A
CAPSTONE (Major) Project Report
on

Acolyte

at

Briztech InfoSystems Pvt. Ltd.

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BHOPAL
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Submitted by

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Submitted in partial fulfillment of the requirement for the degree of

"Master of Computer Applications"

Submitted to

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VIT Bhopal University

Bhopal (MP) – 466 114

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VIT BHOPAL UNIVERSITY, M P - 466114

SCHOOL OF COMPUTING SCIENCE AND ENGINEERING

CANDIDATE'S DECLARATION

I hereby declare that the Dissertation entitled "Acolyte" is my own work conducted under the supervision of Ms E. Suganya, Assistant Professor, SCSE at VIT University, Bhopal.

I further declare that to the best of my knowledge this report does not contain any part of work that has been submitted for the award of any degree either in this university or in other university / Deemed University without proper citation.

Vartika Singh
18MCA10044

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Date: 30-05-2020

Ms E. Suganya
Associate Professor

VIT UNIVERSITY BHOPAL, M P – 466114

SCHOOL OF COMPUTING SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the work embodied in this Capstone Project Report entitled **Acolyte** has been satisfactorily completed by **Vartika Singh, 18MCA10044** in the School Computing Science and Engineering of MCA at VIT University, Bhopal. This work is a bonafide piece of work, carried out under my/our guidance in the School of Computer Science and Engineering for the partial fulfillment of the degree of Bachelor of Technology.

Ms E. Suganya
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Forwarded by

Dr Kanchan Lata k
Program Chair

Approved by

Dr Manas Kumar Mishra
Professor & Dean

COMPLETION CERTIFICATE

BRIZTECH INFO SYSTEMS

BrizTech Infosystems Pvt. Ltd

Branch Office: 404, 3rd floor, Devrani Complex, Circular Road, Lalpur, Ranchi, Jharkhand, India-834001

Ref. BT/IMS/04

Date: 13th January 2020

To Whomsoever it may concern

This is to certify that **Ms. Vartika Singh**, D/O Mr. Satish Singh, a student of MCA, 4th Sem from Vellore Institute of Technology, Bhopal, VIT University has successfully completed Six Months (from **28th October 2019 to 28th April 2020**) **Python internship** program at **Briztech Infosystems Pvt.Ltd.**

During the period of her internship program with us she was found punctual, hardworking and inquisitive. We extend our best wishes for her bright future and wish her success in her endeavors.

BRIZTECH INFOSYSTEMS PVT. LTD. RANCHI

For Briztech Infosystems Pvt. Ltd.

ACKNOWLEDGMENT

The success and final outcome of this project required a lot of guidance and assistance from many people and I am extremely privileged to have got this all along the completion of my project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I respect and thank Mr. Brizesh (CEO) and Mr Aman (Team lead) for providing me an opportunity to do the project work in Briztech InfoSystems Pvt Ltd and giving us all support and guidance which made me complete the project duly. I am extremely thankful to him for providing such a nice support and guidance, although he had busy schedule managing the corporate affairs.

I would like to express my gratitude towards my parents & member of VIT Bhopal for their kind co-operation and encouragement which help me in completion of this project.
I would like to express my special gratitude and thanks to industry persons for giving me such attention and time. I am thankful too and fortunate enough to get constant encouragement, support and guidance from all Teaching staffs of SCSE which helped us in successfully completing our project work.

EXECUTIVE SUMMARY

We have a lot of well contacted roads, commercial building and increasing number of automobiles. While parking these automobiles in parking space we use the manual procedure of parking which most of the cases is unplanned and lack of discipline.Here we are introducing Automated Parking Systems as a solution of these problems as well as car parking system in commercial spaces is creating hurdle which is causing wastage of time and some economical losses as well.

While parking in and retrieving car due mismanagement cars can get dent by bumping with each other as there is lack of sufficient space. This leads to arguments, fights among people which sometimes make huge traffic jam. This is also an economical loss as we need to repair our damaged car and also cars consume extra fuel while parking in or out. Traffic jam is an issue here as it kills our precious time.

Therefore we need a solution which can overcome these problems. Here we are introducing Automated Car Parking Systems as a solution of these problems as well as a replacement to the manual car parking systems at commercial spaces. This system not only saves time and money, it can also earn money by charging for parking spaces.

LIST OF FIGURES

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INTRODUCTION

Over the decades our country has been developed drastically, now we are in this state that we have a lot of well contacted roads, commercial building and increasing number of automobiles. While parking these automobiles in parking space we use the manual procedure of parking. Which most of the cases is unplanned and lack of discipline due to this, people can park their cars anywhere they want to, which creates a mess as people do not follow the particular cue most of the time. As a result of this, a huge traffic jam takes place in that place. While parking in and retrieving car due mismanagement cars can get dent by bumping with each other as there is lack of sufficient space. This leads to arguments, fights among people which sometimes make huge traffic jam. This is also an economical loss as we need to repair our damaged car and also cars consume extra fuel while parking in or out. Traffic jam is an issue here as it kills our precious time. Due to this chaos in parking our valuable time gets wasted. It harms the students, office going staffs and emergency patients to a great extent. It also causes economical loss to commercial places like shopping malls, amusement parks as people are more likely not to visit these places due to this parking hazard. As we are advancing with time, the manual car parking system in commercial spaces is creating hurdle which is causing wastage of time and some economic losses as well. Therefore we need a solution which can overcome these problems. Here we are introducing Automated Parking Systems as a solution of these problems as well as car parking system in commercial spaces is creating hurdle which is causing wastage of time and some economical losses as well. Therefore we need a solution which can overcome these problems. Here we are introducing Automated Car Parking Systems as a solution of these problems as well as a replacement to the manual car parking systems at commercial spaces. This system not only saves time and money, it can also earn money by charging for parking spaces.

1.1. **Problems with the Traditional car parking system:**

Traditional or manual car parking system is everywhere in our country but this system is full of problems. They are:

1. We can see in many shopping malls, hospitals huge traffic jam in front of the parking. The parking guard stops the entire vehicle and gives a payment slip, this creates traffic jam.
2. It is difficult and time consuming to find out the parking slot which costs extra fuel and wastes time.
3. Security problem is one another problem in manual car parking, people can enter in parking slot and their snatching, robbery can happen.
4. In manual parking system some guard needs to be appointed for the whole job, it is costly enough.

1.2 **Advantages of online car parking system:**

The advantages of automated car parking systems are:

1. Generating the online receipt to their customer.
2. There is no restriction or limitation of time for a car to spend in a parking
3. The existing system provide very affordable price to the customer.
4. The charges are based on hours spend by a car in the parking area.

LANGUAGE ADAPTATION

- **PYTHON -** Python is an interpreted, high-level, general-purpose programming language. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects. It supports multiple programming paradigms, including object-oriented, and functional programming. For this project we are using Python version **3.7.2**

- **HTML -** Hypertext Markup Language is the standard markup language for documents designed to be displayed in a web browser. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages.

- **CSS** - Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content.

- **JAVASCRIPT** - JavaScript enables interactive web pages and is an essential part of web applications. The vast majority of websites use it for client-side page behavior, and all major web browsers have a dedicated JavaScript engine to execute it. JavaScript supports event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM).

BRIZTECH INFOSYSTEM PROFILE

Briztech is your trusted operations management consultant offering a suite of innovative mobility solutions for highly efficient operations management and employee engagement. We believe in solving problems associated with traditional operations management with technology solutions that make it easier for business owners to have greater control over their business operations, even while managing multiple locations.

Our solutions have the potential to help businesses across different domains overcome their operational challenges and create a highly productive work environment to meet the demands of today and tomorrow.

The journey of Briztech began with a need to find a solution for the operational challenges being faced by Quick Service Restaurants and Restaurant Franchisees. Why were the challenges identified for the restaurant industry? It's simple – the founder of Briztech has more than 30 years of experience in the restaurant industry and had been witnessing the challenges being faced in operations on a daily basis.
Although the restaurant owners had access to computers and they were investing in POS solutions, things were just not working out when it came to managing the operations. Books were maintained manually which resulted in a lot of errors, inconsistencies, and time consumption. Guest feedback and complaint resolution was often delayed beyond a reasonable time due to the fact that no system was in place to track and monitor the status of these complaints. The mission is to empower businesses with innovative technology solutions for overcoming their operational challenges and ensuring the best employee and guest experience in their organizations.

SYSTEM SPECIFICATIONS

1. System Requirements

For the application to run on computer, the device is expected to meet the following system requirements. The system requirements were categorized into hardware and software requirements as shown in the Table 1 and Table 2.

Hardware	Minimum Requirement	Reason
Processor speed	1.6GHZ	Accommodate most PCs
Memory of user PC	512MB RAM	Relatively fast
Disk Space of user PC	5GB	Adequate Storage capacity
Memory of server Pc	8GB	Fast
Bandwidth(network connection)	15Mbps	Relatively Good
Disk space of server	200GB	Adequate Storage for database and application
Web Browser with working internet connection	Best works in Chrome, Firefox latest versions	Developed and tested on Chrome

Fig 1: Minimum Hardware Requirements

A fast processor is required because there is need to handle large amounts of data queries. 8 GB memory is required on the server for faster performance because it runs many processes simultaneously, while the memory in the computer should be relatively fast so as to run the processes required. 200 GB storage capacity in the server‘s hard disk is necessary for storage of huge amounts of data while the disk space in a user computer should be modest enough. Good network connection is vital because the application is majorly internet based and there is need for faster communication and retrieval of information.

