Human Resources Recruitment System

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering.

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APPROVAL

This Project/internship titled **"Human Resources Recruitment System"**, submitted by Md. Abdullah Wasif, ID No: 153-15-6337 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 05-12-2019.

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I am declare that, this project has been done by me under the supervision of **Md Zahid Hasan, Assistant Professor, Department of CSE**, Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.
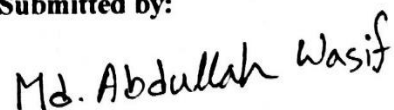
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ABSTRACT

This project is on "**Human Resources Recruitment System"**. The purpose is to provide services to both the Employer and the Job seeker by recruiting Graduates according to the employer specifications. The three main users involved in this system are Employer, Job Seeker and Employee. Job seeker is the one who is looking for a job who can be either fresher or an experience. Job seeker give his/her detail along with CV. Employer / Administrator is a resource of the organization who specifies the requirements. Employee is the one who works for betterment of the organization. Employer offer jobs and job seeker apply for the job. Then employer choose the right candidate according to the job specification. This web application can save lot of time of employer, especially for those employer who don't want the hustle of recruiting new employee due to time consuming process. Throw this web application employer can easily create job and get their desire candidate. Job seeker possibility of get job is one step ahead because of, applicant sent their cv direct to organization and got their desire job. This web application front-end developed using bootstrap. So anyone can easily get access the web application and do their job. It is helpful to applicant and organizer both.

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Chapter 1
INTRODUCTION

1.1 Introduction

Human Resources Recruitment System is a Human Resources Recruitment System project that serves the functionality of an organization. The system allows only registered users to login and new users are allowed to resister on the application. This is proposed to be a web application. The application developed by using REST API for back-end and angular and bootstrap for front-end. Front-end user friendly to all devices like mobile, tablet and computer. Due to using a REST API we can convert the web app to android and IOS version also without changing any code. We use Angular for front-end, so we can use the front-end to other system also due to front-end is independent. REST API and Angular both are independent, so we can develop many other system using it. It save lots of our time.

1.2 Objectives

The main objective of Human Resources Recruitment System is to provide better work experience to the organization management team. The target is to provide service to both the Employer and the Job seeker by recruiting Graduates according to the employer specification.

The goals of our system are:

- To provide better work experience to the organization management team.
- Admin/organizer will have the total control over all the process
- Admin can manage events and applicants via web application.
- Online Registration & Apply for Job
- Job circular Promotions & Emails

1.3 Motivation

Now we are live in 21st century. We prefer multi-tasking to save time. Nowadays time is precious than any other things. For an organization pick the right applicant up most difficult and time consuming task. To reduce time, money and make a good decision a system is being developed which generally means developing web system where

employer can offer job and job seeker can apply and according to job specification employer can find the right applicant by the system.

1.4 Expected Outcome

Using the system, it saves time and money of an organization. It speeds up an organization work flow. Its remove data entry task for recruitment process. Because of easy process employer have interest back to recruit new employee. Just because of time consuming process many employee can't want to recruit new one though they have the ability to hire new candidate. Using this system many candidate may got their desire job and the rate of unemployment may decrease due to using the system.

1.5 Report Layout

The report is divided into five chapters and the following chapters are recap below:

1. The introduction part is the chapter one of my project "Human Resources". It contains introduction, objectives, motivation and expected outcome.

2. In chapter two, I include related works, comparative works, scope of problem and challenges.

3. Chapter three is described on the business process model and use case diagram and implementation & requirements.

4. In the chapter four, it contains system environment, front-end, back-end and testing and integration.

5. The last one, which is chapter five is built with conclusion and future plan of the project.

CHAPTER 2

BACKGROUND

2.1 Introduction

A Recruitment System is basically web based application, that employer use to effectively and efficiently manage recruitment process. It allows to store a database of candidates, manage and publish vacancies, accept and reject applicants and more. A Recruitment System is also called Recruitment Software, ATS (Applicant Tracking System), Candidate tracking system etc. There are two primary goals of a recruitment system. First one is aiding the employer optimizing the recruitment process and choose the best candidate. And second one is finding the best job for job seeker with short time.

2.2 Related Works

Zoho Recruit, BambooHr, Jobspid, CakeHr, Indeed, Favro, CareerBuilder Application Tracking, Breezy HR, SmartSearch, SAFARI etc.

2.2.1: Breezy HR[2]

