Summer Training Report
On
COMPLAINT & GRIEVENCES REGISTRATION AND MANAGEMENT SYSTEM

Submitted In Partial Fulfillment of Summer Internship For The Award Of The Degree Of

Bachelor of Technology
In
Computer Science Engineering

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DECLARATION

TO WHOMSOEVER IT MAY CONCERN

I, **Sarthak Jain**, Enrollment No. **09214802716**, a student of **Bachelor Of Technology** (**CSE**), **batch 2016-2020**, **Maharaja Agrasen Institute Of Technology**, **Delhi** hereby declare that the summer internship project entitled,**RWA Complaint Management System** " in partial fulfillment for the award of Degree of "Bachelor of Technology" in Department of **Computer Science Engineering** of "**Maharaja Agrasen Institute of Technology**" affiliated to "**Guru Gobind Singh Indraprastha University**" is a record of my own investigations.

I have not submitted the matter presented in this report anywhere for the award of any other Degree.

Name: SARTHAK JAIN

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Acknowledgement

The ability to help and patience to exercise diligence and provide support is a quality Admonished by very few. Any job in this world, however trivial or tough cannot be accomplished without the assistance of the others. It is my pleasure to be indebted to various People who directly or indirectly contributed in the development of this report and who influenced my thinking, behavior and acts during the period of training.

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First and foremost I would like to thanks Mr. Pradeep Mehra (Director, IT), Mr. Sandeep Srivastava (Deputy Director, IT) and Mr. T.P Singh (Assistant Director, IT) for providing unwavering support and opportunity to work in this organization.

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I am also grateful to other IT staff that has been a constant source of inspiration, knowledge and motivation.Finally, yet importantly, I would like to express my heartfelt thanks to my beloved parents and teachers for their blessings, help and wishes for the successful completion of this report.

Sarthak Jain
B.Tech. (CSE), 3rd year
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PREFACE

RWA Complaint Management System in a Radio Colony is a project that evolved from an idea to help the resident. The residents of Radio Colony, Kingsway Camp can a make an online complaint through our website. Here, the complaint are classified as Civil and Electrical . These different categories of complaint deals by two separate hierarchy of officers viz JE(E), AE(E),etc for electrical complaints and same for civil.

The residents can even see the status of their complaint which incorporates a transparency and time efficiency in a system. With the help of this website you can see which authority is dealing with your complaint and the file flow with remarks given by respective officers

RWA Complaint Management System in layman terms is a website created using Microsoft Visual Studio and SQL Server, consisting of multiple web pages that can be accessed and allows the user to connect to other residents of their colony

RWA Complaint Management System is a continuously evolving project. For this reason, we realize the need of having a strongly secured database, a website immune to any unethical cyber-attacks.

Chapter 1: COMPANY PROFILE

IT DIVISION, Directorate General: All India Radio

All India Radio (AIR), officially known since 1956 as Akashvani (literally, "Voice from the Sky"), is the national public radio broadcaster of India and a division of Prasar Bharati. Established in 1930, it is the sister service of Prasar Bharati's Doordarshan, the national public television broadcaster. AIR has covered more than 99% of the Indian Population as per the latest information given by Minister of Information and Broadcast. All India Radio is one of the largest radio networks in the world. Its headquarters is at the Akashvani Bhawan in New Delhi. Akashvani Bhawan houses the Drama Section, the FM Section and the National Service. Doordarshan Kendra (Delhi) offices are also located on the sixth floor at Akashvani Bhawan.

Organisation

The Prasar Bharati Board functions at the apex level ensuring formulation and implementation of the policies of the organization and fulfillment of the mandate in terms of the Prasar Bharati Act, 1990. The Executive Member functions as the Chief Executive Officer (CEO) of the Corporation. Officers from different streams working in the Prasar Bharati Secretariat assist the CEO, Member (Finance) and Member (Personnel) in integrating actions, operations, plans and policy implementation as well as look after the budget, accounts and general financial matters of the Corporation.Prasar Bharati Marketing offices located at Mumbai, New Delhi, Kolkata, Chennai, Bangalore, Thiruvananthapuram, Kochi, Hyderabad, Guwahati and Jallandhar; look after the marketing activities of both All India Radio and Doordarshan.

Prasar Bharati also has a unified vigilance set up at the headquarters, headed by a Chief Vigilance Officer.The Director General heads the Directorate of All India Radio.

ALL INDIA RADIO

Director General, All India Radio is responsible for the overall administration of the entire Akashvani network consisting of 277 stations and 432 broadcast transmitters (148 are MW (Medium Wave), 236 FM (Frequency Modulation) and 48 SW (Short Wave) transmitters as on 31.03.2012), which provide coverage to 99% of the population spread over the country.

PROGRAMME WING

The Director General is assisted by Additional Directors General (ADG's) in the Headquarters and in the regions. The Headquarters of the Regional ADG's are at Bhubaneshwar (ER-I), Kolkata (ER-II), Mumbai (WR-I,WR-II), Lucknow (CR-I), Bhopal (CR-II), Guwahati (NER-I), Aizwal (NER-II), Chennai (SR-I), Bangalore (SR-II), Chandigarh (NR-I), Delhi (NR-II).

ENGINEERING WING

In respect of technical matters the Director General is assisted by the Engineer-in-Chief and Additional Directors General(E) in the headquarters and the Zones. In addition there is a Planning and Development Unit in the Headquarters in respect of Development Plan Schemes of All India Radio.

ADMINISTRATIVE WING

Additional Director General (Administration) and a Deputy Director General(Administration & Finance) assists the Director General on matters of administration and finance, while Additional Directors General (Programme) assists DG in administration of Programme personnel. A Director looks after the Engineering Administration of All India Radio.

SECURITY WING

The security set up comprises of a Deputy Director General (Security), Assistant Director General (Security) and a Deputy Director (Security). They handle matters of the security and safety of AIR installations, transmitters, studios, offices etc. The Security needs of Doordarshan are also looked after by these officers.

AUDIENCE RESEARCH WING

The Director Audience Research heads the Unit of Audience Research in the Directorate. Surveys to gauge listening habits and programme preferences for effective programme planning at various stations of All India Radio are handled by field units under the supervision of the Directorate.

ACTIVITIES OF OTHER OFFICES OF AIR

NEWS SERVICES DIVISION

The News Services Division works round the clock and broadcasts over 647 news bulletins both in the home and in external services. The bulletins are in Indian and Foreign languages. It is headed by Director General News Service. There are 44 regional News Units.

EXTERNAL SERVICES DIVISION

The External Services Division of All India Radio broadcasts in 27 languages – 16 foreign and 11 Indian languages. These services are radiated for an aggregate duration of 72 hours daily and are projected to over 100 countries.

TRANSCRIPTION & PROGRAMME EXCHANGE SERVICE

This service looks after exchange of programmes among the stations, building and maintenance of sound archives and commercial release of prestigious recordings of music maestros.

RESEARCH DEPARTMENT

The functions of the Research Department include Research and Development of equipment required by AIR and Doordarshan, investigation and studies relating to AIR and Doordarshan, development of Prototype models of R&D equipment for limited use field trials in the network of AIR and Doordarshan.

CENTRAL STORE OFFICE

The Central Stores Office located at New Delhi performs functions relating to procurement, stocking and distribution of engineering stores required for the maintenance of technical equipment at All India Radio Stations.

STAFF TRAINING INSTITUTE (PROGRAMME)

The Staff Training Institute (Programme) started in 1948. It has two main branches functioning from Kingsway Camp Delhi and Bhubaneshwar. They impart in-service training to Programme Personnel and Administrative Staff, induction course for the newly recruited staff and short duration refreshment courses. It also conducts examinations for administrative staff. In addition, at present five Regional Training Institutes at Hyderabad, Shillong, Lucknow, Ahmedabad and Thiruvananthapuram are working.

STAFF TRAINING INSTITUTE (TECHNICAL)

The Staff Training Institute (Technical), part of the Directorate since 1985, now functions at Kingsway Camp, Delhi. The Institute organizes Training Courses for the engineering staff of All India Radio and Doordarshan from the level of Technician to the Superintending Engineer.

Three-tier Broadcasting System

AIR has a three-tier system of broadcasting. These three levels of programmes are the National, Regional and Local each having distinct audiences.

National programmes are broadcast from Delhi for relay by the Capital, Regional and Local Radio Stations. Some of these are the National Programme of Talks and Features in Hindi and English, the National Programmes of Drama and Music.

The **National** Channel of All India Radio located in Delhi broadcasts programmes which are heard on Medium Wave and also on Short Wave.Broadcasting in Hindi, Urdu and English.

The **Regional** Stations in different States form the middle tier of broadcasting. They originate programmes in the regional languages and dialects. Regional Channels are located in the major linguistic-cultural region of every state. 116 Regional Channels

Local Radio is relatively a newer concept of broadcasting in India. Local radio stations serve small communities, showcase local culture and broadcast area specific programmes for the benefit of the community.

AIR Broadcast Coverage ***(as per installed capacity)***		
	By Area (%)	**By Population (%)**
By Primary Grade Signal (MW+FM)	**92.00%**	**99.20%**
By FM Signal only	**39.00%**	**52.00%**
By MW Signal only	**90.65%**	**98.40%**

Chapter 2

Field and Technology

1.1 Introduction to the technology used:

1.1.1 HTML (HYPER-TEXT MARK-UP LANGUAGE)

Fig 2.1 HTML

HTML is a fairly simple language made up of elements, which can be applied to pieces of text to give them different meaning in a document, structure a document into logical sections and embed content such as images and videos into a page.

What is an html File?

HTML is a format that tells a computer how to display a web page. The documents themselves are plain text files with special "tags" or codes that a web browser uses to interpret and display information on your computer screen.

- • HTML stands for Hyper Text Markup Language
- • An HTML file is a text file containing small markup tags
- • The markup tags tell the Web browser how to display the page
- • An HTML file must have an htm or html file extension

1.2 CASCADING STYLE SHEET (CSS)

Fig 2.2 CSS

One of HTML's main jobs is to give text meaning (also known as **semantics**), so that the browser knows how to display it correctly. This article looks at how to use HTML to break a block of text up into a structure of headings and paragraphs, add emphasis/importance to words, create lists, and more.

HTML was not primarily about displaying those documents with lots of formatting. Most fundamental to HTML was the simple a tag. It gave a document the means to link to another document. Suddenly 15-page documents were reduced (mercifully) to 15 one-page documents, all linked together

CSS is an abbreviation for Cascading Style Sheets. CSS works with HTML and other Markup Languages (such as XHTML and XML) to control the way the content is presented. Cascading Style Sheets is a means to separate the appearance of a webpage from the content of a webpage. CSS is a recommendation of the World Wide Web Consortium (the W3C). The W3C is a consortium of web stakeholders: universities, companies such as Microsoft, Netscape and Macromedia, and experts in many web related fields. The presentation is specified by styles, which are presented in a style sheet.

CSS in its most basic form works exactly like this. Instead of using tags over and over again to control little sections of your page, you can establish some rules to apply globally, to a single page or all the pages on your site. CSS is a great time saver.

Benefits of CSS

- • Improves Website Presentation
- • Makes Updates Easier and Smoother
- • Helps Web Pages Load Faster
- • Increases download speed (compacts the file size by reducing HTML clutter)

Limitations

- • Browser Dependent

The only major limitation of CSS is that its performance depends largely on browser support. Besides compatibility, all browsers (and their many versions) function differently. So your CSS needs to account for all these variations

- • Difficult to retrofit in old websites

The instinctive reaction after learning the many advantages of CSS is to integrate it into your existing website. Sadly, this isn't a simple process. CSS style sheets, especially the latest versions, have to be integrated into the HTML code at the ground level and must also be compatible with HTML versions. Retrofitting CSS into older websites is a slow tedious process.

Fig 2.3 HTML & CSS

ASP.NET:-

Fig: 2.4 ASP.NET

ASP.NET is an open-source server-side Web application framework designed for Web development to produce dynamic web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, web application and web services.

It was first released in January 2002 with version 1.0 of the .NET framework, and is the successor to Microsoft's Active Server Pages (ASP) technology. ASP.NET is built on the Common Language Runtime (CLR), allowing programmers to write ASP.NET code using any supported .NET language. The ASP.NET SOAP extension framework allows ASP.NET components to process SOAP messages.

