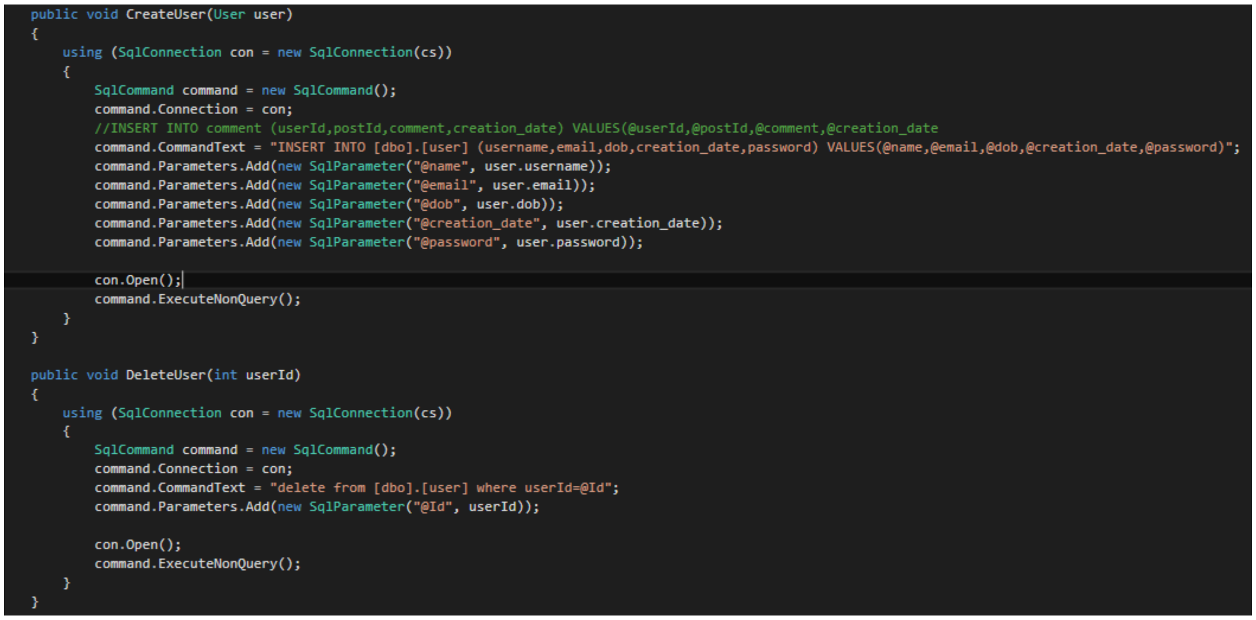
Comment CRUD Module: User can comment on posts, user can update already created comment, user can view all the comments of other user's on his/her post and user can also delete his/her own post and these all functionality was achieved by calling the respective operations from the comment service by the users according to the task and the database was updated accordingly.

Follow/Unfollow User: User can follow or unfollow user and this functionality was achieved by using appropriate operations of the UserFolow Service which will complete the task and update the database accordingly.

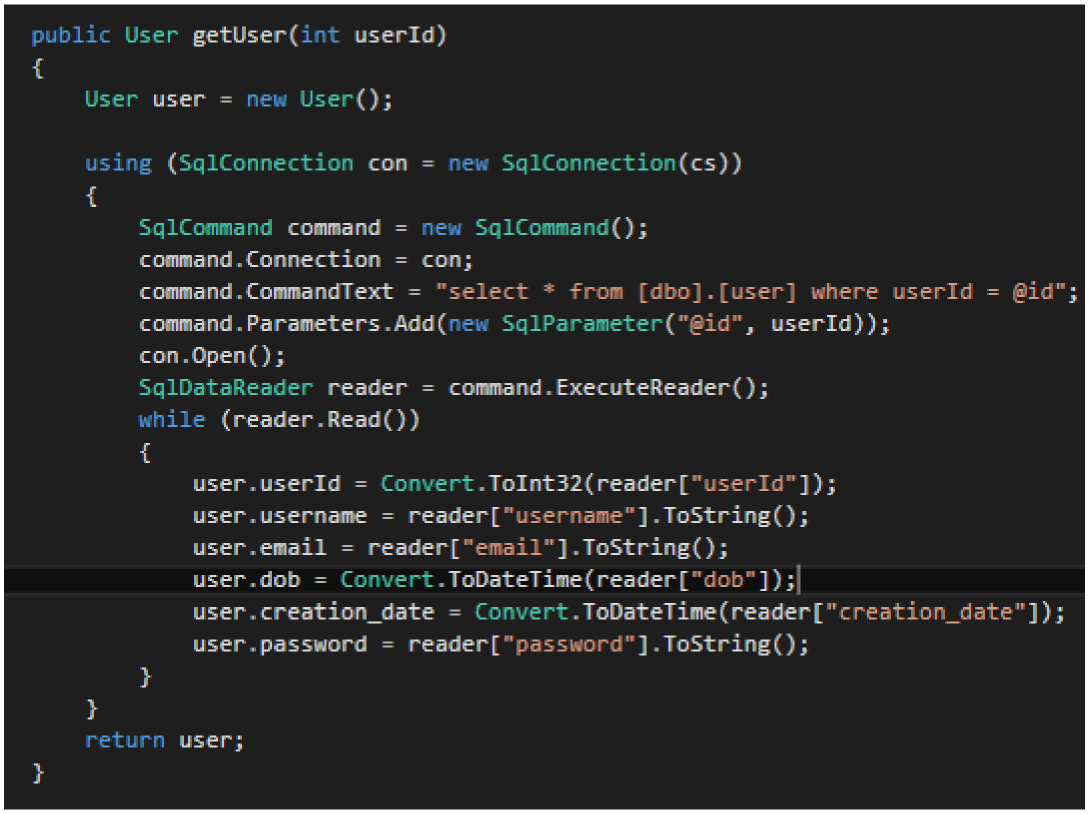
Like/Dislike Post: User can like/dislike a post and this functionality was achieved using appropriate operations of the Post Service which will complete the task and update the database accordingly.

Function Prototype:

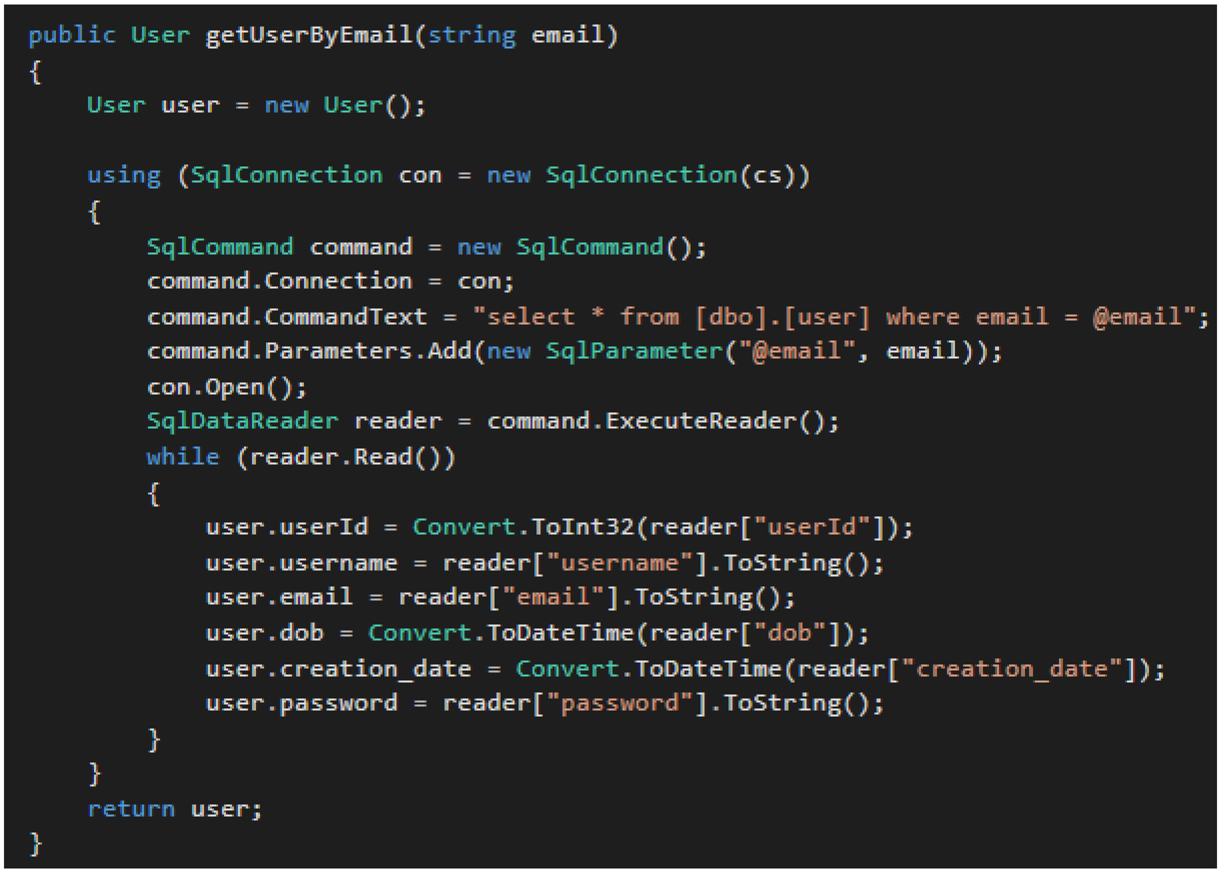
User Functionality Service [CRUD]:



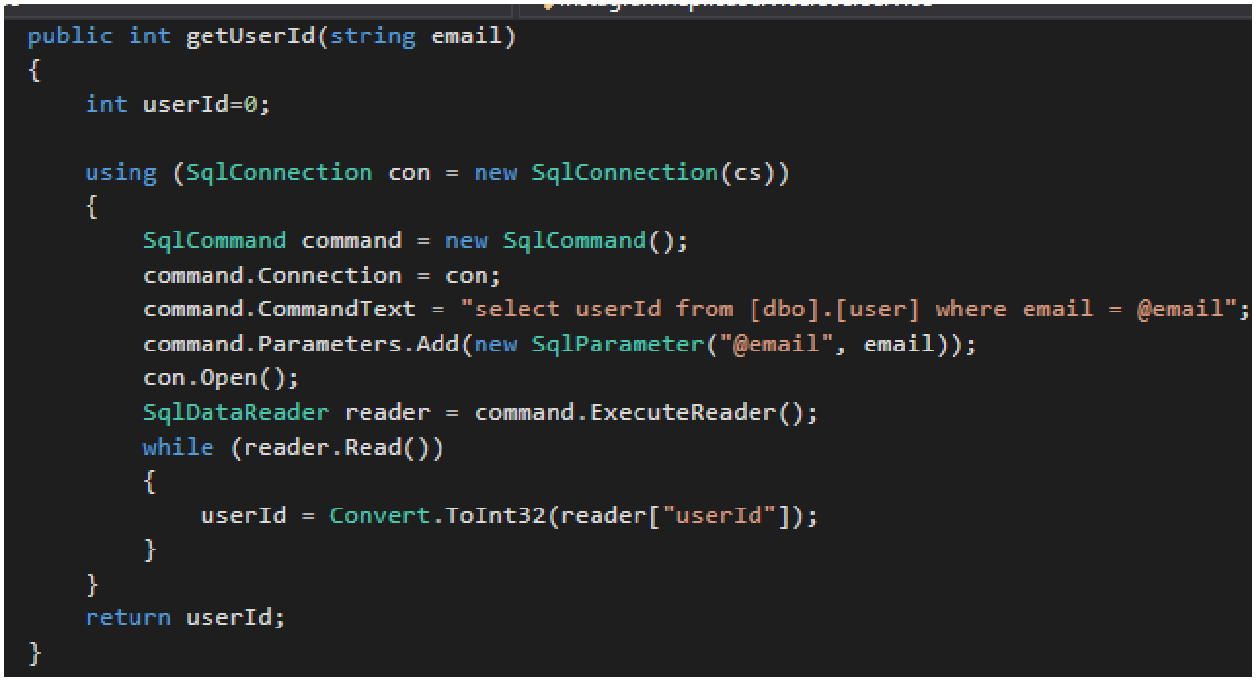
```
public void CreateUser(User user)
{
    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand command = new SqlCommand();
        command.Connection = con;
        //INSERT INTO comment (userId,postId,comment,creation_date) VALUES(@userId,@postId,@comment,@creation_date
        command.CommandText = "INSERT INTO [dbo].[user] (username,email,dob,creation_date,password) VALUES(@name,@email,@dob,@creation_date,@password)";
        command.Parameters.Add(new SqlParameter("@name", user.username));
        command.Parameters.Add(new SqlParameter("@email", user.email));
        command.Parameters.Add(new SqlParameter("@dob", user.dob));
        command.Parameters.Add(new SqlParameter("@creation_date", user.creation_date));
        command.Parameters.Add(new SqlParameter("@password", user.password));

        con.Open();
        command.ExecuteNonQuery();
    }
}

public void DeleteUser(int userId)
{
    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand command = new SqlCommand();
        command.Connection = con;
        command.CommandText = "delete from [dbo].[user] where userId=@Id";
        command.Parameters.Add(new SqlParameter("@Id", userId));

        con.Open();
        command.ExecuteNonQuery();
    }
}
```



