Election Management System

SUBJECT: SYSTEM DESIGN PRACTICE

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COMPUTER DEPARTMENT

FACULTY OF TECHNOLOGY, NADIAD

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CERTIFICATE

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1. ABSTRACT

Goals

- The ultimate goal of 'Election Management System ' is to fully computerize the election process such as appointing election officers, managing voting booths and important announcements from Election Commission etc.

Scopes

- The Election Management Portal is equipped with government employee details which will be quite useful for appointing them to election duties. Plus, on the administration side, facilities like Allocating officers to particular booth, and notifying them personally, managing booths in various districts etc. are provided.

2. INTRODUCTION

- Nowadays, In Digital world all the things are helpful when it is fully speedy and efficient.

- Election Management System is a portal in which users can verify if they are registered in the voting list for upcoming elections.

- As well as, any new information like a notice, circular, or any announcement by Election Commission is speedily uploaded and read by all the individuals.

- In Upcoming elections, appointment of officers are done through this portal and notified accordingly. So, its useful for admin as well as officers too.

- This system is purely implemented in .NET framework (with C# language support) with Entity Framework. And developed in visual studio (Microsoft,2017).

3. SOFTWARE REQUIREMENT SPECIFICATION

For

Online Election Management System

Version 1.0 approved

3.1 Introduction

3.1.1 Purpose

Election Management System is an online application whose requirements are specified in this document for version 1.0.This document specifies all the major features of this system,its users and requirements related to the product.

3.1.2 Document Conventions

The uppercase words clearly specify exact terms that are used in the product. In this document every requirement has its own priorities.

3.1.3 Intended Audience and Reading Suggestions

This document is intended for developers,project managers,testers and documentation writers only. This document has all the information related to the product and it is sequenced as per the life cycle of the product. All readers should start reading from the beginning
of this document where developers should focus more on functional requirements, documentation writers on all the information regarding the product.

3.1.4 Product Scope

The product Election Management System is meant for the individuals who relates to the elections held by the Election Commission. The system provides all schedules and information about the election duties as well as training related information.This system is not intented for voting purposes.

3.1.5 References

1.IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications.

3.2   Overall Description

3.2.1 Product Perspective

This product is a whole new idea of digitalizing the election process taking a step forward to digital India. This product relates this idea by allowing the election commission to do its task of appointing duties to respective individuals digitally.

3.2.2 Product Functions

- System allows admin to assign roles.
- System allows user to see their assigned role.
- System allows admin to add/remove voting booth.
- System shows training schedules and related information.
- System provides user-friendly interface.

3.2.3 User Classes and Characteristics

- Administrator—He has rights to manage the application via managing voitng booths, users and the respective duties.
- Users—He is expected to be Internet Literate and able to use the search engine. He will be able to see details regarding his election duties.

3.2.4 Operating Environment

The product is an online system so it works on all operating system as well as on all mobile phones provided it has an internet access. All the devices must have browser applications for accessing the system.

3.2.5 Design and Implementation Constraints

- The software doesn't allow voting.
- The software doesn't allow login for users other than admin.
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3.3 External Interface Requirements

3.3.1 User Interface

- Software provides much easier user interface to use it.
- Softtware also provides a complete guide through out to make it user-friendly.

3.3.2 Hardware Interface

- Software works on any windows,Mac compatible machines with Pentium or higher processor and also on all mobile devices.
- Software requires the same pc machines described above with atleast 512mb ram for server side.

3.3.3 Software Interface

- Software runs on all the browers compatible with above specified hardware requirements.

3.3.4 Communication Interface

- Software uses HTTP as its standard protocol.
- Software manages data transfer rates as per the internet speed of the device.

3.4 System Features

3.4.1 System provides voters to verify registration.

Input: Registration details
Output: Registration status
Description: System takes voter's information notifies the voter if he/she is registered or not.

3.4.2 System provides secure login to admin.

Input: admin credentials
Output: login status
Description: Admin gives credentials, system verifies it and gives account access to admin.

3.4.3 System allows admin to manage voting booths.

Input: voting booth information
Output: updated voting booth information
Description: System takes information of voting booth as areas and other details and provides updated information as per requirement.

3.4.3.1 System provides facility to admin to add new voting booth.

Input: voting booth information
Output: voting booth created status.
Description: System takes information of voting booth and creates new database entry regarding it and returns voting booth created status.

3.4.3.2 System provides facility to admin to delete voting booth.

Input: voting booth information
Output: voting booth deleted status.

Description: System takes information of voting booth to be deleted and removes database entry regarding it and returns voting booth deleted status.

3.4.3.3 System provides facility to edit voting booth information.

Input: voting booth information
Output: voting booth updated status.
Description: System takes information of voting booth to be updated and updates database entry regarding it and returns voting booth updated status.

3.4.4 System provides facility to admin to allocate persons to respective voting booths.

Input: region, voting booth, person information
Output: allocation status
Description: System takes information of voting booth and person to be allocated and updates database entry regarding it and returns allocation status.

3.4.4.1 System allows admin to select district.

Input: district information
Output: assemblies under selected district
Description: System takes the district information and gives respective assemblies registered under that district.

3.4.4.2 System allows admin to select assembly.

Input: assembly information
Output: voting booths under selected voting booth
Description: System takes the assembly information and gives voting booths for the selected assembly.

3.4.4.3 System allows admin to select assembly.

Input: voting booth information
Output: person roles under selected voting booth
Description: System takes the voting booth information and gives
roles to be assigned for the selected voting booth.

3.4.4.4 System allows admin to select person for respective roles from list of persons provided.

Input: person information
Output: allocation status
Description: System takes the person information to be allocated
selected by admin from person list provided and returns allocation
status.

3.4.4.5 System shows list of persons according to criteria selected by user.

Input: selection criteria
Output: updated person list
Description: System takes the selection criteria from user and returns
updated person list.