ASP.NET consists of .NET framework on which code is written. Recently ASP.NET MVC is going on which is a web application framework developed by Microsoft, which implements the Model-View-Controller (MVC) pattern. It is open-source software, apart from the ASP.NET Web forms component which is proprietary

1.1.1Features of ASP.NET:

Microsoft ASP.NET contains many extended features. Few of them are listed below:

Code Behind Model: Microsoft recommends dealing with dynamic program code by using the code-behind model, which places this code in a separate file or in a designated script tag.
User Controls: User controls are encapsulations of sections of pages which are registered and used as controls in ASP.NET, org.etc.

Rendering Techniques: It uses "visited composites" rendering technique. During compilation, the template (.aspx) file is compiled into initialization code which builds a control free representing the original template. That code is combined with user-written code & results in a class specific for the page.

State Management: .NET applications are hosted by web server and are accessed using the stateless HTTP protocol. It consists of Application, Session state, SQL server mode, State Server Mode. Application state is held by a collection of shared user-defined variables. Sever side Session State is held by a collection of user-defined session variables that are persistent during a user session.

1.1.2. Architecture:

ASP.NET has extended into multiple code frameworks including Web Forms, MVC, Web pages, Web API and Signal. Now we can develop our websites using Web forms, MVC, or Web pages or service provided by Web API or Signal

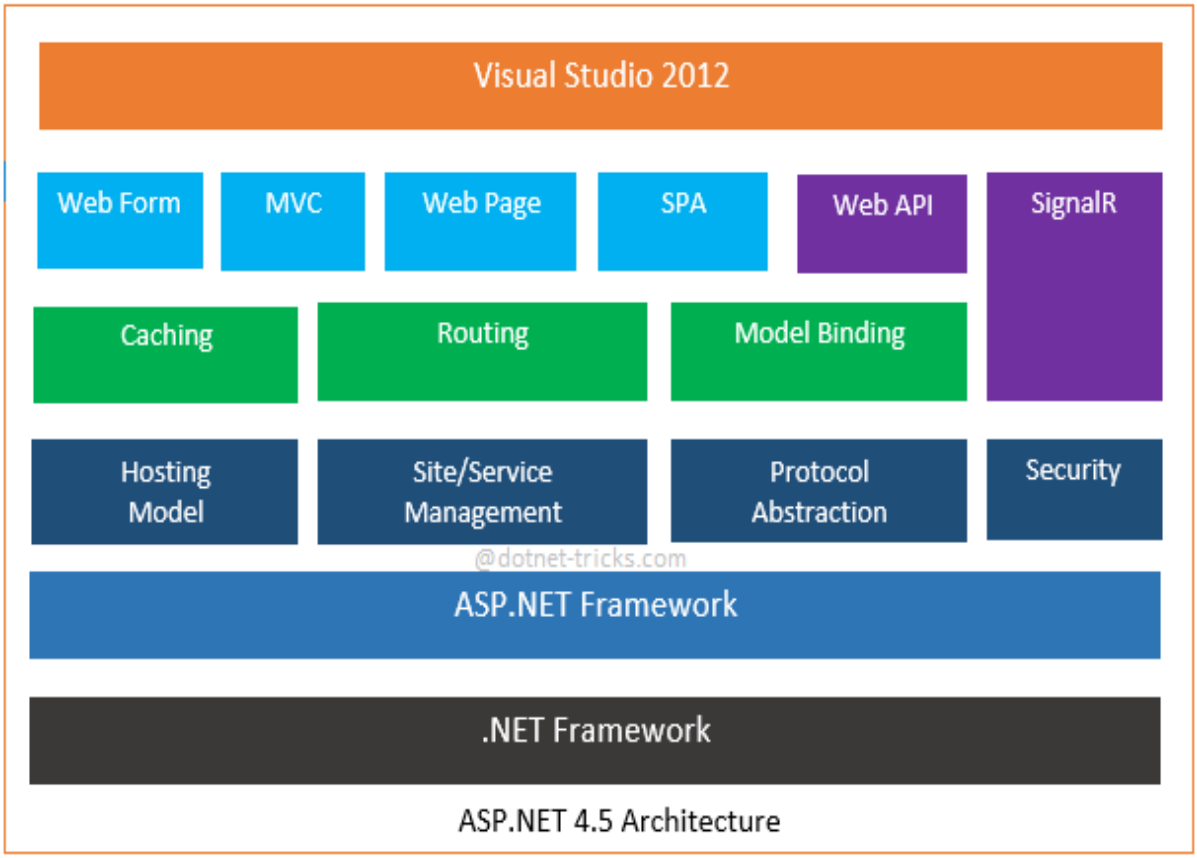


Fig: 2.5 Architecture of ASP.NET

1.1.3. ASP.NET Class Libraries:

Windows SDK class library includes a subset of namespaces that allow us to create ASP.NET Websites, components & controls. Below section describe key namespaces for ASP.NET development.

System. Web:

Contains classes & interfaces that enable browser/server communication. This namespace provides classes for managing HTTP output to the client.

System. Web. UI:

Contains classes for creating web form pages, including the Page class & other standard classes used to create web User Interfaces.

System. Web. UI. Html Controls:

Contains classes for HTML specific controls that can be added to web forms to create Web user interfaces.

System. Web. UI. Web Controls. Web Parts:

Contains an integrated set of classes & interfaces for creating Web pages whose appearance & behavior can be modified by end users.

System. Configuration:

Provides classes & interfaces that allow to programmatically access.

System. Web. Configuration:

Contain classes used to setup ASP.NET Configuration.

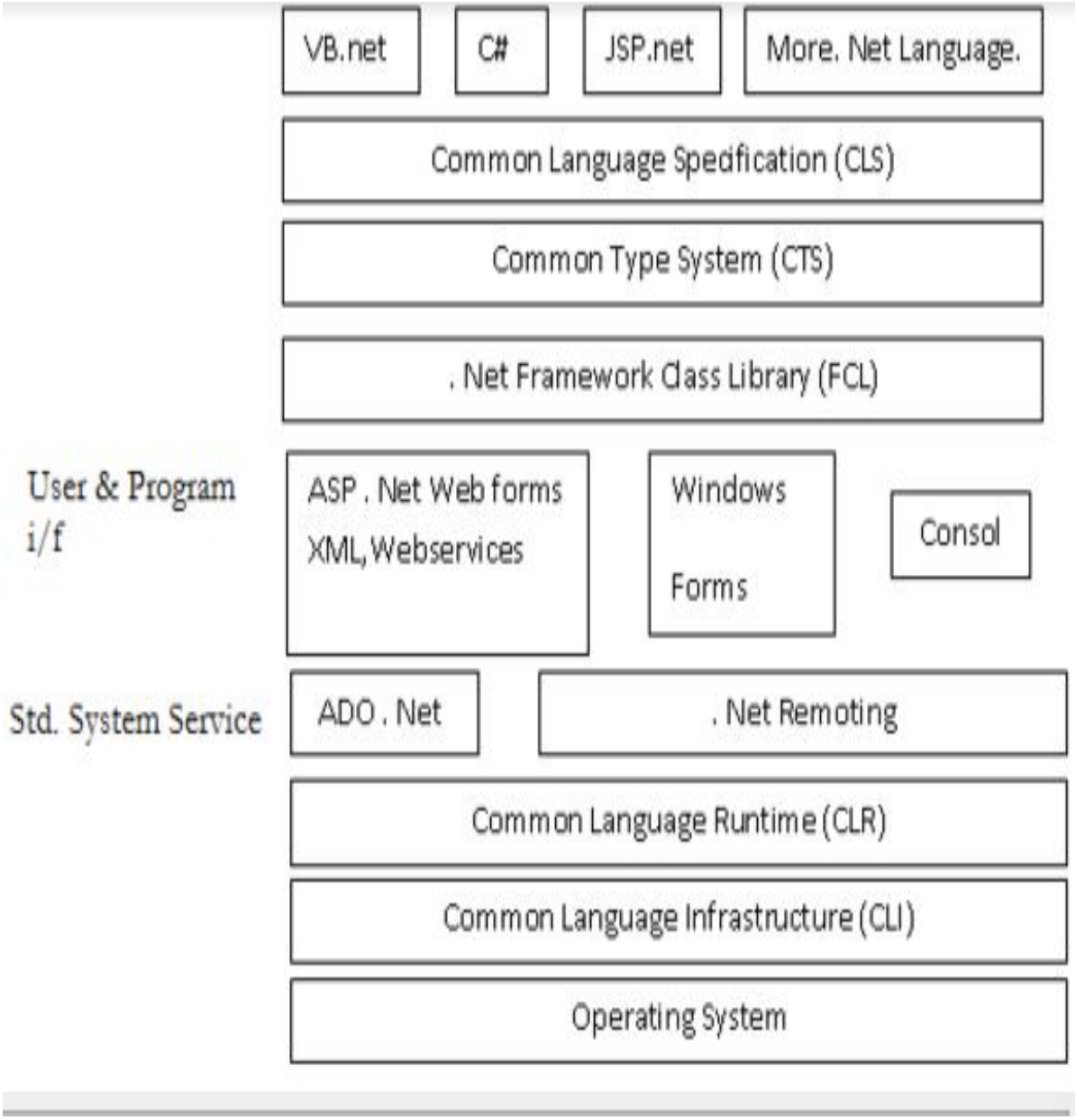


Fig: 2.6 Architecture of ASP.NET

The ASP.NET MVC is a web application framework developed by Microsoft, which implements the model–view–controller (MVC) pattern. It is open-source software, apart from the ASP.NET Web Forms component which is proprietary.

Based on ASP.NET, ASP.NET MVC allows software developers to build a web application as a composition of three roles: Model, View and Controller. The MVC model defines web applications with 3 logic layers:

- Model (business layer)
- View (display layer)
- Controller (input control)

A model represents the state of a particular aspect of the application. A controller handles interactions and updates the model to reflect a change in state of the application, and then passes information to the view. A view accepts necessary information from the controller and renders a user interface to display that information.In April 2009, the ASP.NET MVC source code was released under the Microsoft Public License (MS-PL).

"ASP.NET MVC framework is a lightweight[7], highly testable presentation framework that is integrated with existing ASP.NET features. Some of these integrated features are master pages and membership-based authentication. The MVC framework is defined in the System.Web.Mvc assembly."

The ASP.NET MVC framework couples the models, views, and controllers using interface-based contracts, thereby allowing each component to be tested independently.

Model–view–controller

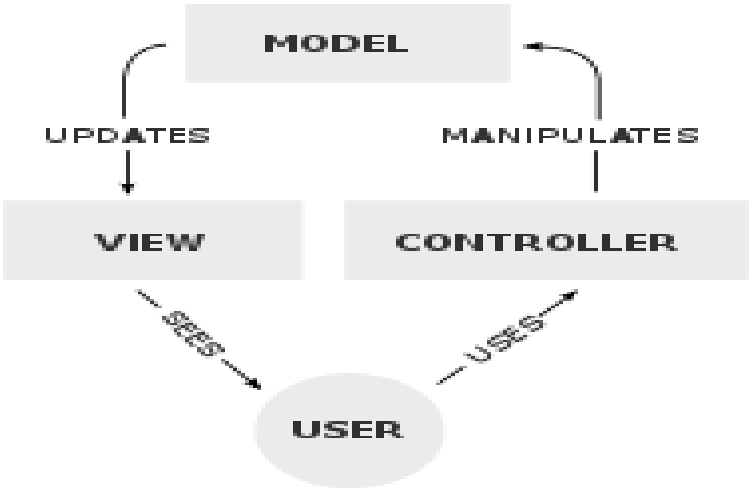


Fig: 2.7 MVC

Model–view–controller is an architectural pattern commonly used for developing user interfaces that divides an application into three interconnected parts. This is done to separate internal representations of information from the ways information is presented to and accepted from the user.The MVC design pattern decouples these major components allowing for efficient code reuse and parallel development.

