

Exploration for Wayfarer

A PROJECT REPORT

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LDRP INSTITUTE OF TECHNOLOGY AND RESEARCH
GANDHINAGAR

IT Department



CERTIFICATE

This is to certify that the Project Work entitled “**Exploration for Wayfarer**” has been carried out by **Patel Deep Rajubhai (19BEIT30010)** under my guidance in fulfilment of the degree of Bachelor of Engineering in Information Technology Semester-7 of Kadi Sarva Vishwavidyalaya University during the academic year 2022-23.

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This is to certify that the Project Work entitled “**Exploration for Wayfarer**” has been carried out by **Kothari Jainam Gautamchand (19BEIT30027)** under my guidance in fulfilment of the degree of Bachelor of Engineering in Information Technology Semester-7 of Kadi Sarva Vishwavidyalaya University during the academic year 2022-23.

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This is to certify that the Project Work entitled “**Exploration for Wayfarer**” has been carried out by **Bunha Kunj Chimanbhai (19BEIT30038)** under my guidance in fulfilment of the degree of Bachelor of Engineering in Information Technology Semester-7 of Kadi Sarva Vishwavidyalaya University during the academic year 2022-23.

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We are grateful to our Head of the Department Dr. Mehul P. Barot, our internal faculty Prof. Himani Trivedi for providing encouragement, constant support and guidance throughout our work giving us their valuable time.

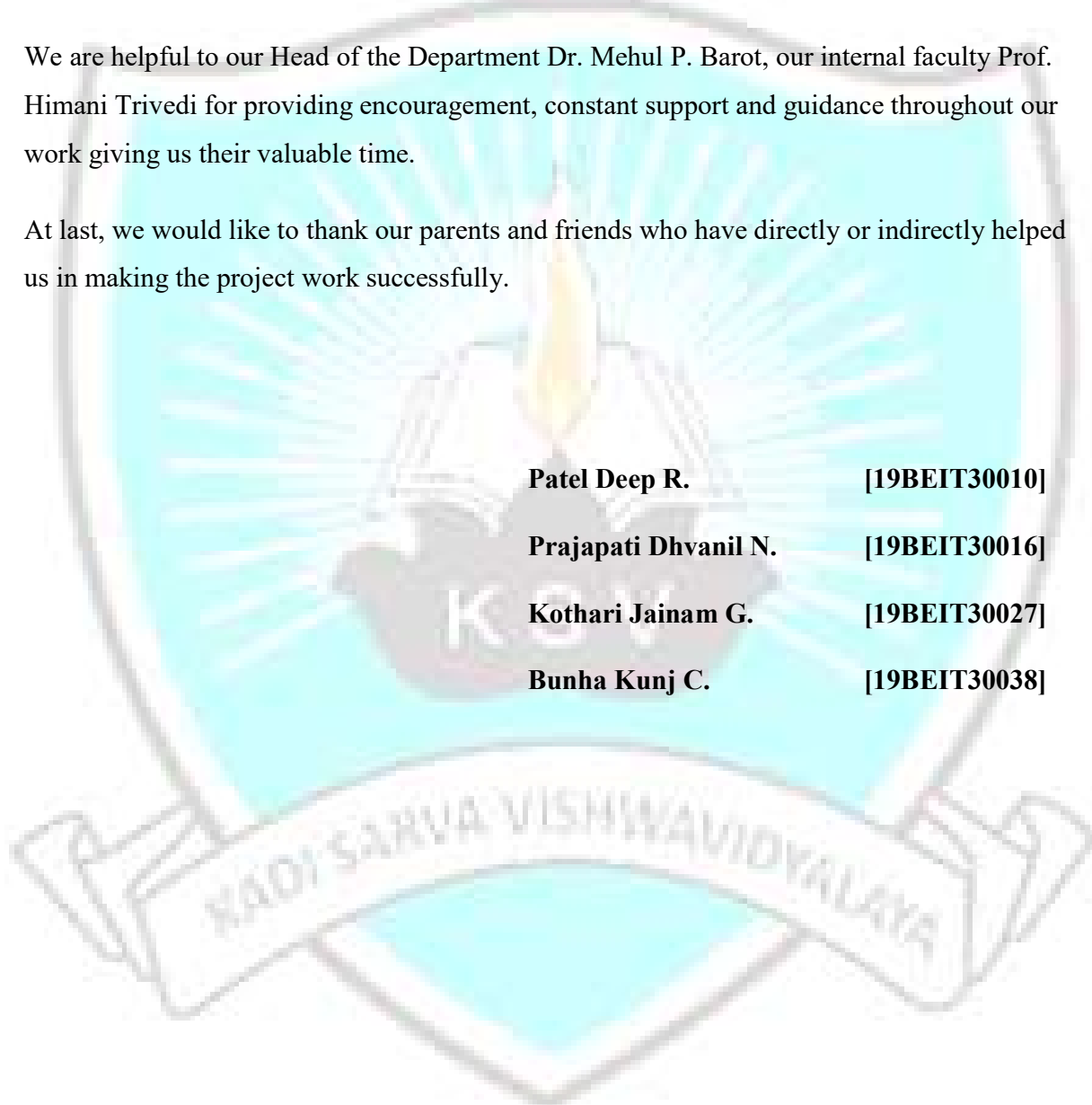
At last, we would like to thank our parents and friends who have directly or indirectly helped us in making the project work successfully.