Software	Minimum requirement	Reason
Operating System for PC	Windows 7,8.1,10,linux,Mac	Accessed all over the World
Database Management System	SQLite3	Easy to use and scalable
Browser	Opera, Chrome, IE, Mozilla Firefox	Standard browser

Fig 2: Minimum Software Requirements

It shows the software requirements for the web application that define the prerequisites needed for the optimal functioning of the web application. Each of the following operating system can handle the application, windows 7, windows 8, windows 8.1, Linux, those operating systems were chosen because they are affordable and readily available. SQLite3 was used in the development of the databases and is relatively cheap, easy to use and scalable. Browsers: any browser including opera, Google chrome, Microsoft Internet explorer and Mozilla Firefox.

1. **User Requirements**

The following user requirements were attained:

1. The system allows drivers/clients to create accounts on it
2. The system allows the system administrator to: book the parking place, printing their receipt , managing the client and parking lot information(such as deleting, updating, adding viewing the client information and viewing different type of parking lot status)
3. The system allows drivers to locate and reserve a parking place online through accessing it on web platform
4. The system allows the client and the system administrator to view the parking status (either available or already reserved).

5. The system allows authentication of registered users.
6. The system is easy to use and learn.
7. The system allows the clients to view their account info (booking status) and also to print receipt.

2. FUNCTIONAL AND NON FUNCTIONAL REQUIREMENTS

2.1 FUNCTIONAL REQUIREMENTS

1. The web application displays the availability of parking lot
2. The web application enables employees to set the reaching date and time for the car also the departure date and time.
3. The web application enables employees to cancel a parking place.
4. The web application enables drivers to book parking place

2.2 NON-FUNCTIONAL REQUIREMENTS

1. The system should be secure. User should fill in his/her email address and password so as to be authenticated to the system.
2. The system should allow the customer to park without making a reservation.
3. The system should be scalable. Even with an increasing number of users, system should be able to perform effectively.
4. The system should be user friendly with ability to show users where they are in the system and guide them on some processes through programmed controls.
5. The system should be reliable. In case of system failure, the system should be able to recover quickly and continue working normally.

SDLC(SYSTEM DEVELOPMENT LIFE CYCLE)

System development life cycle. SDLC is a system development life cycle of software development life cycle. It include guideline policies and procedures for developing system. through their life cycle it include requirement design implementation, testing, deployment operation and maintenance.

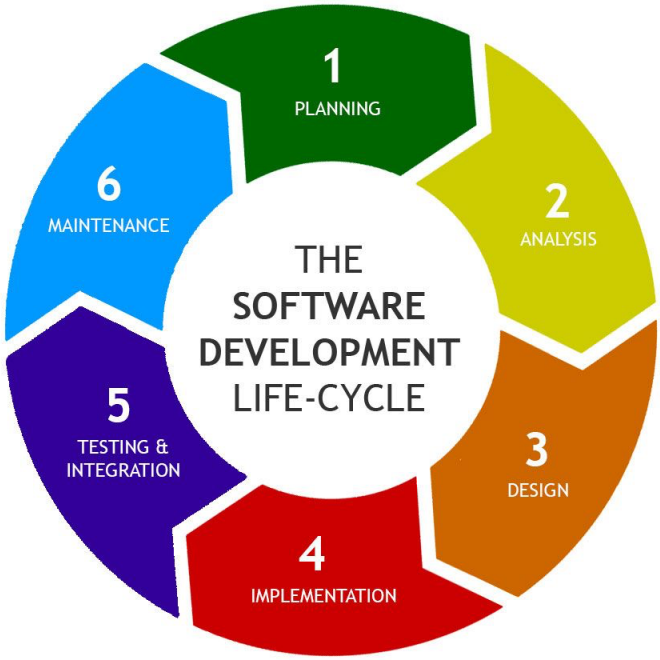

Fig. 3

<u>Various phases were performed by Organization:</u>

1. **Planning -** Done by Management Team from Gibbsboro which included financial studies by owner and business executives
2. **Analysis -** Done by Product Manager(s) and higher team measuring various outcomes as well as study of feasibility
3. **Design -** Prepared by Web Consultant and Web team

4. **Implementation -** By web team which include coding and architectures for code flow including Database structure
5. **Testing -** By testers which includes testing each module such as database, code flow etc
6. **Maintenance -** By web Team

AGILE METHODOLOGY

This project followed the Agile software development methodology which is more than frameworks such as Scrum, Extreme Programming or Feature-Driven Development (FDD). Agile software development comprises various approaches to software development under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customers and users. It advocates adaptive planning, evolutionary development, early delivery, and continual improvement, and it encourages rapid and flexible response to change.
Agile software development is more than practices such as pair programming, test-driven development, stand-ups, planning sessions and sprints.

<u>It includes:</u>

- Track of regular Updates
- Daily Scrum for Task
- Sessions twice a month
- Git Approach to track performance
- Zoom Extensions for Presentation

FEASIBILITY STUDY

Feasibility study is used to assess the strengths and weakness of a proposed project and present directions of activities which will improve a project and achieved desired result.It involves an examination of operation, HR and marketing aspects of a business on ex ante basis.

Feasibility study is designed to provide an overview of the primary issue related to the business idea.

It involves:

Appraisal of existing system and manual process- Troubleshooting, process reengineering, risk analysis and assessment, risk management, cost benefit analysis, impact analysis, integration of existing of new system, resource requirement planning and timing.

There are many different types of feasibility studies; here is a list of some of the most common:

- **Technical Feasibility** – Does the company have the technological resources to undertake the project? Are the processes and procedures conducive to project success?

- **Economic Feasibility** – Given the financial resources of the company, is the project something that can be completed? The economic feasibility study is more commonly called the cost/benefit analysis.

- **Operational Feasibility** – This measures how well your company will be able to solve problems and take advantage of opportunities that are presented during the course of the project

SYSTEM DESIGN METHODOLOGIES

Systems design is the process of defining the architecture, modules , interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. There is some overlap with the disciplines of system analysis, system architecture and systems engineering.

- **Architectural design :-** The architectural design of a system emphasizes the design of the system architecture that describes the structure, behavior and more views of that system and analysis.
- **Logical design :-** The logical design of a system pertains to an abstract representation of the data flows, inputs and output of the system. This is often conducted via modeling, using an over-abstract (and sometimes graphical) model of the actual system. In the context of systems, designs are included. Logical design includes entity-relationship diagrams (ER diagrams).
- **Physical design :-**

The physical design relates to the actual input and output processes of the system. This is explained in terms of how data is input into a system, how it is verified/authenticated, how it is processed, and how it is displayed. In physical design, the following requirements about the system are decided.

1. Input requirement
2. Output requirements
3. Storage requirements
4. Processing requirements
5. System control and backup or recovery

Put another way, the physical portion of system design can generally be broken down into three sub-tasks:

1. User Interface Design
2. Data Design
3. Process Design

SYSTEM ANALYSIS

- **Identification of Objects :-**

1. Registration & Login Page
2. Users
3. Profile
4. Bookings

- **Identification of Entities :-**

1. Users - Current logged User
2. Profile - User Details including their profile picture
3. Bookings - Vehicle Number, Date & Time

- **Attributes for the following Entities :-**

1. Users :- userName, userEmail, profileImageURL
2. Bookings :- bookedBy, phNo, LicenseNo, vehicleType, City, checkInTime
3. Payment Mode :- Card Details (Confidential data not saved in database)

- **Design :-**

1. Use Case Diagram (UML)
2. ER diagram
3. DFD

UML ARCHITECTURE

UML is a standard language for specifying, visualizing, constructing, and documenting the artifacts of software systems.A picture is worth a thousand words, this idiom absolutely fits describing UML. Object-oriented concepts were introduced much earlier than UML. At that point of time, there were no standard methodologies to organize and consolidate the object-oriented development. It was then that UML came into picture.

UML diagrams are not only made for developers but also for business users, common people, and anybody interested to understand the system. The system can be a software or non-software system. Thus it must be clear that UML is not a development method rather it accompanies with processes to make it a successful system.