Traditionally used for desktop graphical user interfaces (GUIs), this architecture has become popular for designing web applications and even mobile, desktop and other clients.Popular programming languages like Java, C#, Ruby, PHP have MVC frameworks that are used in web application development straight out of the box

Simultaneous development

Because MVC decouples the various components of an application, developers are able to work in parallel on different components without impacting or blocking one another. For example, a team might divide their developers between the front-end and the back-end. The back-end developers can design the structure of the data and how the user interacts with it without requiring the user interface to be completed. Conversely, the front-end developers are able to design and test the layout of the application prior to the data structure being available.

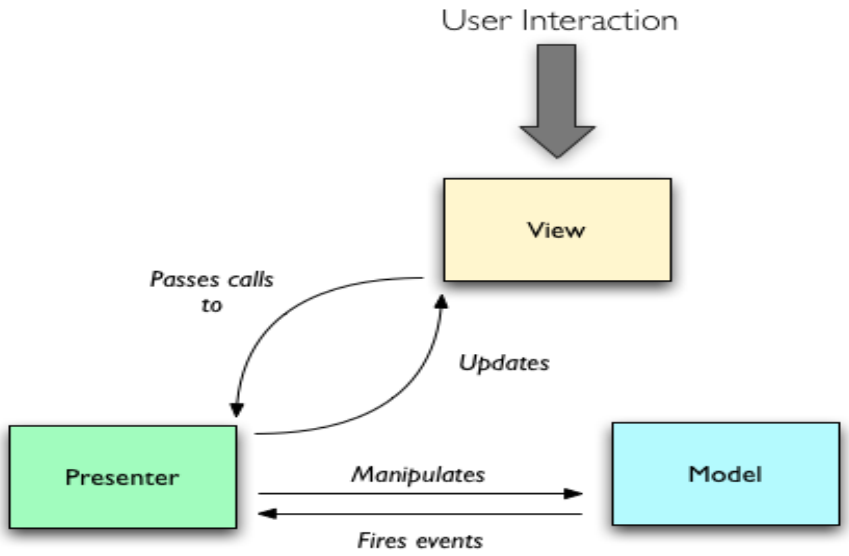


Fig: 2.8 MVC

Code reuse

By creating components that are independent of each other, developers are able to reuse components quickly and easily in other applications. The same (or similar) view for one application can be refactored for another application with different data because the view is simply handling how the data is being displayed to the user.

Model View Controller

Model view controller (MVC) is a very useful and popular design pattern. If you're writing software, you should know it. Unfortunately, it's also one of the hardest to truly understand. In this article I will provide what I think is the simplest explanation of MVC.

How MVC pattern works?

MVC patterns separate input, processing, and output of an application. This model divided into three interconnected parts called the model, the view, and the controller. All of the three above given components are built to handle some specific development aspects of any web or software application.

What is Model View Controller (MVC)?

In a typical application you will find these three fundamental parts:

- • Data (Model)
- • An interface to view and modify the data (View)
- • Operations that can be performed on the data (Controller)

Three levels of MVC Model:

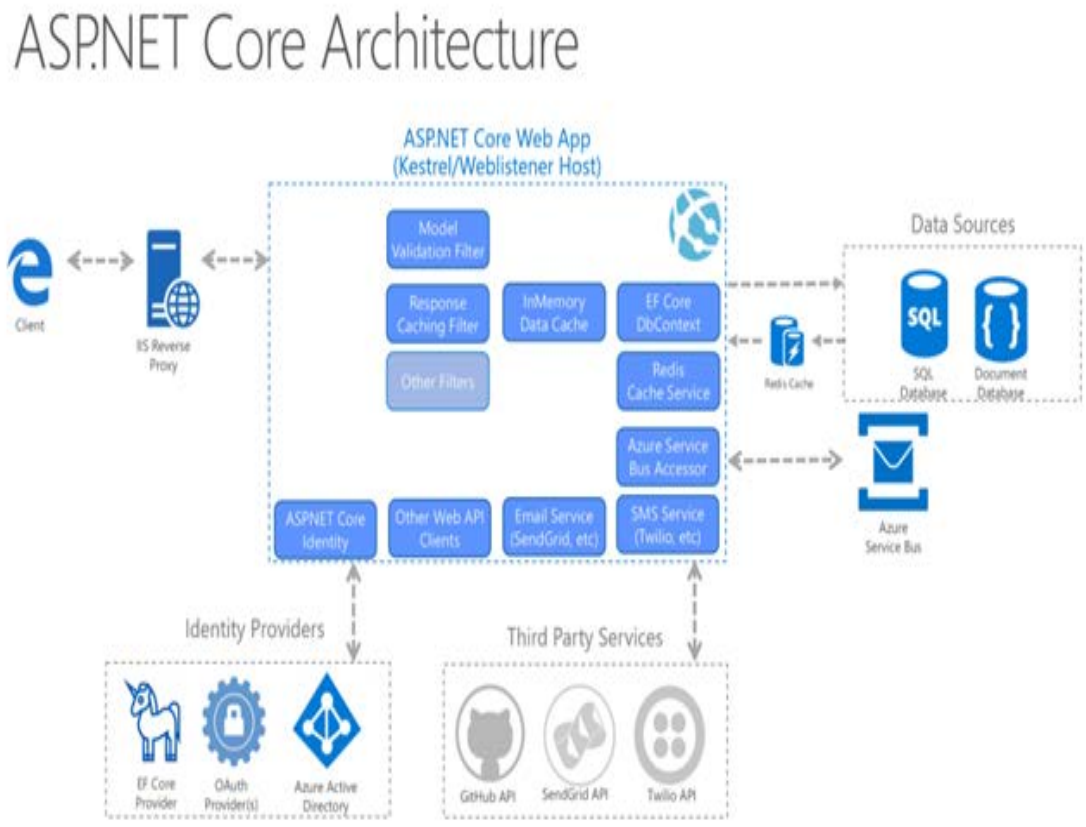


Fig: 2.9 Microsoft.NET Core Architecture

Model

This level is very important as it represents the data to the user. This level defines where the application's data objects are stored. The model doesn't know anything about views and controllers. So, whenever there are changes done in the model it will automatically notify observers that the changes are made. The model may be a single object or a structure of objects.

Views

A view is a visual representation of the MVC model. This level creates an interface to show the actual output to the user. However, a view will not display anything itself. It is the controller or model that tells view what to display to the user. It also handles requests from the user and informs controller. A view is connected to its model and gets the data necessary for the presentation by asking certain questions. Sometimes, it also updates the model by sending appropriate messages. All these questions and messages aresent back to the model in such an easy terminology that it can easily understand the information sent by model or a controller.

Controller

Controller is a level which acts like a brain of the entire MVC system. A controller also acts as a link between a user and the system. It provides the user with input by providing appropriate views to present it appropriately on the screen. The controller understands user output, converts it into the appropriate messages and passes the same to views.

Fig 2.10. MVC mode

Important advantages of MVC Model:

1. Faster development process:

MVC supports rapid and parallel development. If an MVC model is used to develop any particular web application then it is possible that one programmer can work on the view while the another can work on the controller to create business logic of the web application. Hence this way, the application developed using MVC model can be completed three times faster than applications that are developed using other development pattern.

2. Ability to provide multiple views:

In the MVC Model, you can create multiple views for a model. Today, there is an increasing demand for new ways to access your application and for that MVC development is certainly a great solution. Moreover, in this method, Code duplication is very limited because it separates data and business logic from the display.

3. Support for asynchronous technique:

The MVC architecture can also integrate with the JavaScript Framework. This means that MVC applications can be made to work even with PDF files, site-specific browsers, and also with desktop widgets. MVC also supports asynchronous technique, which helps developers to develop an application that loads very fast.

4. Modification does not affect the entire model:

It is obvious that you make frequent changes in your web application like changing colors, fonts, screen layouts, and adding new device support for mobile phones or tablets. Moreover, Adding new type of views are very easy in MVC pattern because the Model part does not depend on the views part. Therefore, any changes in the Model will not affect the entire architecture.

5. MVC model returns the data without formatting:

MVC pattern returns data without applying any formatting. Hence, the same components can be used and called for use with any interface. For example, any kind of data can be formatted with HTML, but it could also be formatted with Macromedia Flash or Dream viewer.

6. SEO friendly Development platform:

MVC platform supports development of SEO friendly web pages or web applications. Using this platform, it is very easy to develop SEO-friendly URLs to generate more visits from a specific application. This development architecture is commonly used in the Test-Driven Development applications. Moreover, Scripting languages like JavaScript and jQuery can be integrated with MVC to develop feature rich web applications.

Fig 2.11. Microsoft ASP.net components

5.1.1 Server Side

On the server side, what matters the most is the communication between the plugin and the database. The plugin should have functions for running different queries on the database, so it could respond to the client's requests which have been fully explained in the features and requirements chapter. There is usually a configuration table on the framework's database which contains the framework's configuration information. Examples of the data which this table could involve are the basic information, installed modules, current setting's information and a lot more.

A bunch of tables usually belong to categories and a group of tables contain information about different forms. These two groups of tables should be accessed during the “Browse forms”, “Review” and some more features. Another group contains the customer's information, these tables along with the previously mentioned groups should be accessed during the submission of the form and some more features.

Putting the tables in different categories does not necessarily mean that they will not have relation to the tables from another group; it just shows that the tables are more logically connected in a particular group and have more relations to each other as a result.

5.1.2 Client Side

The client must connect to the server side for making the connection and sending and getting the required data. These data should be stored in appropriate data structures and be used in shaping the user interface in the next step.

Each form is a different component containing class with functions which handle the flow of data from one form to the other. The data punched by the user is converted to the json string and it is further passed to the server side. This data is stored in the tables present in the database corresponding to each of the form.

The stringified data is also parsed to the various functions and dynamically on a button click gets populated to the tabular format (which is officially issued). In the table, the fresh records can be removed at the same time. While filing the form, the form is validated at the same time. If the punched data is deviated or different from the desired input, then the data flow is broken and it is not converted to json string until and unless the input is rectified.

Once the form is completely filed, the input given is available for the review to the user at the end of each form. The form can be later generated to the ‘pdf’ file for referencing it to the user for filing the same in the proper format on the official site to omit any mistakes.

ASP.NET Web Forms

Fig 2.12 C# and SQL Server

Microsoft SQL Server

Microsoft SQL Server is a relational database management system developed by Microsoft. As a database server, it is a software product with the primary function of storing and retrieving data as requested by other software applications which may run either on the same computer or on another computer across a network (including the Internet). Microsoft markets at least a dozen different editions of Microsoft SQL Server, aimed at different audiences and for workloads ranging from small single-machine applications to large Internet-facing applications with many concurrent users.

SQL Server 2012's new features and enhancements include Always On SQL Server Failover Cluster Instances and Availability Groups which provides a set of options to improve database availability, Contained Databases which simplify the moving of databases between instances, new and modified Dynamic Management Views and Functions, programmability enhancements including new spatial features, metadata discovery, sequence objects and the THROW statement,

performance enhancements such as Column Store Indexes as well as improvements to On Line and partition level operations and security enhancements including provisioning during setup, new permissions, improved role management, and default schema assignment for groups.

SQL (Structured Query Language):

Fig 2.13 SQL

SQL is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS), or for stream processing in a relational data stream management system (RDSMS). Originally based upon relational algebra and tuple relational calculus, SQL consists of a data definition language, data manipulation language, and a data control language. The scope of SQL includes data insert, query, update and delete, schema creation and modification, and data access control. Although SQL is often described as, and to a great extent is, a declarative language (4GL), it also includes procedural elements

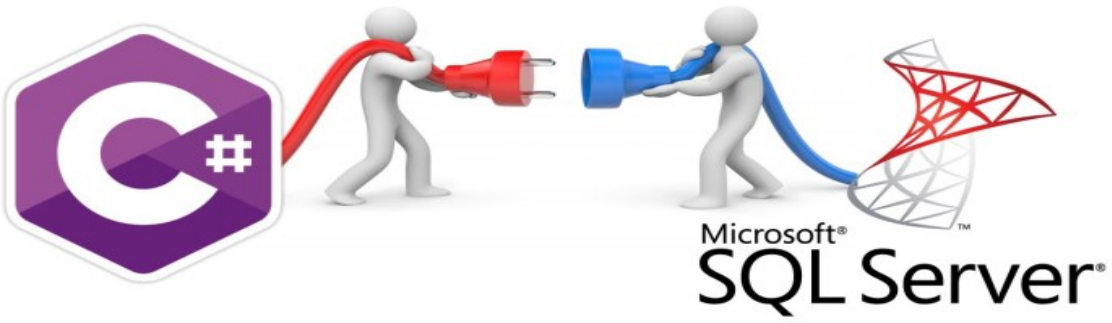


Fig 2.14 C# & SQL server

SQL was one of the first commercial languages for Edgar F. Codd's relational model, as described in his influential 1970 paper, "A Relational Model of Data for Large Shared Data Banks. Despite not entirely adhering to the relational model as described by Codd, it became the most widely used database language.

