

Unified Modeling Language to Object Oriented Software Development

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Abstract—Application development is set of activity those results in software product. There are several approaches to design software applications. The approach presented in this paper is a Unified Modeling Language. UML is the standardized general purpose modeling language. Unified modeling language can be used with all processes throughout the software development life cycle. This paper presents an approach to transform the UML design in to a software application.

I. INTRODUCTION

UML is a standardized general purpose modeling language in the field of computer science and software engineering. The standard is managed and, was created by the object management group.

UML diagrams represent two different views of a system model [1]

- 1) Static (or structural) view: Emphasizes the static structure of the system using objects, attributes, operations and relationships. The structural view includes class diagrams and composite structure diagrams.
- 2) Dynamic (or behavioral) view: Emphasizes the dynamic behavior of the system by showing collaborations among objects and changes to the internal states of objects. This view includes sequence diagrams, activity diagrams and state machine diagrams.

UML aims to be a standard modeling language which can model concurrent and distributed systems. UML is a de facto industry standard, and is evolving under the auspices of the Object Management Group (OMG). OMG initially called for information on object-oriented methodologies that might create a rigorous software modeling language. Many industry leaders have responded in earnest to help create the UML standard. [2]

UML models may be automatically transformed to other representations (e.g. Java) by means of QVT-like transformation languages, supported by the OMG. UML is extensible, offering the following mechanisms for customization: profiles and stereotype. The semantics of extension by profiles have been improved with the UML 2.0 major revision.

UML combines best techniques from data modeling (entity relationship diagrams), business modeling (work flows), object modeling, and component modeling. It can be used with all processes, throughout the software development life

cycle, and across different implementation technologies. [2]

II. CAR WORLD SYSTEM

I design a webpage using UML modeling language and C#.net. Where I provide complete information to the user where they can get all the information about cars and where they can sell their cars. Book their car online find information about the car. Check the feature of different cars download new wallpapers and video clips of new cars.



Figure 1. Car World Application

III. PROJECT DETAILS

A. Main feature

1) Advertisements Section

I will going to provide a platform to the user where they can sell their cars by uploading their cars picture and details. (Only members will be allowed to post their ads on the site)

2) Car details

This section will provide the information of the new model (available in Pakistan) Their price, exterior, interior, photo and their other details.

3) Customer Care

This section will provide Car leasing plan of different banks (using leasing plan calculator). All the user can book there new car online and can get the information about sale and services centers.

4) Wallpaper/Video Clips

This section will provide the wallpapers and video clips of

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different cars. The user can also upload the clips and wallpapers.

5) Members/Login

New user can register on the site and exiting user can login the side using this function.