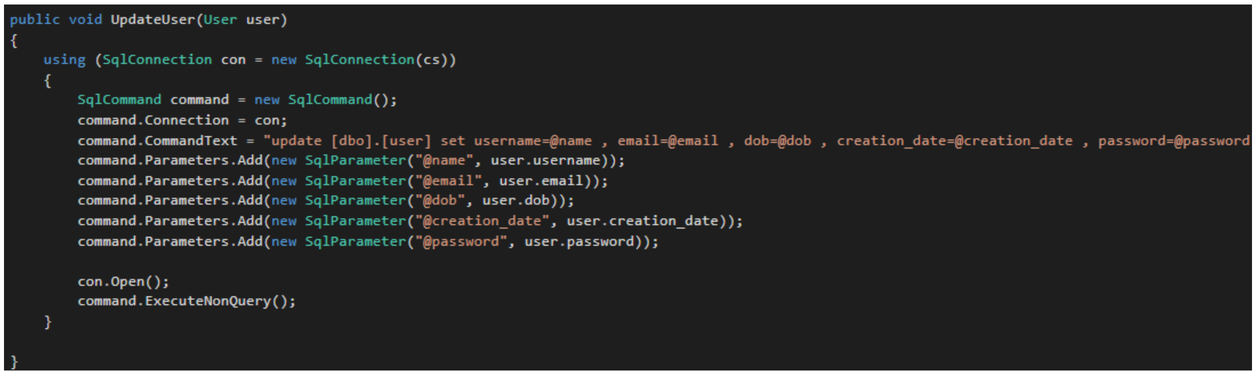
```
public User getUser(int userId)
{
    User user = new User();

    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand command = new SqlCommand();
        command.Connection = con;
        command.CommandText = "select * from [dbo].[user] where userId = @id";
        command.Parameters.Add(new SqlParameter("@id", userId));
        con.Open();
        SqlDataReader reader = command.ExecuteReader();
        while (reader.Read())
        {
            user.userId = Convert.ToInt32(reader["userId"]);
            user.username = reader["username"].ToString();
            user.email = reader["email"].ToString();
            user.dob = Convert.ToDateTime(reader["dob"]);
            user.creation_date = Convert.ToDateTime(reader["creation_date"]);
            user.password = reader["password"].ToString();
        }
    }
    return user;
}
```



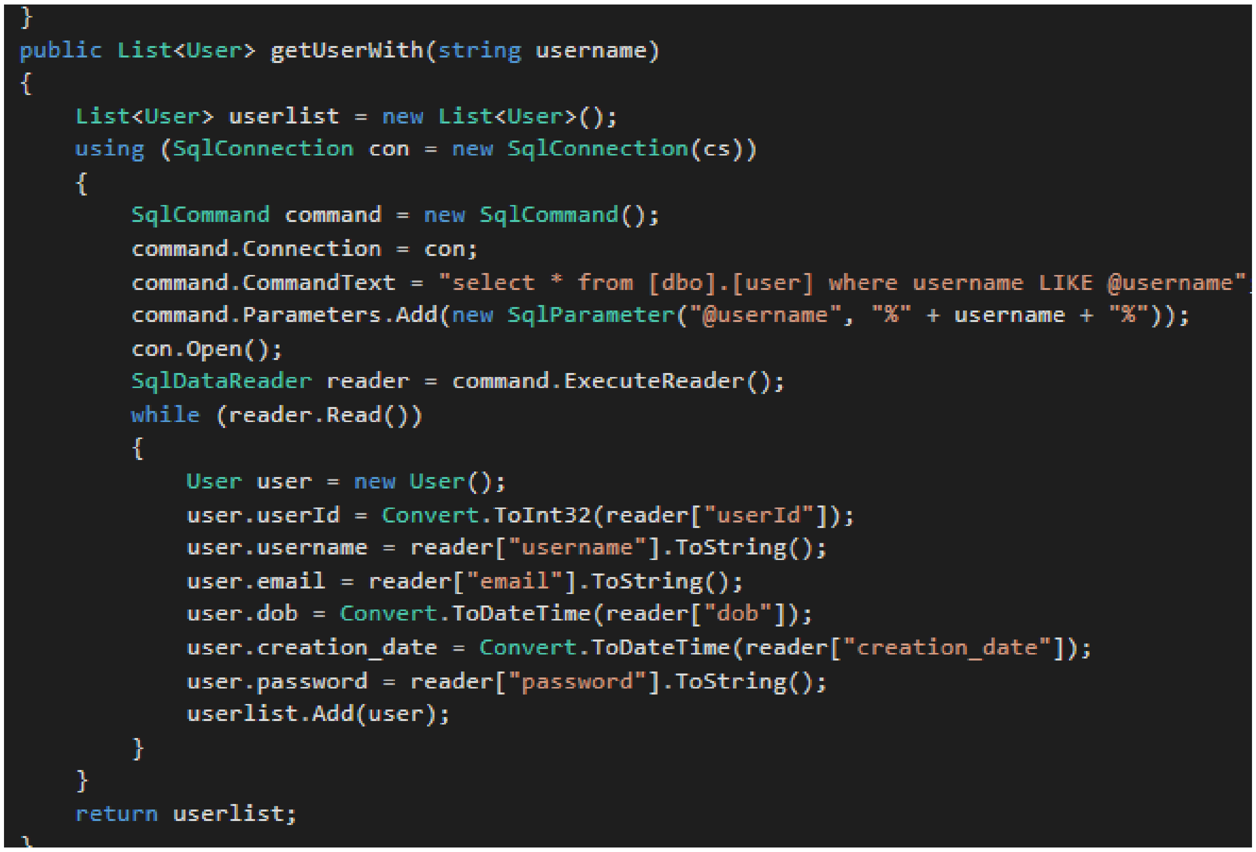
```
public User getUserByEmail(string email)
{
    User user = new User();

    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand command = new SqlCommand();
        command.Connection = con;
        command.CommandText = "select * from [dbo].[user] where email = @email";
        command.Parameters.Add(new SqlParameter("@email", email));
        con.Open();
        SqlDataReader reader = command.ExecuteReader();
        while (reader.Read())
        {
            user.userId = Convert.ToInt32(reader["userId"]);
            user.username = reader["username"].ToString();
            user.email = reader["email"].ToString();
            user.dob = Convert.ToDateTime(reader["dob"]);
            user.creation_date = Convert.ToDateTime(reader["creation_date"]);
            user.password = reader["password"].ToString();
        }
    }
    return user;
}
```



```
public int getUserId(string email)
{
    int userId=0;

    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand command = new SqlCommand();
        command.Connection = con;
        command.CommandText = "select userId from [dbo].[user] where email = @email";
        command.Parameters.Add(new SqlParameter("@email", email));
        con.Open();
        SqlDataReader reader = command.ExecuteReader();
        while (reader.Read())
        {
            userId = Convert.ToInt32(reader["userId"]);
        }
    }
    return userId;
}
```

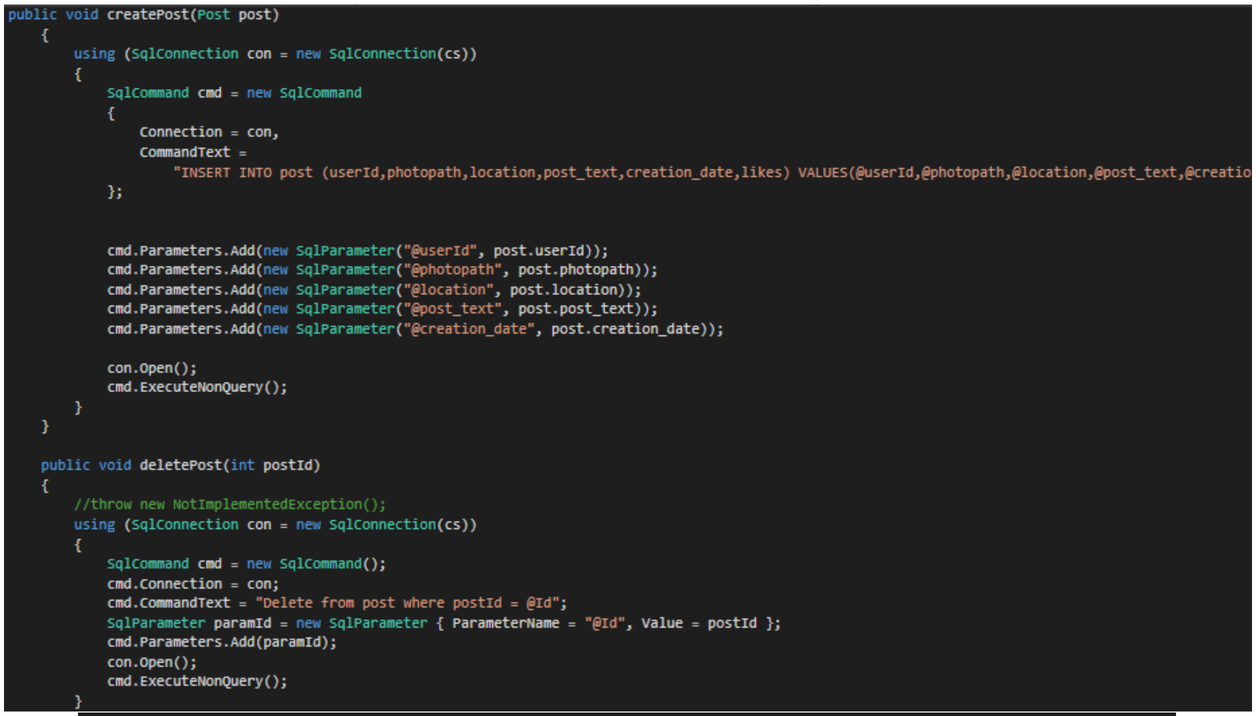


```
public void UpdateUser(User user)
{
    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand command = new SqlCommand();
        command.Connection = con;
        command.CommandText = "update [dbo].[user] set username=@name , email=@email , dob=@dob , creation_date=@creation_date , password=@password
        command.Parameters.Add(new SqlParameter("@name", user.username));
        command.Parameters.Add(new SqlParameter("@email", user.email));
        command.Parameters.Add(new SqlParameter("@dob", user.dob));
        command.Parameters.Add(new SqlParameter("@creation_date", user.creation_date));
        command.Parameters.Add(new SqlParameter("@password", user.password));

        con.Open();
        command.ExecuteNonQuery();
    }

}
```

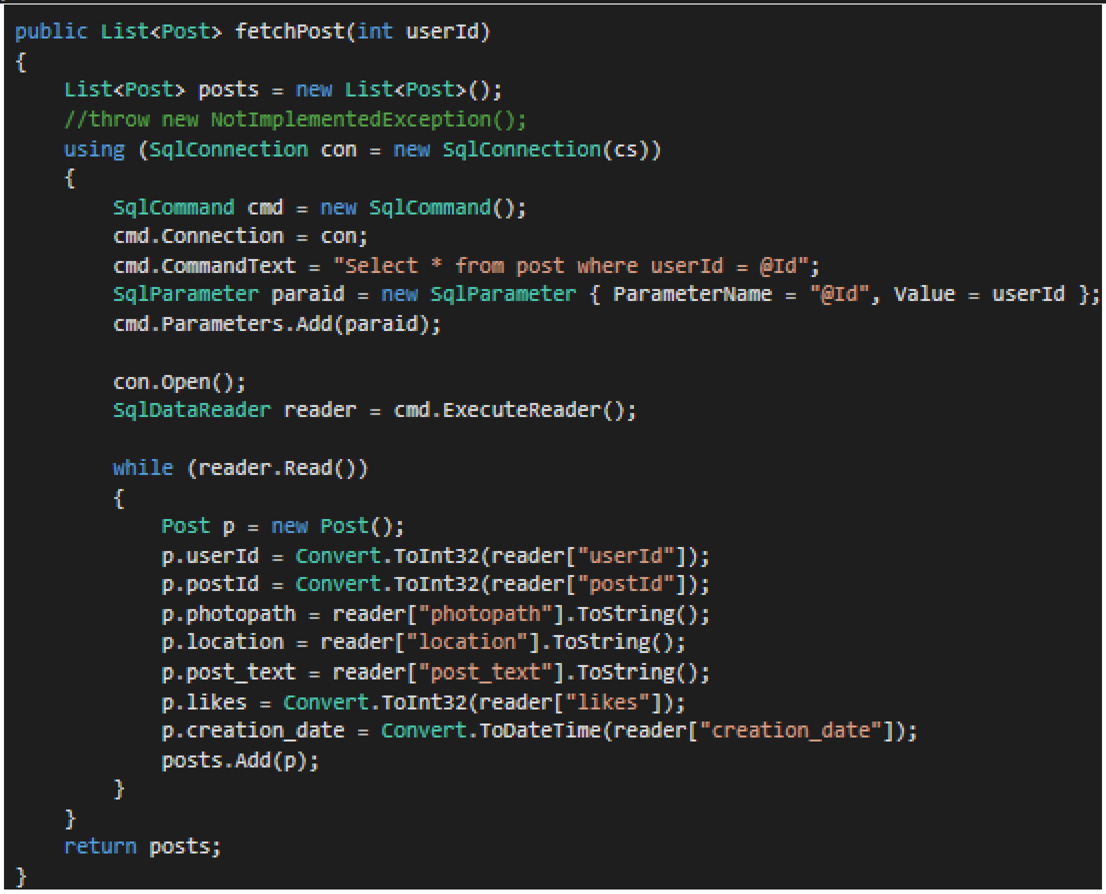


```
}
public List<User> getUserWith(string username)
{
    List<User> userlist = new List<User>();
    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand command = new SqlCommand();
        command.Connection = con;
        command.CommandText = "select * from [dbo].[user] where username LIKE @username"
        command.Parameters.Add(new SqlParameter("@username", "%" + username + "%"));
        con.Open();
        SqlDataReader reader = command.ExecuteReader();
        while (reader.Read())
        {
            User user = new User();
            user.userId = Convert.ToInt32(reader["userId"]);
            user.username = reader["username"].ToString();
            user.email = reader["email"].ToString();
            user.dob = Convert.ToDateTime(reader["dob"]);
            user.creation_date = Convert.ToDateTime(reader["creation_date"]);
            user.password = reader["password"].ToString();
            userlist.Add(user);
        }
    }
    return userlist;
}
```