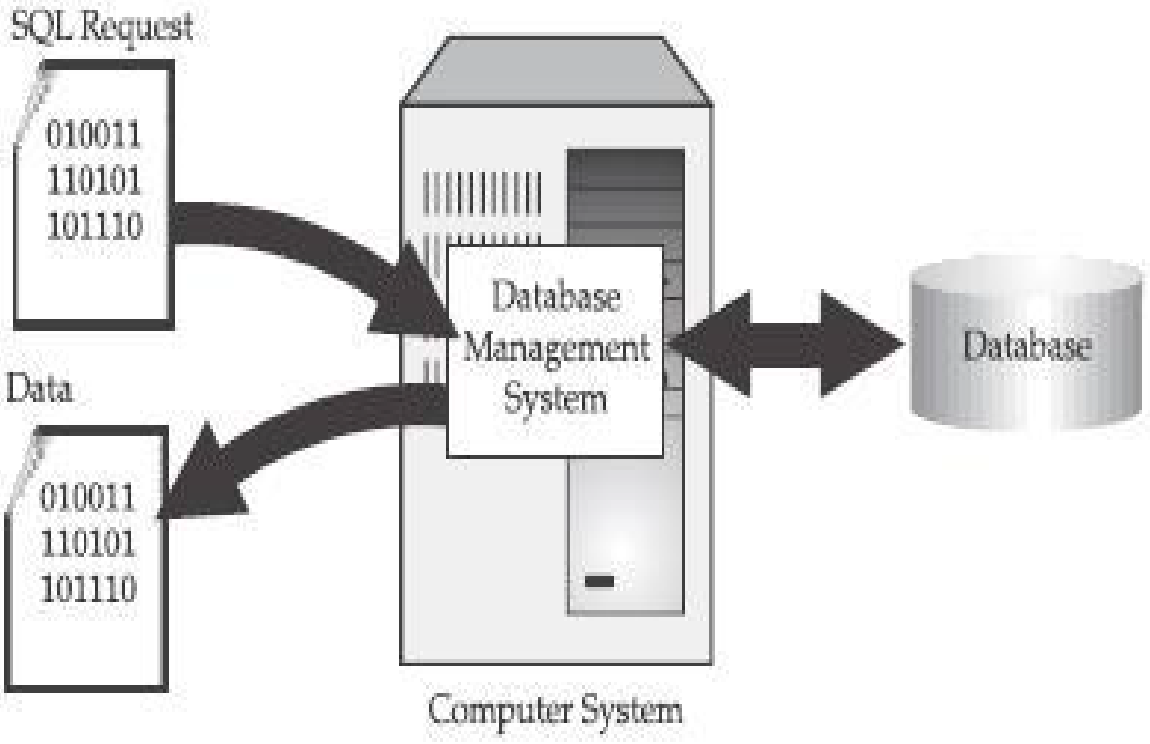


Fig 2.15 SQL Mechanism

The above diagram shows how data is retrieved from database system using SQL.
Using SQL commands we can retrieve any data from database management system.

C# (pronounced “C Sharp”)

Fig 2.16 Microsoft.NET

C# is a modern, general-purpose, object-oriented programming language developed by Microsoft and approved by European Computer Manufacturers Association (ECMA) and International Standards Organization (ISO).

C# was developed by Anders Hejlsberg and his team during the development of .Net Framework.

C# is designed for Common Language Infrastructure (CLI), which consists of the executable code and runtime environment that allows use of various high-level languages on different computer platforms and architectures.

The following reasons make C# a widely used professional language −

It is a modern, general-purpose programming language

It is object oriented.

It is component oriented.

It is easy to learn.

It is a structured language.

It produces efficient programs.

It can be compiled on a variety of computer platforms.

It is a part of .Net Framework.

Strong Programming Features of C#

Although C# constructs closely follow traditional high-level languages, C and C++ and being an object-oriented programming language. It has strong resemblance with Java, it has numerous strong programming features that make it endearing to a number of programmers worldwide.

Following is the list of few important features of C# −

Boolean Conditions

Automatic Garbage Collection

Standard Library

Assembly Versioning

Properties and Events

Delegates and Events Management

Easy-to-use Generics

Indexers

Conditional Compilation

Simple Multithreading

LINQ and Lambda Expressions

Integration with Windows

The .Net Framework

The .Net framework is a revolutionary platform that helps you to write the following types of applications −

Windows applications

Web applications

Web services

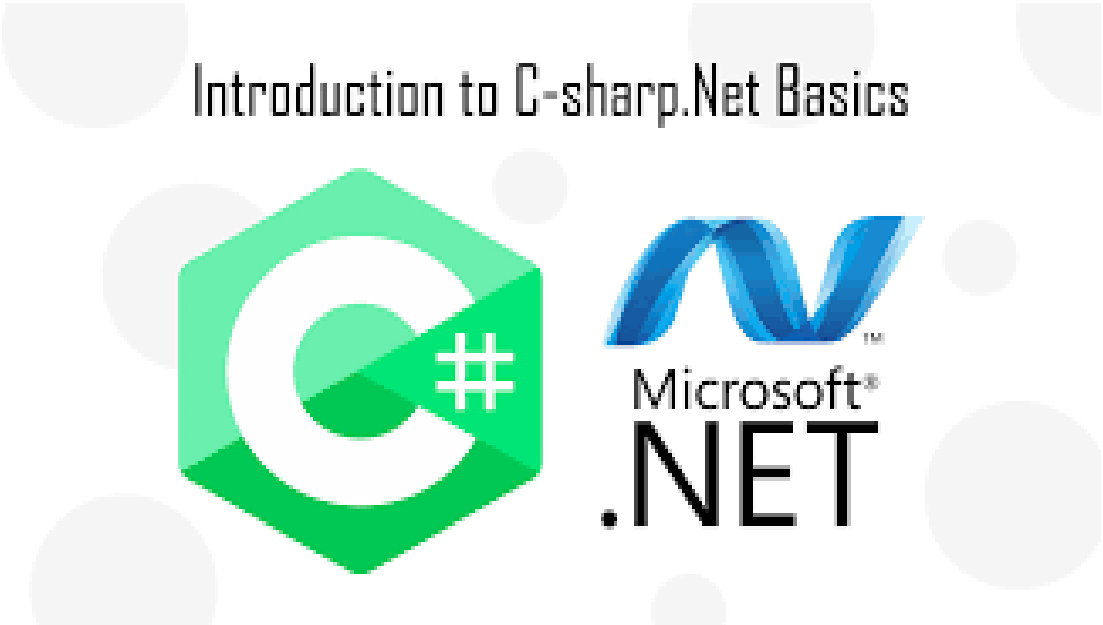


Fig: 2.17 ASP.net and C#

The .Net framework applications are multi-platform applications. The framework has been designed in such a way that it can be used from any of the following languages: C#, C++, Visual Basic, Jscript, COBOL, etc. All these languages can access the framework as well as communicate with each other.

The .Net framework consists of an enormous library of codes used by the client languages such as C#. Following are some of the components of the .Net framework −

Common Language Runtime (CLR)

The .Net Framework Class Library

Common Language Specification

Common Type System

Metadata and Assemblies

Windows Forms

ASP.Net and ASP.Net AJAX

Integrated Development Environment (IDE) for C#

Microsoft provides the following development tools for C# programming −

Visual Studio 2010 (VS)

Visual C# 2010 Express (VCE)

Visual Web Developer

The last two are freely available from Microsoft official website. Using these tools, you can write all kinds of C# programs from simple command-line applications to more complex applications. You can also write C# source code files using a basic text editor, like Notepad, and compile the code into assemblies using the command-line compiler, which is again a part of the .NET Framework.

Visual C# Express and Visual Web Developer Express edition are trimmed down versions of Visual Studio and has the same appearance. They retain most features of Visual Studio. In this tutorial, we have used Visual C# 2010 Express.

C# is one of many .NET programming languages. It is object-oriented and allows you to build reusable components for a wide variety of application types Microsoft introduced C# on June 26th, 2000 and it became a v1.0 product on Feb 13th 2002.

C# is an evolution of the C and C++ family of languages. However, it borrows features from other programming languages, such as Delphi and Java. If you look at the most basic syntax of both C# and Java, the code looks very similar, but then again, the code looks a lot like C++ too, which is intentional. Developers often ask questions about why C# supports certain features or works in a certain way. The answer is often rooted in it's C++ heritage. Recent language features, such as Language Integrated Query (LINQ) and Asynchronous Programming (Async) are not necessarily unique to C#, but do add to it's uniqueness.

An important point is that C# is a "managed" language, meaning that it requires the .NET Common Language Runtime (CLR) to execute. Essentially, as an application that is written in C# executes, the CLR is managing memory, performing garbage collection, handling exceptions, and providing many more services that you, as a developer, don't have to write code for. The C# compiler produces Intermediate Language (IL) , rather than machine language, and the CLR understands IL. When the CLR sees the IL, it Just-In-Time (JIT) compiles it, method by method, into compiled machine code in memory and executes it. As mentiond previously, the CLR manages the code as it executes.

Because C# requires the CLR, you must have the CLR installed on your system. All new Windows operating systems ship with a version of the CLR and it is available via Windows Update for older systems. The CLR is part of the .NET, so if you see updates for the .NET Framework Runtime, it contains the CLR and .NET Framework Class Library (FCL). It follows that if you copy your C# application to another machine, then that machine must have the CLR installed too.