It is developed to co-operate recruiting process and can support 10-10000 teams. It is loved by thousands of people. It has modern approach to applicant tracking.
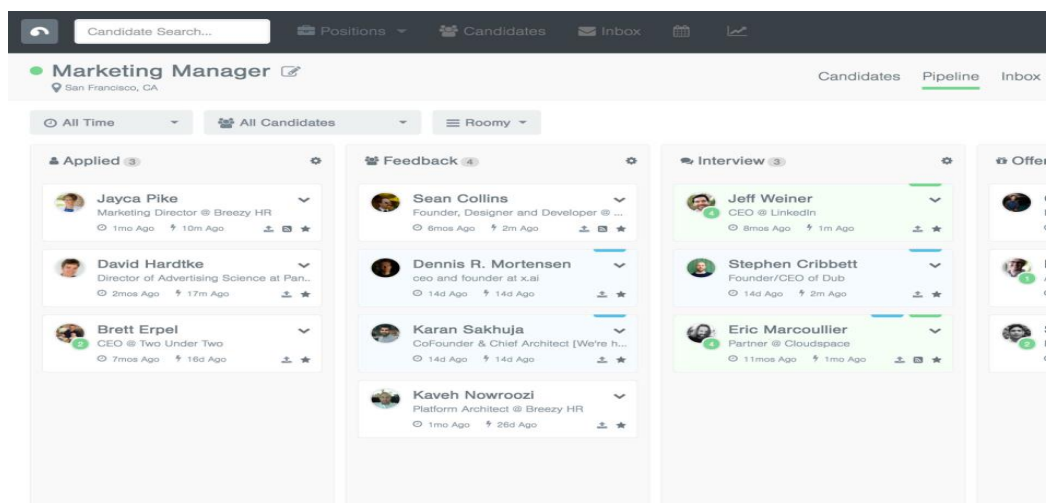
Figure: 2.1 Breezy HR

Features of Breezy HR:

- ▪ Applicant tracking
- ▪ Admin Portal
- ▪ Interviewing date Create
- ▪ Job Create
- ▪ Assessments
- ▪ Workflow Management
- ▪ Dashboard

2.2.2 CakeHR [1]

It is right choice for small to medium business that helps to manage employee without using spreadsheets or paper to manage.
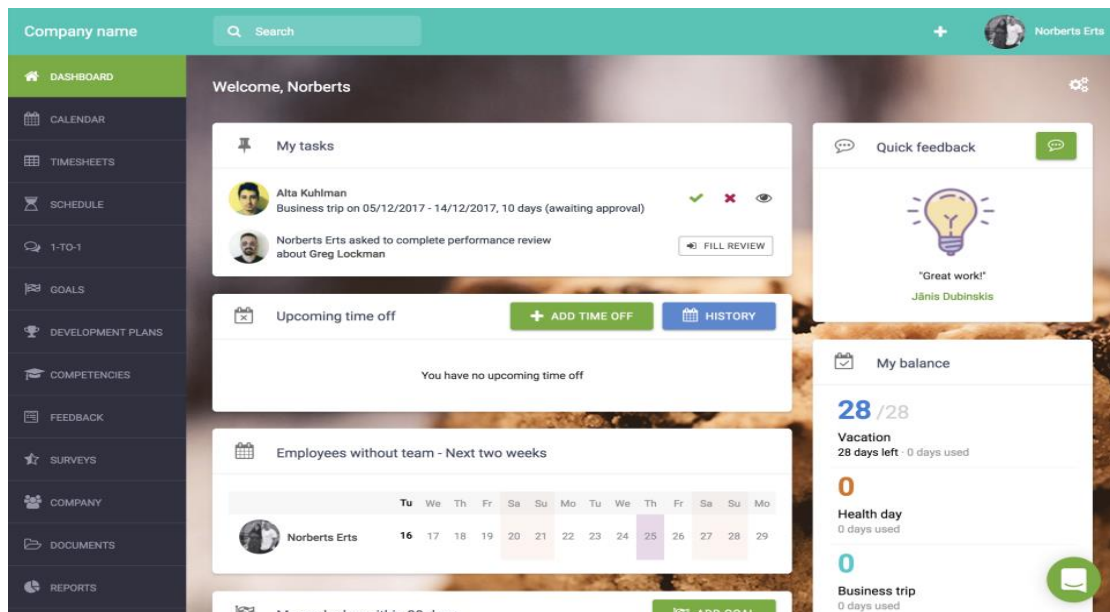

Figure: 2.2 CakeHR

Features of CakeHR:

- • Assessments
- • Applicant Tracking
- • Admin Portal
- • Interview Date Creation
- • Job Creation
- • Dashboard
- • CV Collection
- • Workflow Management

2.3 Comparative Studies

Both HR Recruiting System have same facilities and functionality. Both have Applicant Tracking, Admin Portal, Interview Data Creation, Job Creation, Dashboard, and Workflow Management. But Breezy HR have Background Screening and Recruiting Firms. On the other hand CakeHR don't have background screening and recruiting firms. In our system we have Applicant Tracking, Admin Portal, Interview Data Creation, Job Creation.

2.4 Scope of the Problems

1) Server down may hamper the business.

2) Network issue for payment gateway may slow down the recruitment process.

2.5 Challenges

- **Server down:**

The recruitment system depends upon a server. The server slow or down may hamper the business. For server slow problem, slow the recruitment process, take more time to complete. If the server down or unauthorized access to server, candidate database may lost or hamper the business due to server down.

- **Network Issue:**

Network issue for payment gateway may slow the whole recruitment process. Due to network issue applicant can't pay for job and ultimately can't apply for job. Employer can't recruit the candidate.

- **Form Validation:**

  Due to form validation occurs it may hamper the word flow.

- **Unhandled Error:**

  Many exception occur during running the web application. It is big challenge to handle the error.

CHAPTER 3

SOFTWARE REQUIREMENT SPECIFICATION

3.1 Business Process Model

Business Process Model (BPM) means visually present a business process by graphically. It is usually done by different graphical methods like flowchart, data-flow-diagram, Unified Modeling Language, Use case etc.