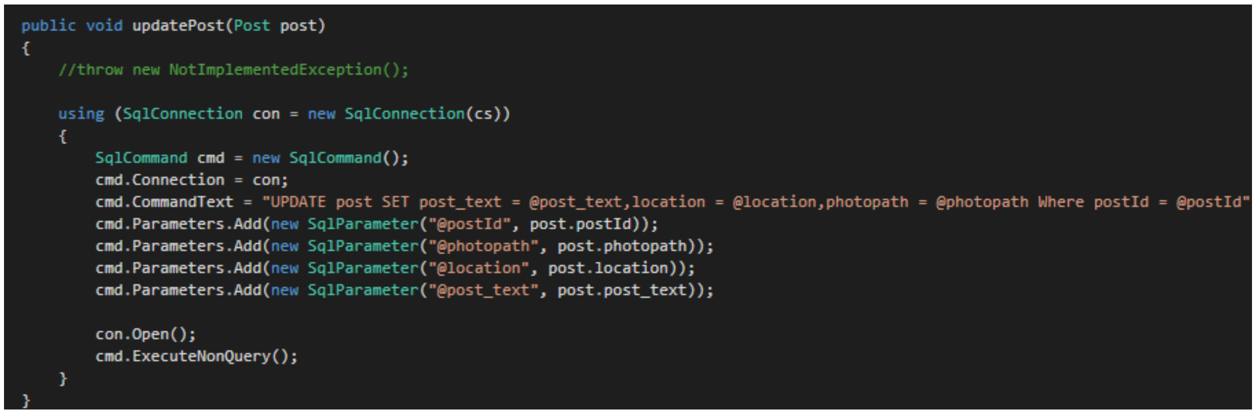
Post Functionality Service [CRUD]:



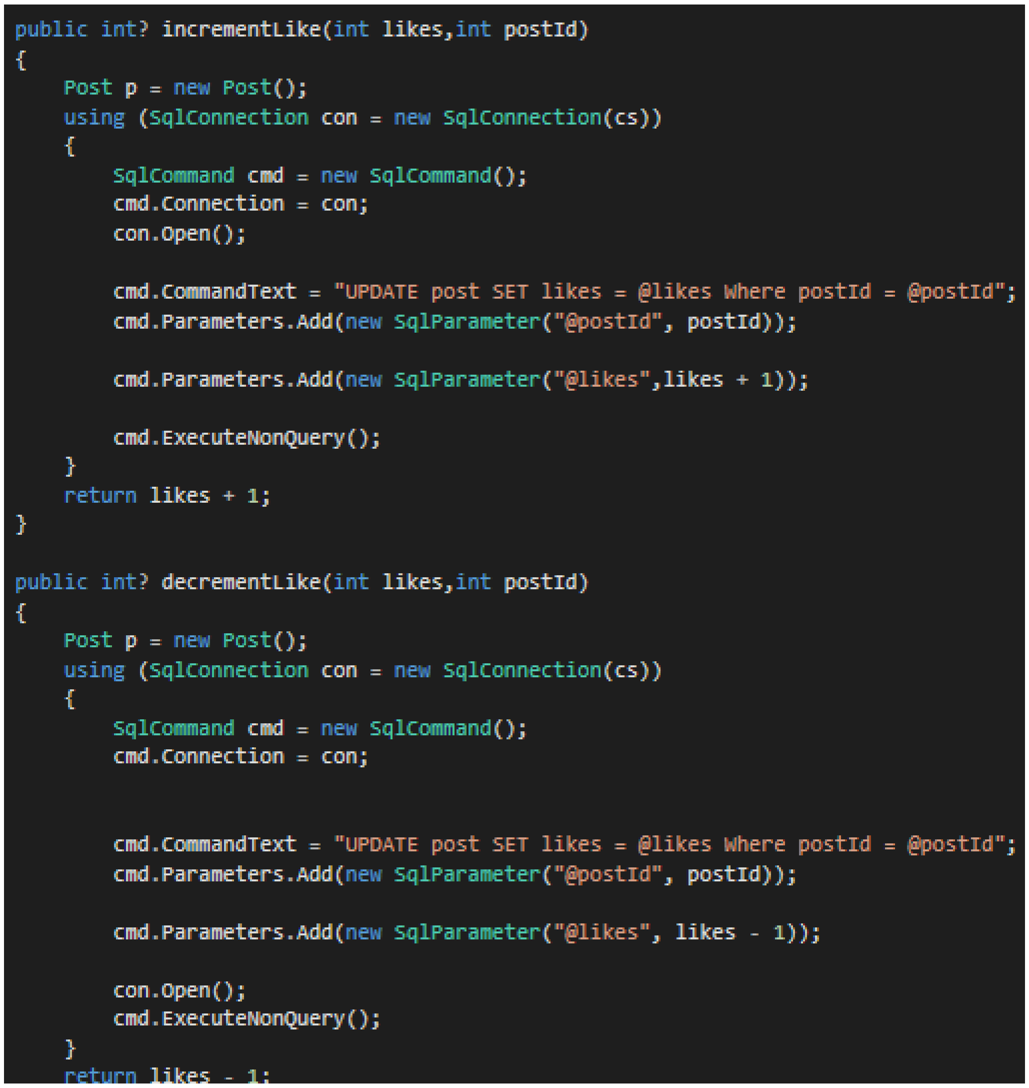
```
public void createPost(Post post)
    {
        using (SqlConnection con = new SqlConnection(cs))
        {
            SqlCommand cmd = new SqlCommand
            {
                Connection = con,
                CommandText =
                    "INSERT INTO post (userId,photopath,location,post_text,creation_date,likes) VALUES(@userId,@photopath,@location,@post_text,@creatio
            };


            cmd.Parameters.Add(new SqlParameter("@userId", post.userId));
            cmd.Parameters.Add(new SqlParameter("@photopath", post.photopath));
            cmd.Parameters.Add(new SqlParameter("@location", post.location));
            cmd.Parameters.Add(new SqlParameter("@post_text", post.post_text));
            cmd.Parameters.Add(new SqlParameter("@creation_date", post.creation_date));

            con.Open();
            cmd.ExecuteNonQuery();
        }
    }

    public void deletePost(int postId)
    {
        //throw new NotImplementedException();
        using (SqlConnection con = new SqlConnection(cs))
        {
            SqlCommand cmd = new SqlCommand();
            cmd.Connection = con;
            cmd.CommandText = "Delete from post where postId = @Id";
            SqlParameter paramId = new SqlParameter { ParameterName = "@Id", Value = postId };
            cmd.Parameters.Add(paramId);
            con.Open();
            cmd.ExecuteNonQuery();
        }
```



```
public List<Post> fetchPost(int userId)
{
    List<Post> posts = new List<Post>();
    //throw new NotImplementedException();
    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand cmd = new SqlCommand();
        cmd.Connection = con;
        cmd.CommandText = "Select * from post where userId = @Id";
        SqlParameter paraid = new SqlParameter { ParameterName = "@Id", Value = userId };
        cmd.Parameters.Add(paraid);

        con.Open();
        SqlDataReader reader = cmd.ExecuteReader();

        while (reader.Read())
        {
            Post p = new Post();
            p.userId = Convert.ToInt32(reader["userId"]);
            p.postId = Convert.ToInt32(reader["postId"]);
            p.photopath = reader["photopath"].ToString();
            p.location = reader["location"].ToString();
            p.post_text = reader["post_text"].ToString();
            p.likes = Convert.ToInt32(reader["likes"]);
            p.creation_date = Convert.ToDateTime(reader["creation_date"]);
            posts.Add(p);
        }
    }
    return posts;
}
```

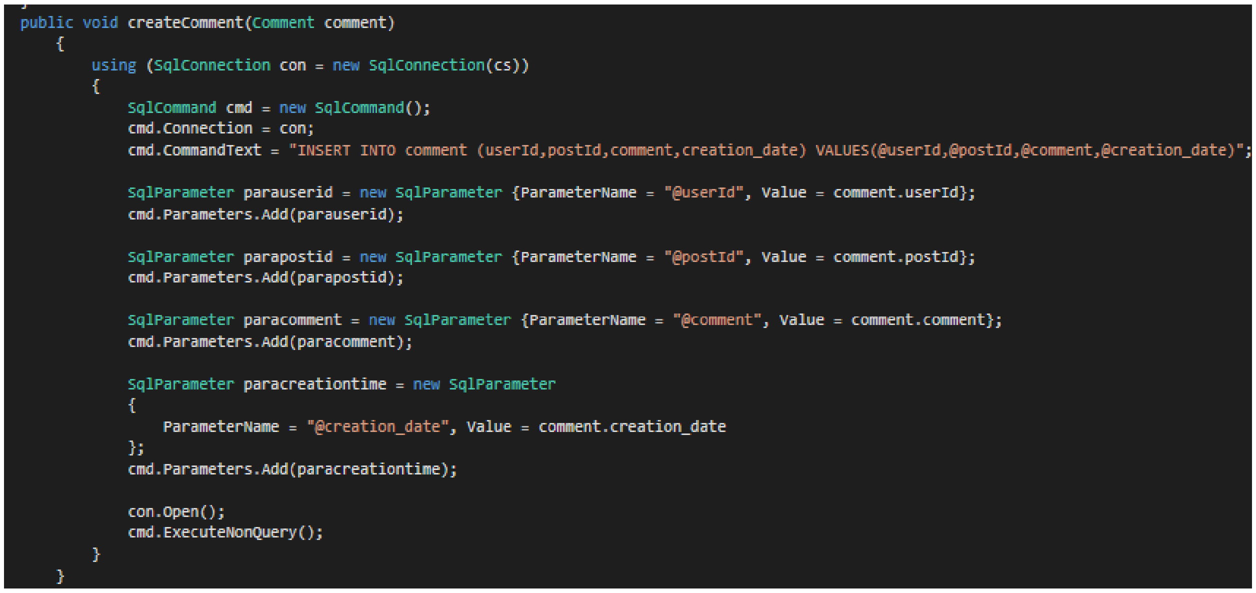


```
public void updatePost(Post post)
{
    //throw new NotImplementedException();

    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand cmd = new SqlCommand();
        cmd.Connection = con;
        cmd.CommandText = "UPDATE post SET post_text = @post_text,location = @location,photopath = @photopath Where postId = @postId"
        cmd.Parameters.Add(new SqlParameter("@postId", post.postId));
        cmd.Parameters.Add(new SqlParameter("@photopath", post.photopath));
        cmd.Parameters.Add(new SqlParameter("@location", post.location));
        cmd.Parameters.Add(new SqlParameter("@post_text", post.post_text));

        con.Open();
        cmd.ExecuteNonQuery();
    }
}
```

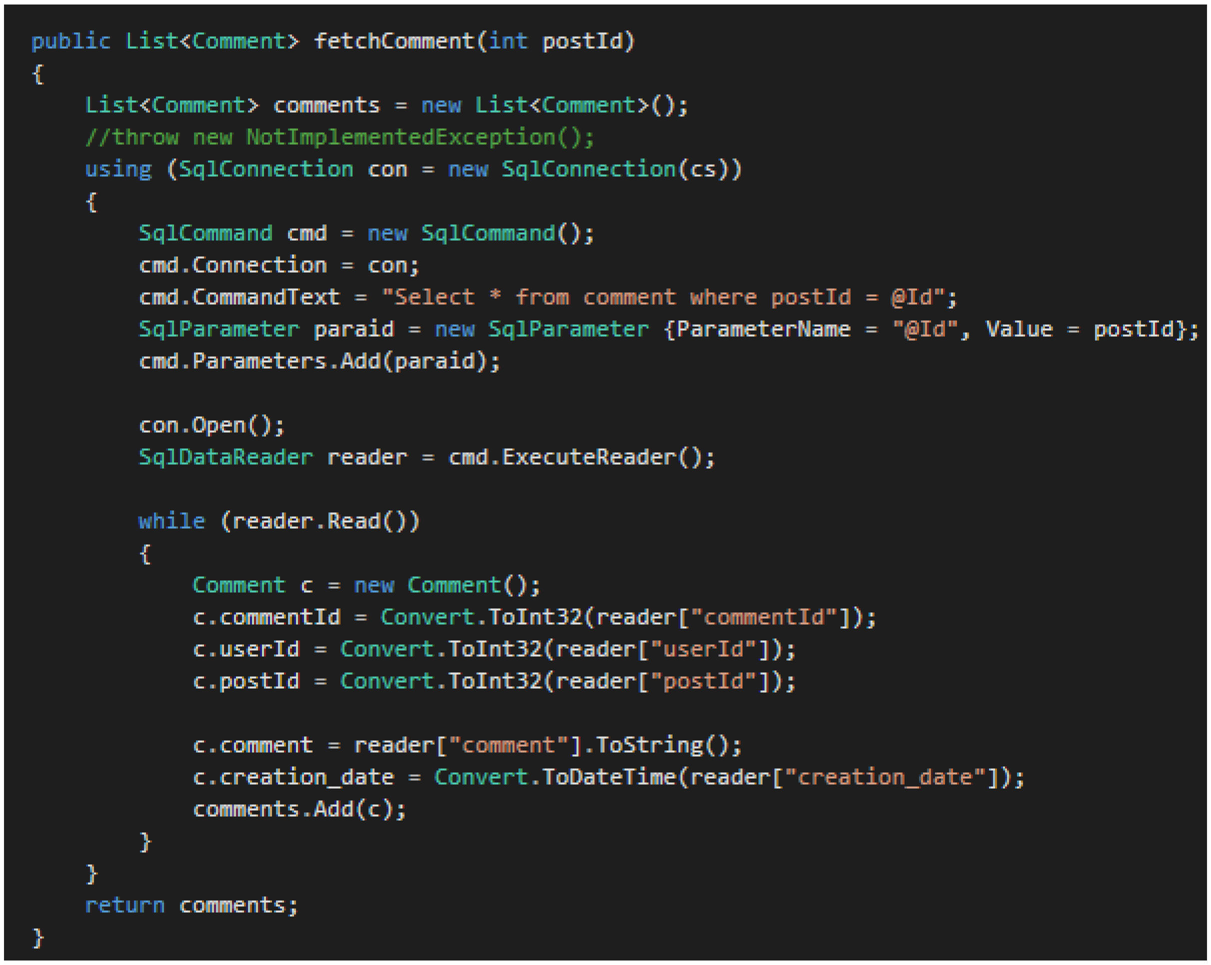


```
public int? incrementLike(int likes,int postId)
{
    Post p = new Post();
    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand cmd = new SqlCommand();
        cmd.Connection = con;
        con.Open();

        cmd.CommandText = "UPDATE post SET likes = @likes Where postId = @postId";
        cmd.Parameters.Add(new SqlParameter("@postId", postId));

        cmd.Parameters.Add(new SqlParameter("@likes",likes + 1));

        cmd.ExecuteNonQuery();
    }
    return likes + 1;
}

public int? decrementLike(int likes,int postId)
{
    Post p = new Post();
    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand cmd = new SqlCommand();
        cmd.Connection = con;


        cmd.CommandText = "UPDATE post SET likes = @likes Where postId = @postId";
        cmd.Parameters.Add(new SqlParameter("@postId", postId));

        cmd.Parameters.Add(new SqlParameter("@likes", likes - 1));

        con.Open();
        cmd.ExecuteNonQuery();
    }
    return likes - 1;
```