3.4.4.6 System allows user to select a person from person list provided and notifies the person via email.

Input: person
Output: allocation status
Description: System takes the person selection from user and
updates value in database returns allocation status and sends related
email to the selected person.

3.4.5 System provides facility to admin to propose election related and training related announcements for election officers ahead of elections.

Input: announcement details

Output: upload status
Description: System takes announcement details from admin such as subject, date, intended users etc. and returns uploading status.

3.4.6 System provides facility to admin to new government officers.

Input: person information
Output: update status
Description: System takes information of person updates database entry regarding it for job_count and returns update status.

3.5 Other Non-functional Requirements

3.5.1 Performance Requirements

• The website should be hosted on a server that can provide adequate response time. Admin has work very important and timely, so a slow server would not be satisfactory for this application.

3.5.2 Safety Requirements

• Information transmission should be securely transmitted to the server without any changes in information.

3.5.3 Security Requirements

• The software, i.e. the website should be strong enough to avoid hacking through XSS or SQL vulnerability.
• Nobody should be allowed to tamper with data. It should be made sure that only users who are given specific rights can access data.

3.5.4 Software Quality Attributes

• **Availability:** If the internet service gets disrupted while sending information to the server, the information can be sent again.

- **Scalability**: If the number of users of the system increases, it must not affect system performance.

- **Reliability:** As the system deals with confidential and important information of elections, it must be made sure that the system is reliable in its operations and for securing the sensitive details.
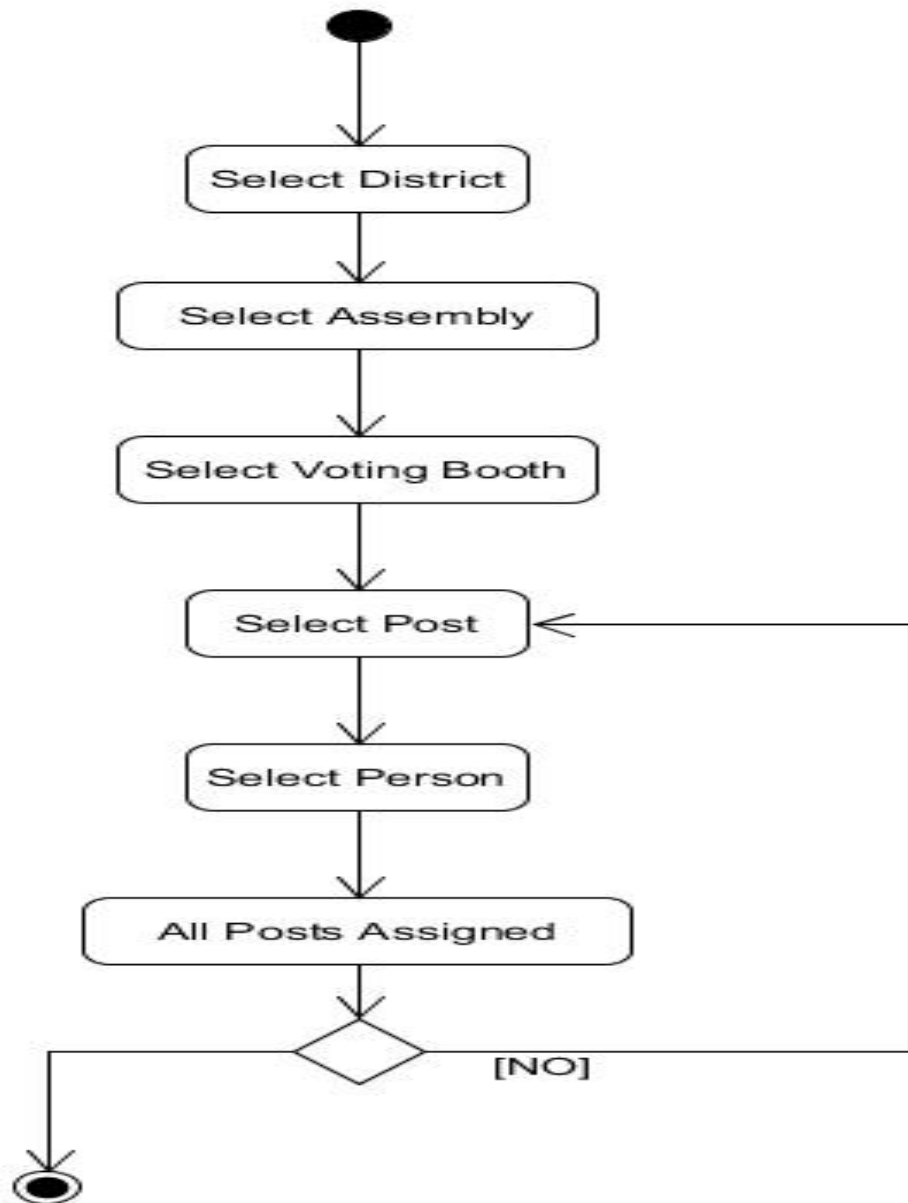
4. DESIGN

4.1 USE CASE DIAGRAM

4.2 CLASS DIAGRAM

User
- -id
- -name
- -pwd
- -mobno
- -email
- -address
- -adhaamo
- -voterid
- -bdate

#searchInVoterList()

Voter

election_officer
- -job_count

#notify()
#addOfficer()

is appointed to ▶

Booth
- -id
- -bname
- -blocation
- -b_asb_id
- -blo
- -campass_ambassador
- -election_agent
- -polling_agent
- -counting_agent
- -district_assembly

#manageBooth()
#appointAgent()

Assembly
- -id
- -asbname
- -asb_dst_id

#manageAssembly()

District
- -id
- -dname

#manageDistrict()