There are two different type BPM. One is As-is, means the state of the process right now and Second is to-be, means the future plan after improving the process.
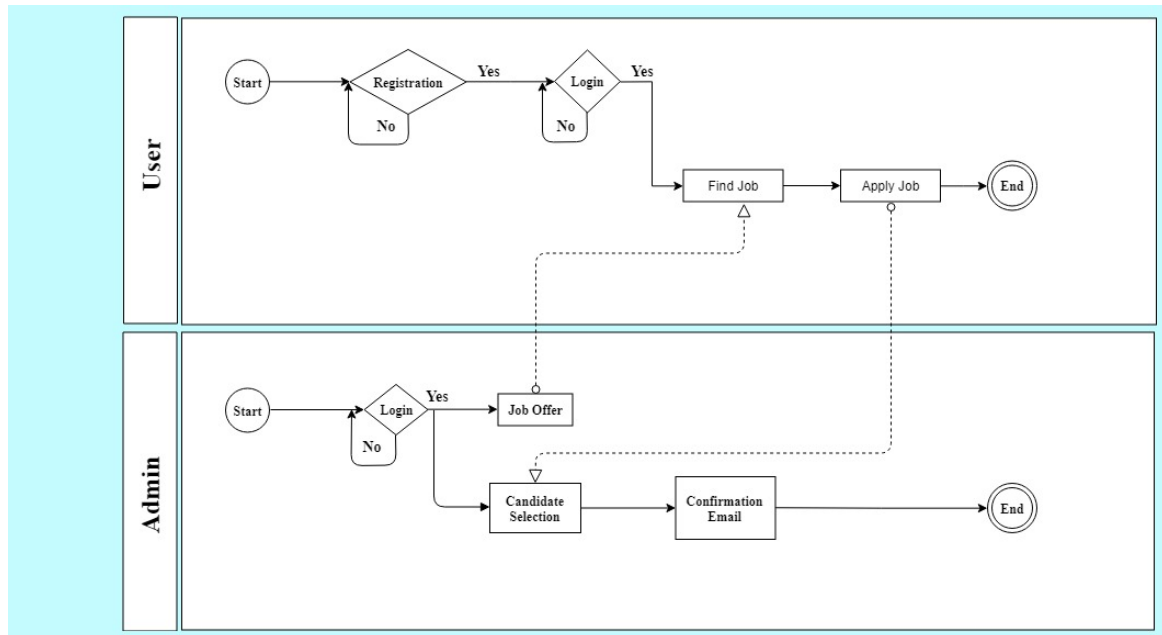
Figure: 3.1 System Database Design

3.2 Use Case Modeling and Description

A use case is a relationship between Actor and Action in Software and system engineering. The actor can be a human or external system. Action means state change of a system. Use case analysis is very important part of requirement analysis.

System Use Case:

The system has the following set of use cases. Figure: 3.1 is describing the System use case. Admin can post job by Login. Admin also can primary selection candidate among

who have applied for job. Again admin can check attendance of employee. Additionally admin can set interview schedule, marking candidate and send confirmation mail. Job seeker can register and login to the system and can apply for desire job.
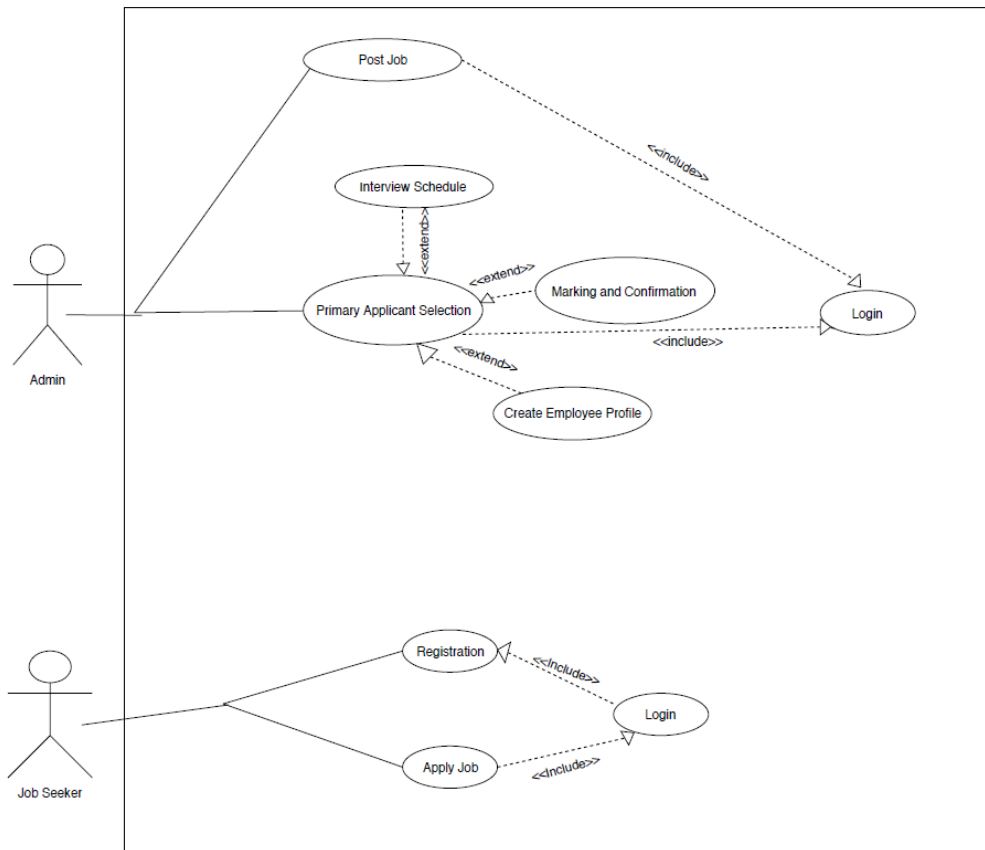
Figure: 3.2 System Use Case

3.3 Implementation Requirements

Implementation means execution a method or any design, model, specification for doing something. The following is a critical evaluation of the different programming languages that could be used to program such an online application.