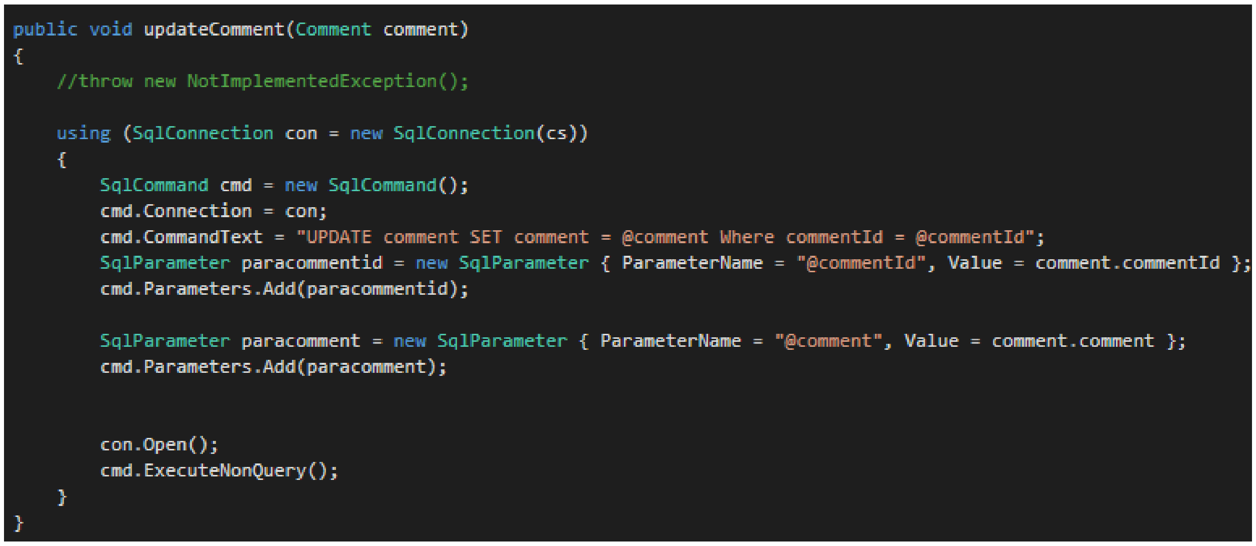
Comment Functionality Service [CRUD]:



```
public void createComment(Comment comment)
    {
        using (SqlConnection con = new SqlConnection(cs))
        {
            SqlCommand cmd = new SqlCommand();
            cmd.Connection = con;
            cmd.CommandText = "INSERT INTO comment (userId,postId,comment,creation_date) VALUES(@userId,@postId,@comment,@creation_date)";

            SqlParameter parauserid = new SqlParameter {ParameterName = "@userId", Value = comment.userId};
            cmd.Parameters.Add(parauserid);

            SqlParameter parapostid = new SqlParameter {ParameterName = "@postId", Value = comment.postId};
            cmd.Parameters.Add(parapostid);

            SqlParameter paracomment = new SqlParameter {ParameterName = "@comment", Value = comment.comment};
            cmd.Parameters.Add(paracomment);

            SqlParameter paracreationtime = new SqlParameter
            {
                ParameterName = "@creation_date", Value = comment.creation_date
            };
            cmd.Parameters.Add(paracreationtime);

            con.Open();
            cmd.ExecuteNonQuery();
        }
    }
```

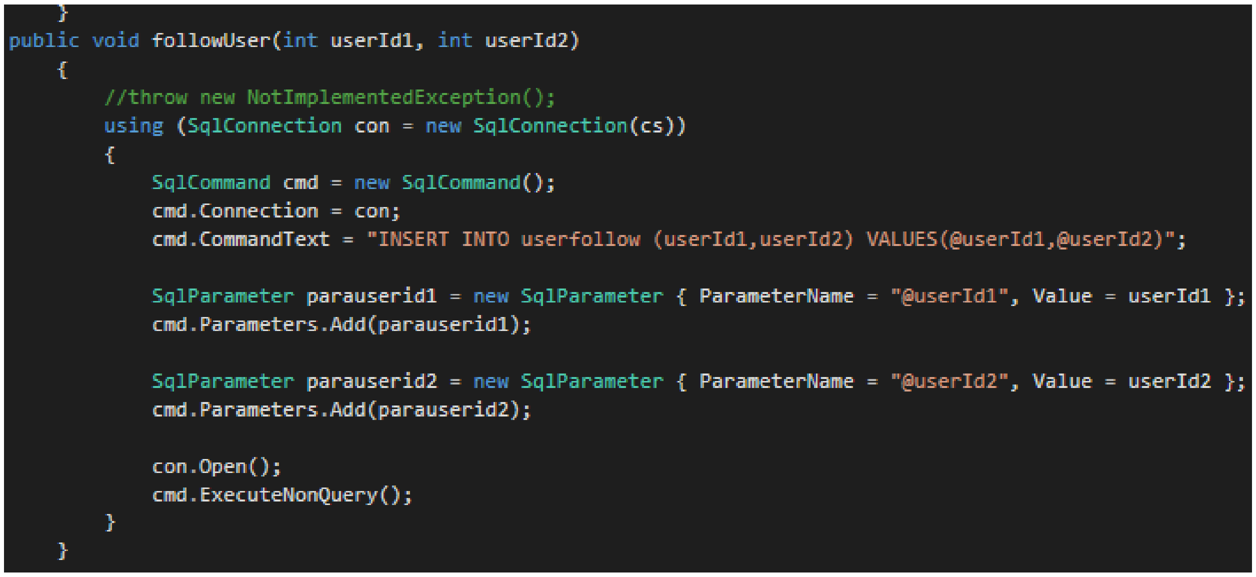


```
public List<Comment> fetchComment(int postId)
{
    List<Comment> comments = new List<Comment>();
    //throw new NotImplementedException();
    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand cmd = new SqlCommand();
        cmd.Connection = con;
        cmd.CommandText = "Select * from comment where postId = @Id";
        SqlParameter paraid = new SqlParameter {ParameterName = "@Id", Value = postId};
        cmd.Parameters.Add(paraid);

        con.Open();
        SqlDataReader reader = cmd.ExecuteReader();

        while (reader.Read())
        {
            Comment c = new Comment();
            c.commentId = Convert.ToInt32(reader["commentId"]);
            c.userId = Convert.ToInt32(reader["userId"]);
            c.postId = Convert.ToInt32(reader["postId"]);

            c.comment = reader["comment"].ToString();
            c.creation_date = Convert.ToDateTime(reader["creation_date"]);
            comments.Add(c);
        }
    }
    return comments;
}
```

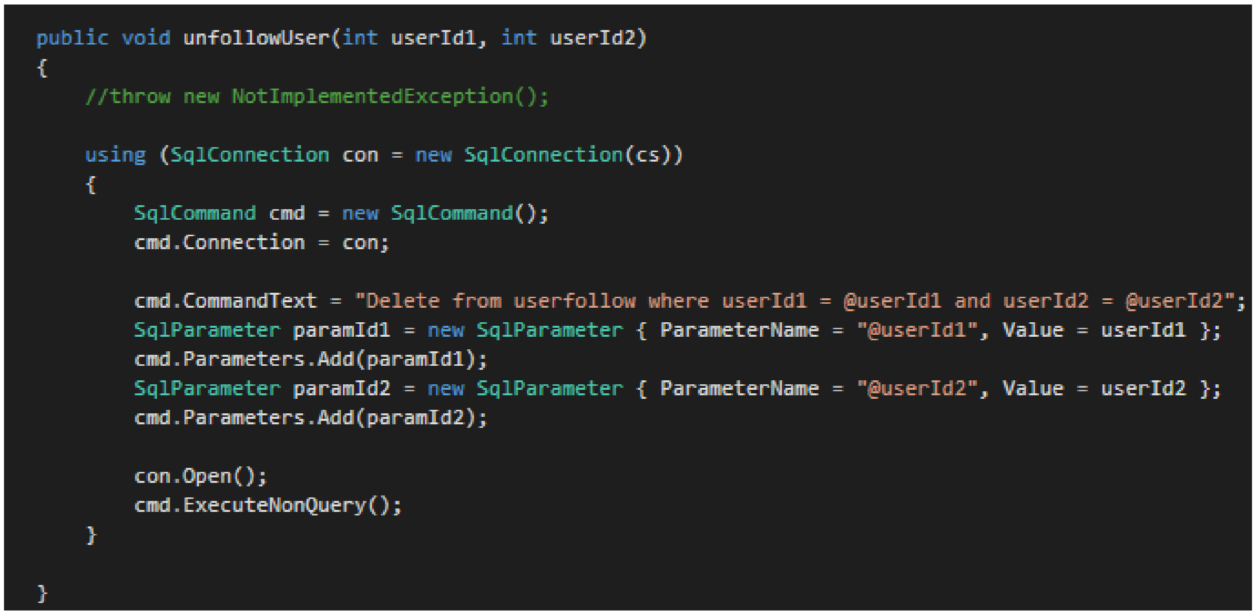


```
public void updateComment(Comment comment)
{
    //throw new NotImplementedException();

    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand cmd = new SqlCommand();
        cmd.Connection = con;
        cmd.CommandText = "UPDATE comment SET comment = @comment Where commentId = @commentId";
        SqlParameter paracommentid = new SqlParameter { ParameterName = "@commentId", Value = comment.commentId };
        cmd.Parameters.Add(paracommentid);

        SqlParameter paracomment = new SqlParameter { ParameterName = "@comment", Value = comment.comment };
        cmd.Parameters.Add(paracomment);


        con.Open();
        cmd.ExecuteNonQuery();
    }
}
```

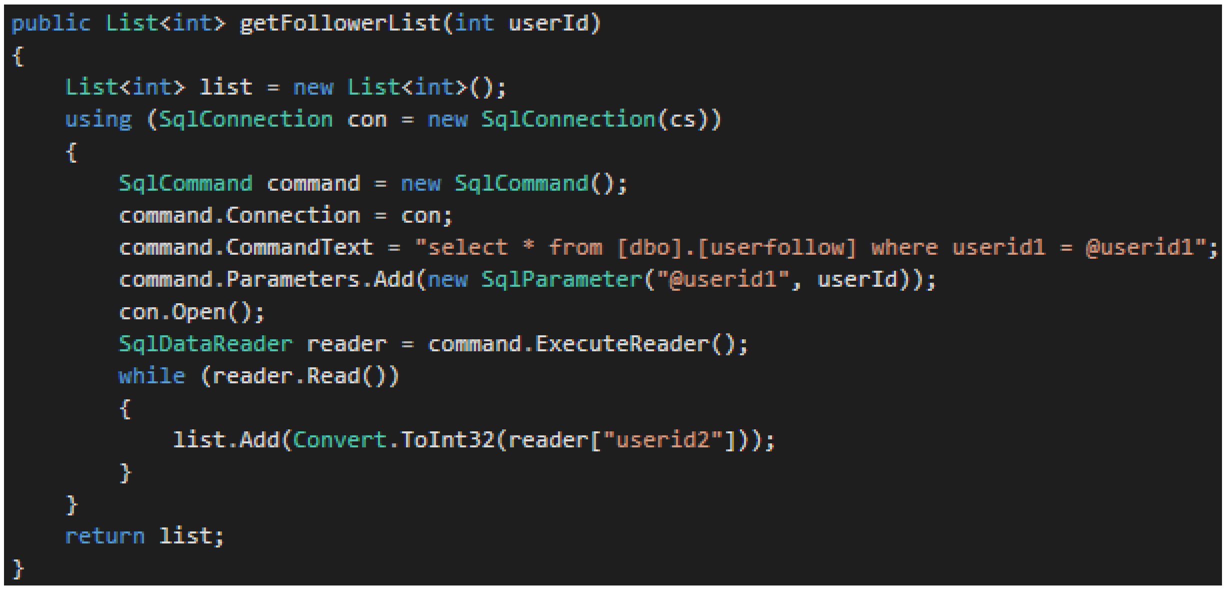
User Follow Functionality Service [CRUD]:



```
    }
public void followUser(int userId1, int userId2)
    {
        //throw new NotImplementedException();
        using (SqlConnection con = new SqlConnection(cs))
        {
            SqlCommand cmd = new SqlCommand();
            cmd.Connection = con;
            cmd.CommandText = "INSERT INTO userfollow (userId1,userId2) VALUES(@userId1,@userId2)";

            SqlParameter parauserid1 = new SqlParameter { ParameterName = "@userId1", Value = userId1 };
            cmd.Parameters.Add(parauserid1);

            SqlParameter parauserid2 = new SqlParameter { ParameterName = "@userId2", Value = userId2 };
            cmd.Parameters.Add(parauserid2);

            con.Open();
            cmd.ExecuteNonQuery();
        }
    }
```