IV. USE CASE

The section contain the system use cases

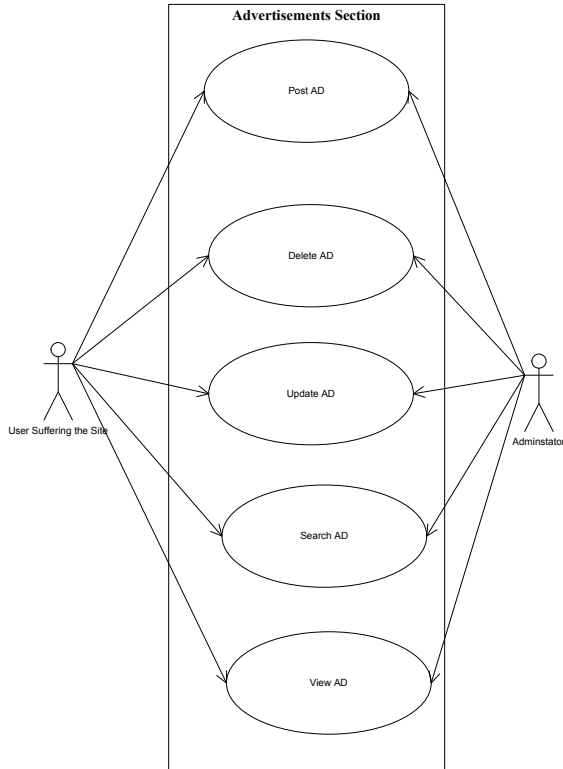


Figure 2. Advertisements Section Use Cases

The above fig describes the main use cases of the car world. User surfing the net visit the car world site. And click on the Advertisement button on the site. And now the users have to login the site by providing the user name and password. User can only log on this section if he/she has a login name or password if he doesn't have the user id and password he/she can't logon the site. If user is already the member of the site the user can logon the site by providing the password and user Id. And can access the information for which the user is authenticated. If user is not the member of the site he/she will have to register first on the site and then he/she can login this section because the Advertisement section of this side is only for the members.

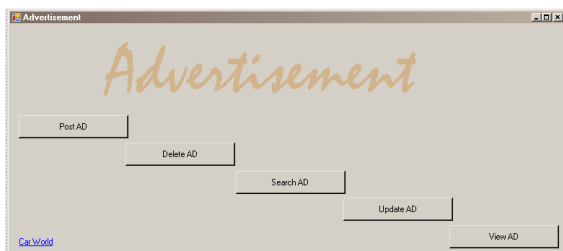


Figure 3. Implementation of Advertisement Use Cases in C#.net

```
public partial class Advertisement : Form
{
    //Constructor of Advertisement form
    public Advertisement()
    {
        InitializeComponent();
    }
    //Handle the click event
    private void button1_Click(object sender, EventArgs e)
    {
        // create and initialize a postAd object
        postAd post = new postAd();
        //show the form of postad
        post.Show();
    }

    //Handle the click event
    private void button5_Click(object sender, EventArgs e)
    {
        // create and initialize a view object
        view vie = new view();
        //show the form of view
        vie.Show();
    }

    //Handle the click event
    private void button4_Click(object sender, EventArgs e)
    {
        // create and initialize a update1 object
        Update1 rr = new Update1();
        //show the form of update1
        rr.Show();
    }

    //Handle the click event
    private void button2_Click(object sender, EventArgs e)
    {
        // create and initialize a Delete object
        Delete del = new Delete();
        //show the form of del
        del.Show();
    }

    //Handle the click event
    private void button3_Click(object sender, EventArgs e)
    {
        // create and initialize a searchAd object
        SearchAd ser = new SearchAd();
        //show the form of searchad
        ser.Show();
    }
}
} //end of Advertisement class
} //end of namespace Oose.project.Final
```

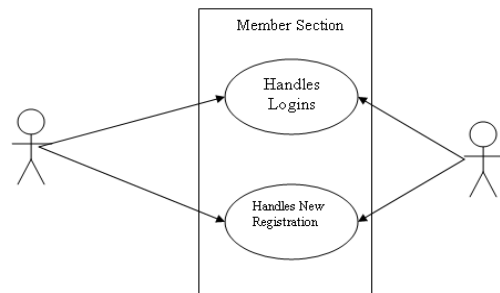


Figure 4. Member Section Use Cases

A. Handles New Registration

This use case provide the user to register on the site so that he/she can access all the facilities available on the site. Form many section of the site the user name and the password is required and the user can only get it if he/she has login. This new registration authenticates the user and the user can use all the function on the site. The user can register by providing some of it bio data information like name, father name date of

birth contract information electronic identification and many other information. This all information is stored in the data base and can be accessed and change any time when the user required it. This is also an important system of site.

B. Handles Login

User wants to access all system features. Users have to login the site by providing the user name and password. User can only log on this section if he/she has a login name or password if he doesn't have the user id and password he/she can't logon the site. If user is already the member of the site the user can logon the site by providing the password and user Id. And can access the information for which the user is authenticated. If user is not the member of the site he/she will have to register first on the site and then he/she can login this section because the Advertisement section of this side is only for the members.