◀ is held for

Event_schedule
- -id
- -ename
- -stime
- -incity
- -description

#manageEvent()

4.3 SEQUENCE DIAGRAM FOR RETRIEVING OFFICERS APPOINTED AT PARTICULAR BOOTH
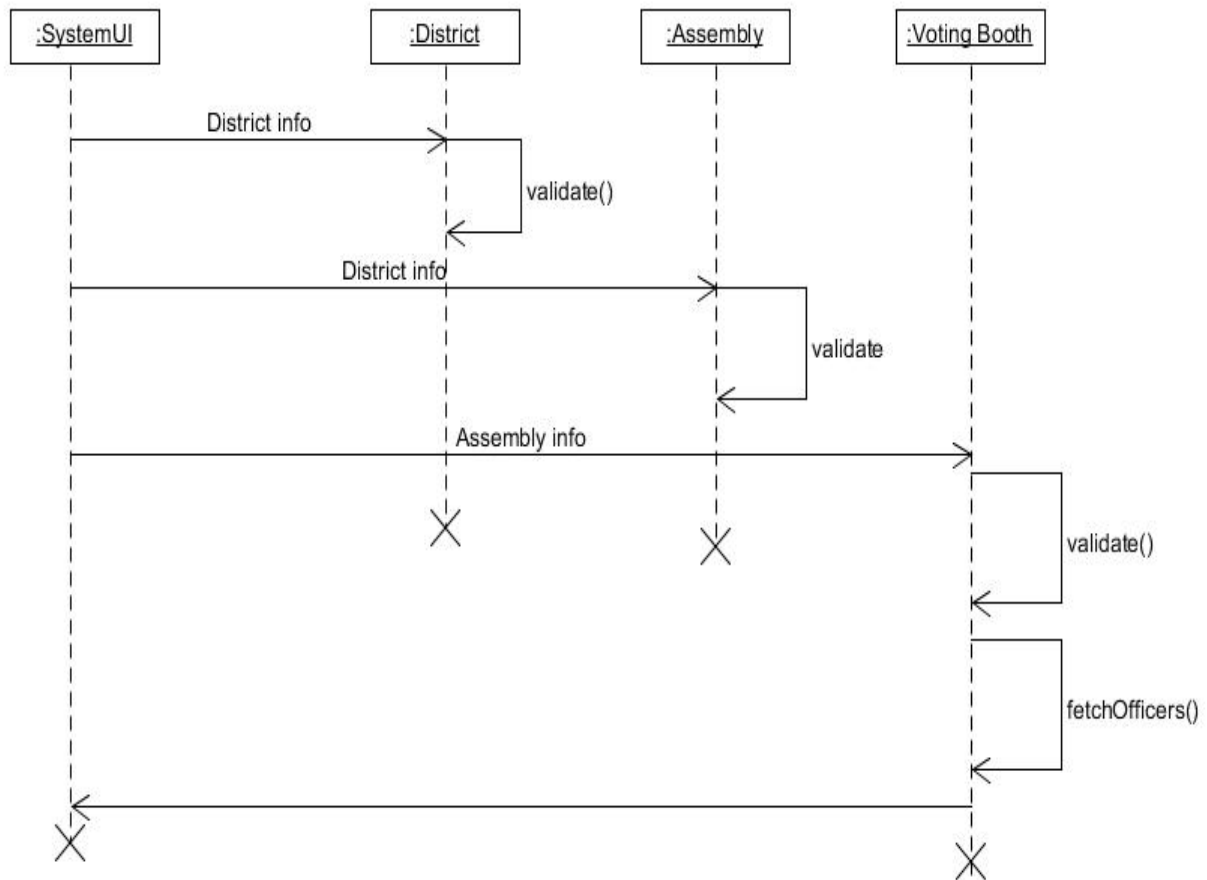
4.4 ACTIVITY DIAGRAM FOR ASSIGNING ELECTION OFFICERS

Select District

Select Assembly

Select Voting Booth

Select Post

Select Person

All Posts Assigned

[NO]