- **Angular 8:**

Angular 8 is used to create dynamic web applications. It is a Typescript based framework. It is developed by Google's engineering team. Angular is used for single page application. Single page application is faster than traditional web application. Gmail is the best example of angular.

- **Bootstrap 4:**

Bootstrap 4 consist of HTML, CSS and JAVASCRIPT used to create responsive desktop and mobile application rapidly. It is the latest version.

- **Spring Boot Framework:**

Spring Boot is an open source Java-based framework maintained by a company called Pivotal. Spring Boot provides a good platform for Java developers to develop a stand-alone application. It is a light weight framework. It has support for both XML and annotation configuration.

- **MySQL:**

MySQL is the world's most popular open source database, enabling the cost-effective delivery of reliable, high-performance and scalable Web-based and embedded database applications. MySQL is structure query language. It is used for maupulating information in the database. We can use ADD, DROP, INSERT, UPDATE command. MySQL is most used on Web servers. A website that uses MySQL may include Web pages that access information from a database. Websites which use dynamic Web pages are often called database-driven websites.

CHAPTER 4

DESIGN SPECIFICATION

4.1 System Environment

The Design & Development of Human Resources Recruitment System have mainly two active actors. Figure 4.1 describe the system environment. The Admin and Job Seeker. All actors can access the system through web link. Every actor has one login email and password through which they can access the system.
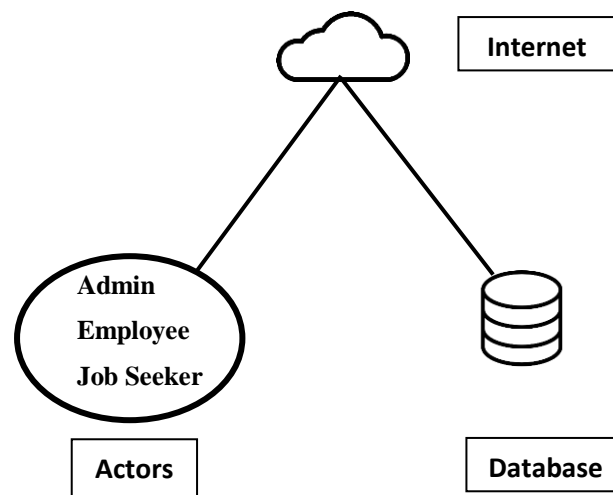
Figure: 4.1 System Environment

4.2 Front-end Design

Home Page

Figure 4.2 shows the Home Page of the system
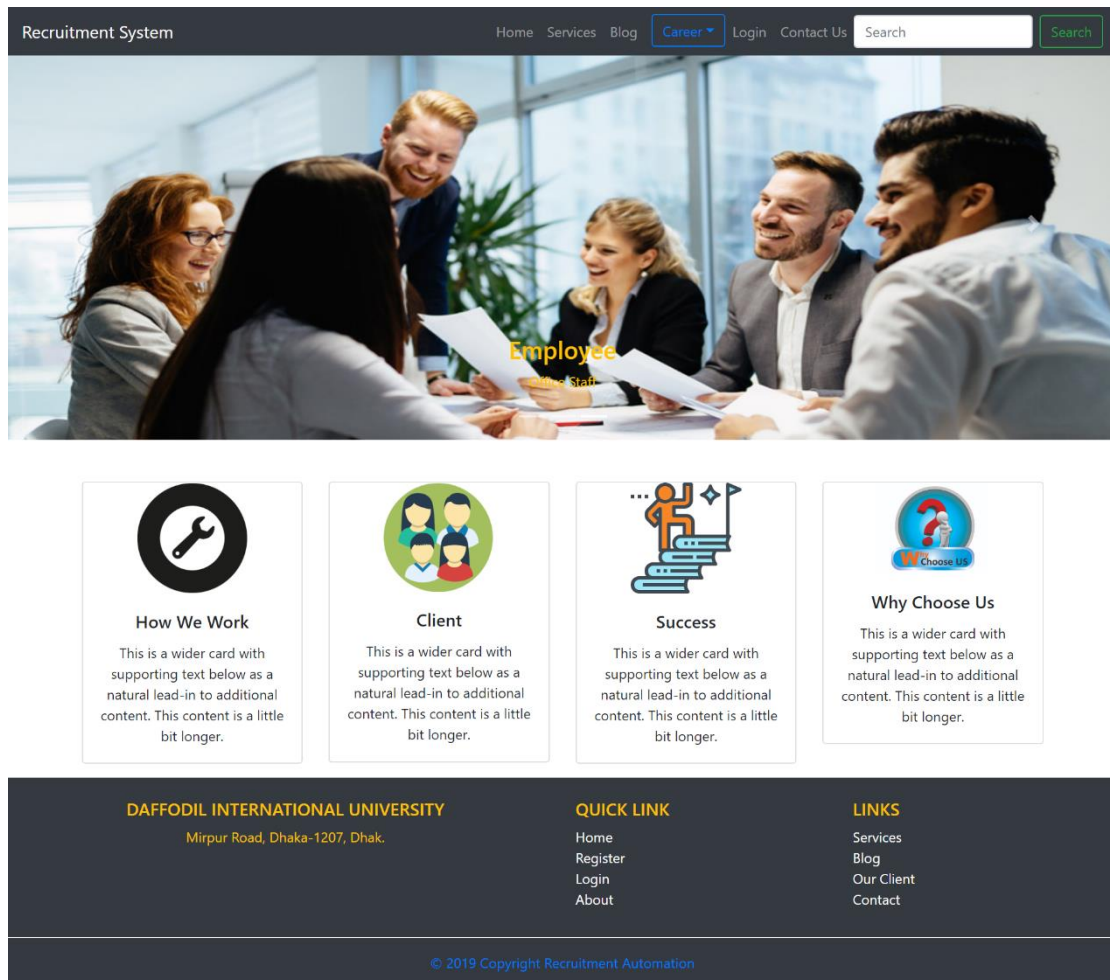
Figure: 4.2 Home Page