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Abstract

The tourism industry is one of the major contributors to national development. Many people across the various countries visits various places in India to learn about the Indian culture and its history. The major part of the history are the heritage sites, museums and the monuments across the country. Even though, after having so many numbers of museums and heritage places there is no way that one can book the tickets for himself/herself through single portal.

The meaning of “Exploration for Wayfarer” is a traveler going on a trip. It is web-based portal which uses the Flask framework of Python, NumPy Library and Machine learning models to predict the number of tourists at a certain period of year. This portal can be used to book QR based e-tickets through the single portal for all the monuments and heritage sites across the country.

It can be used by the government authorities and tourism industry to track the travel history of any individual of the country as well as keep track on number of tourists at any place for any time of the year. It allows them to manage their resources in proper and efficient manner.

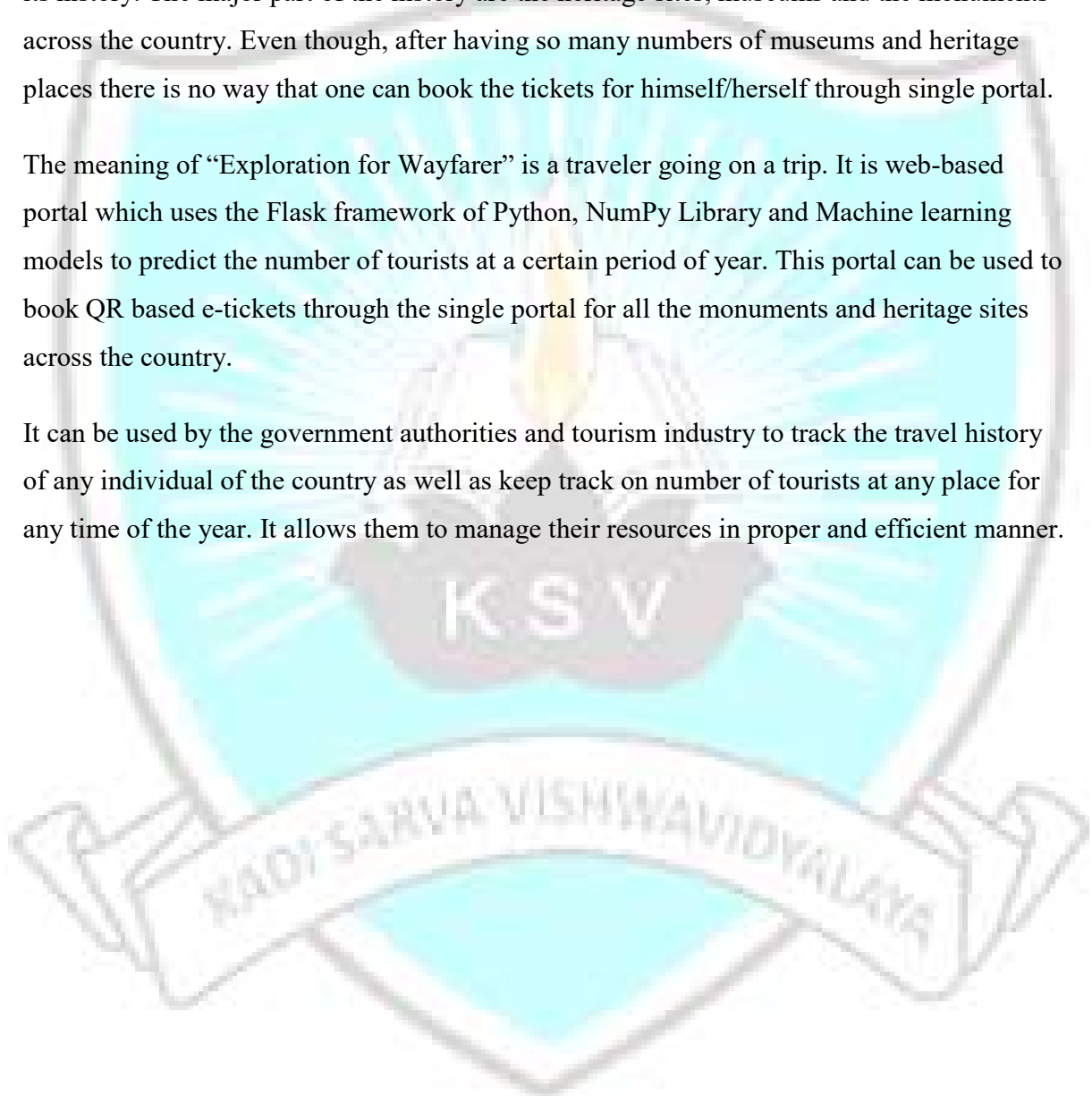


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1. Introduction

- 1.1 Introduction
- 1.2 Aims and Objective of Work
- 1.3 Brief Literature Review
- 1.4 Problem definition
- 1.5 Plan of our work

1.1 Introduction

India is a country of rich culture and great history. The Indian culture is a combination of traditional beliefs, social norms, ethical values and knowledge. It is believed that the Indian culture has been the stepping-stone for the various other cultures across the world. History of India is the heart of the Indian culture. There are various places across the country which holds the significance importance in the history and plays a major role in the growth of Indian Culture. These places include various museums, heritage sites and monuments which are now being the tourist places for people to learn more about our history.

Tourism industry plays an important role in the development and the growth of a country. The tourists across the world who are interested in the rich history across the world visits these places. One of the major issues for anyone is to find the complete details and make their bookings for hotels, flights, etc. Many of these monuments do not have any web portal to let people know about their details. While many monuments have the online sites, they only help to get details about only one monument. There is no single website from which user can get all details of various places across the country and make bookings for the same.