Google Trends

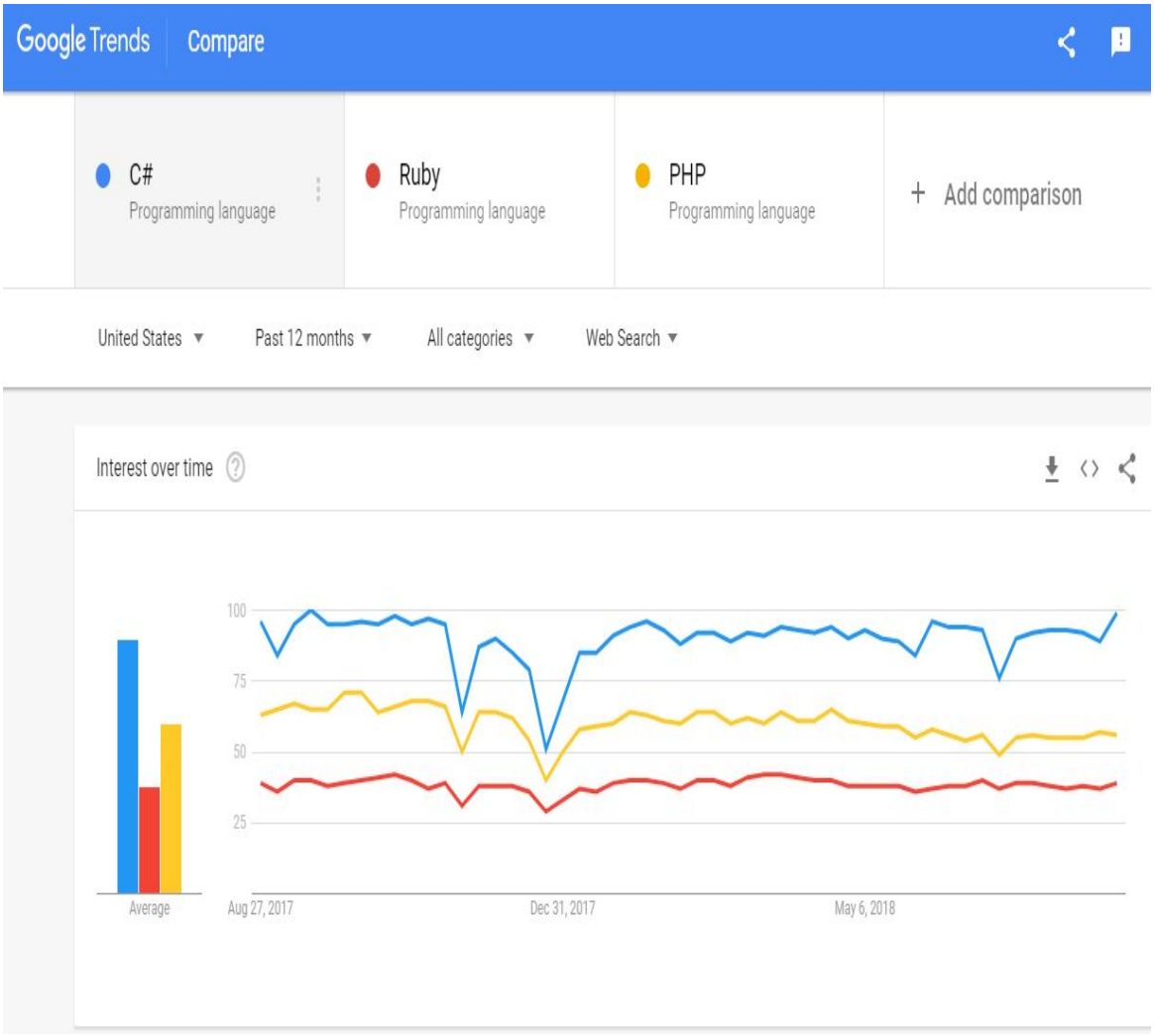


Fig 2.18 trends of computer languages

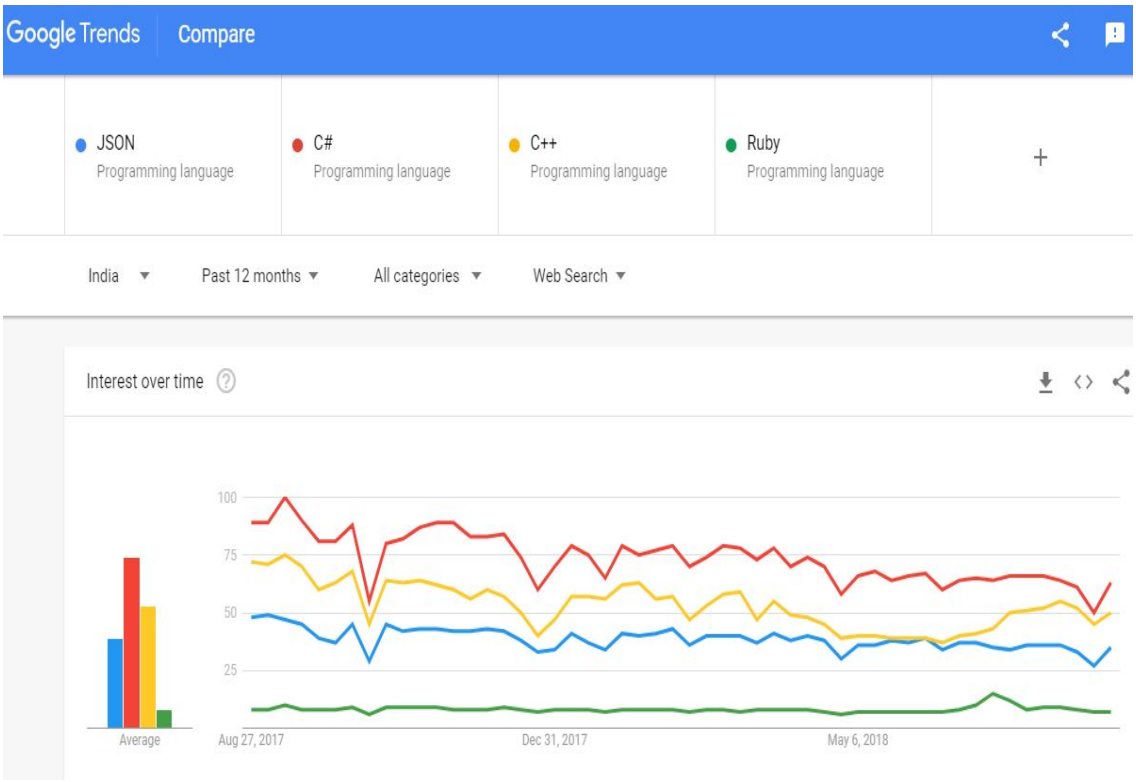


Fig 2.19 trends of computer languages

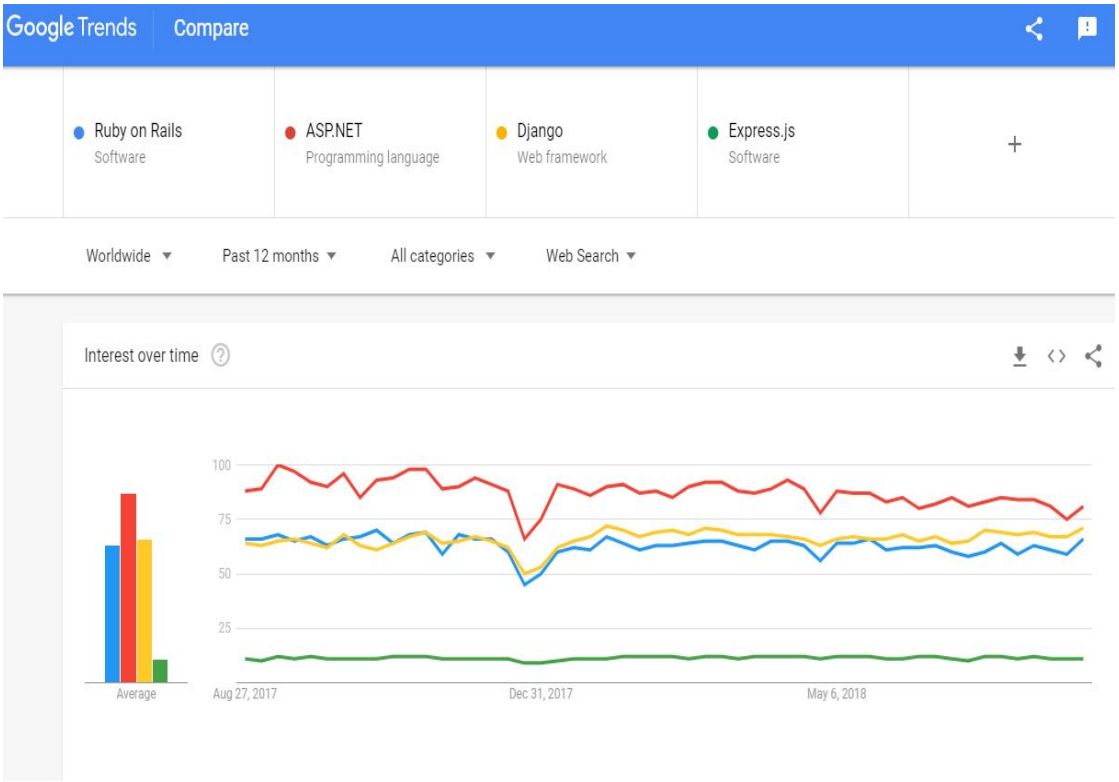


Fig 2.20 trends of computer languages

Chapter 3

(RWA COMPLAINT MANAGEMENT SYSTEM)

These days when everyone is engaged at work, there is no time to sit and relax and know more about the surrounding they are living in. People usually miss the activities happening around them in their society. So, to get an update of what happened all day, they can simply visit the RWA COMPLAINT MANAGEMENT SYSTEM website of their colony.

The resident can browse through the gallery and see new events coming up in the colony so he/she could schedule their days accordingly. RWA COMPLAINT MANAGEMENT SYSTEM is a basic website project, created in Microsoft Visual Studio 2013 with the help of ASP.NET (platform) and C# (language). RWA COMPLAINT MANAGEMENT SYSTEM is a fully independent website capable of hosting multiple web pages that provides member registration functionality, login functionality and many others.

There are multiple scripting languages in which web pages can be created. We worked on ASP.NET since ASP.NET is a basic implementation of the .NET Framework over variety of Internet services and the websites and they run on the same server. Majority of existing companies continue to use ASP.NET as it gives an individual greater independence and control over a variety of elements that make web pages. What made ASP.NET ideal for RWA COMPLAINT MANAGEMENT SYSTEM is the fact that ASP.NET is economical, provides higher scalability options and has provisions for inbuilt security features such as authorization and authentication along with a plethora of others.

RWA COMPLAINT MANAGEMENT SYSTEM is also aimed to be extremely user-friendly. The user interface has been designed to allow users to navigate swiftly, efficiently and easily from one page to another. To keep it clutter free, we have mentioned only the relevant details that concern the user. Currently the language of the user interface in which RWA COMPLAINT MANAGEMENT SYSTEM is made public will be in English. However we intend to provide RWA COMPLAINT MANAGEMENT SYSTEM in other languages so that colonies in every part of India wish to have a website representing their own RWA COMPLAINT MANAGEMENT SYSTEM.

Along with web page designing we focused on creation database design that comes in to the picture when a large number of activities and events will happen in the colony, which needs to be updated to the site. Database design is something that comes fundamentally in to the picture when

dealing with big data-dealing with large information updates, retrieval, modification and deletion. Hence RWA COMPLAINT MANAGEMENT SYSTEM incorporates best of both the worlds-webpage design along with database design to handle variety of constraints and demands.

1.1 Purpose

RWA COMPLAINT MANAGEMENT SYSTEM website is made to connect all the residents of the colony as one big family, these days when everyone is engaged at work, there is no time to sit and relax and know more about the surrounding they are living in. People usually miss the activities happening around them in their society. So, to get an update of what happened all day, they can simply visit the RWA COMPLAINT MANAGEMENT SYSTEM website of their colony.

The resident can browse through the gallery and see new events coming up in the colony so he/she could schedule their days accordingly. People can relive the moments by checking the gallery and can announce their big or small events on the website and invite others.

1.2 Scope

RWA COMPLAINT MANAGEMENT SYSTEM has been developed to provide the people involved with it to know about the day-to-day activities in their society. RWA COMPLAINT MANAGEMENT SYSTEM website has the following features:

1. RWA COMPLAINT MANAGEMENT SYSTEM provides the facility to add members to the group anytime.

2. RWA COMPLAINT MANAGEMENT SYSTEM provides admin with the option to check the designation of any member and change it if needed

3. RWA COMPLAINT MANAGEMENT SYSTEM allows members to upload relevant details of any event coming up.

4. In COMPLAINT MANAGEMENT, we also have a database that contains all the information of registered members like their name, address, designation, age, username and password for the account created. events and functions happening at colony.

5. We also have another database designed that stores the information about the

1.3 Definitions, Acronyms and Abbreviations

1. ASP-Active Server Pages:

Microsoft's Server side script engine for creating dynamic web page. These are frequently created and used in Microsoft Visual Studio.

2. ASPX- Active Server Page extended

.ASPX is the file extension for an ASP NET active server page. It's a web technology used on Microsoft servers running Internet Information Services and ASP NET. ASPX documents have code in them with regard to styling and other functionalities that you would like to see on your webpage.

3. .NET-Network Enabled Technologies

4. MSVS-Microsoft Visual Studio

5. SQL-Structured Query Language

a language for management of data in a relational structure,

6. CSS-Cascading Style Sheets

is a computer language that is used to write formatting instructions (rules). These rules tell a web browser how webpage content should look in terms of: layout. position, alignment, width, height, etc.

7. AJAX-Asynchronous Javascript and XML

is a client-side script that communicates to and from a server/database without the need for a post back or a complete page refresh. The best definition I've read for Ajax is "the method of exchanging data with a server, and updating parts of web page without reloading the entire page

8. HTTP-Hyper Text Transfer Protocol

is an application protocol for distributed, collaborative, hypermedia information systems. HTTP is the foundation of data communication for the World Wide Web. Hypertext is structured text that uses logical links (hyperlinks) between nodes containing text.