Career Option

Figure 4.3 shows Career Option of the system
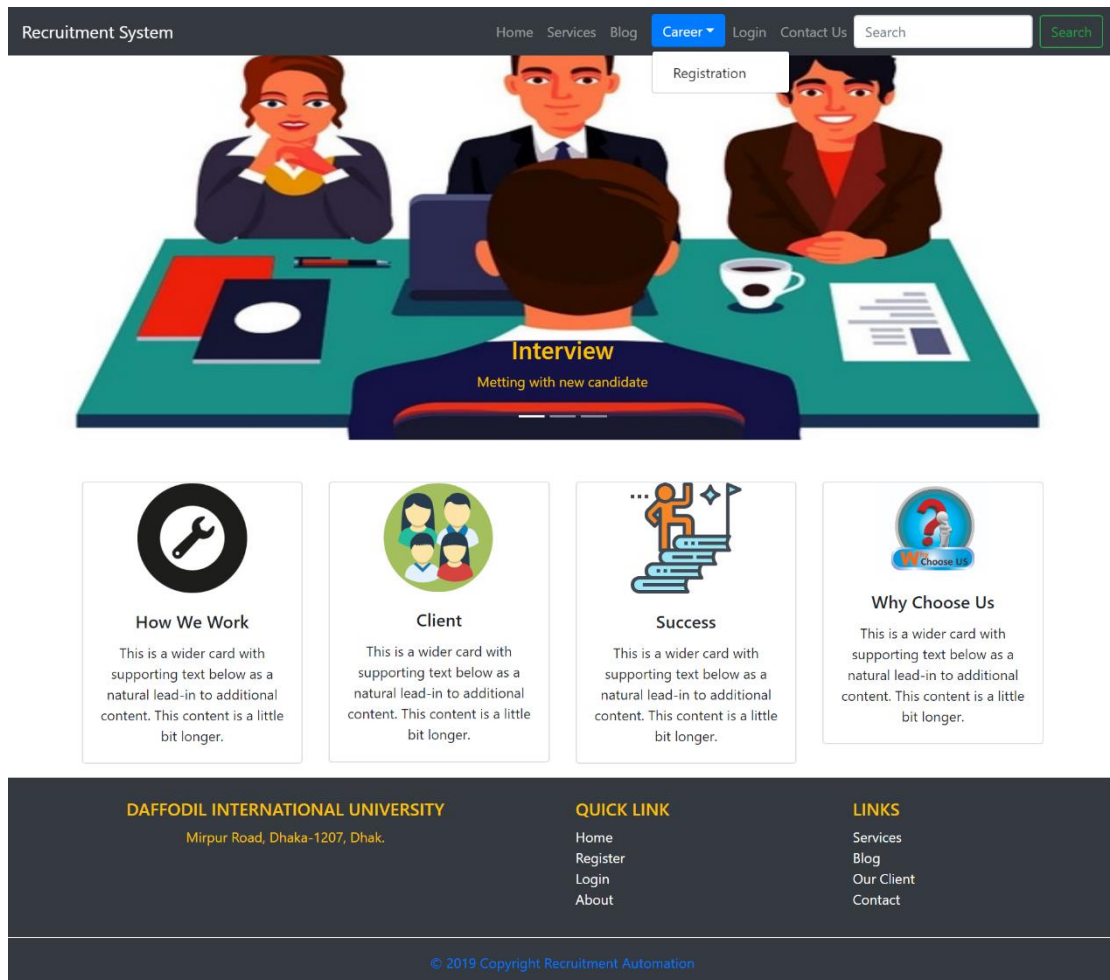
Figure: 4.3 Career Option