“Exploration for Wayfarer” is a web portal using which travelers can gather all the information about the monuments and make a booking for themselves. Once the booking is completed, an e-ticket is generated using which the traveler can visit the place without any problem. This e-ticket helps to reduce the use of paper and makes it easier for the visitors to enter the premises of the places.

1.2 Aims and Objective of Work

The real time online ticket booking system can be implemented using the user interface and the database to keep track on the number of tickets booked for any place on given day. The system needs to use the past data of bookings to predict the number of tourists visiting any place with the help of machine learning model. The system can be very helpful because it allows the visitors to know in advance the number of tourists visiting any place and so they can make their bookings accordingly. With the help of this system, government can determine the future needs of resources for any places.

The system can have two modules one for the tourists and other for the government(admin). The tourist's module allows visitors to know the number of travelers who have booked for any place through the portal. The admin modules government to generate a travel history for each individual who have made booking using the portal. Admin can also view the predicted number of visitors visiting any place in the near future.

1.3 Brief Literature Review

One of the key drivers of a country's development is the tourist sector. Tourism industry allows the people across the world to visit various places to learn more about the country and their cultures. Tourism in India has significant potential considering the rich cultural and historical heritage, variety in ecology and places of natural beauty spread across the country.

According to the Business Standard News, India ranked the 34th on the world travel, tourism competitiveness index. In 2020, travel and tourism sector contributed around 4.7 percent of the total GDP of the country. Since the pandemic in 2020, the tourism industry has undergone a great change. The pandemic affected the tourism industry in the worst ways.