4.5 STATE DIAGRAM FOR BOOTH OBJECT
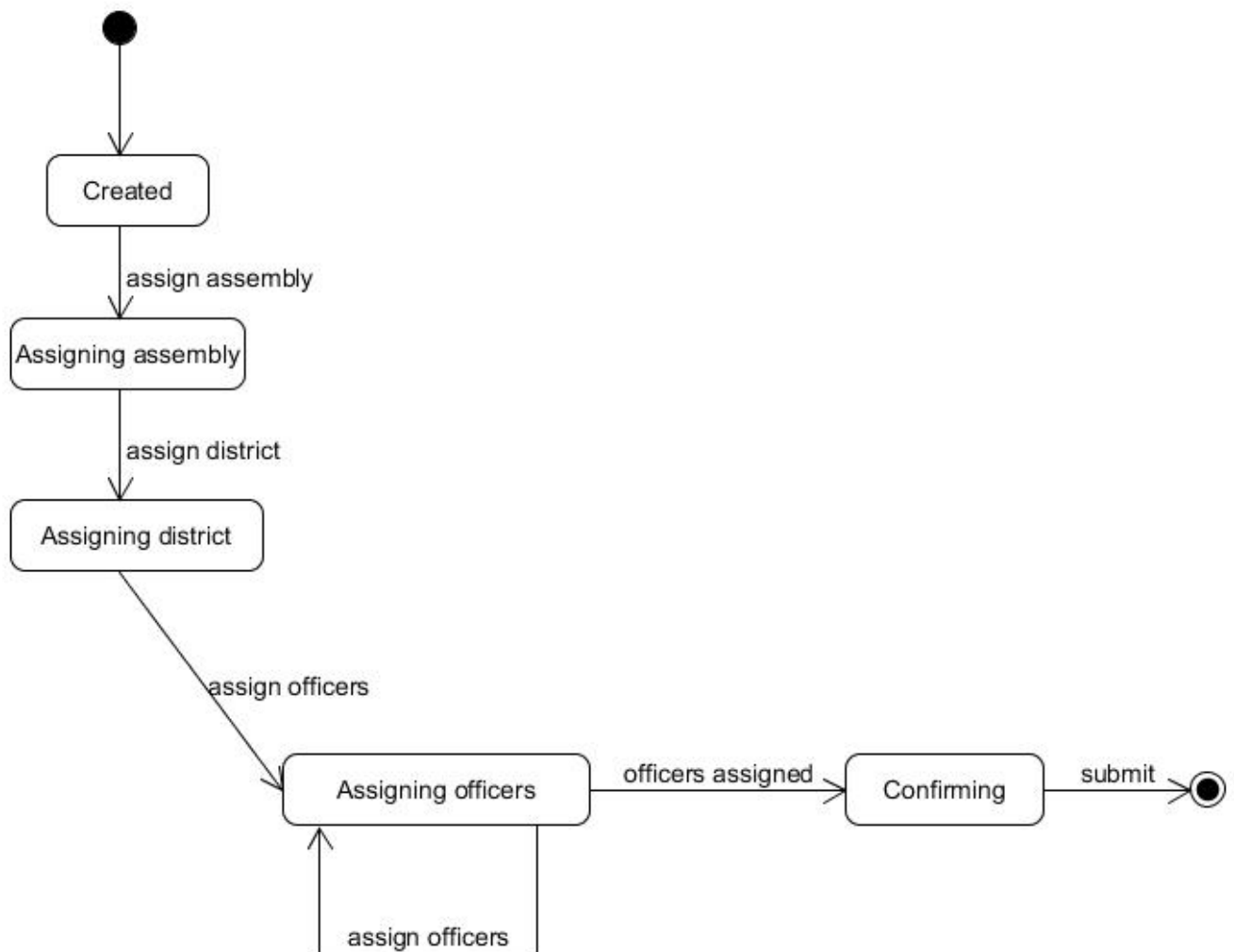
4.6 ER DIAGRAM
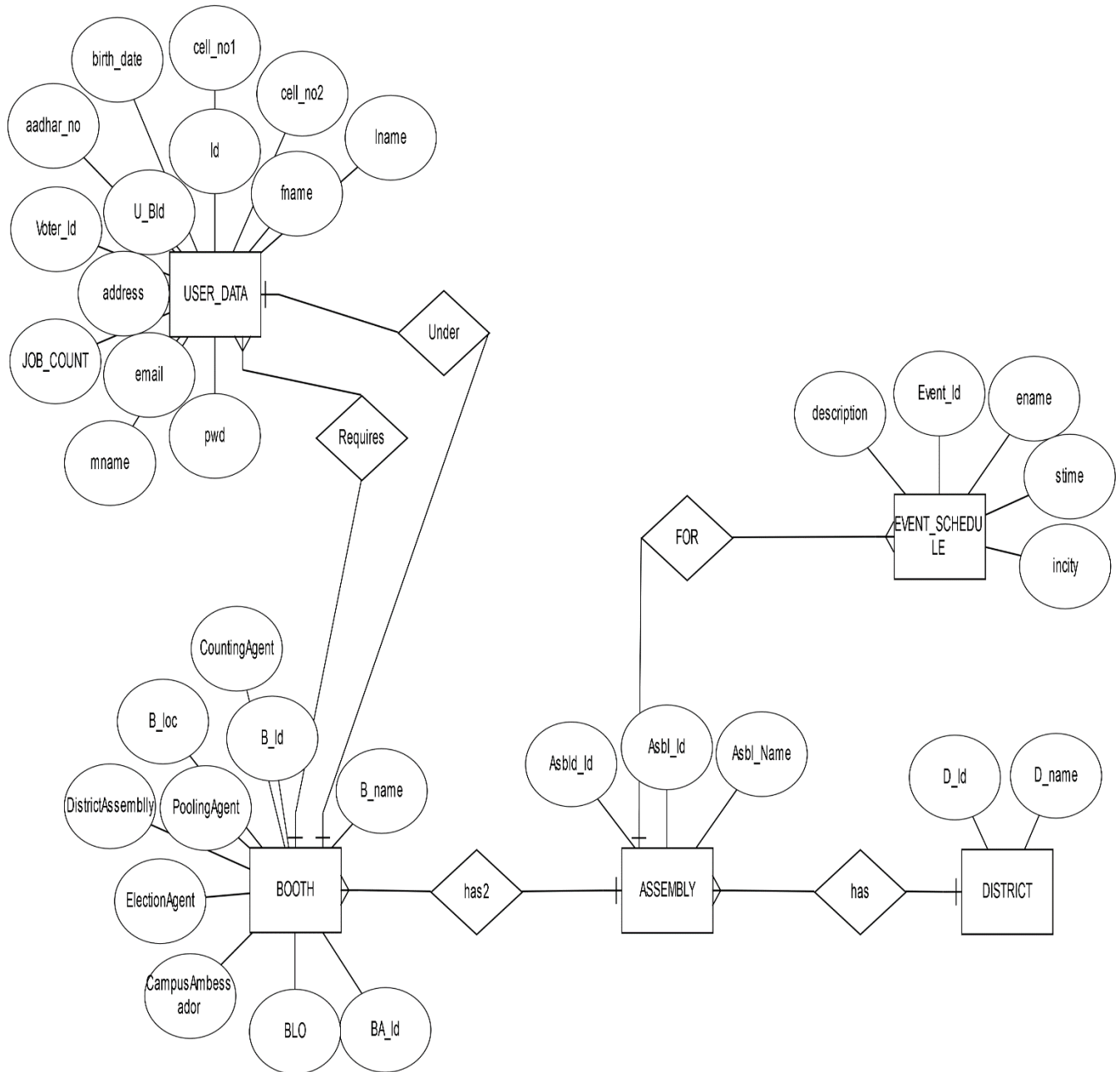
4.7 DATA DICTIONARY