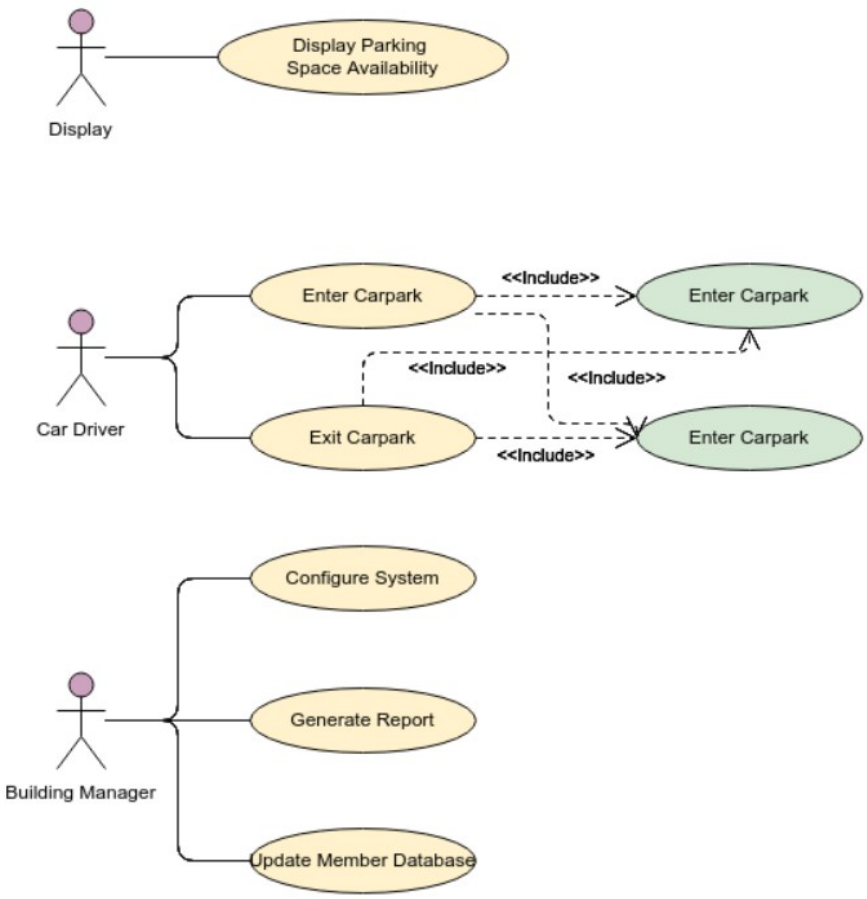

Fig. 4

ER - DIAGRAM

An entity relationship diagram (ERD) shows the relationships of entity sets stored in a database. An entity in this context is an object, a component of data. An entity set is a collection of similar entities. These entities can have attributes that define its properties. By defining the entities, their attributes, and showing the relationships between them, an ER diagram illustrates the logical structure of databases.

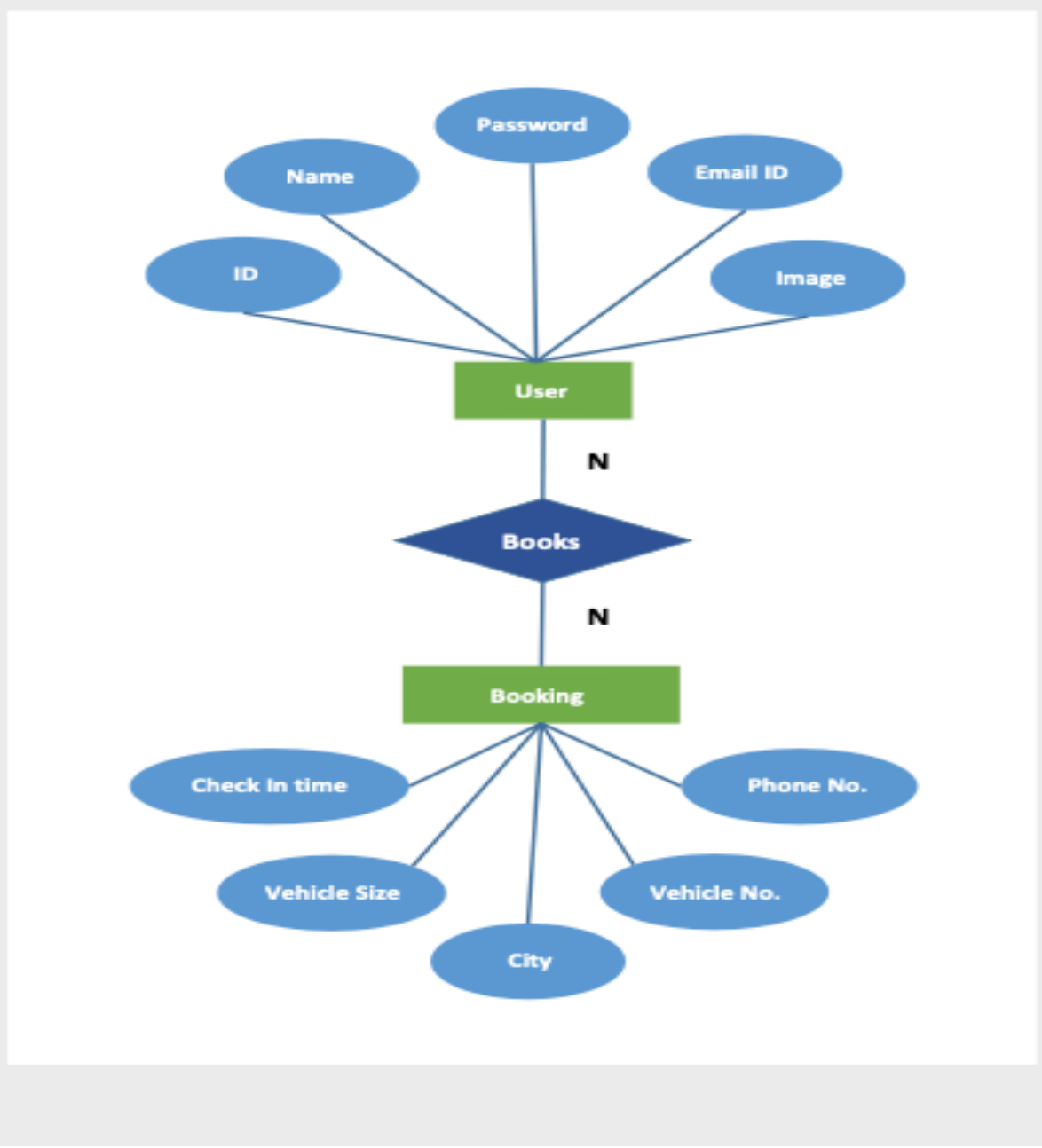

Fig. 5

DATA FLOW DIAGRAM

A data flow diagram shows the way information flows through a process or system. It includes data inputs and outputs, data stores, and the various subprocesses the data moves through. DFDs are built using standardized symbols and notation to describe various entities and their relationships.