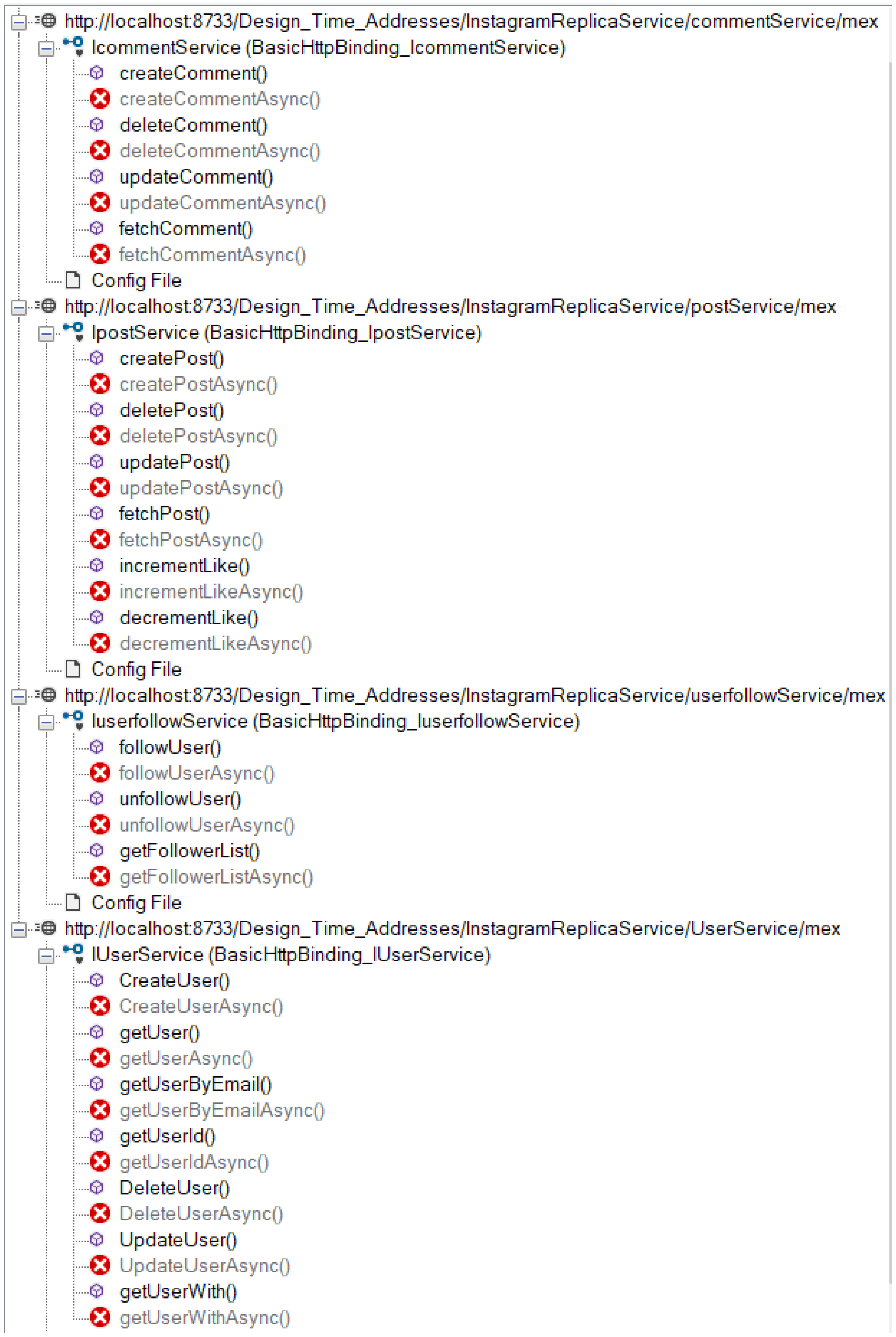
```csharp
public void unfollowUser(int userId1, int userId2)
{
    //throw new NotImplementedException();

    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand cmd = new SqlCommand();
        cmd.Connection = con;

        cmd.CommandText = "Delete from userfollow where userId1 = @userId1 and userId2 = @userId2";
        SqlParameter paramId1 = new SqlParameter { ParameterName = "@userId1", Value = userId1 };
        cmd.Parameters.Add(paramId1);
        SqlParameter paramId2 = new SqlParameter { ParameterName = "@userId2", Value = userId2 };
        cmd.Parameters.Add(paramId2);

        con.Open();
        cmd.ExecuteNonQuery();
    }

}
```



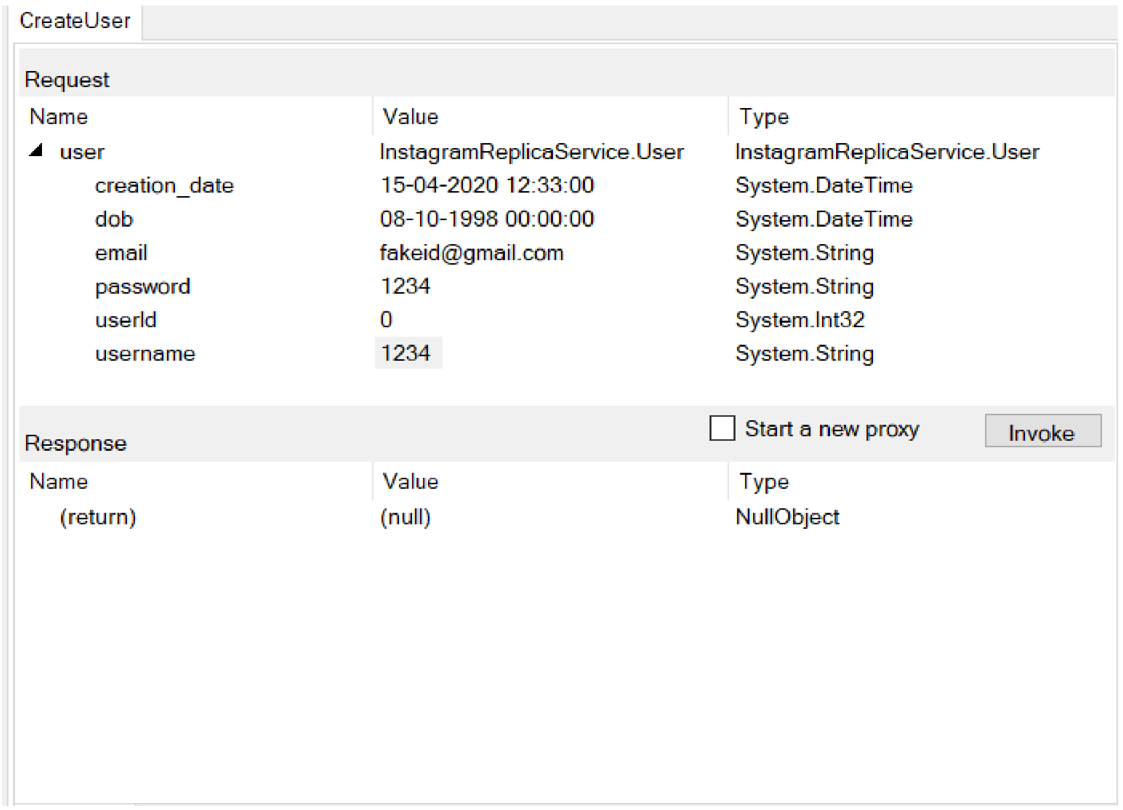
```csharp
public List<int> getFollowerList(int userId)
{
    List<int> list = new List<int>();
    using (SqlConnection con = new SqlConnection(cs))
    {
        SqlCommand command = new SqlCommand();
        command.Connection = con;
        command.CommandText = "select * from [dbo].[userfollow] where userid1 = @userid1";
        command.Parameters.Add(new SqlParameter("@userid1", userId));
        con.Open();
        SqlDataReader reader = command.ExecuteReader();
        while (reader.Read())
        {
            list.Add(Convert.ToInt32(reader["userid2"]));
        }
    }
    return list;
}
```

Testing Details

Testing of services was done in WCF test client. Below are some important test scenarios



```
http://localhost:8733/Design_Time_Addresses/InstagramReplicaService/commentService/mex
  IcommentService (BasicHttpBinding_IcommentService)
    createComment()
    createCommentAsync()
    deleteComment()
    deleteCommentAsync()
    updateComment()
    updateCommentAsync()
    fetchComment()
    fetchCommentAsync()
  Config File
http://localhost:8733/Design_Time_Addresses/InstagramReplicaService/postService/mex
  IpostService (BasicHttpBinding_IpostService)
    createPost()
    createPostAsync()
    deletePost()
    deletePostAsync()
    updatePost()
    updatePostAsync()
    fetchPost()
    fetchPostAsync()
    incrementLike()
    incrementLikeAsync()
    decrementLike()
    decrementLikeAsync()
  Config File
http://localhost:8733/Design_Time_Addresses/InstagramReplicaService/userfollowService/mex
  IuserfollowService (BasicHttpBinding_IuserfollowService)
    followUser()
    followUserAsync()
    unfollowUser()
    unfollowUserAsync()
    getFollowerList()
    getFollowerListAsync()
  Config File
http://localhost:8733/Design_Time_Addresses/InstagramReplicaService/UserService/mex
  IUserService (BasicHttpBinding_IUserService)
    CreateUser()
    CreateUserAsync()
    getUser()
    getUserAsync()
    getUserByEmail()
    getUserByEmailAsync()
    getUserId()
    getUserIdAsync()
    DeleteUser()
    DeleteUserAsync()
    UpdateUser()
    UpdateUserAsync()
    getUserWith()
    getUserWithAsync()
```

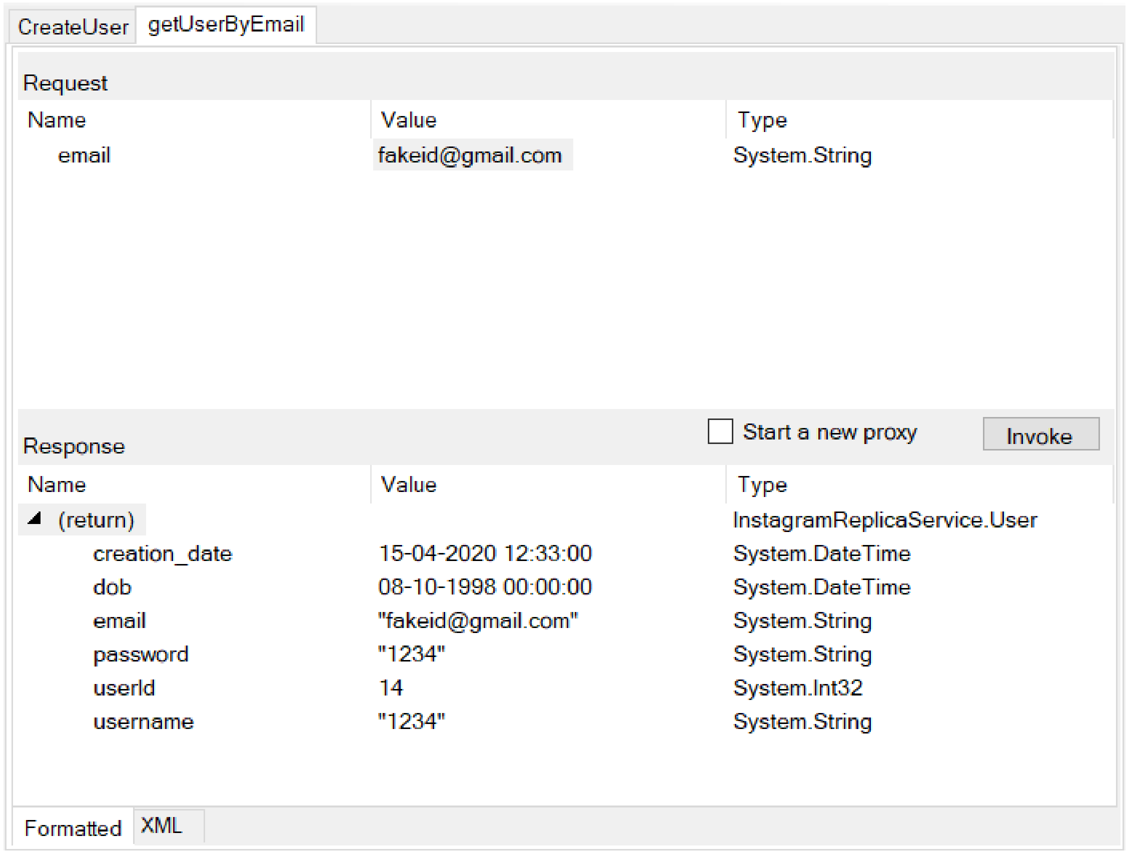


Request

Name	Value	Type
◢ user	InstagramReplicaService.User	InstagramReplicaService.User
creation_date	15-04-2020 12:33:00	System.DateTime
dob	08-10-1998 00:00:00	System.DateTime
email	fakeid@gmail.com	System.String
password	1234	System.String
userId	0	System.Int32
username	1234	System.String

Response

Name	Value	Type
(return)	(null)	NullObject

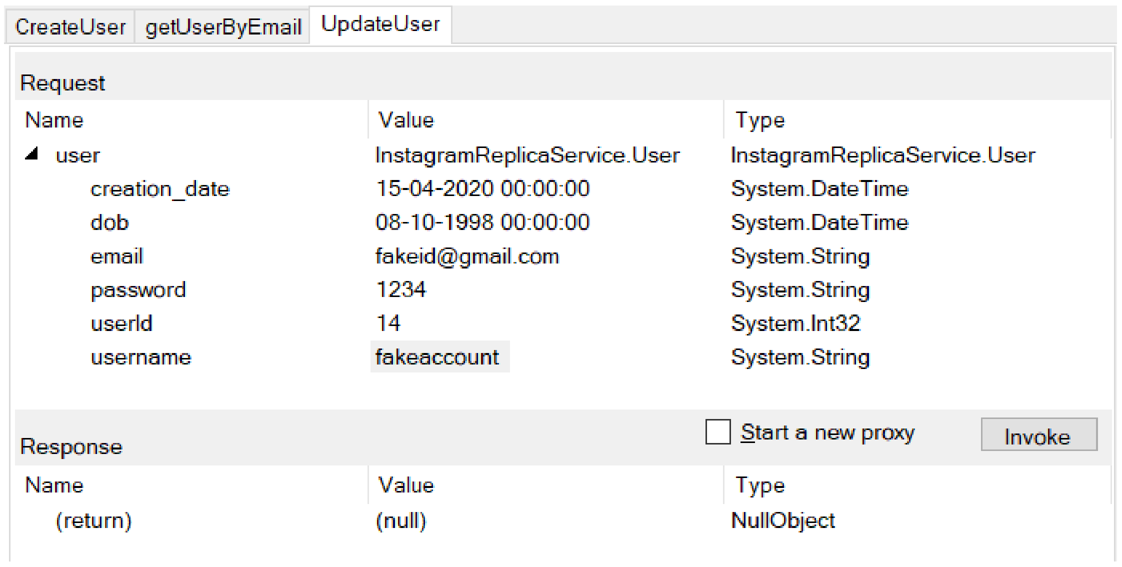


Request

Name	Value	Type
email	fakeid@gmail.com	System.String

Response

Name	Value	Type
◢ (return)		InstagramReplicaService.User
creation_date	15-04-2020 12:33:00	System.DateTime
dob	08-10-1998 00:00:00	System.DateTime
email	"fakeid@gmail.com"	System.String
password	"1234"	System.String
userId	14	System.Int32
username	"1234"	System.String