Job Seeker Registration Panel

Figure 4.4 shows the Job Seeker Registration Panel
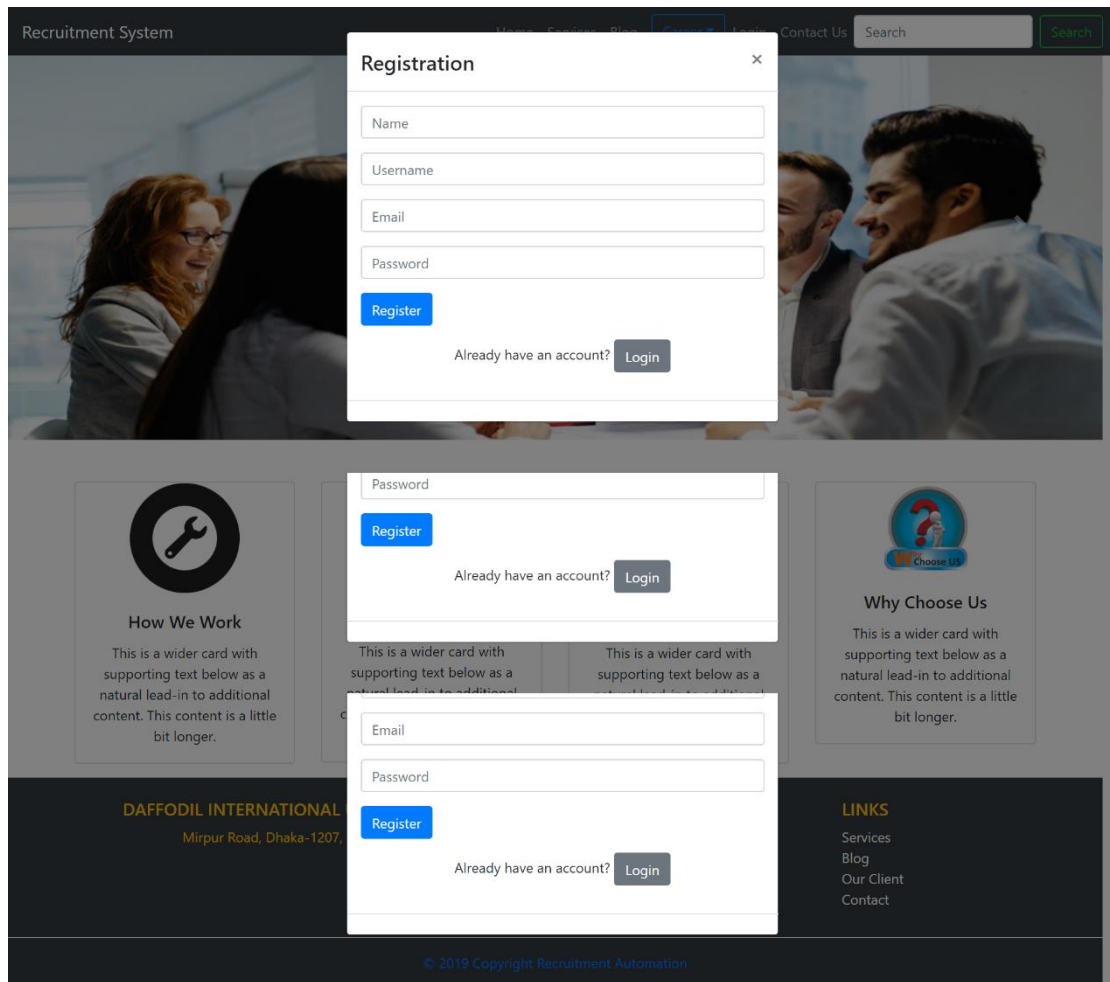
Figure: 4.4 Job Seeker Registration Panel

Login Panel

Figure 4.5 shows the Login Panel of the system
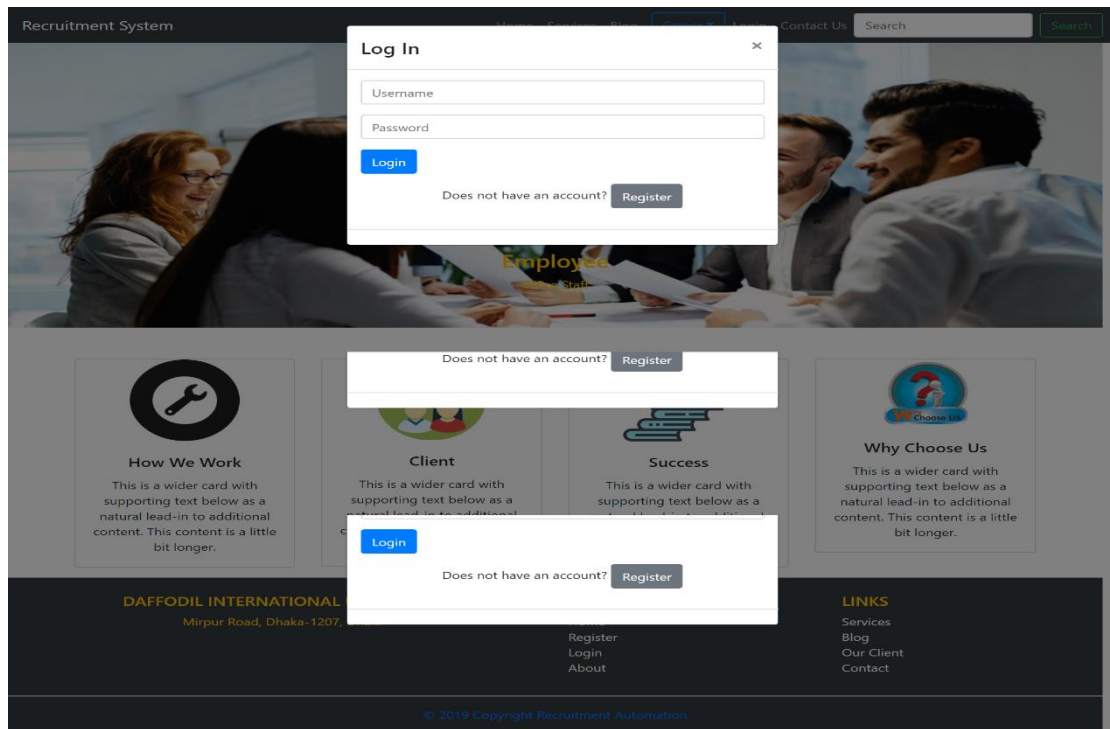
Figure: 4.5 Login Panel