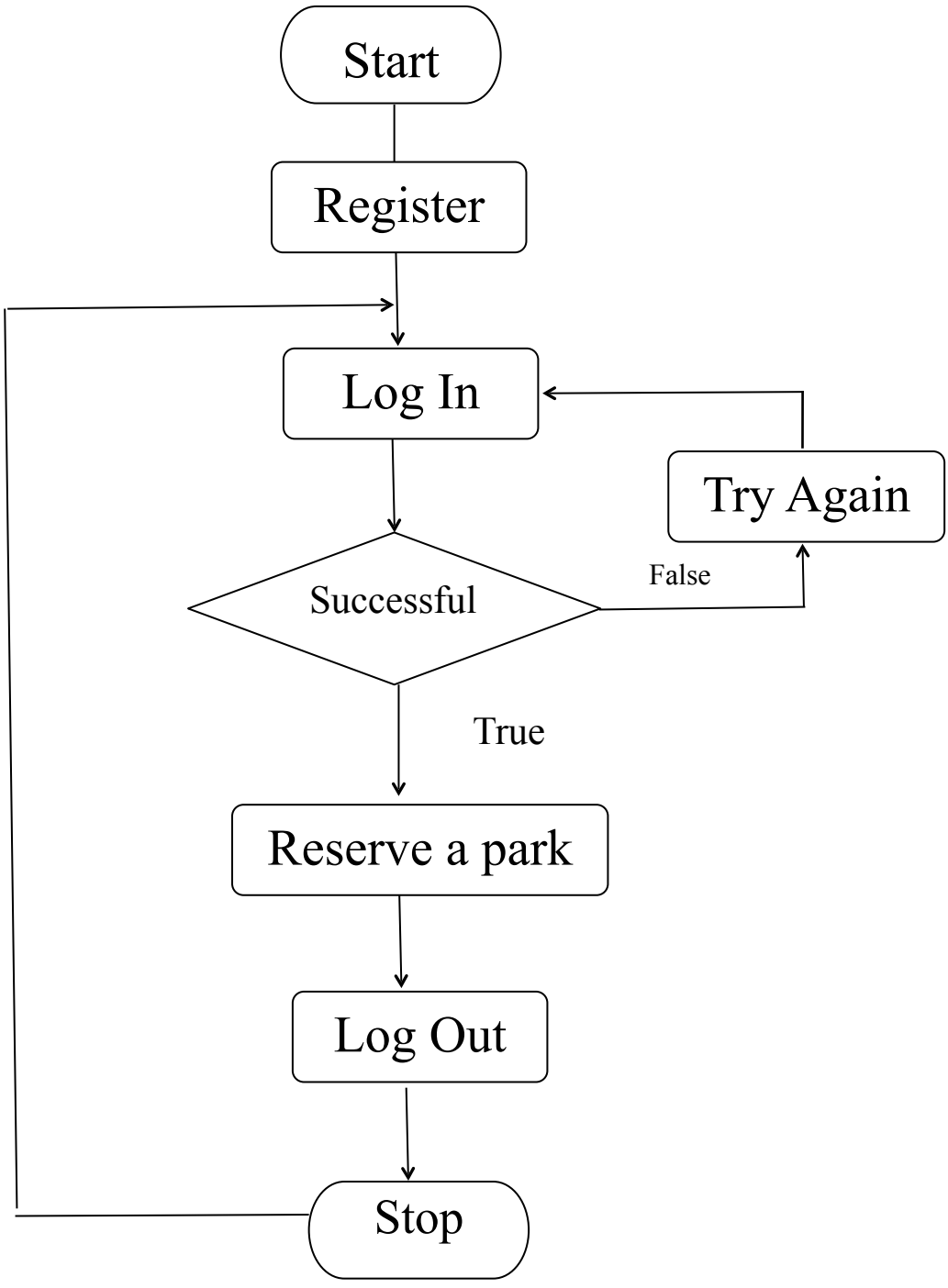

Fig. 6.1 Flow Chart on client side

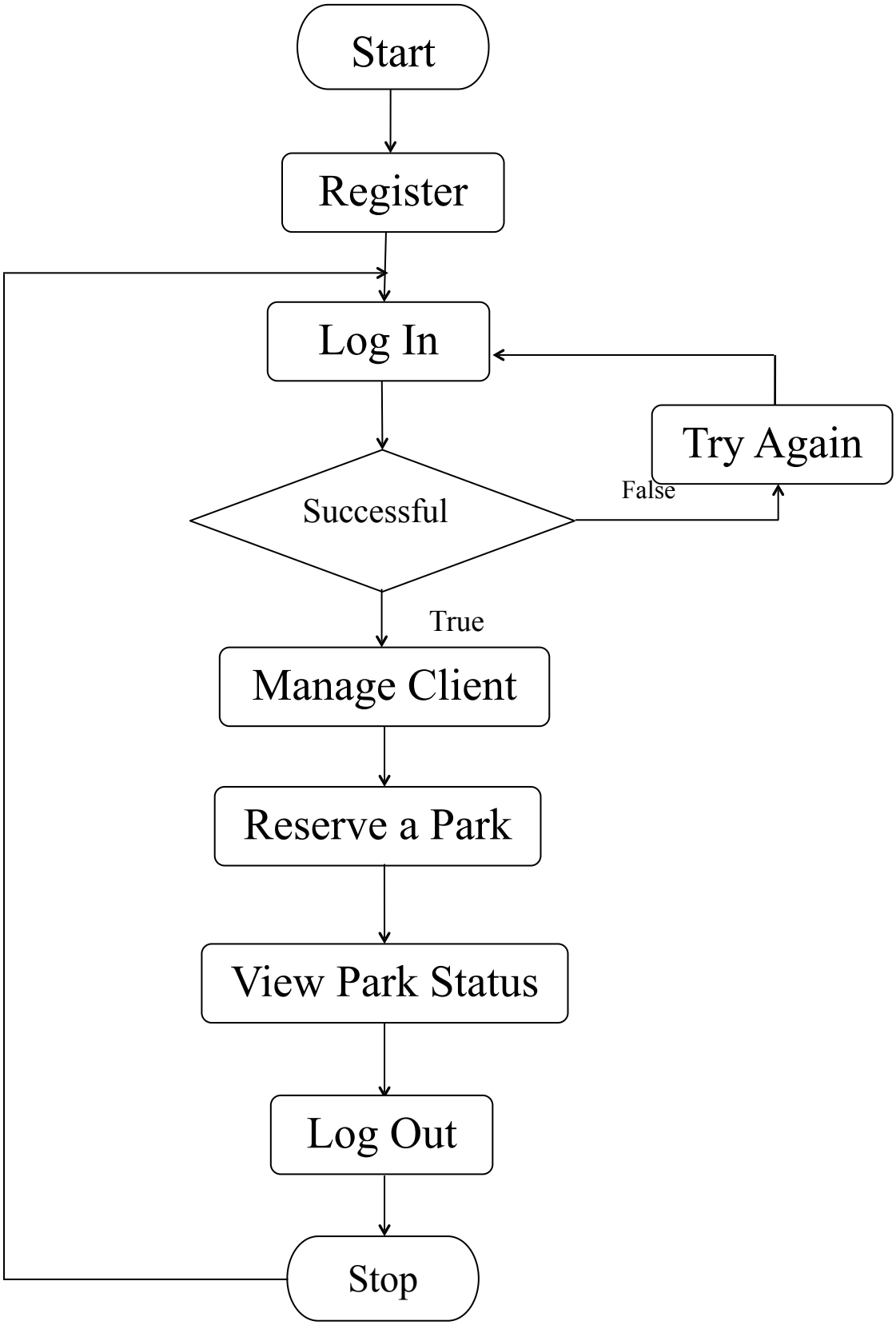

Fig. 6.2 Flow Chart on Admin side

WORKING LAYOUT

1. USER INTERFACE : -

1.1. HOME PAGE :-

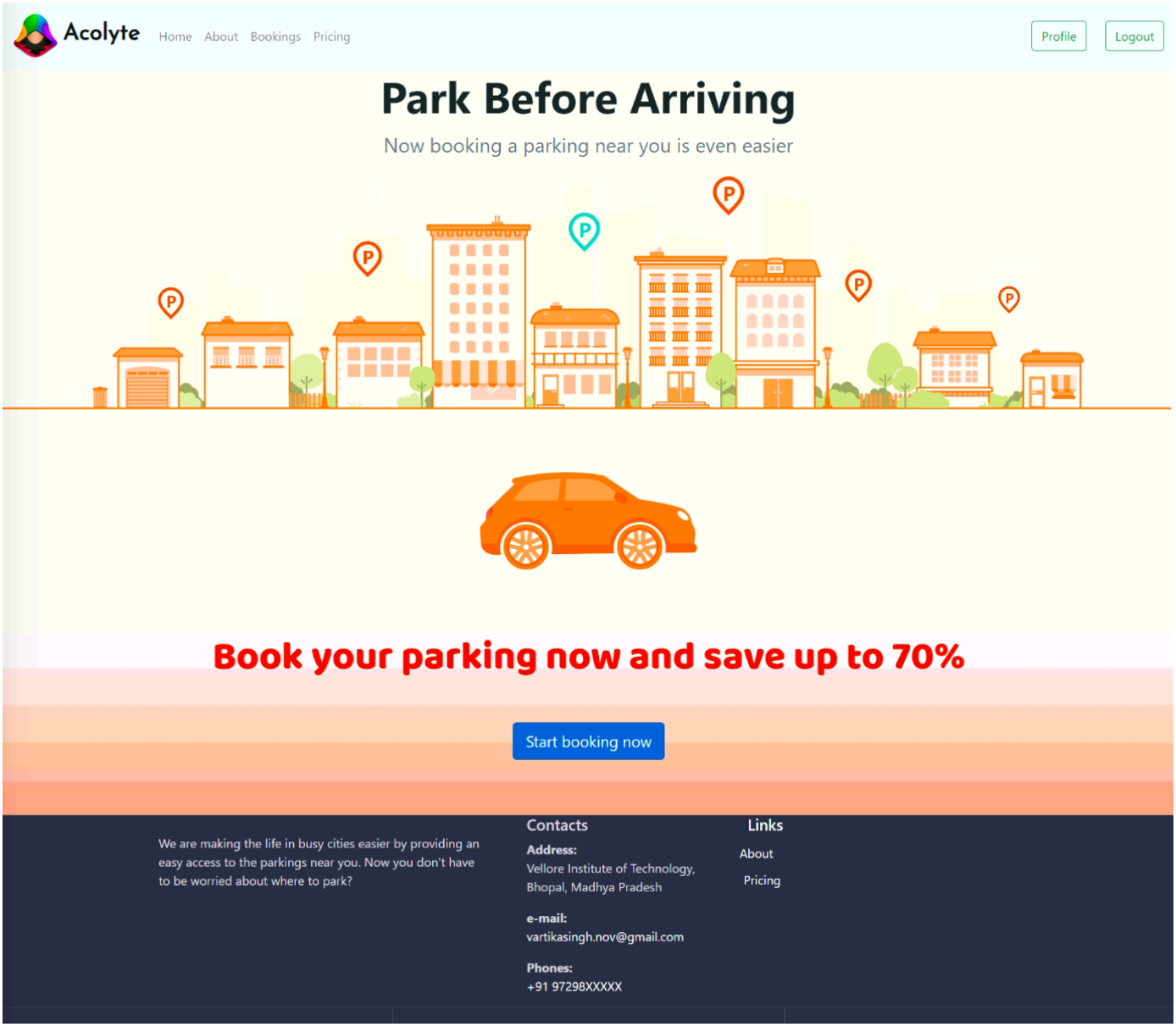

Fig. 7

1.2. REGISTRATION :-

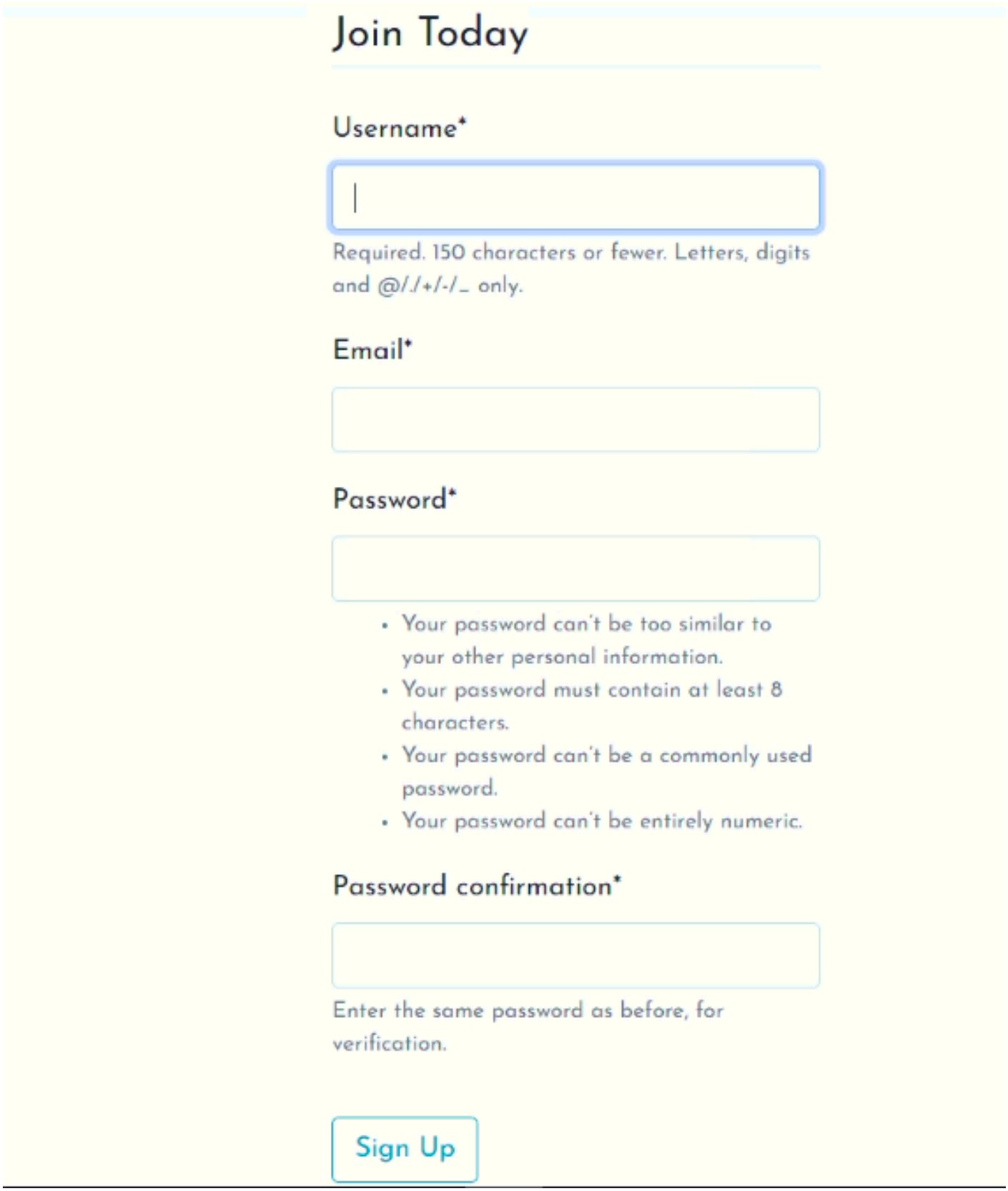

Fig. 8

1.3. ABOUT PAGE :-

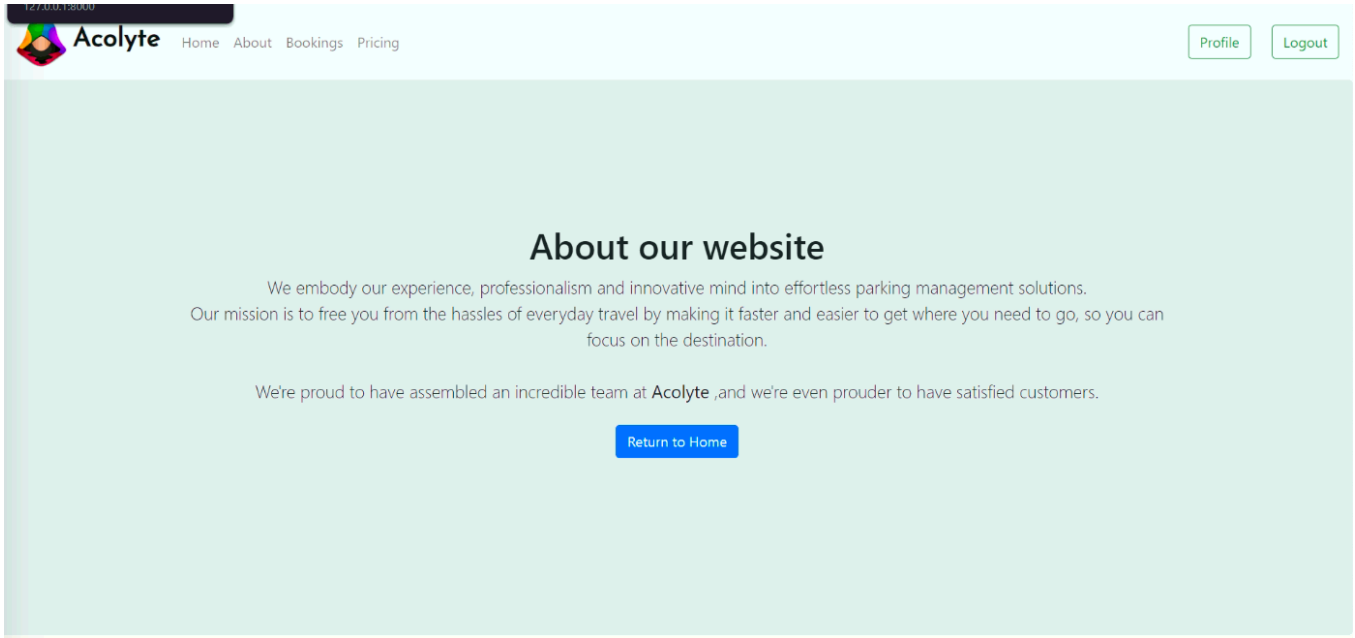

Fig. 9

1.4. MEMBERSHIP PRICE PAGE :-