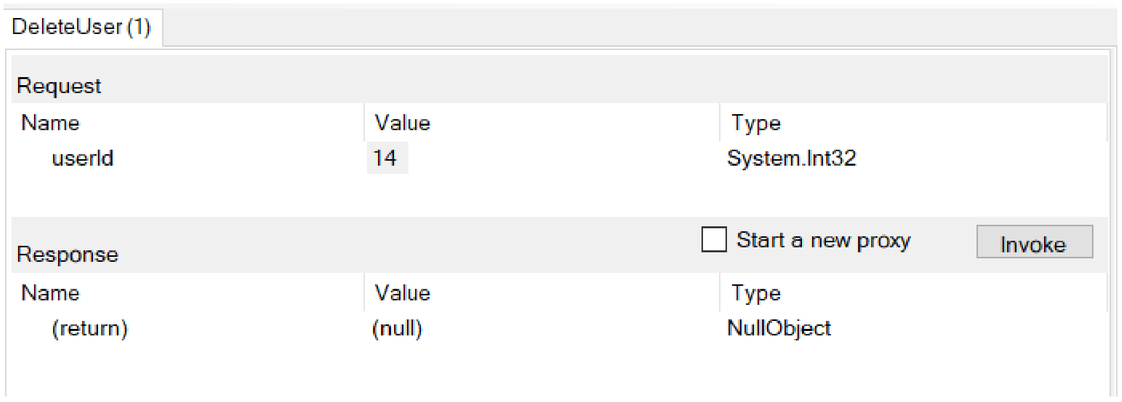


Request

Name	Value	Type
◢ user	InstagramReplicaService.User	InstagramReplicaService.User
creation_date	15-04-2020 00:00:00	System.DateTime
dob	08-10-1998 00:00:00	System.DateTime
email	fakeid@gmail.com	System.String
password	1234	System.String
userId	14	System.Int32
username	fakeaccount	System.String

Response

Name	Value	Type
(return)	(null)	NullObject

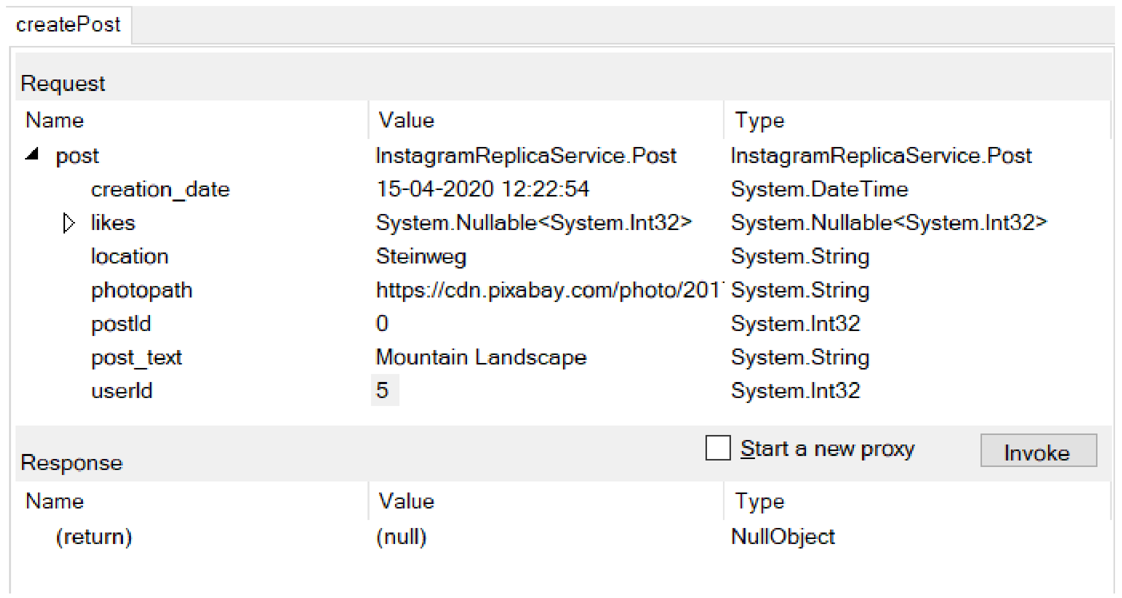


Request

Name	Value	Type
userId	14	System.Int32

Response

Name	Value	Type
(return)	(null)	NullObject

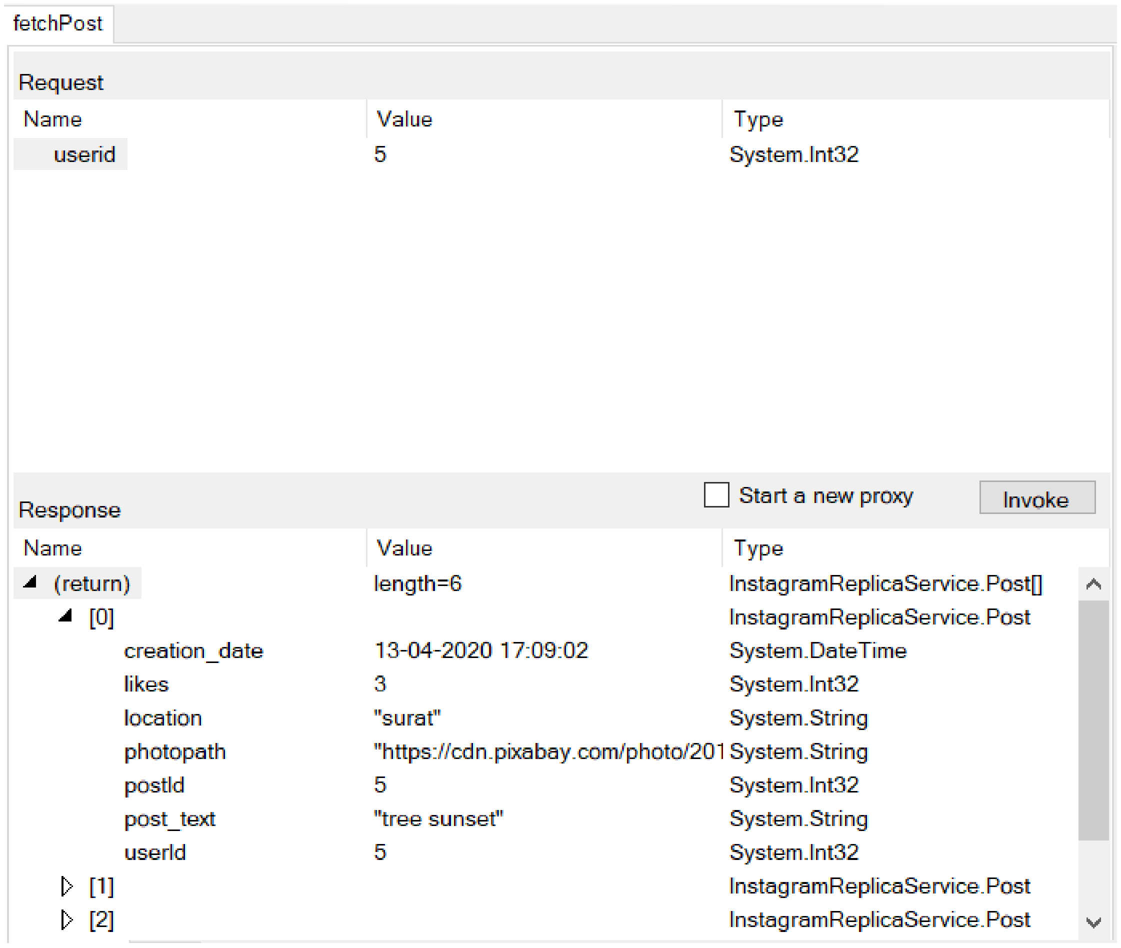


Request

Name	Value	Type
◢ post	InstagramReplicaService.Post	InstagramReplicaService.Post
creation_date	15-04-2020 12:22:54	System.DateTime
▷ likes	System.Nullable<System.Int32>	System.Nullable<System.Int32>
location	Steinweg	System.String
photopath	https://cdn.pixabay.com/photo/201	System.String
postId	0	System.Int32
post_text	Mountain Landscape	System.String
userId	5	System.Int32

Response

Name	Value	Type
(return)	(null)	NullObject


fetchPost

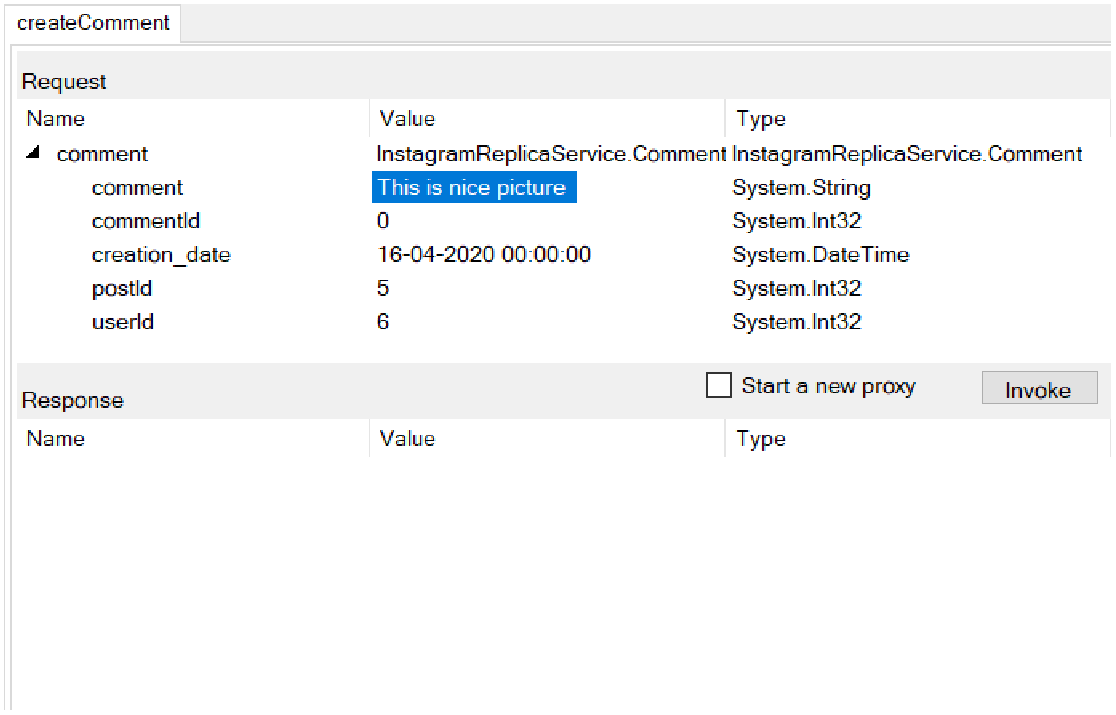
Request

Name	Value	Type
userid	5	System.Int32

Start a new proxy Invoke

Response

Name	Value	Type
◢ (return)	length=6	InstagramReplicaService.Post[]
◢ [0]		InstagramReplicaService.Post
creation_date	13-04-2020 17:09:02	System.DateTime
likes	3	System.Int32
location	"surat"	System.String
photopath	"https://cdn.pixabay.com/photo/201	System.String
postId	5	System.Int32
post_text	"tree sunset"	System.String
userId	5	System.Int32
▷ [1]		InstagramReplicaService.Post
▷ [2]		InstagramReplicaService.Post


createComment

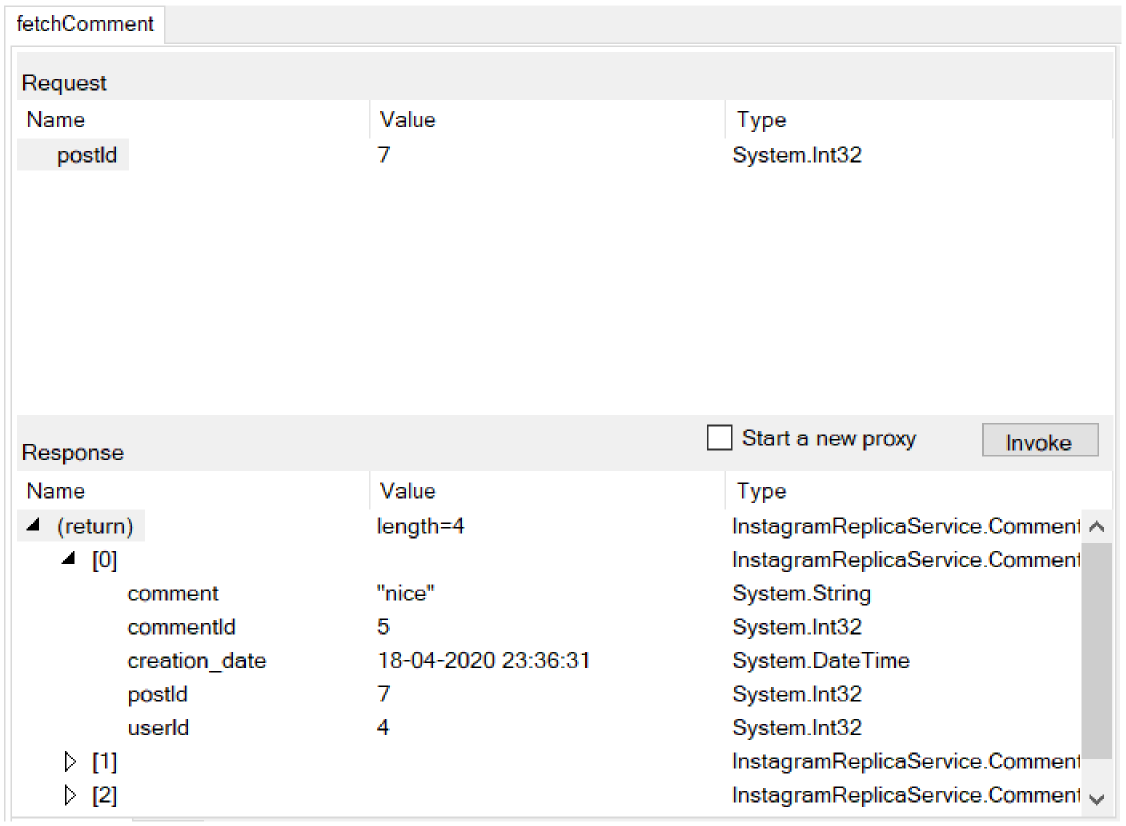
Request

Name	Value	Type
◢ comment	InstagramReplicaService.Comment	InstagramReplicaService.Comment
comment	This is nice picture	System.String
commentId	0	System.Int32
creation_date	16-04-2020 00:00:00	System.DateTime
postId	5	System.Int32
userId	6	System.Int32