Sr.No	Field Name	Data Type	Size	Constraint
		USER_DATA		
1.	Id	Decimal	20	IDENTITY (1, 1) NOT NULL , PRIMARY KEY CLUSTERED ([Id] ASC)
2.	Fname	Nvarchar	50	NOT NULL
3.	Mname	Nvarchar	50	
4.	Lname	nvarchar	50	NOT NULL
5.	pwd	nvarchar	20	NOT NULL
6.	email	nvarchar	50	NOT NULL, UNIQUE NONCLUSTERED ([email] ASC)
7.	Address	Nvarchar	50	NOT NULL
8.	U_Bid	Int		NOT NULL
9.	Cell_no	Nvarchar	15	NOT NULL
10.	Cell_no2	nvarchar	15	
11.	Birth date	datetime		
12.	Aadharno	Decimal	12	NOT NULL
13.	Voter Id	nvarchar	10	NOT NULL
14.	JOB_COUNT	nvarchar	4	[JC] CHECK ([JOB_COUNT]<(3) OR [JOB_COUNT]=NULL)

District

Sr.No	Field Name	Data Type	Size	Constraint
1.	D_Id	int	4	IDENTITY (1, 1) NOT NULL, PRIMARY KEY CLUSTERED ([D_Id] ASC)
2.	D_name	Nvarchar	20	NOT NULL

Assembly

Sr.No	Field Name	Data Type	Size	Constraint
1.	Asbl_Id	int	4	IDENTITY (1, 1) NOT NULL, PRIMARY KEY CLUSTERED ([Asbl_Id] ASC)
2.	Asbl_Name	NVARCHAR	20	NOT NULL
3.	AsblD_Id	INT	4	NOT NULL, [FK_Assembly_ToDistrict] FOREIGN KEY ([AsblD_Id]) REFERENCES [dbo].[District] ([D_Id])

ELECTION_SCHEDULE

Sr.No	Field Name	Data Type	Size	Constraint
1.	Event_Id	int	4	IDENTITY (1, 1) NOT NULL, [PK_EVENT_SCHEDULE] PRIMARY KEY CLUSTERED ([Event_Id] ASC)
2.	ename	Nvarchar	20	NOT_NULL
3.	Stime	Datetime		NOT_NULL
4.	Incity	Nvarchar	50	NOT_NULL, [FK_EVENT_SCHEDULE_Assembly] FOREIGN KEY ([incity]) REFERENCES [dbo].[Assembly] ([Asbl_Id])
5.	Description	Nvarchar	50	NULL

BOOTH

Sr.No	Field Name	Data Type	Size	Constraint
1.	B_Id	Int	4	IDENTITY (1, 1) NOT NULL, [PK_BOOTH] PRIMARY KEY CLUSTERED ([B_Id] ASC, [BA_Id] ASC), [AK_BOOTH] UNIQUE NONCLUSTERED ([B_Id] ASC)
2.	B_name	nvarchar	20	NOT_NULL
3.	B_loc	Nvarchar	50	NOT_NULL, [FK_BOOTH_ToDistrict] FOREIGN KEY ([BA_Id]) REFERENCES [dbo].[Assembly] ([Asbl_Id])
4.	BA_Id	int		NOT_NULL
5.	BLO	Decimal	20	[FK_BOOTH_ToUSER_DATA1] FOREIGN KEY ([BLO]) REFERENCES [dbo].[USER_DATA] ([Id])
6.	CampusAmbessador	Decimal	20	([CampusAmbassador]) REFERENCES [dbo].[USER_DATA] ([Id])
7.	ElectionAgent	Decimal	20	[FK_BOOTH_ToUSER_DATA3] FOREIGN KEY ([ElectionAgent]) REFERENCES [dbo].[USER_DATA] ([Id])
8.	PoolingAgent	Decimal	20	[FK_BOOTH_ToUSER_DATA4] FOREIGN KEY ([PoolingAgent]) REFERENCES [dbo].[USER_DATA] ([Id])
9.	CountingAgent	Decimal	20	[FK_BOOTH_ToUSER_DATA5] FOREIGN KEY ([CountingAgent]) REFERENCES [dbo].[USER_DATA] ([Id])
10.	DistrictAssembly	Decimal	20	[FK_BOOTH_ToUSER_DATA6] FOREIGN KEY ([DistrictAssembly]) REFERENCES [dbo].[USER_DATA] ([Id])

5. IMPLEMENTATION

5.1 MODULES:
(Pages and its module)

Using .NET Entity Framework all the modules and functionalities are implemented.

5.1.1 <u>Home</u>

- In Home.aspx page voter can search voter id in voter list, view upcoming events in schedule tab, view voting booth in particular district and assembly and admin can login to the system.

5.1.2 <u>Schedule</u>

- In Schedule.aspx page users can view upcoming event schedules generated by the admin.

5.1.3 <u>FindBooth</u>

- In FindBooth.aspx user can view voting booths in the selected district and assembly.

5.1.4 <u>AdminHome</u>

- In AdminHome.aspx page is the admin home page to access functionalities of admin.

5.1.5 <u>Add_GovEmployee</u>

- In Add_GovEmployee.aspx page admin can add new government employees.

5.1.6 <u>ManageBooth</u>

- In ManageBooth.aspx admin can add or remove booths in particular assembly of particular district.

5.2.7 AllocateElectionOfficers

- In AllocateElectionOfficers.aspx admin can allocate election officers by selection district, assembly, and then adds person id from the displayed list of eligible persons to the respective role in the booth. Also he can change the existing role.