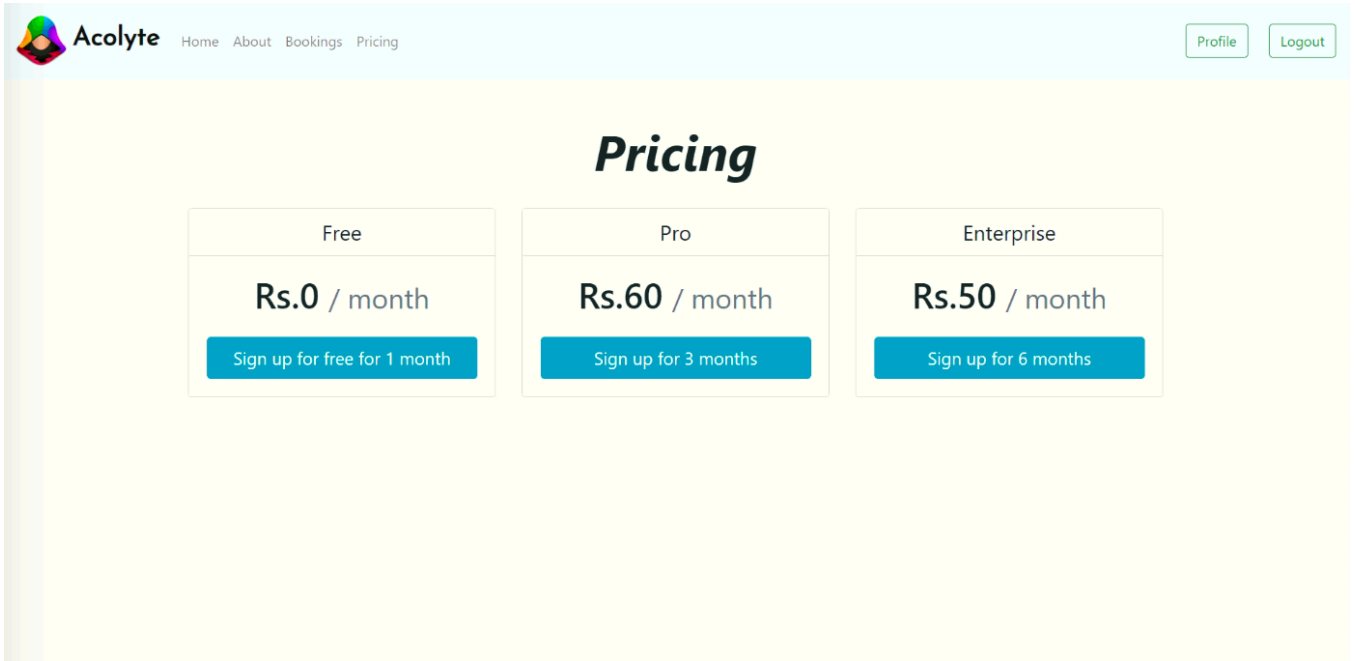

Fig. 10

1.5. USER PROFILE PAGE :-

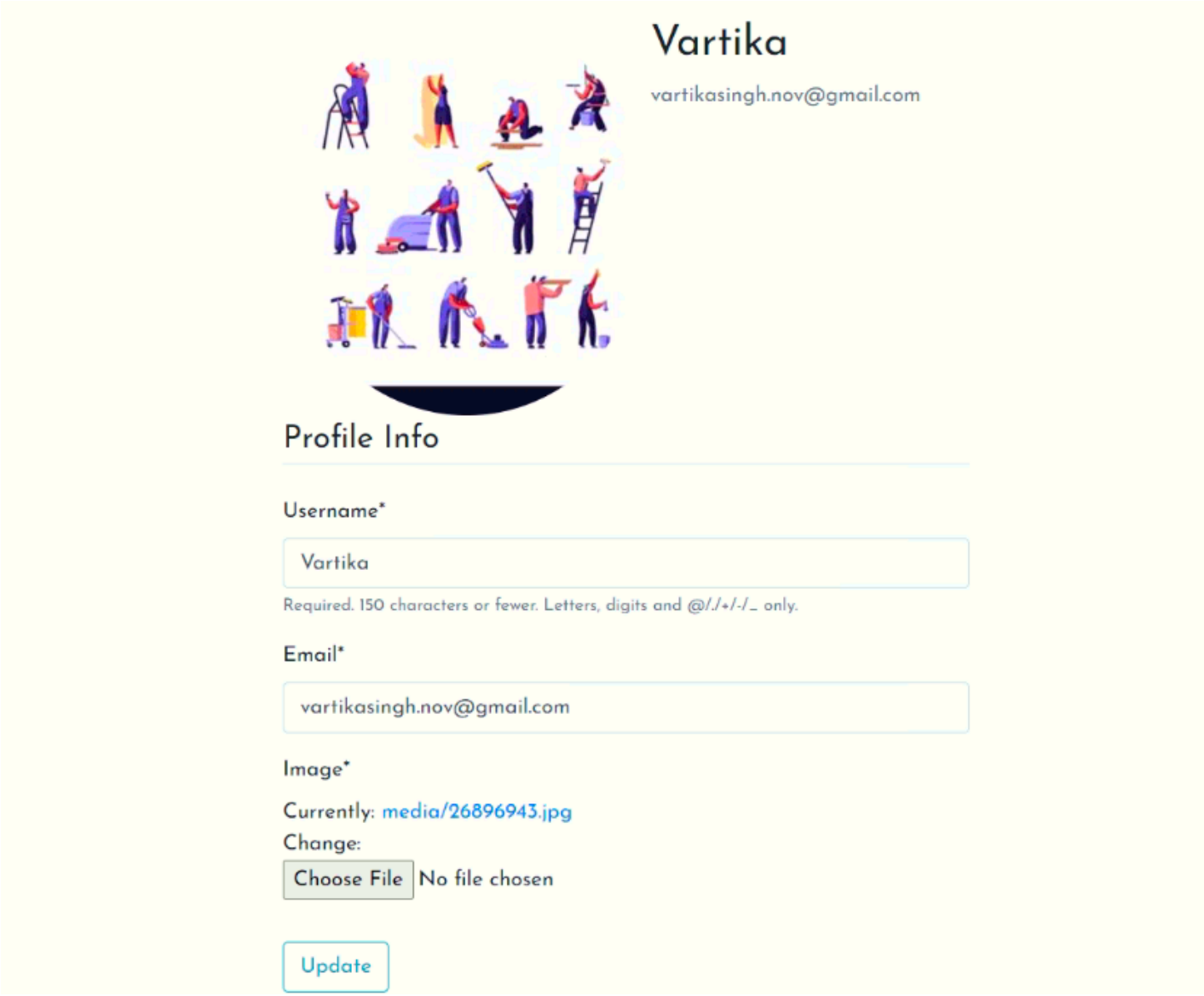

Fig. 11

1.6. RESET PASSWORD PAGE :-

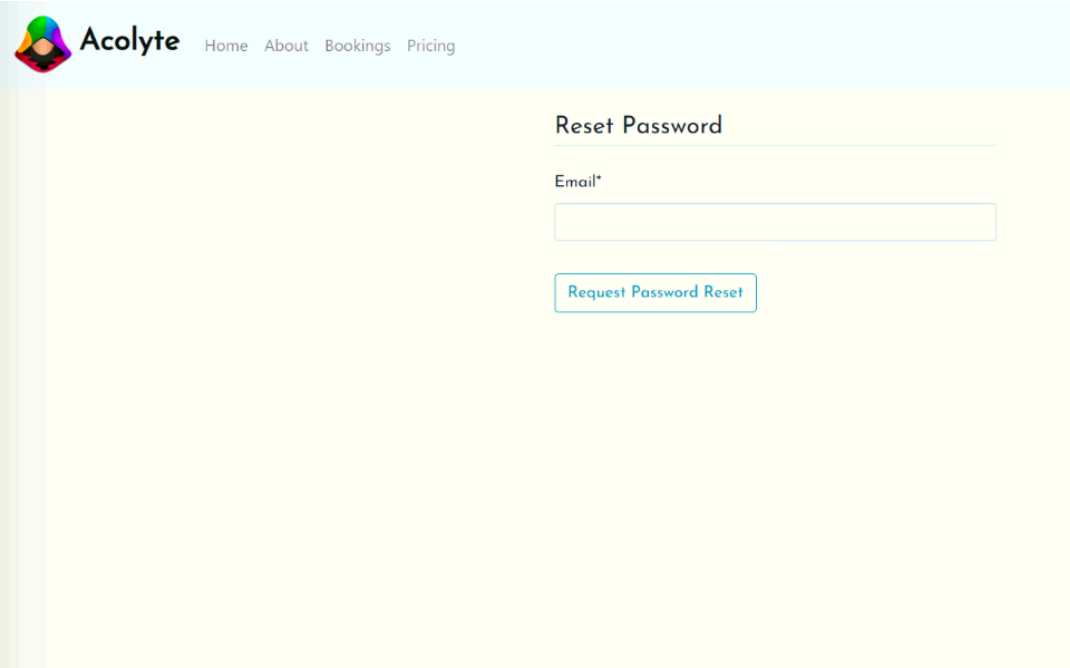

Fig. 12.1

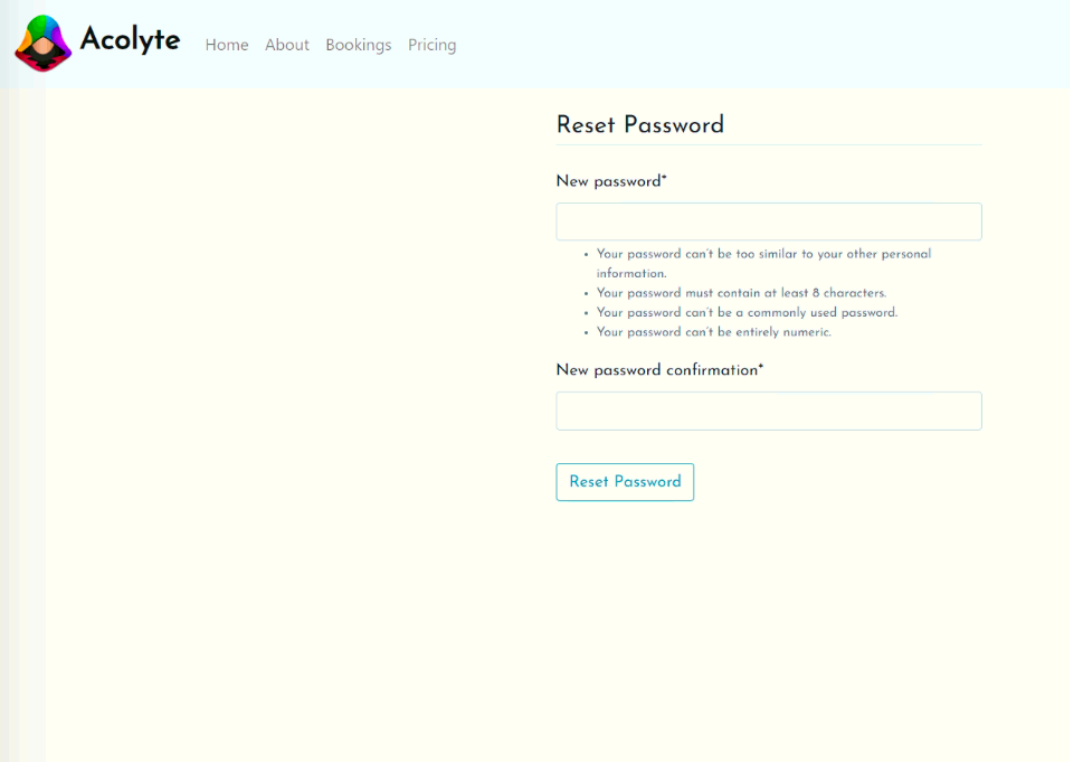

Fig. 12.2

1.7. BOOKING FORM :-

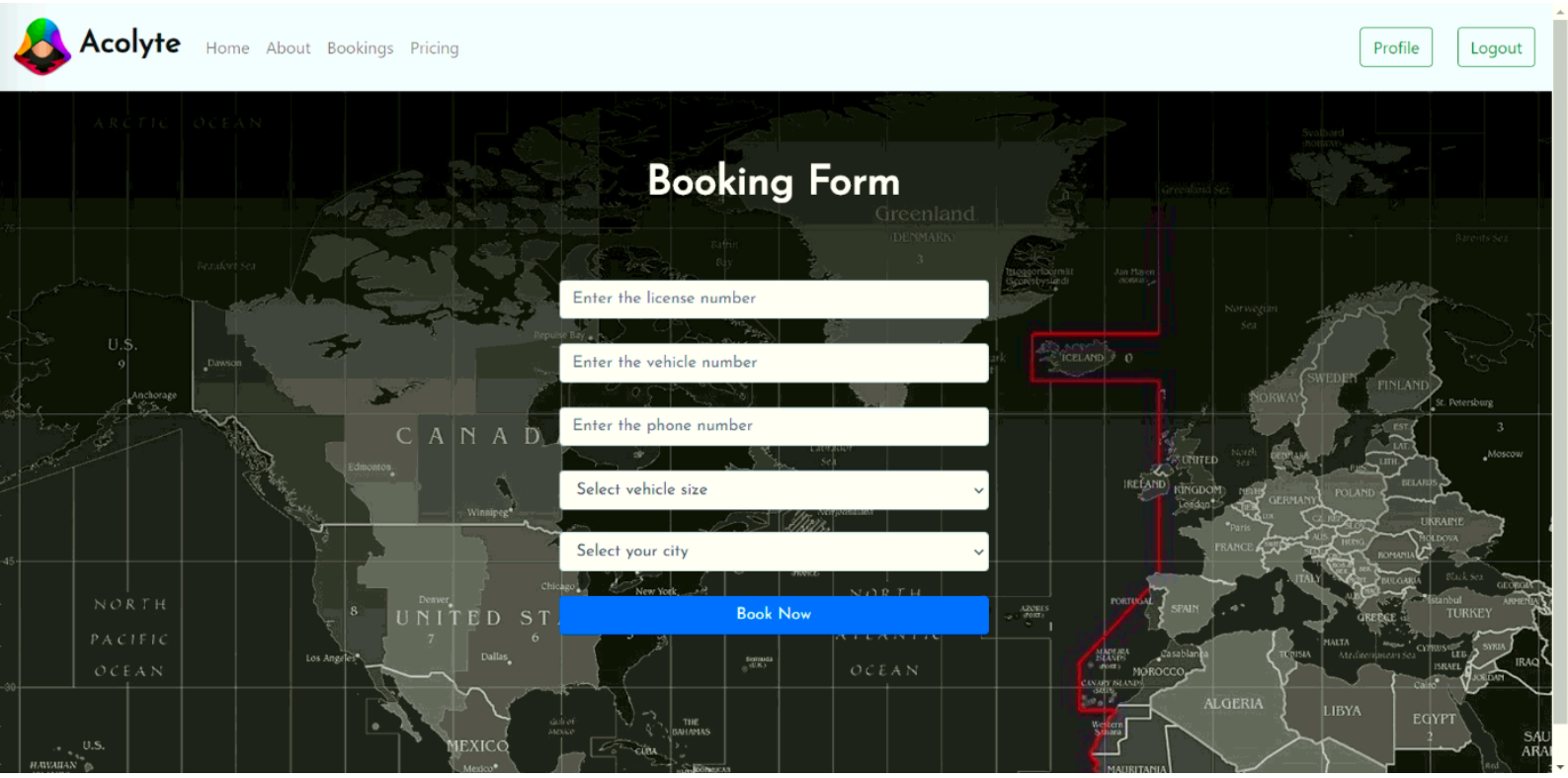

Fig. 13

1.8. PAYMENT FORM :-

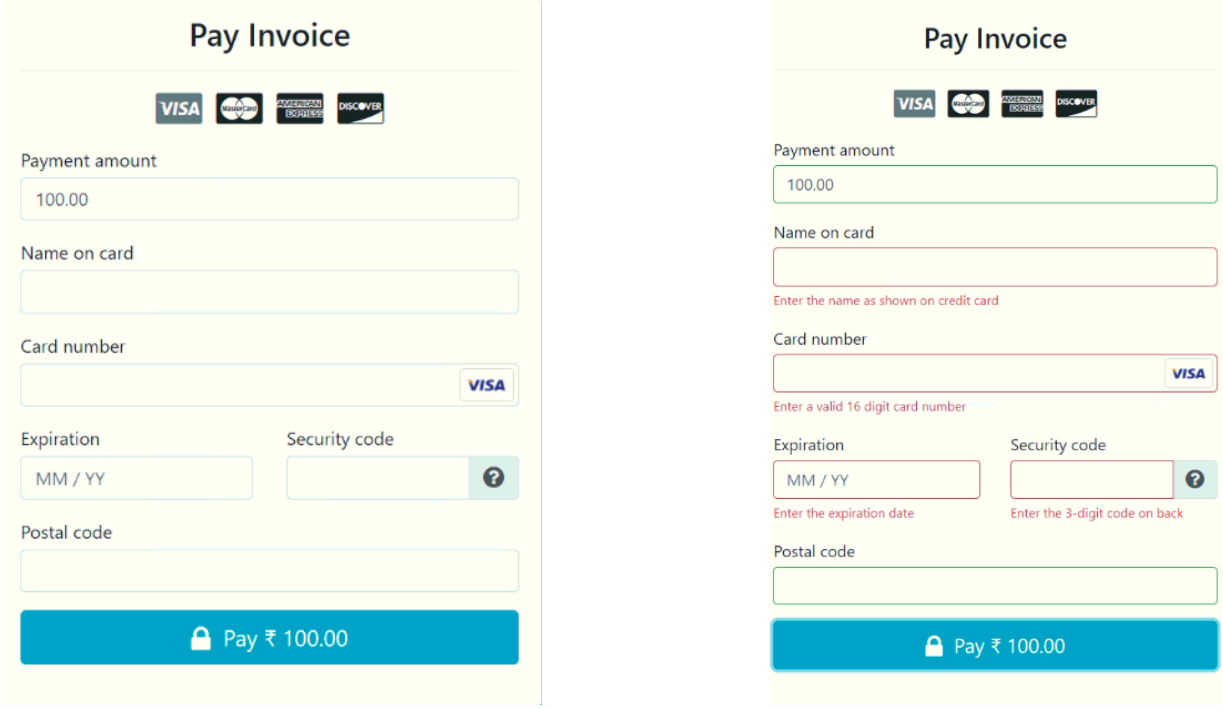

Fig. 14