Start a new proxy Invoke

Response

Name	Value	Type

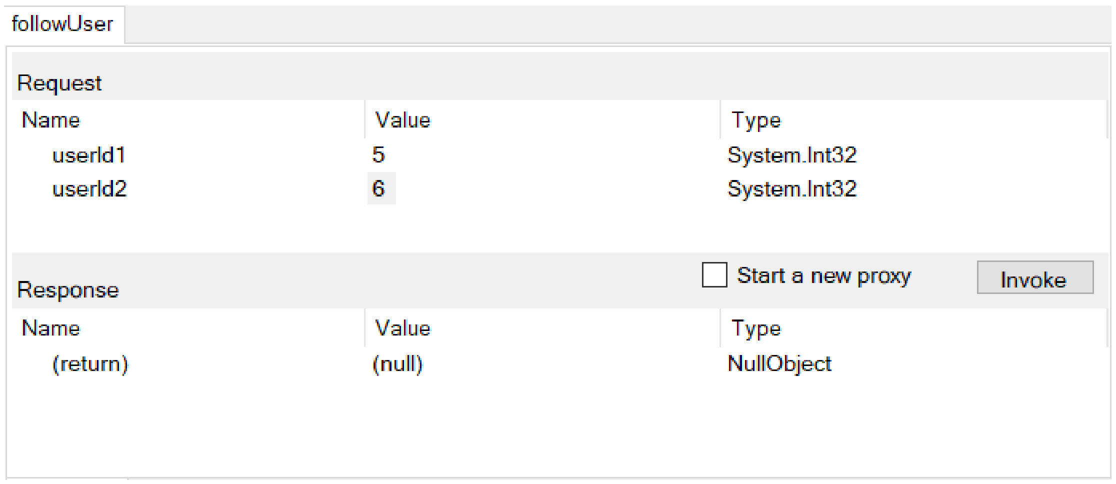

fetchComment

Request

Name	Value	Type
postId	7	System.Int32

Response

Name	Value	Type
◢ (return)	length=4	InstagramReplicaService.Comment
◢ [0]		InstagramReplicaService.Comment
comment	"nice"	System.String
commentId	5	System.Int32
creation_date	18-04-2020 23:36:31	System.DateTime
postId	7	System.Int32
userId	4	System.Int32
▷ [1]		InstagramReplicaService.Comment
▷ [2]		InstagramReplicaService.Comment

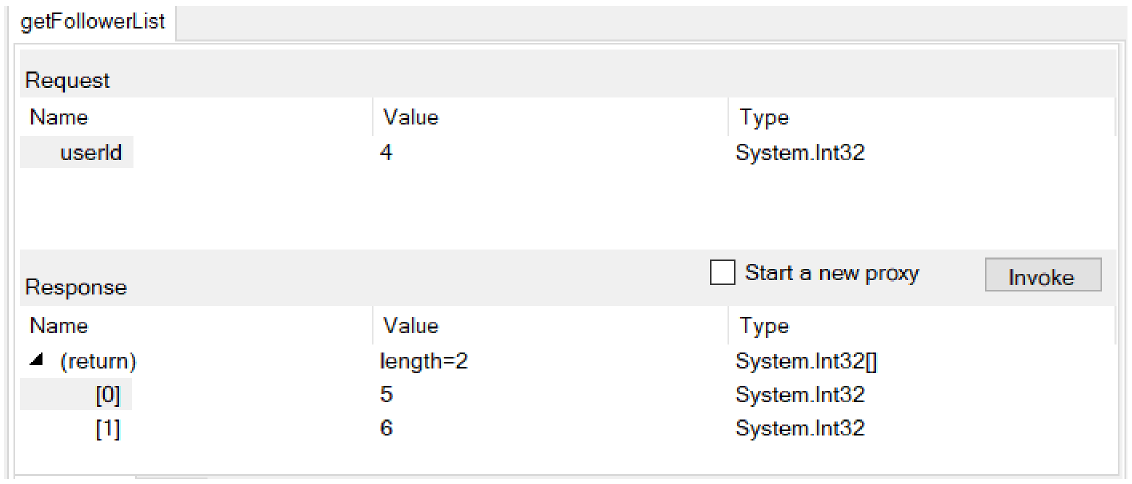

followUser

Request

Name	Value	Type
userId1	5	System.Int32
userId2	6	System.Int32

Response

Name	Value	Type
(return)	(null)	NullObject



getFollowerList

Request

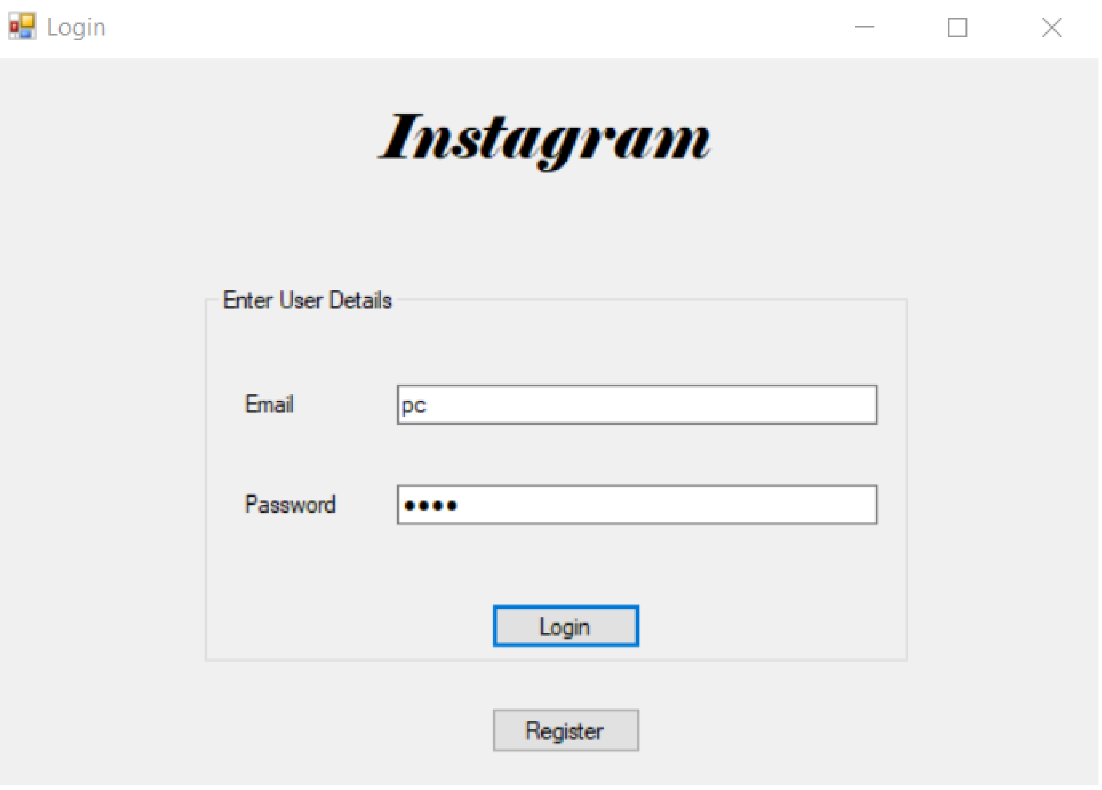
Name	Value	Type
userId	4	System.Int32

Start a new proxy Invoke

Response

Name	Value	Type
(return)	length=2	System.Int32[]
[0]	5	System.Int32
[1]	6	System.Int32