Candidate Portal

Figure 4.6 shows the Candidate Portal / Job Portal of the system

Figure: 4.6 Candidate Portal

Admin Portal

Figure 4.7 shows the Admin Portal of the system

#	First	Last	Handle
1	Mark	Otto	@mdo
2	Jacob	Thornton	@fat
3	Larry the Bird		@twitter

#	First	Last	Handle
1	Mark	Otto	@mdo
2	Jacob	Thornton	@fat
3	Larry the Bird		@twitter

Recruitment Automation

Sukrabad, 1207, Dhaka
+880-4859501234

QUICK LINK
Home
Service
Blog
Staff

LINKS
Career
Contact
About Us
Blog

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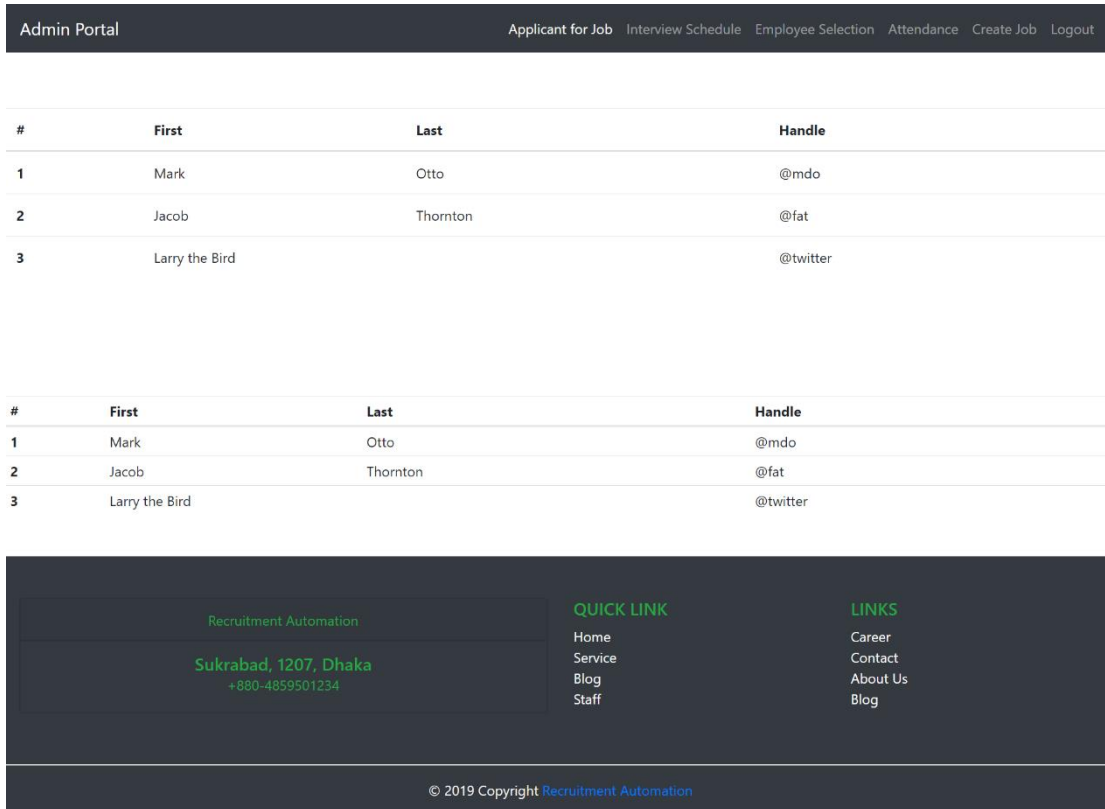
Figure: 4.7 Admin Portal

4.3 Back-end Design

Applicants

Figure 4.8 shows the Applicants table of the system

| Column	Type	Attributes	Null	Default	Extra	Links to	Comments	MIME
app_id	int(11)		No		auto_increment			
position	varchar(50)		No					
cv	blob		No					
status	int(11)		No					
interview_date	datetime		No					
user_id	bigint(20)		No			-> applicants.user_id ON UPDATE CASCADE ON DELETE CASCADE		

Figure: 4.8 Applicants table

Confirmation

Figure 4.9 shows the Confirmation table of the system

Column	Type	Attributes	Null	Default	Extra	Links to	Comments	MIME
con_id	int(11)		No		auto_increment			
marking	int(11)		No					
confirm	int(11)		No					
user_id	bigint(20)		No					