1.9. BOOKING LIST :-

Fig. 15

2. <u>DATABASE INTERACTION</u> : -

2.1. ADMIN LOGIN :-

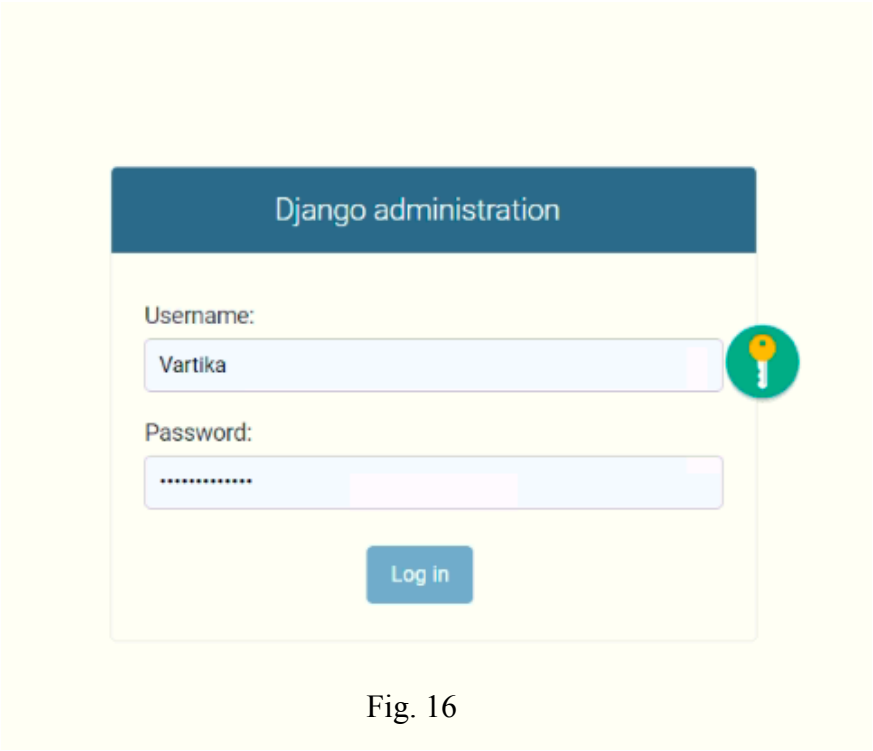

Fig. 16

2.2. STRUCTURING DATABASE :-

- **By Groups**
- **By Users**
- **By Bookings**
- **By Profiles**

Fig. 17

2.2.1. BY USERS :-

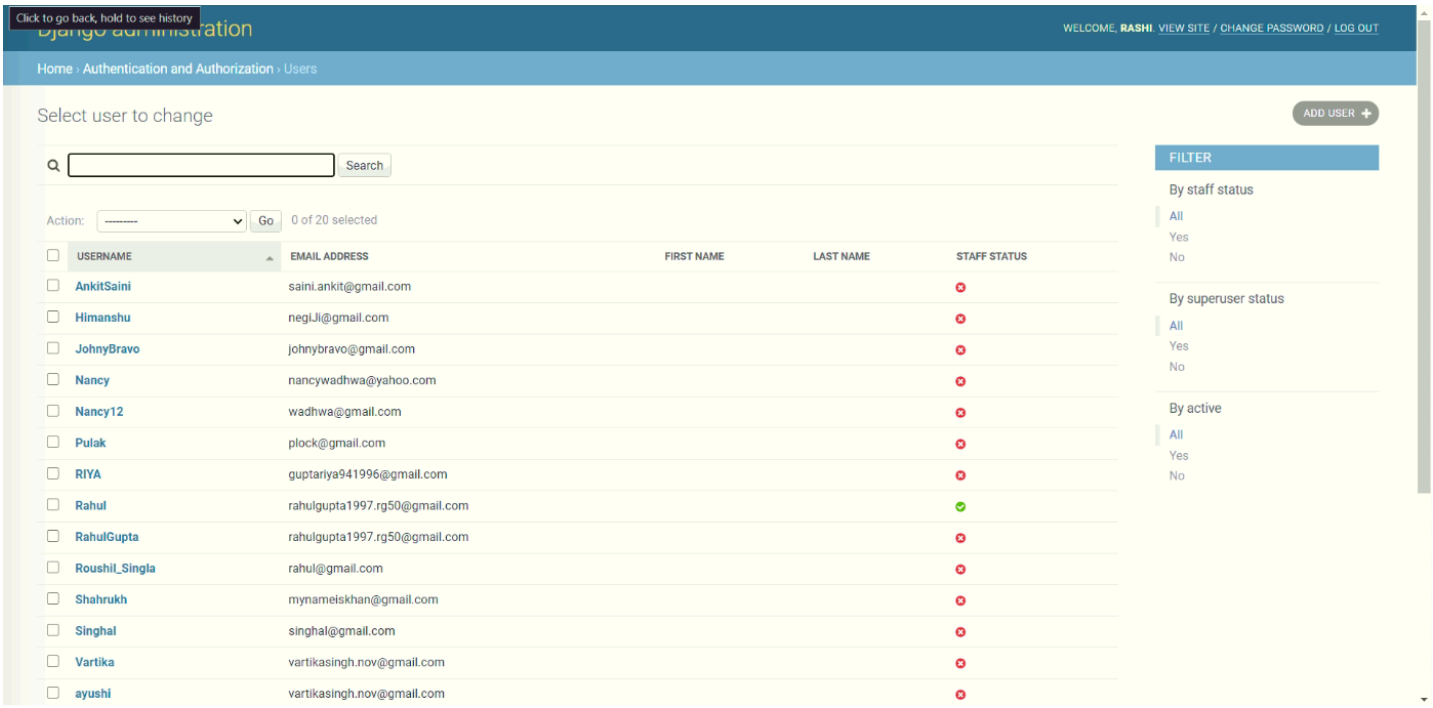

Fig. 17.1

2.2.2. BY BOOKINGS :-

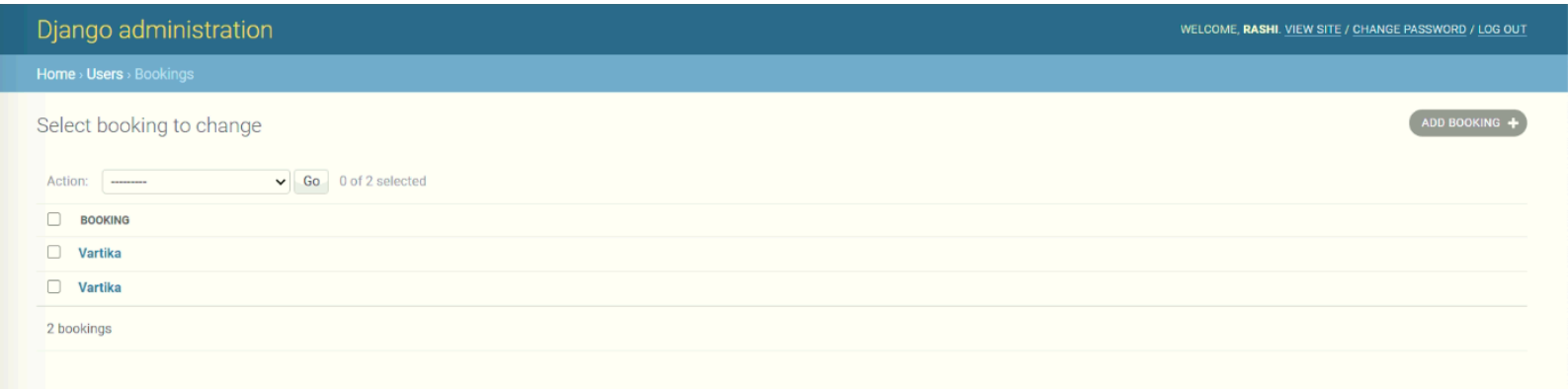

Fig. 17.2

2.2.3. BOOKING DETAILS :-