Figure 5. Implementation of Authentication Use Cases In C#.net

```
public partial class Memberlogin : Form
{
    public Memberlogin()
    {
        InitializeComponent();
    }
    private void button2_Click(object sender, EventArgs e)
    {
        Loginform objh = new Loginform();
        objh.Show();
    }
    private void button1_Click(object sender, EventArgs e)
    {
        Registration1 reg = new Registration1();
        reg.Show();
    }
}
//end of class Memberlogin
//end of Oose.project.Final
```

V. DATA FLOW DIAGRAM

DFD provides no information about the timing or ordering of processes, or about whether processes will operate in sequence or in parallel. It is therefore quite different from a flowchart, which shows the flow of control through an algorithm, allowing a reader to determine what operations will be performed, in what order, and under what circumstances, but not what kinds of data will be input to and output from the system, nor where the data will come from and go to, nor where the data will be stored

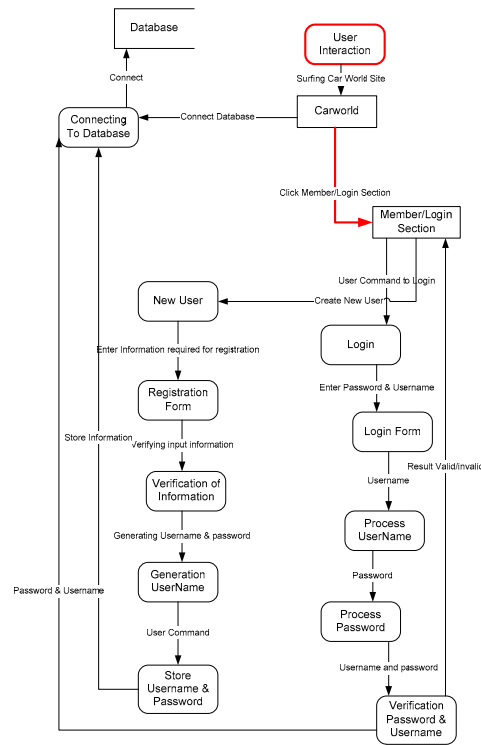


Figure 6. Dataflow Diagram of User Interaction

VI. ACTIVITY DIAGRAM

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control.

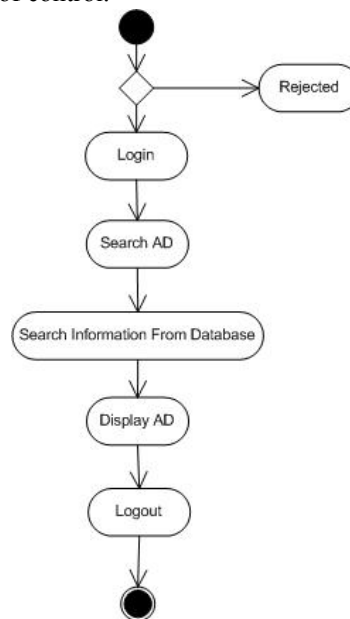


Figure 7. Searching User Ads Activity

The user wants to search the Ad on the site of the car world. Before search the Ad the user will have to login to the site before updating the Ad on the car world site. To login the user will have to provide the user name of user id and

password with out password or login name the user cant login the site if the user have provide the correct information the view Ad case will be activated. The user can search the by entering car company name, price or by providing other things if the required Ad is searched the out will be displayed to the user if the required Ad is not searched the condition loop will be active and the program will again pop up for the user to give correct detail or will simply say that the Ad was no found. Instead that the user keep on check all the Ad which he required or not and the large amount of the time of the user is wasted in surfing the information which is irreverent or is not required for the user.

name and password. When the user name and password is enter by the user. The database is access and the password is verified. This is the simple function of the new registration process.