Screen-Shots


Login

Instagram

Enter User Details

Email: pc

Password: ●●●●

Figure : Login Module

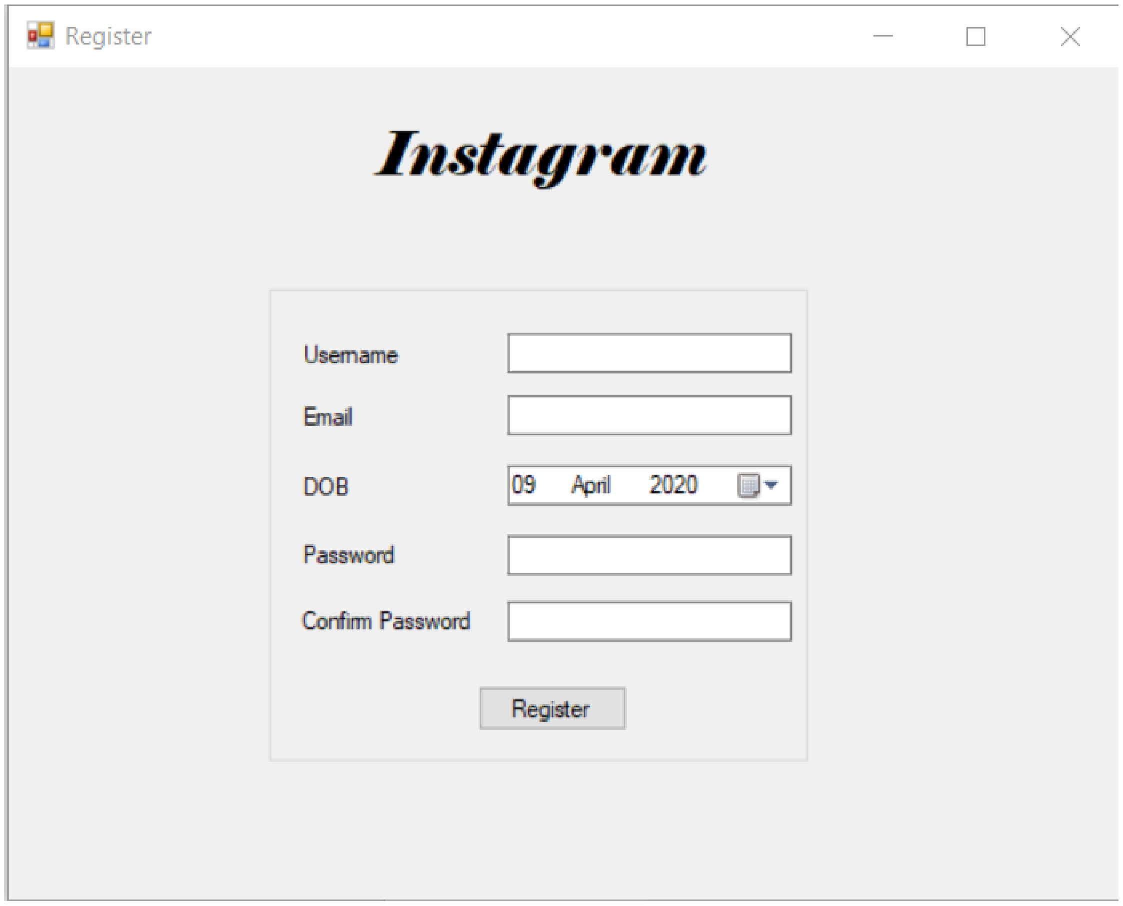


Figure : Register Module

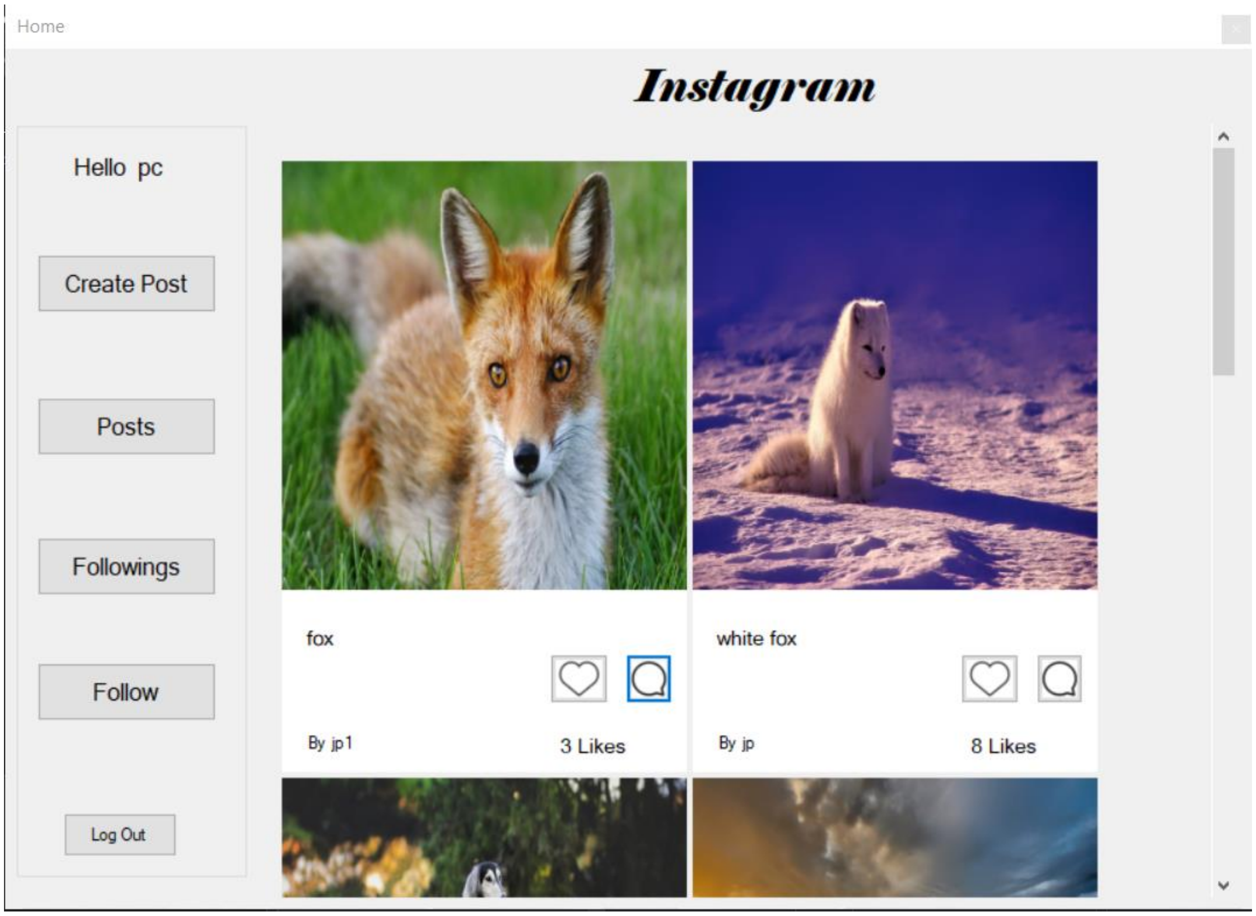
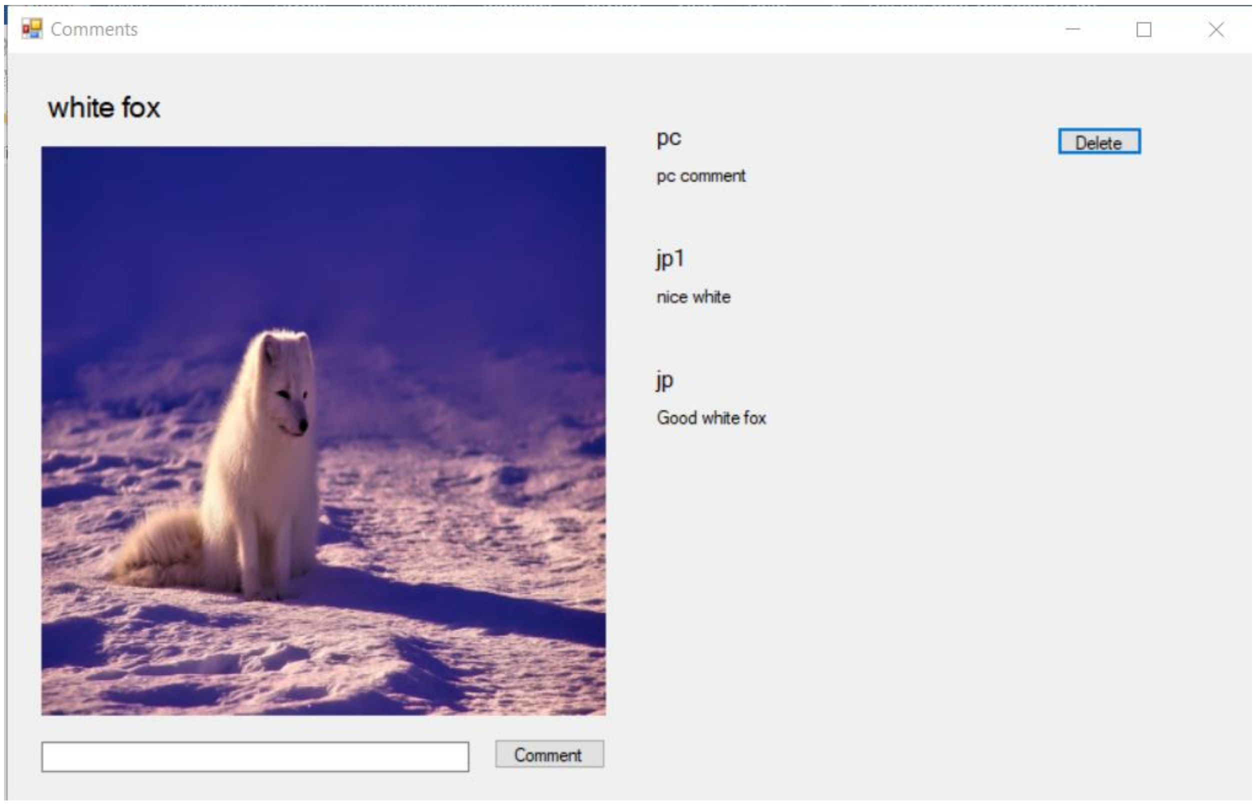


Figure : Home Dashboard of user

(You can also see likes and title of post along with the name of user who posted)



pc

pc comment

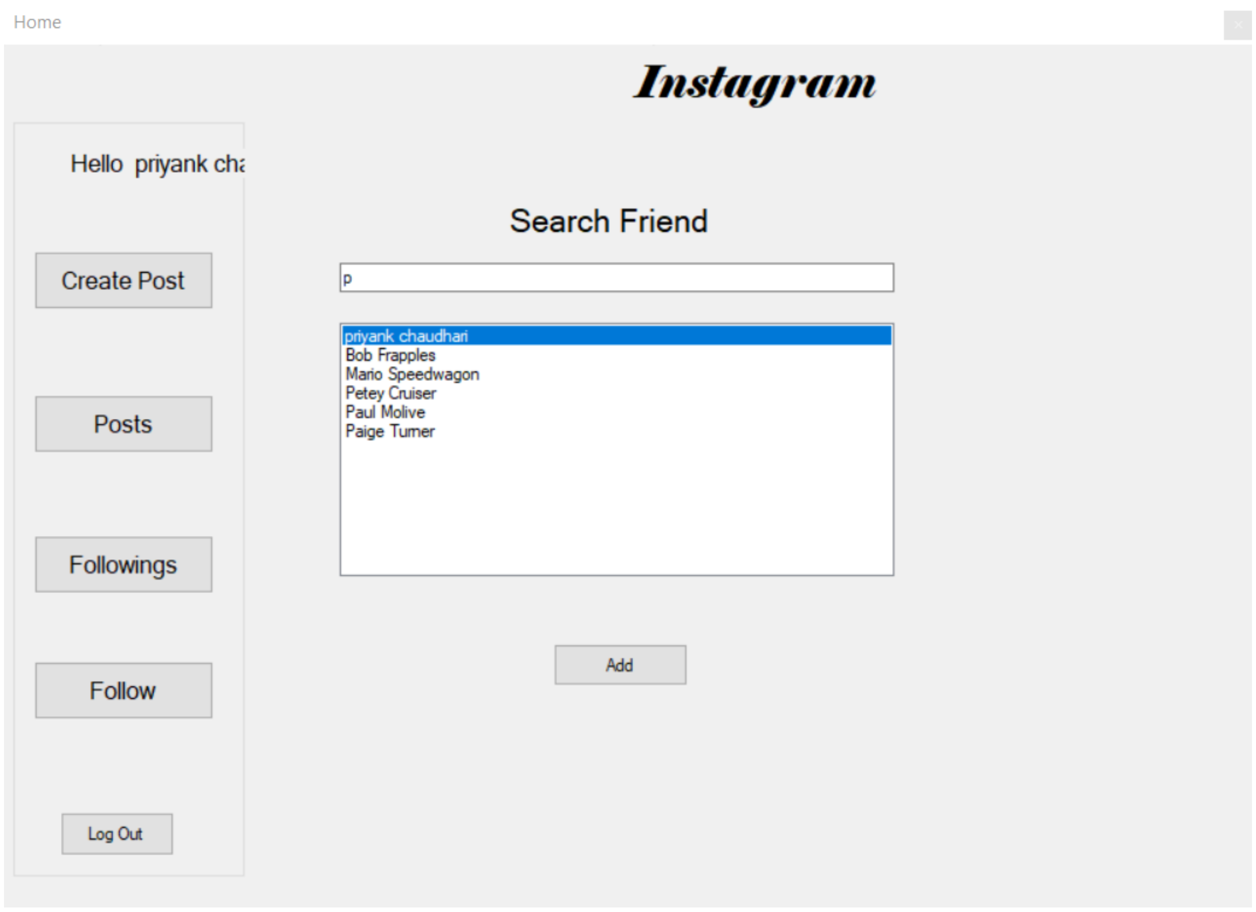
jp1

nice white

jp

Good white fox

Figure : Comment on a post and user can delete its own comment



priyank chaudhari
Bob Frapples
Mario Speedwagon
Petey Cruiser
Paul Molive
Paige Turner

Figure : Finding Friends on application

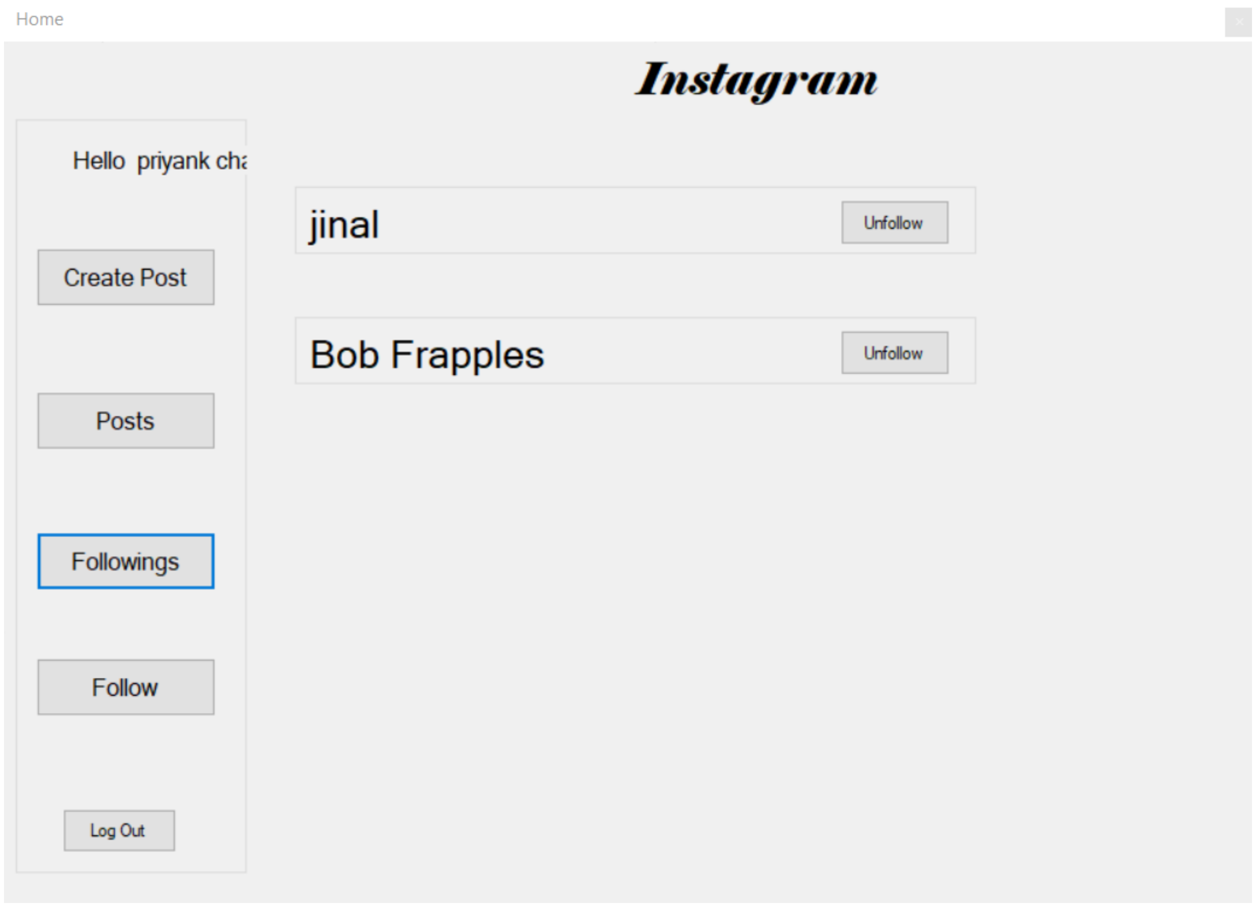


Figure : Friends you follow

Conclusion

We successfully created Instagram replica service which follows principal of service oriented architecture. We tested our application using windows form application. We learned benefits of Service Oriented Architecture. We learned how to divide task to different service and get benefited from that.

We learned in which condition we should use service oriented architecture and in which condition we should not.

Limitation and Future Extension

Limitations:

- While creating this project we created post which are already hosted on internet. We are not storing image at server side. Because we don’t know how to pass images using soap which is xml and there is only one way to communicate with service is soap.

Future Extension:

- Maintaining who has given likes and comments.
- Use multiple database for scalability. (e.g. Store user data in one database and use this database via user service and userfollow service, create other database for storing post data and use this database via post service and comment service.)
- Receive request only one service and redirect to particular service for fetching data after receiving data aggregate that and then give back to the user.

Bibliography

References:

https://stackoverflow.com/

https://www.youtube.com/

https://www.geeksforgeeks.org/

https://docs.microsoft.com/en-us/dotnet/

https://www.codeproject.com/

https://www.c-sharpcorner.com/