5.2.8 ManageEvent

- In ManageEvent.aspx admin can add or remove events. He can add by adding proper subject, date, description and the assembly to which it is intended for. He can also view notice board directly from this page.

FUNCTIONALITY PROTOTYPES

Email Notification

- In, this module whenever admin assigns role to the person as email regarding post of the assigned officer is sent to the user's email which already registered.

6. TESTING

TESTING METHOD: Black Box Testing First Implementation done and deployment.

TEST CASES:

Entity	Test case	Expected output	Actual output	Result
Home.aspx	Search in voter list	Search and notify According to voter id	Success fully searched and notified	PASS
Schedule.aspx	View events	Show events generated by admin	Successfully visible events generated by admin	PASS
FindBooth.aspx	Find voting booth	Search and find voting booth in selected assembly & district	Successfully shown voting booths as per selected criteria	PASS
AdminHome.aspx	Login	Successful login	Successfully logged in	PASS
Add_GovEmployee.aspx	Add new govt. employee	Verify details and add to database	Successfully verified details and entered in database	PASS
ManageBooth.aspx	Add, remove booth	Add and remove booth	Successfully added booth and removed	PASS
AllocateElectionOfficers.aspx	Allocate govt employees to voting duties	Select officers and notify to mail	Successfully selected and notified by email	PASS
ManageEvent.aspx	Add, remove events	Add and remove events	Successfully added or removed event	PASS

7. SCREENSHOTS

7.1 Home Page

In home page voter id entered by user is searched and registeration message is shown otherwise you are not registered message is shown.
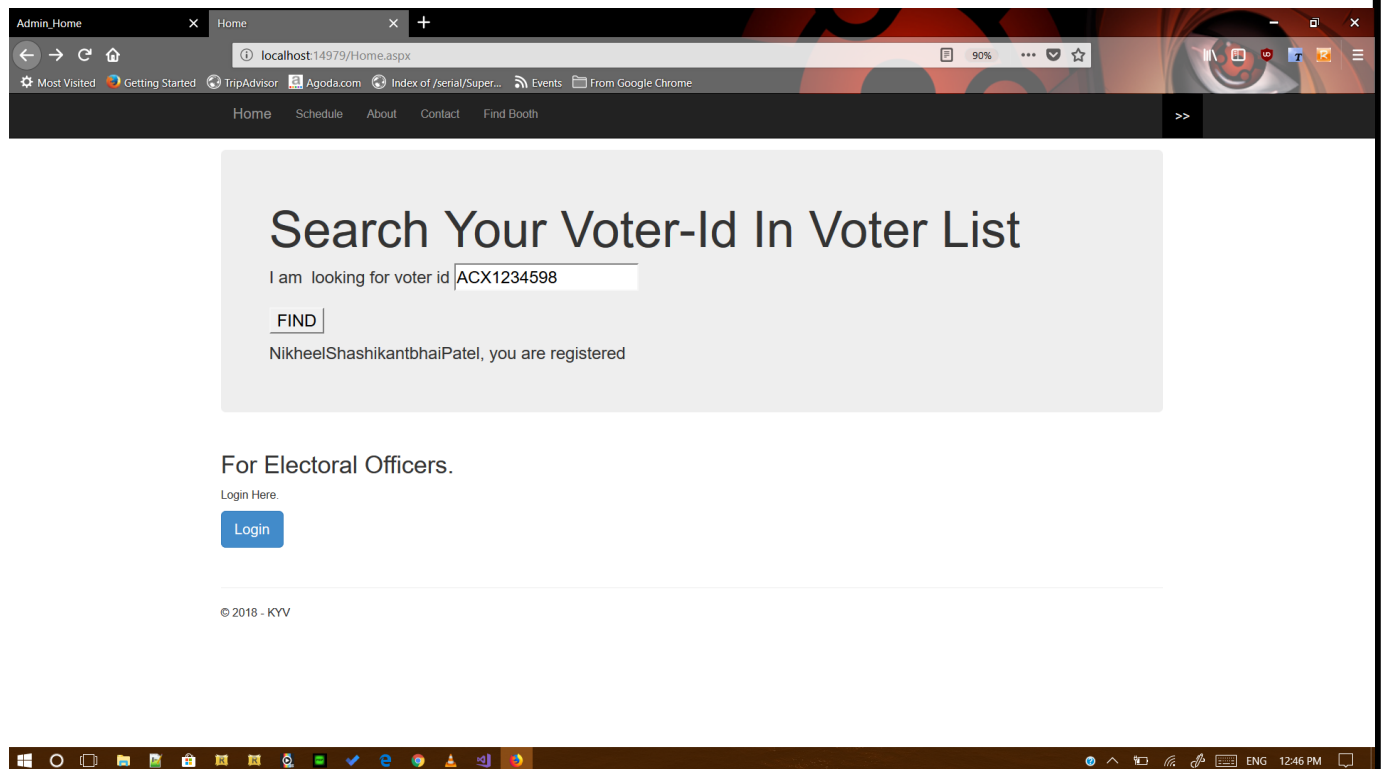
7.2 FindBooth page