Fig. 17.3

2.2.4. BY PROFILE :-

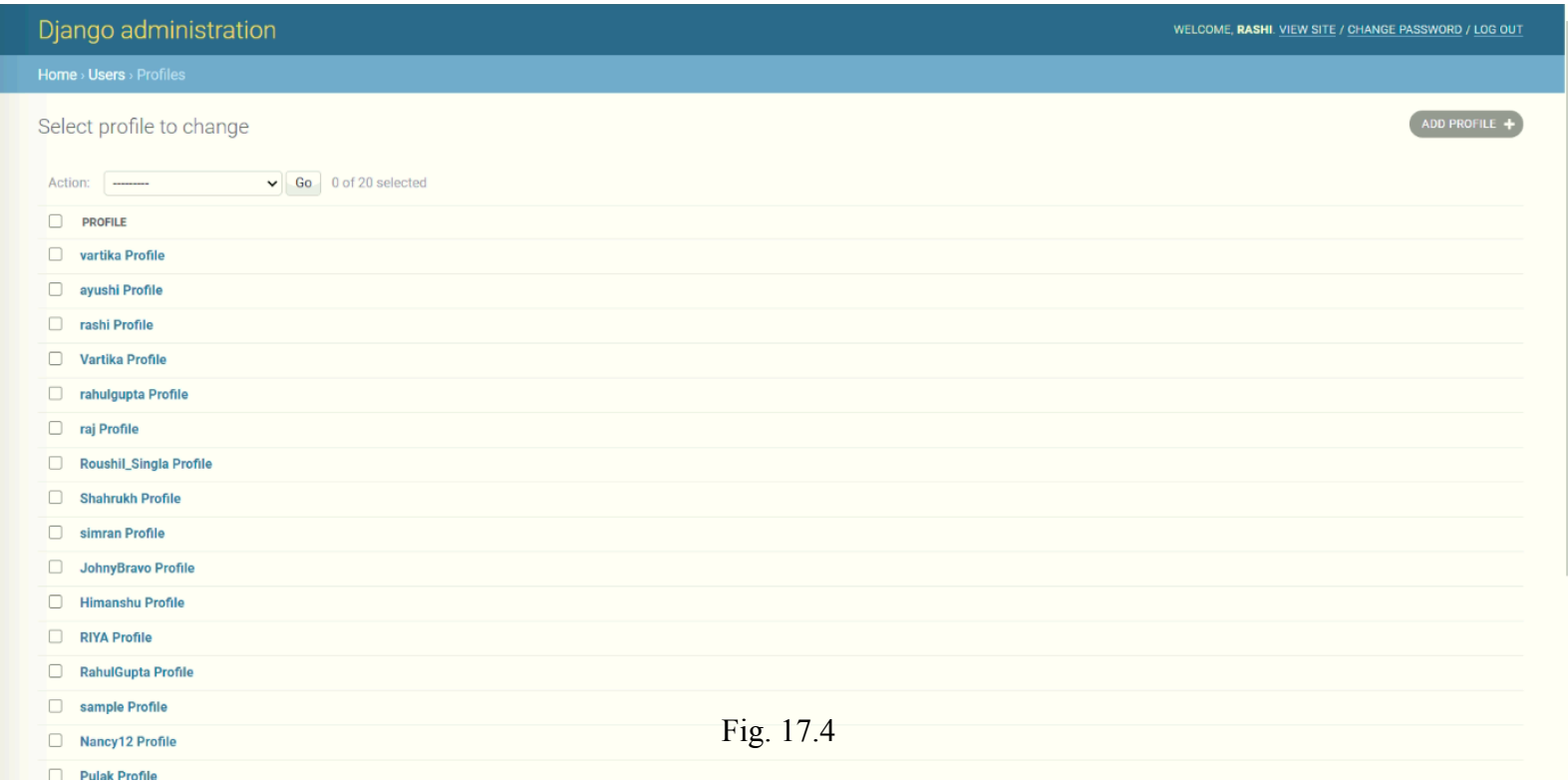

Fig. 17.4

CONCLUSION

Online vehicle parking reservation system improves the existing system since we are in computerized world. With this new system is mandatory, it enables the user of the system (client, employee, System administrator) to reserve a parking lot online and this reduces the wasting of time of the clients looking for where to park, increase the safety of the property since the parking lot is numbering.

REFERENCES

1. https://www.djangoproject.com/
2. https://www.youtube.com/results?search_query=django+tutorial
3. https://ieeexplore.ieee.org/document/6596418
4. Shaheen et al., (2005) and Chinrungreung et al., (2007).Online Reservation Parking System (ORPS)
5. Shem, S, S.Park and S.Hong (2006), Network Security parking management system using Zigbees