Figure 8. Search ads Form in C#.net

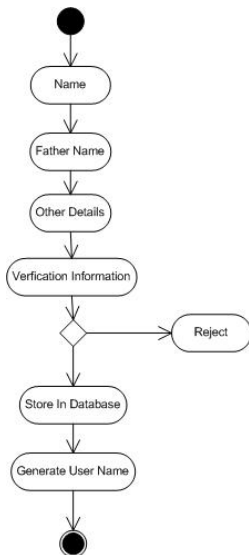


Figure 9. New Registration Activity diagram

If the user want to login the user have to provide the detail relation to it like the name, father name, email and many other function if he/she want to become the members of the site but if the information provide by the user is incorrect the user will have to re enter the information. If the information is valid the information will be stored in the database and the data base register the user now whenever the user enters the site he/she can access all the feature of the site by enter is user

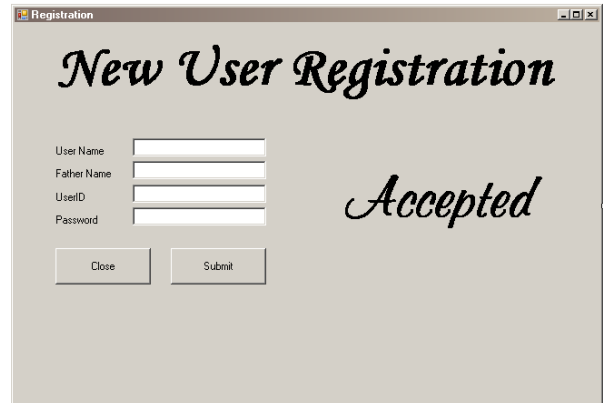


Figure 10. New Registration Form

VII. STATE CHART

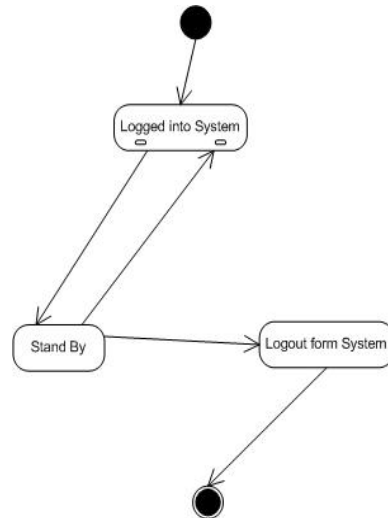


Figure 11. User Login State chart

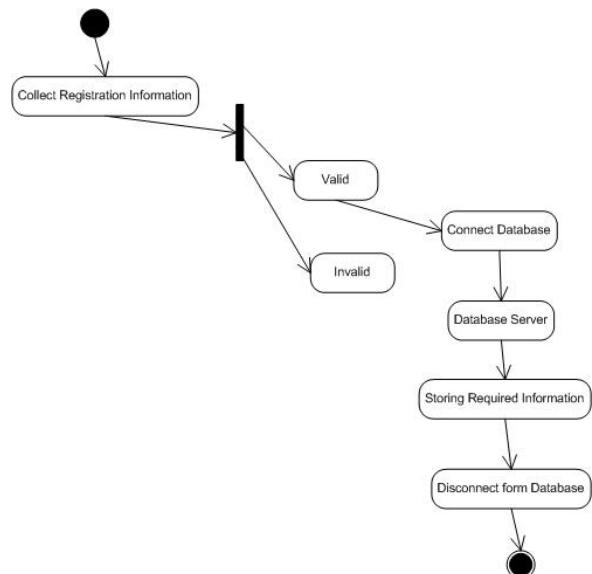


Figure 12. New Registration Activity Diagram

VIII. CONCLUSION

The main goal of the paper is to show that how a UML design can be converted in to software application. I have considered different diagram of the UML system and show how these diagram can be converted to the software application.

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Qasim Siddique received his undergraduate degree from Foundation University, Pakistan in 2010. He worked on the implementation of the Early Warning and Alerting System for Forest Fires (EWAFF) as part of his undergraduate Final Year Project. He has interests in multi-agent systems, Wireless Sensor Networks and in general Artificial Intelligence