During the first wave itself, the sector was affected the most among all other economic sectors. The industry saw gradual signs of recovery, post-October 2020, for the next three-four months. However, the sudden surge in cases from March 2021 onward stalled tourism activities almost completely except for a few special occasions to

selective locations. According to the study, it is very tough for the Indian tourism to get back to the place where it was before the pandemic.

To begin with, the re-establishment of the industry, the industry needs to setup the standards of pricing and provide better facilities to the customers like hospitality, aviation, etc. The government can set the guidelines for the travelling in the country and the necessary steps to be taken care while travelling. The infrastructure of the historical places should be well maintained.

The near future of tourism allows the tourists to make all their bookings in advance. To begin with they can get all details about all the places which they can visit in the specific city or the state. This allows the tourist to gather all information prior, so they can make their planning accordingly. With India having so many cultural heritages and places to visit there is a need of a well-managed online portal having details about all the monuments.

1.4 Problem Definitions

We want to develop an online portal, which holds the details about all the museums, historical places and monuments across the India so that any tourist can make the bookings as per their needs and generate an e-ticket so that it can be used for easy entrance in the tourist places.

The number of tourist places in India are too many and there are many chances of some being closed, and some being under maintenance for any time of year, which makes it difficult to manage the web portal.

1.5 Plan of our work

In this project, we will first allow the tourists to register themselves on the portal and enter their details. Once they are registered, they need to login to search for the tourist places according to the state or city. The users can confirm their bookings and generate an e-ticket, which can be further used by them at the entrance of tourist places. We can use the past data to predict the number of tourists visiting any specific tourist place.

2 Technology and Literature Review

To develop the portal, Flask a framework of Python is used. With the help of Flask we develop a Graphical User Interface (GUI), which allows user to interact with the portal. The user interface is used to take the user information like name, email, etc. After the successful registration, an email is sent to the user using smtplib of python.

There are different user interfaces for the normal users and the admin. Admin has the more access to the database and individual details of the user. Admin can also keep track on the number of tourists visiting any place. They can also view the predictions of the future numbers.

To predict the number of visitors in future, the linear regression model of the Machine learning is used. It makes use of the past booking data and performs cleaning and pre-processing to give an optimal prediction. The ratio of the samples in test while splitting the dataset was kept 20% using the train test split function of sklearn library.

The database used to store the data is MySQL which stores the data in tabular format. The number of tables are created to manage the data efficiently. When an tourist makes an booking, an entry in the database is made and the unique code is generated. This code is used to generate the QR code which is sent to the user through the mail.

3. System Requirement Study

3.1 User Characteristics

3.2 Hardware and Software Requirements

3.3 Assumptions and Dependencies

3.1 User Characteristics

User characteristics are the important aspects of any project. It helps us to define properly and focus on who the end users are for the system. The system will support two types of user privileges, tourists and admin. The tourists will be able to register himself/herself for visiting any tourist places with all of its details. The admin is given the rights to have all the information about the people travelling across the country.

The admin must have following characteristics:

1. Admin must have knowledge of Python.
2. Admin must have basic understanding of MySQL Database.
3. Admin must have also be aware of the working flow of the System.

3.2 Hardware and Software Requirements

Hardware Requirements:

Processor	- i3 or higher
Processor Speed	- 1.1 GHz
RAM	- 4 GB RAM
Hard Disk	- 25 GB (minimum)

Software Requirements:

Operating System	- Windows, macOS, Linux
Software	- Jupyter Notebook, VS Code
Backend Technology	- Python 3.8
Libraries	- sklearn, imutils, flask, Matplotlib
Database	- MySQL

3.3 Assumptions and Dependencies:

Assumptions:

They must know how to implement the libraries appropriately on various python user interfaces.

The algorithms used for the prediction should provide more accurate predictions.

Dependencies:

This project is totally depended on some libraries and their particular versions:

Imutils 0.5.3

Pyqrcode 1.0.1

Matplotlib 3.2.1



4. System Diagrams

The flow of the system begins with the registration of tourists. The tourists first enter their personal details in the registration form which includes Aadhar Card Number, Name, Surname, Email id, etc. The user is then allowed to create a password for himself/herself. The user is sent the email for the confirmation of registration.

Once the user is registered, he/she can login using the Aadhar Card number and password. On the successful login, users land up on the main page. The main page has the various monuments, historical places and museums across the country. The various filters like search for the places in the city, state makes it easy for the user to gather details.