Figure: 4.9 Confirmation table

Employee

Figure 4.10 shows the Employee table of the system

Column	Type	Attributes	Null	Default	Extra	Links to	Comments	MIME
e_id	int(11)		No					
name	varchar(100)		No					
address	varchar(100)		No					
p_number	varchar(50)		No					
email	varchar(50)		No					

Figure: 4.10 Employee table

Job_Offer

Figure 4.11 shows the job_offer table of the system

Column	Type	Attributes	Null	Default	Extra	Links to	Comments	MIME
id	int(11)		No					
addition	varchar(255)		Yes	NULL				
benefits	varchar(255)		Yes	NULL				
company_name	varchar(255)		Yes	NULL				
context	varchar(255)		Yes	NULL				
education	varchar(255)		Yes	NULL				
experience	varchar(255)		Yes	NULL				
job_location	varchar(255)		Yes	NULL				
position	varchar(255)		Yes	NULL				
responsibility	varchar(255)		Yes	NULL				
salary	varchar(255)		Yes	NULL				
status	varchar(255)		Yes	NULL				
vacancy	varchar(255)		Yes	NULL				

Figure: 4.11 job table

Reg

Figure 4.12 shows the reg table of the system

Column	Type	Attributes	Null	Default	Extra	Links to	Comments	MIME
reg_id	int(11)		No					
name	varchar(255)		Yes	NULL				
phone_no	varchar(255)		Yes	NULL				
address	varchar(255)		Yes	NULL				
email	varchar(255)		Yes	NULL				
password	varchar(255)		Yes	NULL				
file_name	varchar(255)		Yes	NULL				
cv	longblob		Yes	NULL				

Figure: 4.12 reg table

Roles

Figure 4.13 shows the roles table of the system

Column	Type	Attributes	Null	Default	Extra	Links to	Comments	MIME
id	bigint(20)		No		auto_increment			
name	varchar(60)		Yes	NULL				

Figure: 4.13 roles table

Users

Figure 4.14 shows the users table of the system

Column	Type	Attributes	Null	Default	Extra	Links to	Comments	MIME
user_id	bigint(20)		No		auto_increment			
email	varchar(50)		Yes	NULL				
name	varchar(50)		Yes	NULL				
password	varchar(100)		Yes	NULL				
username	varchar(50)		Yes	NULL				

Figure: 4.14 users table

User_Roles

Figure 4.15 shows the users_roles table of the system

Column	Type	Attributes	Null	Default	Extra	Links to	Comments	MIME
user_id	bigint(20)		No			-> users.user_id ON UPDATE RESTRICT ON DELETE RESTRICT		
role_id	bigint(20)		No			-> roles.id ON UPDATE RESTRICT ON DELETE RESTRICT		

Figure: 4.15 users_roles table

4.4 Testing and Integration

Testing plays important role to write a program correctly. Testing refers an important role to software. There are several types of testing. Unit test is one of the most used testing. Unit testing mandatory to early stage of software writing. All the functionality of a software do unit testing during software writing and produce more effective system. During developing a system, there are two kind of error occur throw unit testing. One is "Syntax Error" and other on is "Exception Handling". We have tasted our system which are given below.

Black Box Testing:

It means testing a system throw its UI to identify that how a system behave on worst case. It is proved a system effective or not. We have tested our System. We got some error due to form error does not handled. Our system has some error to solve.

White Box Testing:

It refers the testing of knowledge of a system front-end and back-end both. Tester knows about coding part and UI part also. Tester test the system of coding part and front end part also. We have tested our system, on coding part raise exception some error and system easily handle that part. On the other hand front-end part does not have any error. But back-end exception can't handle.

Stress Testing:

Stress testing motive is to improve a system essentiality during the worst case, so that the system does not behave malfunctioned. We have tested on our system and it do some unnecessary behaved.

The Cross Browser Testing:

This testing purpose is to behave same functionality over all the browser on web application. Chrome, Mozilla Firefox, Microsoft Edge, Opera, Safari browser testing.

CONCLUSION & FUTURE SCOPE

5.1 Conclusion

The design and development of this project Human Resources Recruitment System is done with the help of Angular 8, Bootstrap 4, Spring Boot Framework and MySQL Database. Here, Admin can post Job, call for interview and finally joining confirmation. Admin also can check the attendance and edit, update, delete candidate details. Job Seeker can get register and login to the system and apply for job. The system is developed after processing all the phases of system development cycle. The system can be accessed from anywhere from a browser with the help of internet. The registered people can view the site details. Permission of any further change is the site is secure with the organization administration. Both the organization and candidates gain benefit from it. Our project purpose was to make a time-saver all task in one platform where everything can be managed.

5.2 Future Scope

The project "Human Resources Recruitment System" is handy enough to reduce the pain of the organization, make the recruitment portable to handle. For Bangladesh, this is going to be the better experience for the feature one site for one organization. This project can come up with some betterment in future like:

1) Add more module like Employee management, Payroll, Training, Full Attendance, Performance, Online Payment etc.

2) It can be supplied for the international Use.

3) It will bring beneficial use, not only the private organizer but also for the govt. organization.

4) It will be upgraded in a nucleus site from where all the other affiliating site can be occupied.

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