In this page user can find booth as per selected district and assembly.
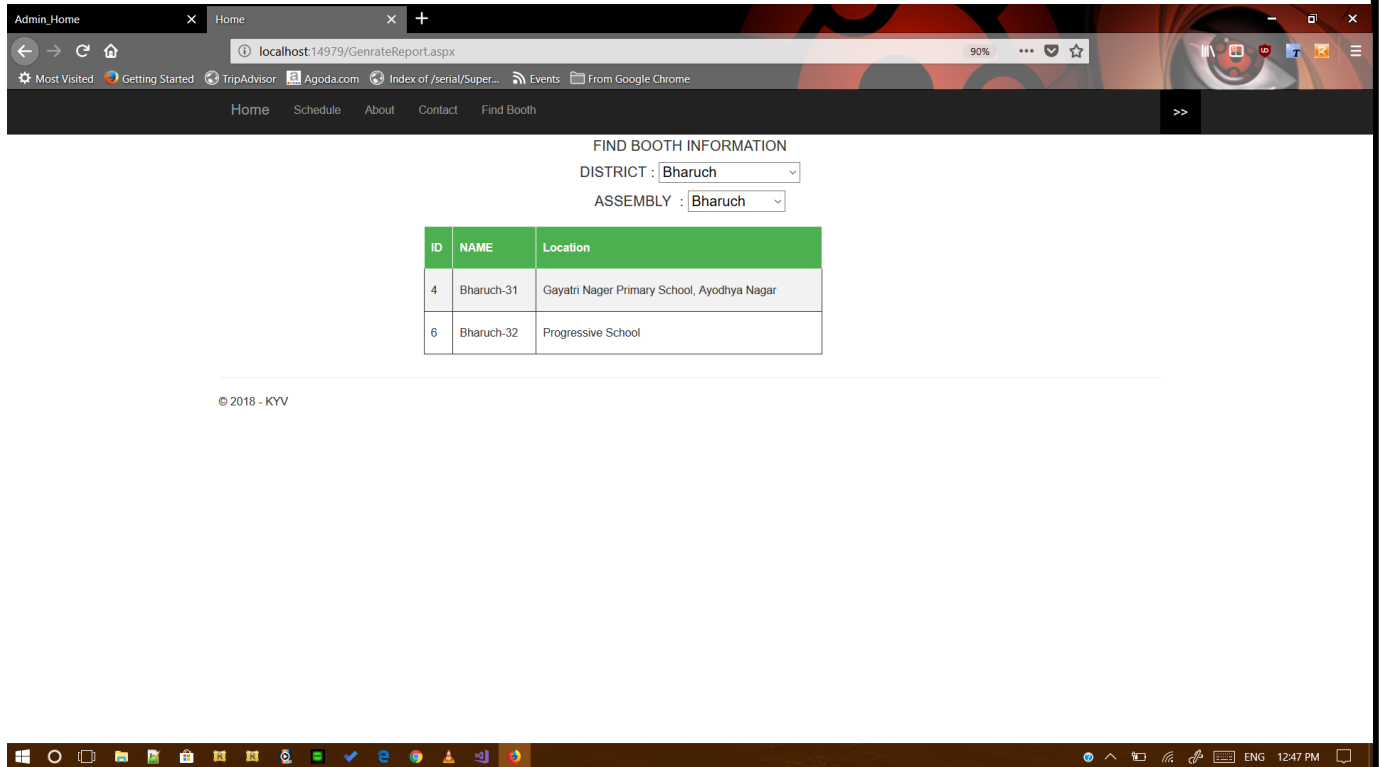
7.3 Login Page

Login page for admin.
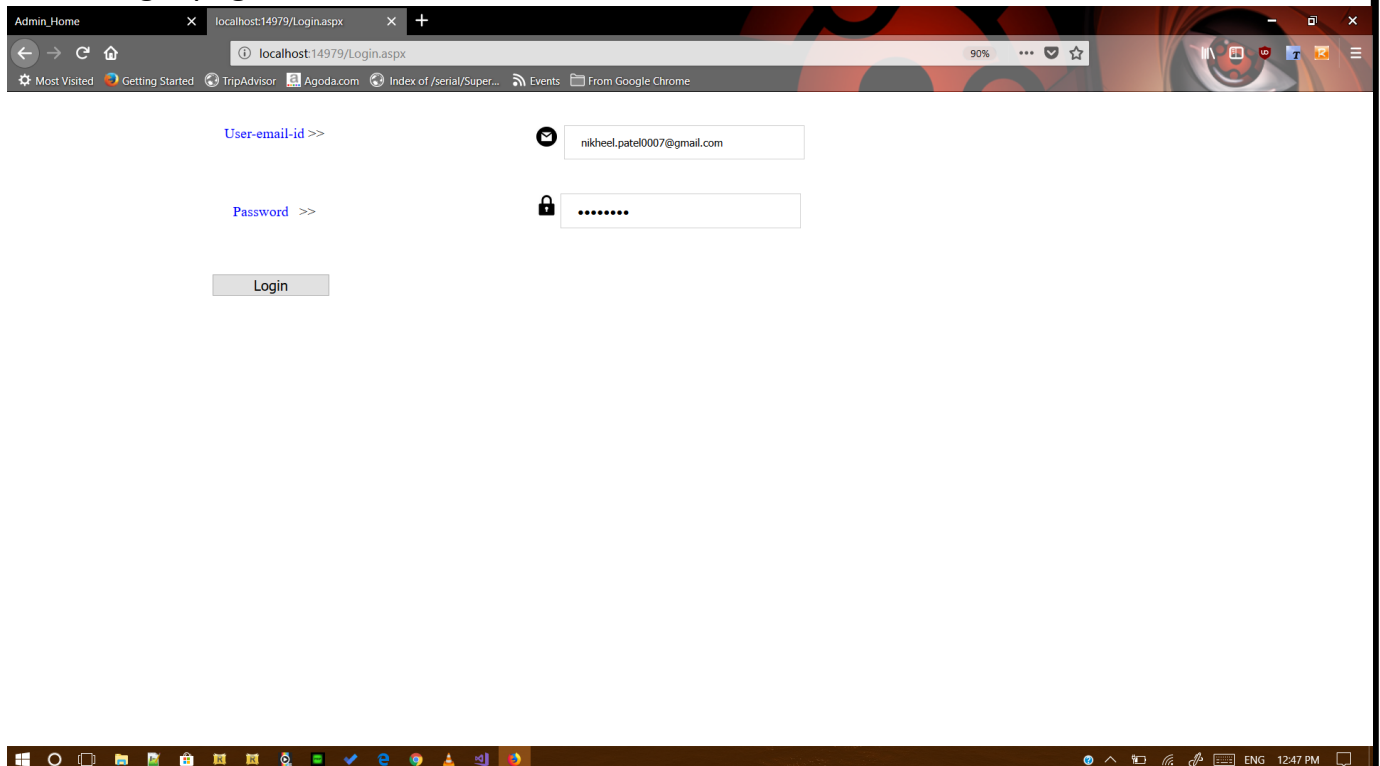
7.4 AdminHome page