Based on the selection and choices made by user, he/she can make the bookings by adding their further details. Once the user enters all the valid details, an unique QR code is generated which can be used by the user to enter the visiting places. The QR code is sent as an email to user.

Admin can login to gather all the details of the tourists and the number of tourists visiting any tourist places. They can also add the new monuments or tourist places to the portal. They can also generate an travel history of an individual using the Aadhar number of user. They can also view the predictions made by the ML model on the number of the tourists visiting any place.

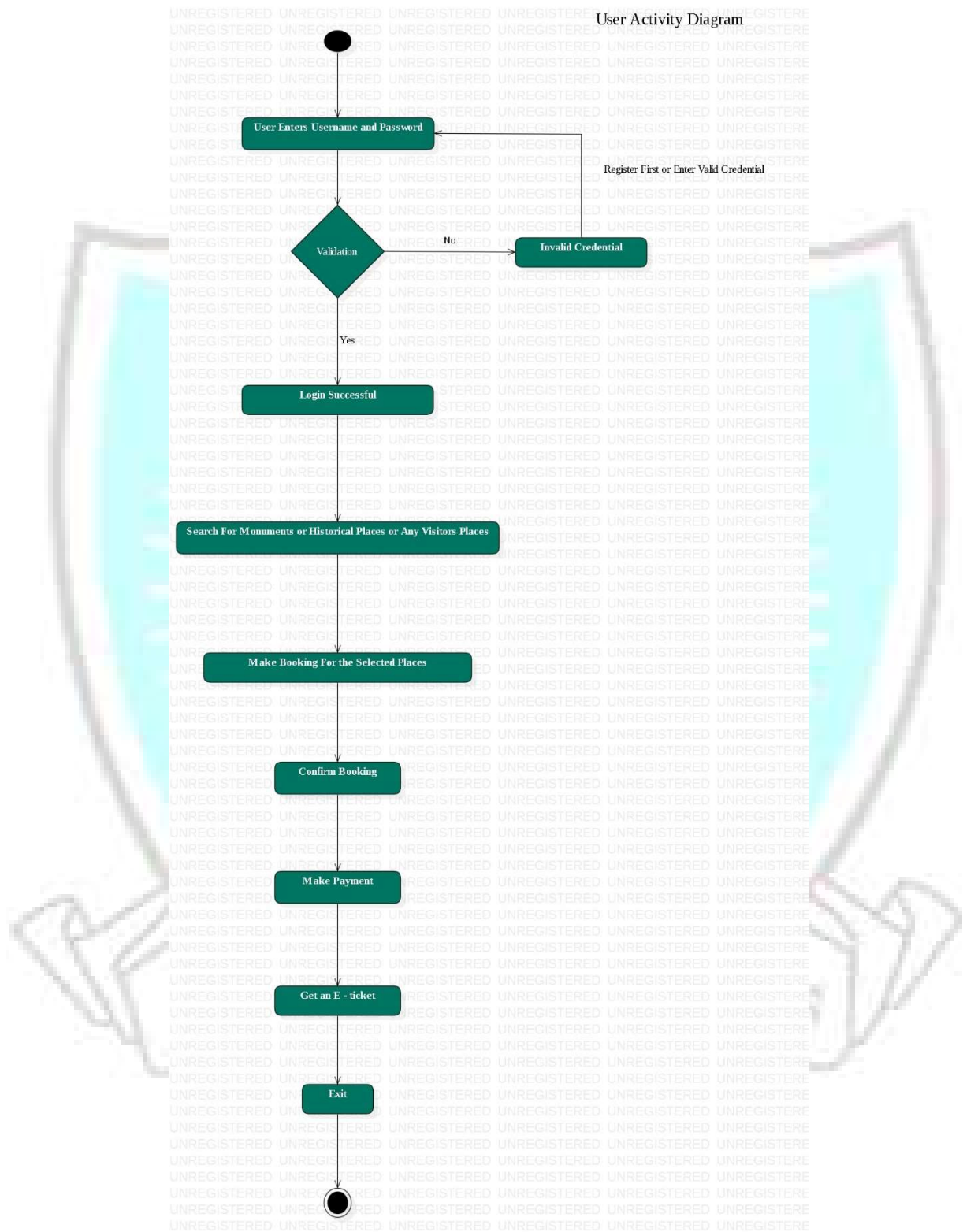


Fig 1 User Activity Diagram

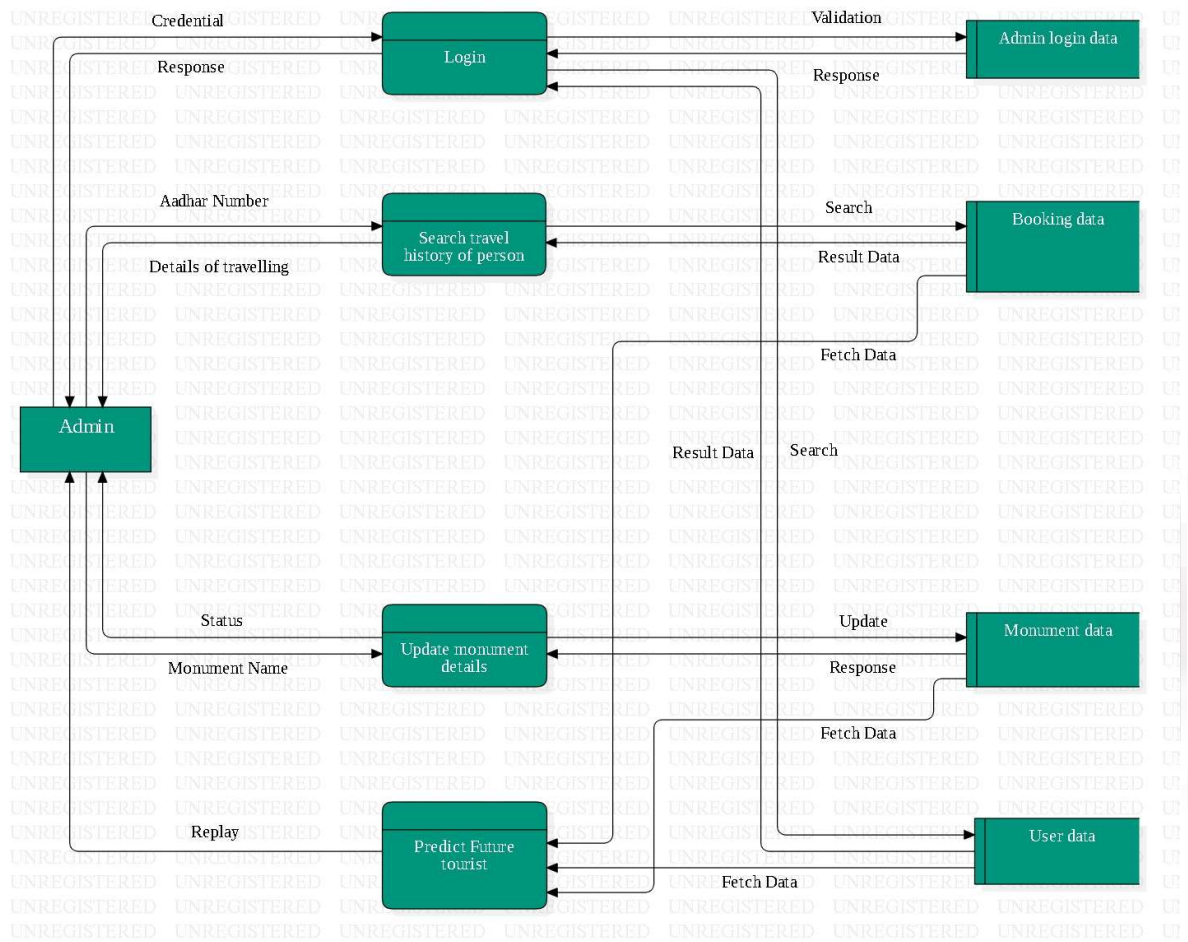


Fig 2 Admin Data Flow Diagram

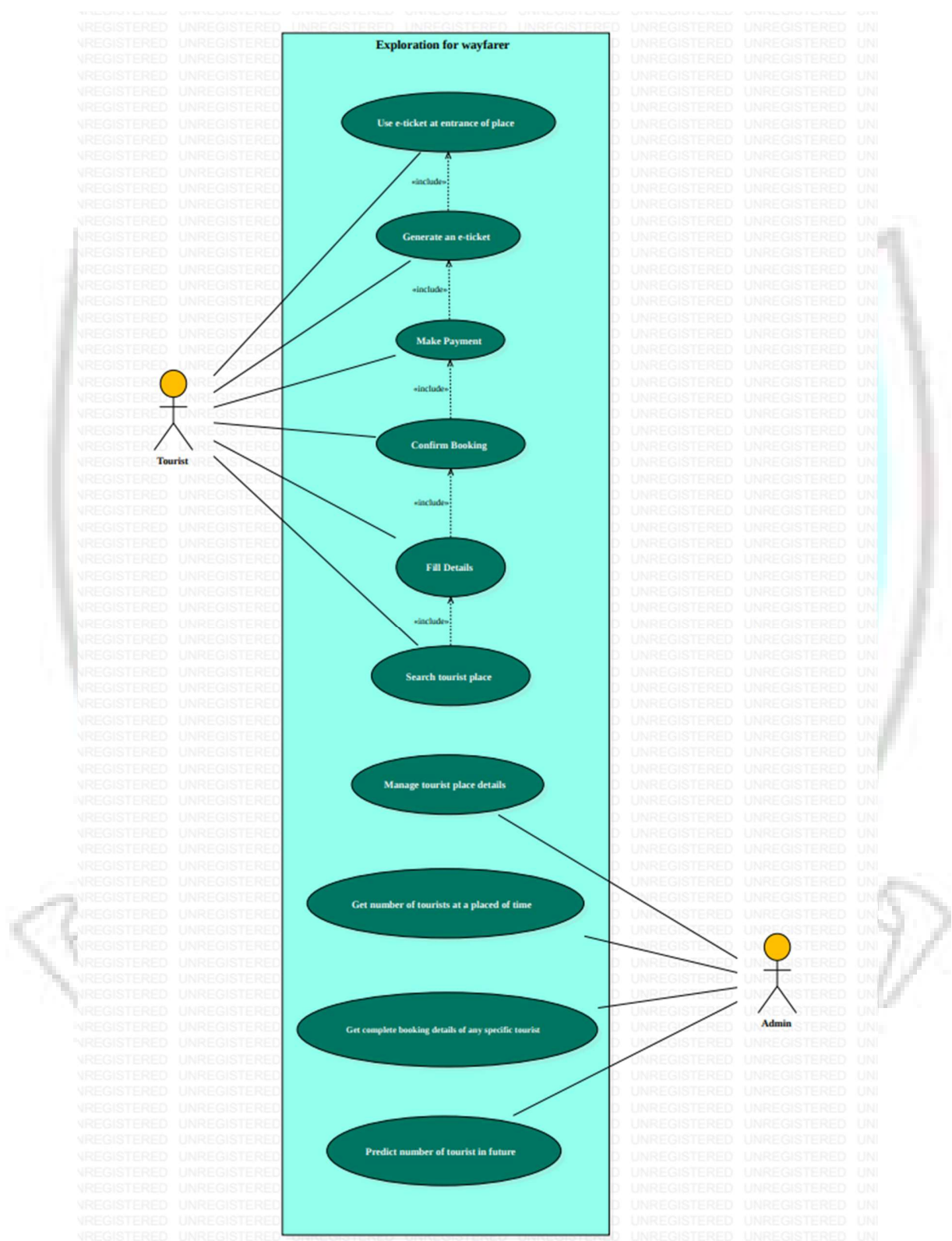


Fig 3 Use Case

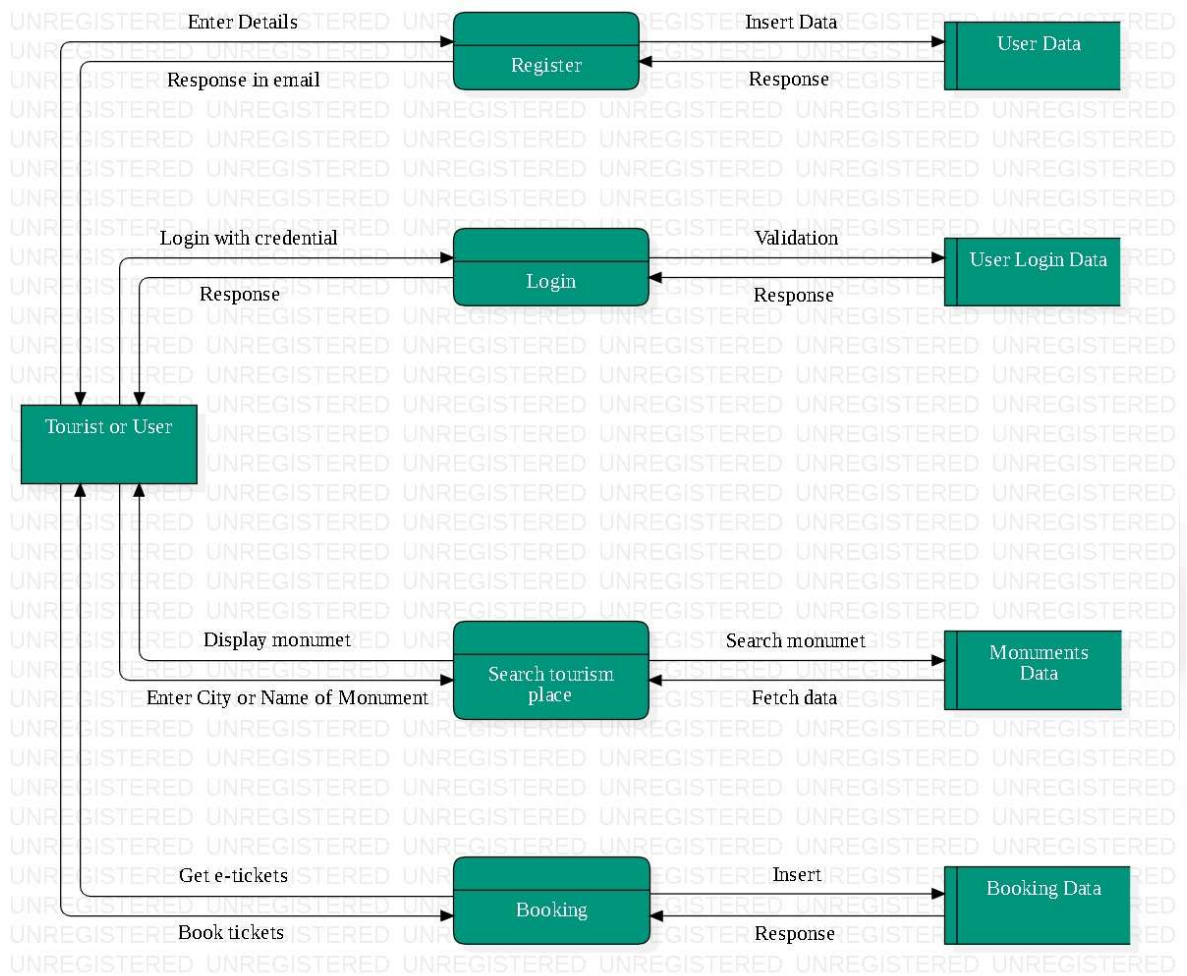


Fig 4 User Data Flow Diagram

5. Flow of Implementation

Phase 1: Collecting the information

Step 1: To gather the details of all the monuments, museums and historical places across the country from various online websites and articles. This data is very unstructured and contain too much noise.

Phase 2: Create a Dataset

Step 1: From the gathered information, the required data is being collected and then a database having various tables is being created. These tables hold all the required data.

Phase 3: Develop the User Interface

Step 1: With the help of Flask framework of Python, the user interface of the system is being developed.

Step 2: A user/tourist registration form is developed with all the required fields like name, aadhar number, mobile number.

Step 3: A user/tourist login page is developed with the username and password field used by the users to login into the system.

Step 4: Main page for the tourist holds all the details of the tourist places with a small brief of information regarding them. There are filters using which can be used to search by city or state.

Phase 4: To connect user interface with database

Step 1: The required MySQL database driver is installed in the system, which allows the user interface to connect and communicate with the database to perform basic database operations.

6. Future Works

As the basic user interfaces and database connectivity is setup. We would add the charts and graphs showing the number of tourists visiting any place. For the admin, we would integrate a machine learning model which predicts the future number of the tourists to any place.

At last, we would be generating the QR based e-ticket which can be used by the tourists at the entrance of the place to enter the premises of the tourist place.