9. IDE-Integrated Development Environment

is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of a source code editor, build automation tools and a debugger.

10. IIS-Internet Information Service

is a group of Internet servers (including a Web or Hypertext Transfer Protocol server and a File Transfer Protocol server) with additional capabilities for Microsoft's Windows NT and Windows 2000 Server operating systems.

11. MVC-Model View Controller

is an architectural patter that separates an application into three main logical components: the model, the view, and the controller.

12. SDK-Software Development Kit

13. TCP-Transmission Control Protocol

is a core protocol of the Internet protocol suite. It originated in the initial network implementation in which it complemented the Internet Protocol (IP). Therefore, the entire suite is commonly referred to as TCP/IP.

14. WAP-Wireless Access Protocol

protocol that enables access to the intemet from mobile phones and PDAs.

15. XML-Extended Mark-up Language

is a markup language that defines a set of rules for encoding documents in format that is both human-readable and machine-readable.

2.1 Perspective on RWA COMPLAINT MANAGEMENT SYSTEM

RWA COMPLAINT MANAGEMENT SYSTEM has been created to connect the people and their activities so that everyone in the society shares a bond and are there for each other in times of need as a family.

2.2 RWA COMPLAINT MANAGEMENT SYSTEM FUNCTIONS

RWA COMPLAINT MANAGEMENT SYSTEM provides online real time information about the activities of the COMPLAINT MANAGEMENT. Depending on whether you want to avail or contribute to RWA COMPLAINT MANAGEMENT SYSTEM the work is done. The WebPages that have been involved in the construction of RWA COMPLAINT MANAGEMENT SYSTEM and various functionalities it provides at every stage to the user are:

All of the pages share some common attributes which will be discussed as follows. All of these pages were created in Microsoft Visual Studio 2017; each page has its two parts one page corresponds to the .aspx code and another to the .cs code.

The aspx file contains all the code relevant to designing of the webpage that is including tables, images, labels, textboxes and other dynamic functionalities. This page is perhaps a crucial element and one that requires a lot of hard work, diligence to work, maintain and keep updating.

.cs file contains code with respect to more sensitive functionalities-like when you click the submit button on the register page for submitting your entered information where will it redirect to? Many questions parallel to this are answered using this page. Any unnecessary changes here can hurt the file and the entire project.

Requirements:

- Windows OS XP or later, linus , macOS
- Easily accessible through URL

4.3.2 Hardware Requirements:

To run the Store Management System on Windows Device must have the following Hardware Specification.

- At least 1 GHz of processor
- 4GB of RAM(4 GB RAM recommended)
- i3 or i5 core processor
- 500 GB Hard Disk

Chapter 4: RWA COMPLAINT MANAGEMENT SYSTEM ANALYSIS

4.1 User Characteristics

The users of the system are contributors to RWA COMPLAINT MANAGEMENT SYSTEM as well as those who avail from RWA COMPLAINT MANAGEMENT SYSTEM, along with the administrators who maintain the system. The users and the administrators are assumed to have basic knowledge of the computers and Internet browsing. The administrators of the system not only need to have more knowledge of the internals of the system but have to be specialized with regard to working with queries in SQL, understanding typical complexities of a database and the nuances involved in updating, deletion and modification of data that happens in a database. They should also be capable of rectifying small problems that may arise due to disk crashes, power failures and other unwarranted incidents to keep the system up and running.

Apart from this, familiarity with ASP.NET and C# along with HTML are some languages that are prerequisite to fully understanding the code in which RWA COMPLAINT MANAGEMENT SYSTEM was written in. It is the foundational framework that keeps RWA COMPLAINT MANAGEMENT SYSTEM alive and will in the future. RWA COMPLAINT MANAGEMENT SYSTEM is in itself is self-sufficient that is the user does not need to install any software or any special drivers for its functioning. All what is needed is an internet browser with a good uninterrupted internet connection.

4.2 Constraints

4.2.1 The information of all the users must be stored in a database that is accessible by RWA COMPLAINT MANAGEMENT SYSTEM and its administrators.

4.2.2 RWA COMPLAINT MANAGEMENT SYSTEM in the future will be on public servers so that public which is connected to the internet can access it 24 hours a day and 7 days a week.

4.2.3 Authentication: The users must have their correct usernames and passwords to enter into RWA COMPLAINT MANAGEMENT SYSTEM. Without entering correct credentials, you will not be able to login to your RWA COMPLAINT MANAGEMENT SYSTEM account and will not be able to participate in contribution or avail tasks from RWA COMPLAINT MANAGEMENT SYSTEM

4.3 Assumptions and dependencies

1. The users involved with RWA COMPLAINT MANAGEMENT SYSTEM should have sufficient knowledge of computers.

2. The users must know English language, as the user interface will be provided in English

3. The RWA COMPLAINT MANAGEMENT SYSTEM can access the database that is constantly being updated by the contributors.

4. COMPLAINT MANAGEMENT SYSTEM may undergo maintenance sessions, in which case COMPLAINT MANAGEMENT SYSTEM may not be active i.e the site may not work. We do not take responsibility for any update of an event that may happen in that time.

4.4 Introduction:

System analysis is a process of the analyst understands of the application domain. The analysis interacts with the stakeholders in the system to discover their requirements and organizes them into clusters. If there are multiple stakeholders whose requirements conflicts, find and resolve such conflicts. Then prioritize the requirements and family validates them.

4.5 Data flow diagram:

Data flow diagram (DFD) is a way of expressing system requirements in a graphical form. A DFD has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design. So it is the starting point of the design phase that functionally decomposes the requirements down to the lowest level of details.

Data flow diagram is a logical model of a system. That model does not depend on the hardware, software data structures or file organization. It only shows the data flow between modules of entire system.

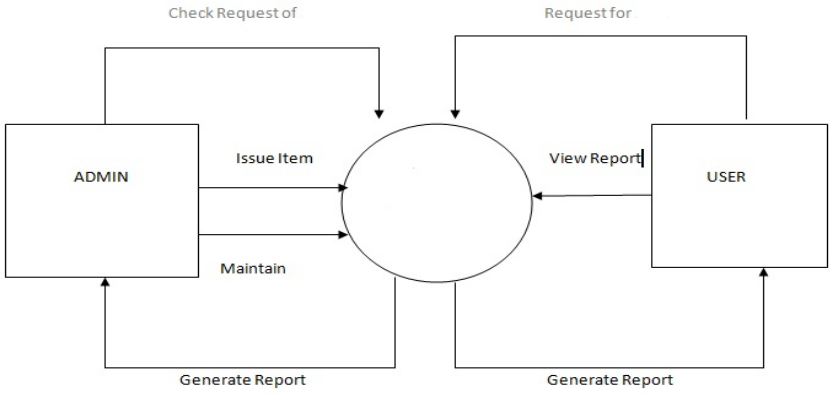


Fig 4.1 DFD

Entity Relationship Diagrams:

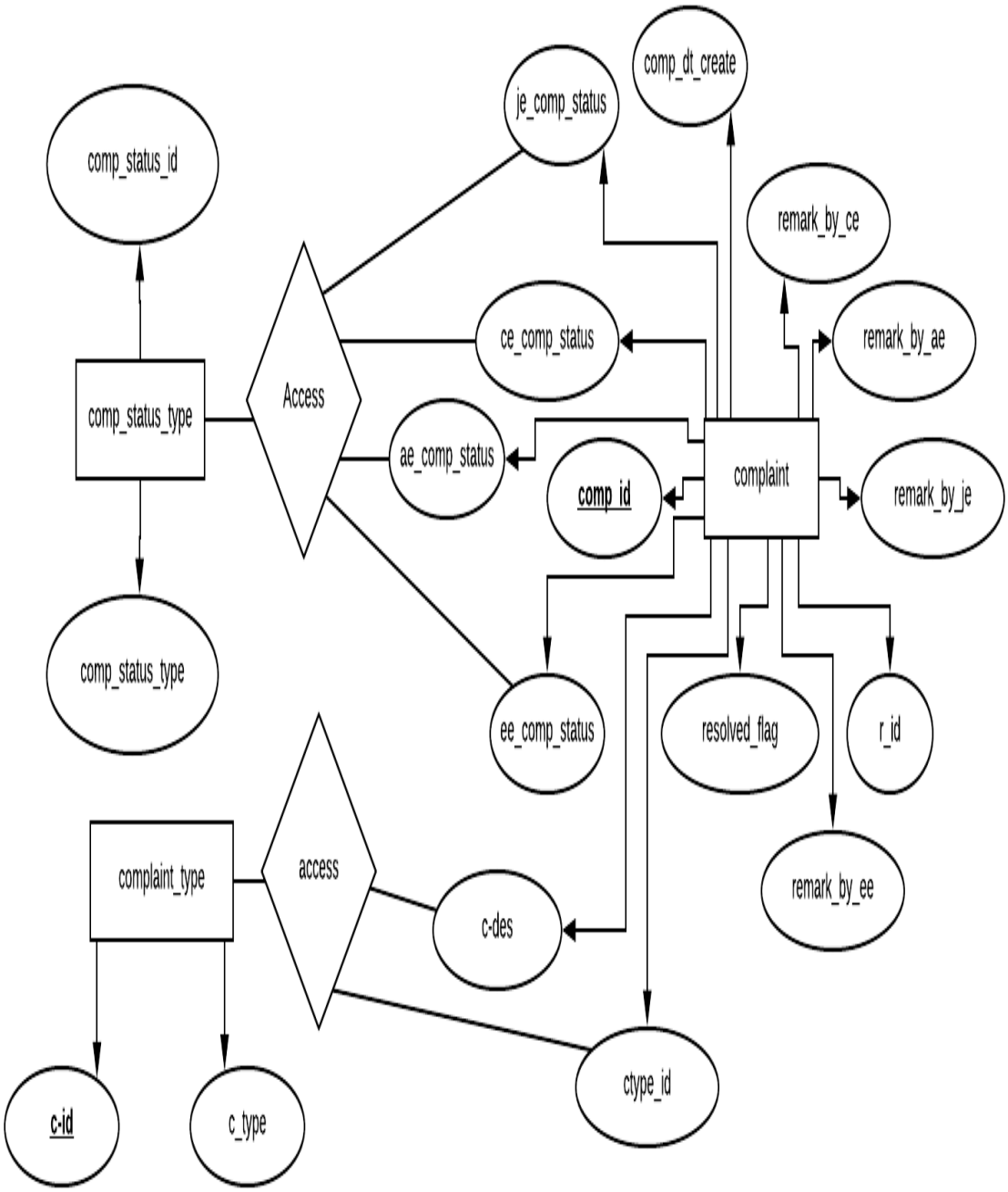


Fig 4.2 ER diagram

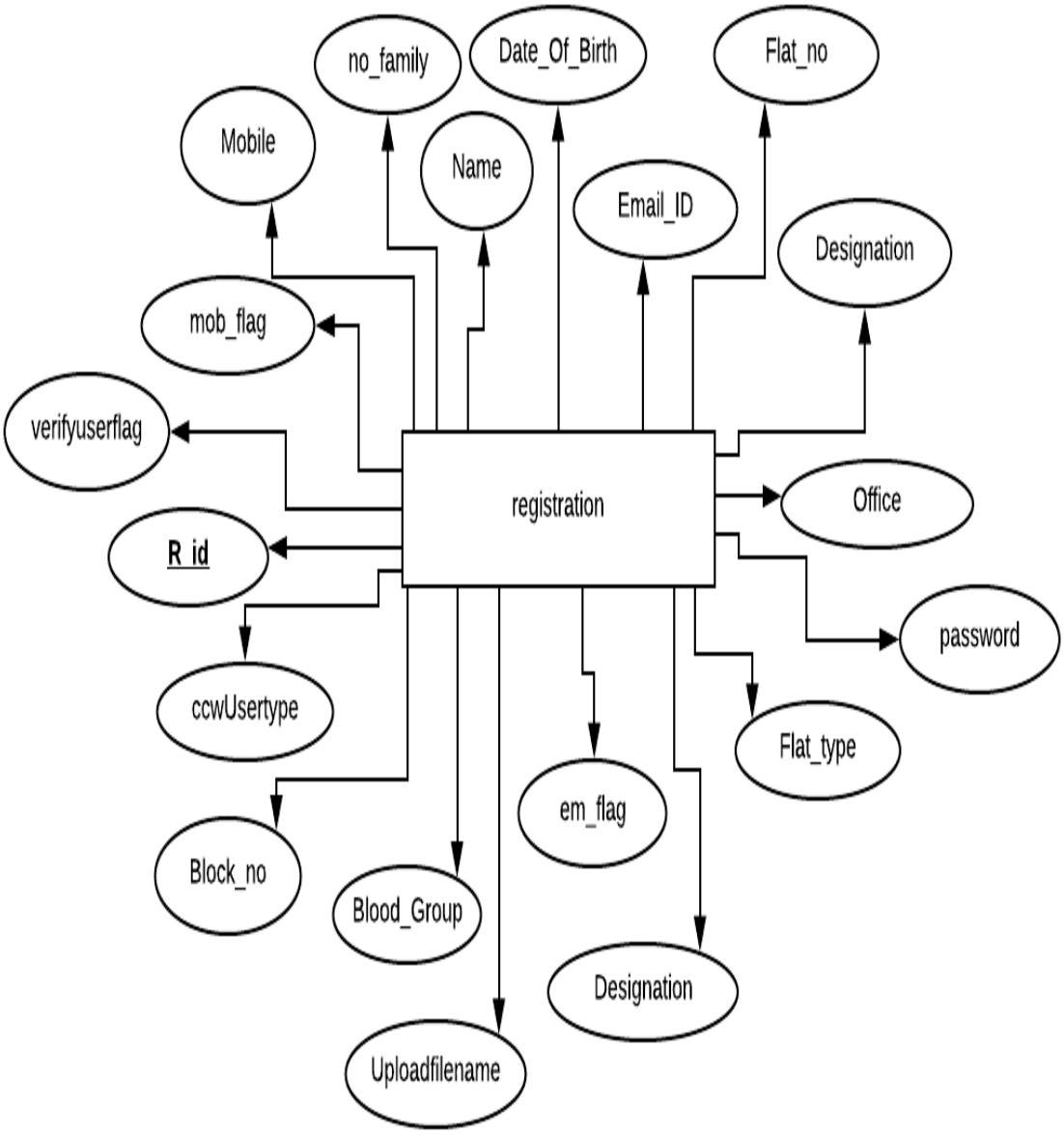


Fig 4.3 ER diagram

Chapter 5: Functional Provisions

This section describes in detail all the functional provisions that RWA COMPLAINT MANAGEMENT SYSTEM intends to provide to the concerned users.

5.1 Functionality

5.1.1 Login Capabilities

RWA COMPLAINT MANAGEMENT SYSTEM shall provide the users with login capabilities. User must enter his username and password that he made during the registration procedure.

5.1.2 Complaint page

The user at any time can change the relevant details he uploaded during registration period for factual accuracy.

5.1.3 Login Session

The users can logout after being active on the RWA COMPLAINT MANAGEMENT SYSTEM site for a specific duration of time. This is a security layer that can be helpful in several scenarios.

5.2 Usability

RWA COMPLAINT MANAGEMENT SYSTEM shall allow the users to access the system from the Internet using browser. RWA COMPLAINT MANAGEMENT SYSTEM has been created in Microsoft Visual Studio, where most of the code is written in ASP.NET and C#. RWA COMPLAINT MANAGEMENT SYSTEM uses a web browser as an interface. Since all concerned users are familiar with the general usage of browsers, no specific training is required. RWA COMPLAINT MANAGEMENT SYSTEM is user friendly and self-explanatory.

5.3 Reliability

RWA COMPLAINT MANAGEMENT SYSTEM intends to be independent and fault-tolerant. When it comes to cyber attacks and unethical hacking, we at RWA COMPLAINT MANAGEMENT SYSTEM aim to provide full proof cryptographic measures to counter such attacks and prevent them from happening in the first place.

Considering the amount of data that is being stored in our databases, keeping RWA COMPLAINT MANAGEMENT SYSTEM away from unauthentic users is our priority. People are also recommended from not making multiple accounts at RWA COMPLAINT MANAGEMENT SYSTEM a single individual must have only one account associated in his name,

5.3.1 Availability

RWA COMPLAINT MANAGEMENT SYSTEM is available 100% for the user and can be used 24 hours a day, 365 days a year. RWA COMPLAINT MANAGEMENT SYSTEM shall be operational 24 hours a day and 7 days a week. It will also be accessible from any part of India irrespective of the geographical terrain as long as access to computer and an uninterrupted internet connection is made available.

5.3.2 Mean Time Between Failures (MTBF)

The system will be developed in such a way that it may fail once in a year.

5.3.3 Mean Time to Repair (MTTR)

Even if the system fails, the system will be recovered back up within an hour or less.

5.3.4 Accuracy

The accuracy of the system is limited by the accuracy of the speed at which the employees of the library and users of the library use the system.

5.3.6 Access Reliability

The system shall provide 100% access reliability,

5.4 Performance

5.4.1 Response Time

Most of the WebPages in ASP.NET take an average to longer time to load than websites written in other languages. The response time is something that can however be controlled or reduced.

5.4.2 Administrator/Librarian Response

RWA COMPLAINT MANAGEMENT SYSTEM shall take as less time as possible to provide service to the concerned users involved.

5.4.3 Resource Utilization

The resources are modified according the user requirements and also according to the users who are contributing to RWA COMPLAINT MANAGEMENT SYSTEM or availing from RWA COMPLAINT MANAGEMENT SYSTEM.

5.5 Supportability

RWA COMPLAINT MANAGEMENT SYSTEM designers shall take in to considerations the following supportability and technical limitations.

5.4.1 Internet Protocols

The system shall be comply with the TCP/IP protocol standards and shall be designed accordingly.

5.4.2 Information Security Requirement

RWA COMPLAINT MANAGEMENT SYSTEM shall support its own protocol for information security requirements and will mention in future any standards of information security that we will comply and cooperate with same.

5.4.3 Maintenance

The maintenance of RWA COMPLAINT MANAGEMENT SYSTEM shall be done as per the maintenance contract.

5.4.4 Standards

The coding standards and naming conventions will be as per the American standards.

5.5 Design Constraints

5.5.1 Software Language Used

The languages that have been used for coding the RWA COMPLAINT MANAGEMENT SYSTEM are Active Server Pages (ASP), C#, along with some HTML, JavaScript, and VBScript. All of the work was done in Microsoft Visual Studio 2017. As far as database design is concerned, we used SQL Server 2017 for working on the coding phase of the RWA COMPLAINT MANAGEMENT SYSTEM.

5.6 Purchased Components

RWA COMPLAINT MANAGEMENT SYSTEM does not require any user as of now to purchase any thing for registering or accessing the RWA COMPLAINT MANAGEMENT SYSTEM website. Apart from a computer and an uninterrupted internet connection nothing more is required. You need to hire a web server and a sql server because these are now on the local host.

5.7 Interfaces

5.7.1 User Interfaces

Will make use of the existing Web Browsers such as Microsoft Internet Explorer, Google Chrome or Mozilla Firefox. The user interface of the system shall be designed as shown in the user interface prototypes.

5.7.2 Hardware Interfaces

In the near future, existing Local Area Network (LAN) will be used for collecting data from the users and also for updating various information databases relevant to RWA COMPLAINT MANAGEMENT SYSTEM

5.7.3 Software Interfaces

A firewall will be used with the server to prevent unauthorized access. In future we intend to have several cryptographic implementations that will also be enabled to provide greater level of security to RWA COMPLAINT MANAGEMENT SYSTEM and user’s information in general.

5.7.4 Communications Interfaces

In future, RWA COMPLAINT MANAGEMENT SYSTEM will be connected to the World Wide Web and made accessible to people in all international countries.