Admin is redirected to this page after login.
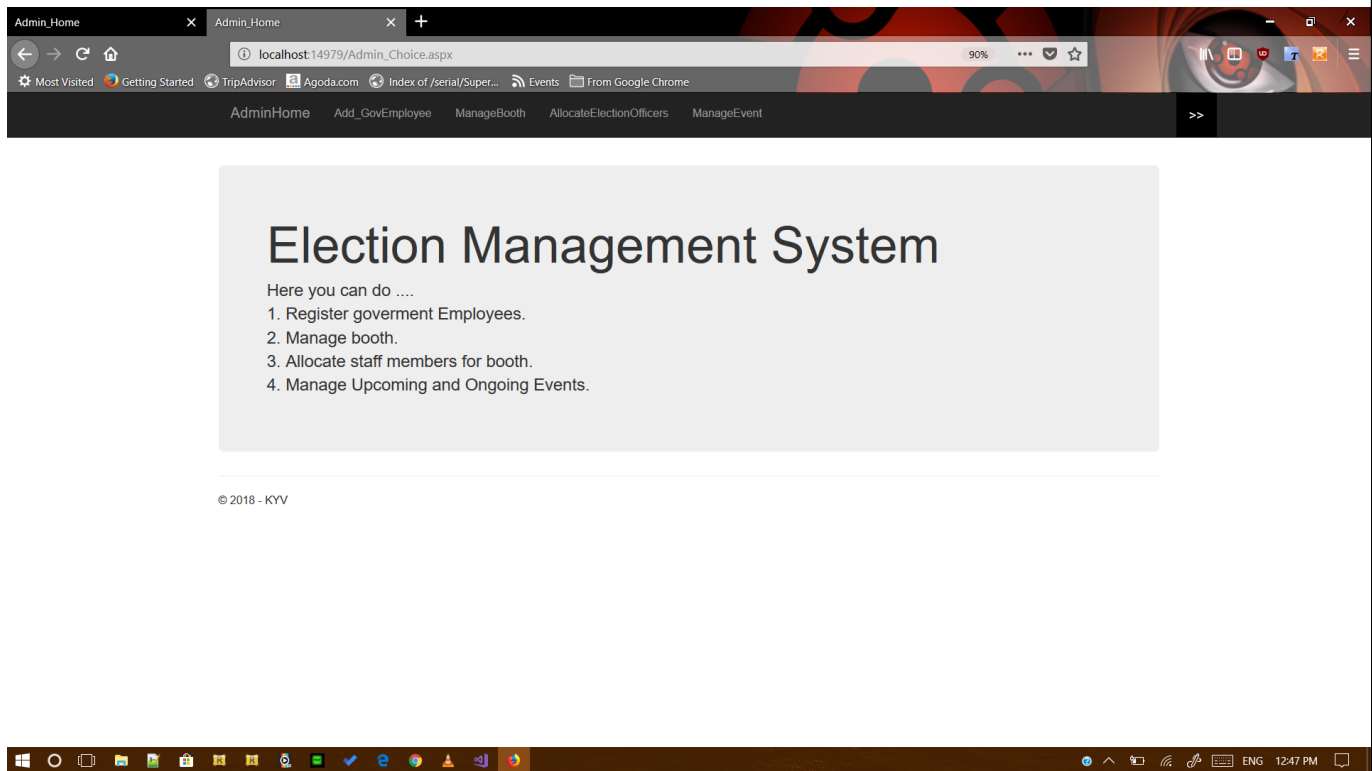
7.5 Add_GovEmployee

Admin can add new employees here.

7.6 ManageBooth

Admin can add new booth or remove existing booth here.

7.7 AllocateOfficers

Admin can allocate govt. officers to particular booth here.

After allocating an email is sent to that person as under.

7.8 ManageEvent

Admin can add or remove events here.

7.9 Schedule

Users can see events after being added by the admin.

EventTitle	Date	Information	Location
Voting-day	10-12-2017 12.00.00 AM	Date for voting in bharuch assembly.	Bharuch
Voting-day	10-10-2017 12.00.00 AM	Date for voting in Anjar assembly.	Anjar
Training	07-09-1997 12.00.00 AM	new training event	Anjar
Training	07-02-2015 12.00.00 AM	Allocating Resources	Gandhidham

8. CONCLUSION

- This project Election Management System is for making election process little bit easy and feasible to handle. System can send notifications to officers as appointed by the admin i.e. the Election Commission and important election related as well as training related announcements. It also includes managing voting booths as well as government officers eligible for appointment. List of all registered voters can be available for voters to verify their names in the voters' list.

9. LIMITATIONS & FUTURE EXTENSION

Limitations

Appointed officers cannot ask any queries related to their appointment through this system. Also there is no special roles other for normal users.

Future Extension

Currently the system is for 1 state only which can be extended to all other states of India.

New registration for voters can also be the functionality which can be provided as an extension to functionalities of Election Commission.

10. BIBLIOGRAPHY

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Online Standard Resources

11. MISCELLAEOUS

SOFTWARE(s)

Microsoft Visual Studio
[Community Version,
2017
With required resources]

TECHNOLOGIES

ASP.NET Support
.NET framework
C# Language Support
Entity Framework 6.0