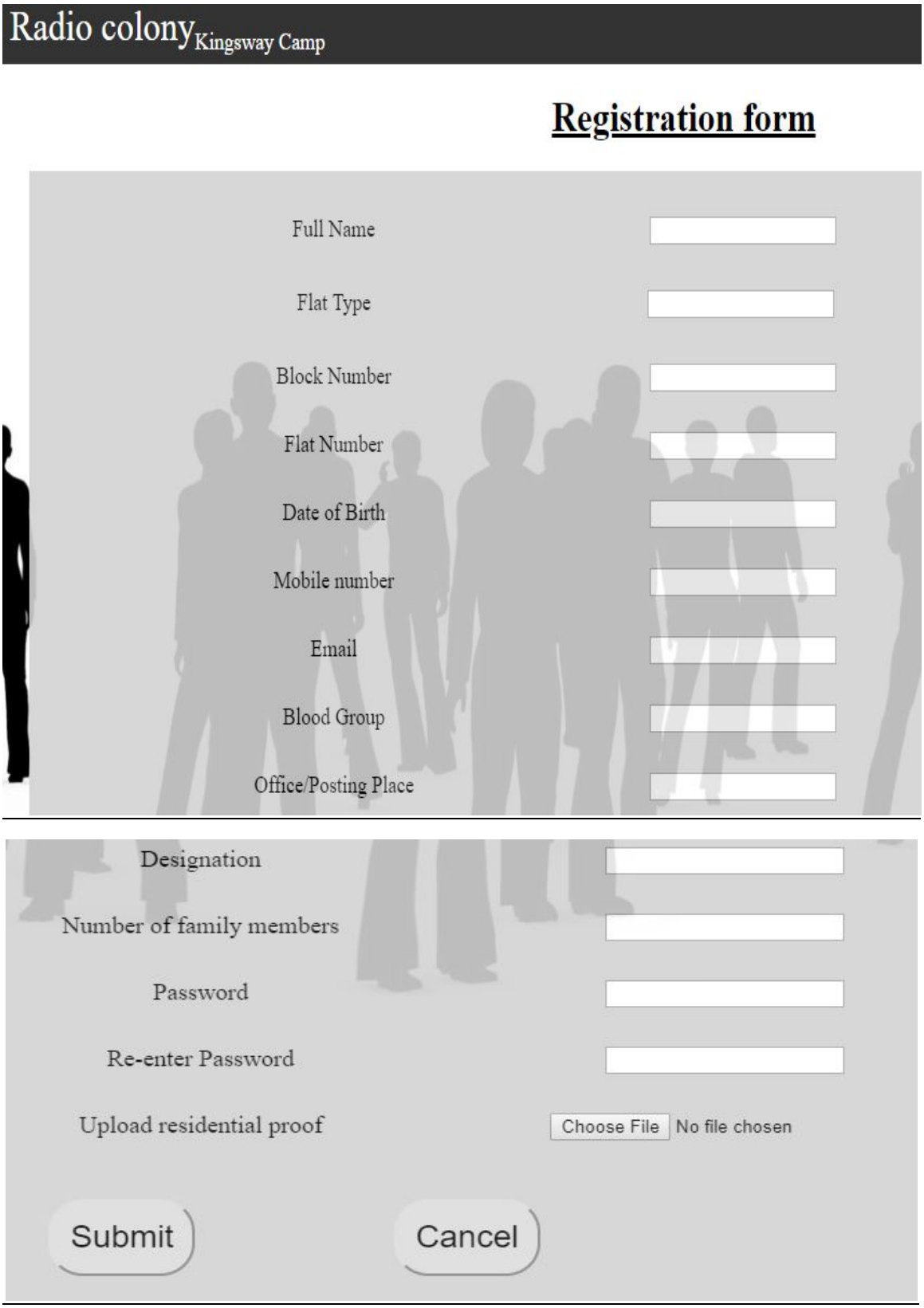
Chapter 6

RWA COMPLAINT MANAGEMENT SYSTEM

6.1 Home

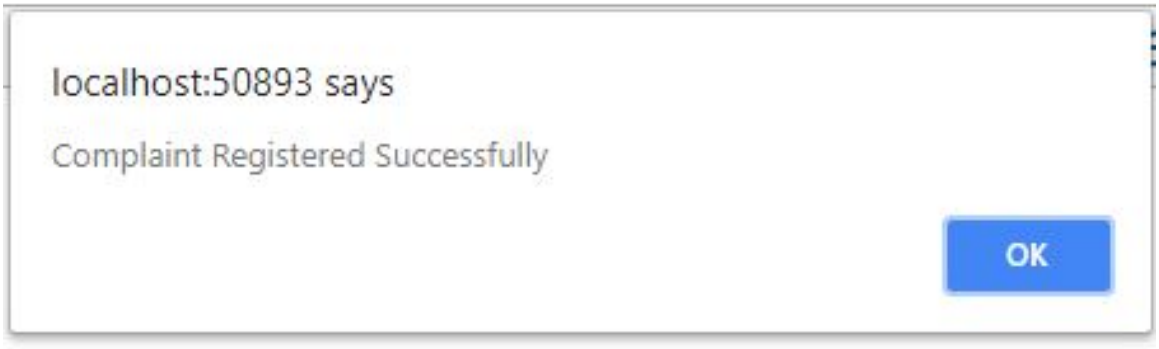
6.2 Contact Us

6.3 Signup

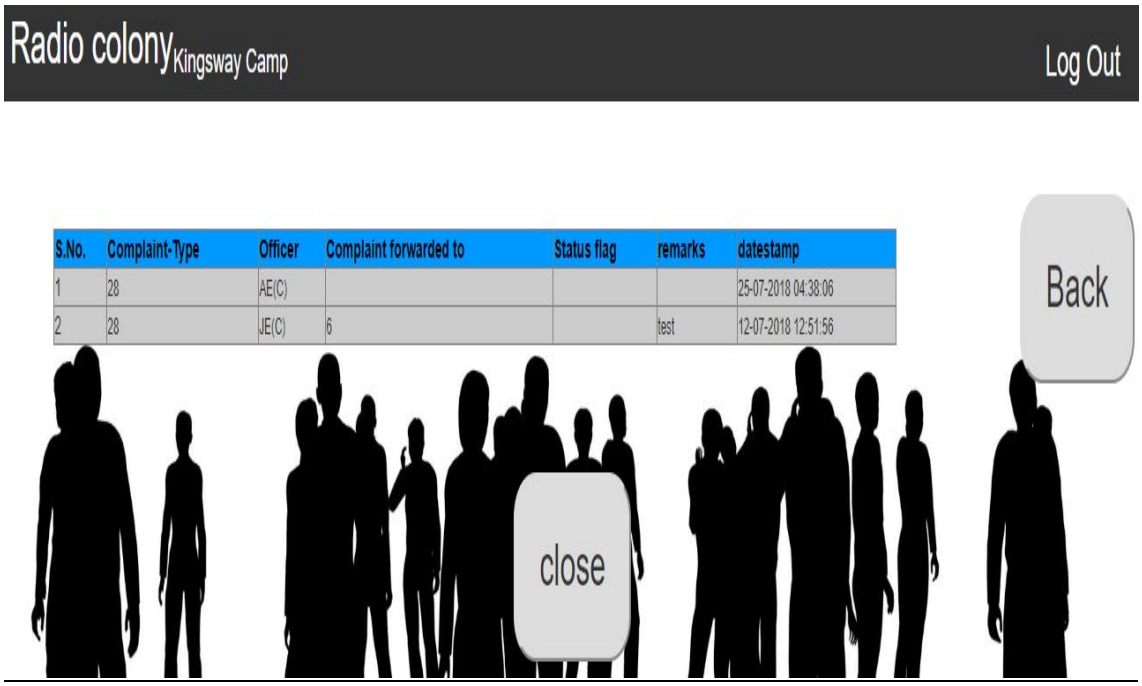

Radio colony Kingsway Camp
Registration form
Full Name
Flat Type
Block Number
Flat Number
Date of Birth
Mobile number
Email
Blood Group
Office/Posting Place
Designation
Number of family members
Password
Re-enter Password
Upload residential proof
Choose File
No file chosen
Submit
Cancel

6.4 Complaint

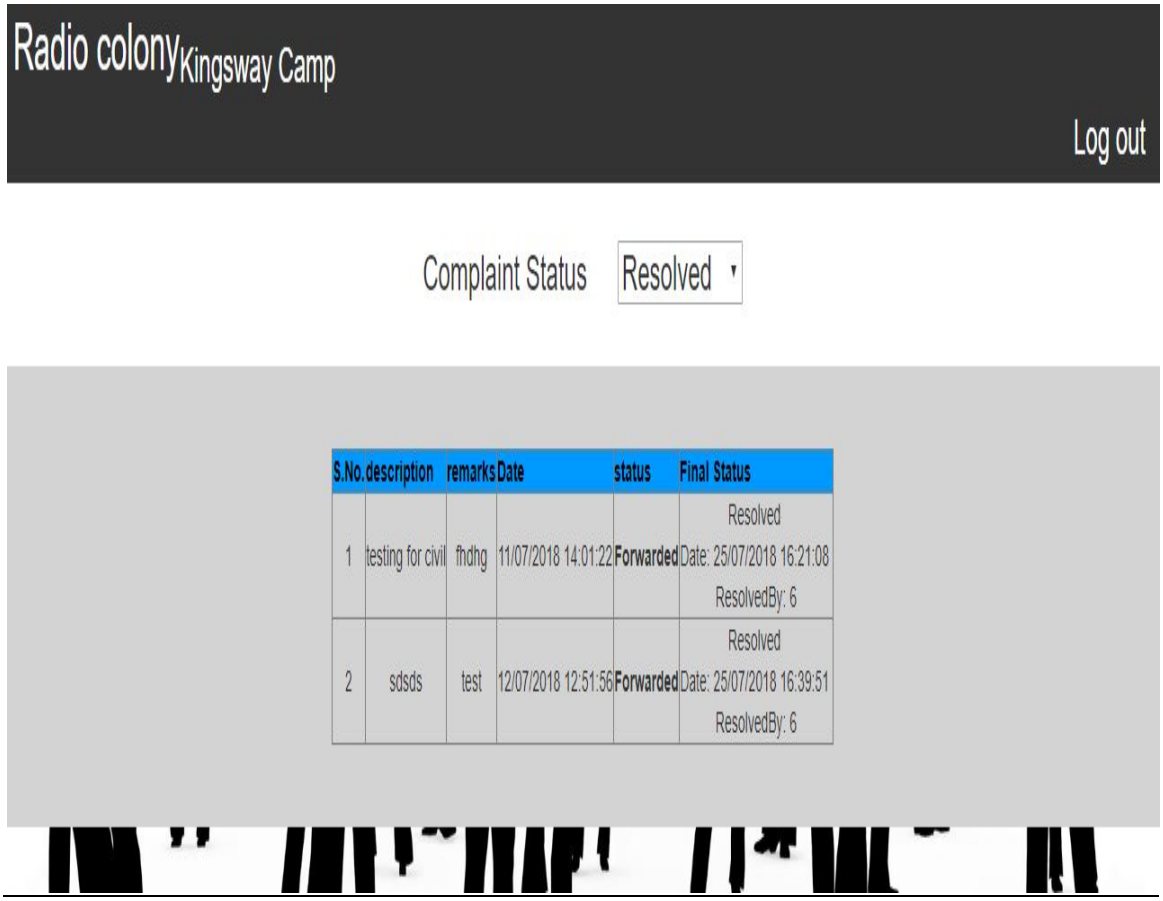
ALERT Message



6.5 All complaint



6.6 Complaint Status



RIPCODE.rwa - dbo.registration

Column Name	Data Type	Allow Nulls
R_id	int	☐
Name	nvarchar(50)	☐
Date_Of_Birth	varchar(20)	☐
Mobile	numeric(10, 0)	☐
mob_flag	bit	☐
Email_ID	nvarchar(30)	☐
em_flag	bit	☐
Office	nvarchar(150)	☐
Designation	nvarchar(100)	☑
Blood_Group	nvarchar(4)	☑
Flat_type	char(2)	☐
Block_no	varchar(5)	☐
Flat_no	int	☐
no_family	int	☐
password	varchar(50)	☐
Uploadfilename	nvarchar(50)	☑
verifyuserflag	bit	☑
ccwUsertype	int	☑
officer_id	int	☑

RIPCODE.rwa - dbo.complaint

Column Name	Data Type	Allow Nulls
comp_id	int	☐
ctype_id	int	☐
r_id	int	☐
c_des	nvarchar(350)	☐
comp_dt_create	datetime	☐
resolved_flag	int	☑
resolvedon	datetime	☑
resolvedby_offid	int	☑

RIPCODE.rwa - dbo.trn_complaint

Column Name	Data Type	Allow Nulls
tr_com_id	int	☐
comp_id	int	☐
officerid	int	☐
statusflag	int	☐
forwardtowhom	int	☑
remarks	nvarchar(500)	☑
serialno	int	☐
DateStamp	datetime	☐
finalstatus	bit	☑
forwardedon	datetime	☑
resolvedon	datetime	☑
resolvedby_offid	int	☑
		☐

RIPCODE.rwa - dbo.complaint_type

Column Name	Data Type	Allow Nulls
c_id	int	☐
c_type	varchar(50)	☐
		☐

RIPCODE.rwa - dbo.complaint_type

Column Name	Data Type	Allow Nulls
c_id	int	☐
c_type	varchar(50)	☐
		☐

RIPCODE.rwa - dbo.Usertype

Column Name	Data Type	Allow Nulls
ccwuserid	int	☐
type	char(5)	☐
createdon	datetime	☐
createdby	nvarchar(50)	☐
		☐

RIPCODE.rwa - dbo.Officer

Column Name	Data Type	Allow Nulls
officerid	int	☐
Officer	nvarchar(50)	☐
usertypeid	int	☐
srno	int	☐
		☐

Chapter 7: Future Scope

6.1 Language interfaces

Currently as of now RWA COMPLAINT MANAGEMENT SYSTEM is in English. We intend to make RWA COMPLAINT MANAGEMENT SYSTEM available in other regional languages of India so that people in rural areas and far flung areas can understand and work with it. Reaching people in far flung areas is an area of special interest that RWA COMPLAINT MANAGEMENT SYSTEM is personally concerned about.

6.1.2 Forgot Password functionality

It so happens that users may misplace or forget their passwords, causing them unable to login to their RWA COMPLAINT MANAGEMENT SYSTEM account. This can be very frustrating, along with the creation of a new account to be time consuming. For this reason functionality of forget password would allow the user to have a link sent to the user's personal email that will allow him to reset his/her password and thus regain control/access to his/her RWA COMPLAINT MANAGEMENT SYSTEM account.

6.1.3 Text Slider

There should be a mechanism to keep the user updated on various changes taking place at RWA COMPLAINT MANAGEMENT SYSTEM from time to time or any alerts/messages that keep the user updated on the advancements RWA COMPLAINT MANAGEMENT SYSTEM continues to undertake on its journey to helping people. Text slider would be one of those mechanisms which has text and other information dynamically moving from one place to another informing users of any maintenance issues being resolved. progress thus far made and any positive news we would like our users to know.

FEASIBILITY STUDY

A Feasibility Study is conducted to select the best system that meets performance requirements.

CONCLUSION

RWA COMPLAINT MANAGEMENT SYSTEM (Resident welfare association) is the project for the residents of the Society, which employs the best features of ASP.NET. Main purpose of this project is to enhance connectivity among the residents of the society. Be it any Event, party, any function or festivals, you will be in touch with RWA COMPLAINT MANAGEMENT SYSTEM. RWAs are typically registered through co-operative societies acts, which require groups to have minimum of fifteen members from a given area. These acts also set the rules for the establishment of RWA COMPLAINT MANAGEMENT SYSTEM's by-laws, which include such things as membership criteria, voting rights, and the conditions under which RWA's officers can initiate legal proceeding on behalf of the registered society.

RWA COMPLAINT MANAGEMENT SYSTEM project uses all the features of ASP NET. SQL Server and C# is used for managing databases. Understanding the subtle dynamics of user interface along with working with databases and coding required precision, and deep understanding of concepts. This project has been made interactive with JavaScript and CSS. RWA COMPLAINT MANAGEMENT SYSTEM events updating has been made very easy and can be handled without any prior knowledge to programming.

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