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PROJECT REPORT
IT WORKSHOP - II
MCA – 110

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INDEX

S no	Topics	Page No
1.	Title of the project	3
2.	Problem Definition	4
3.	Introduction	5
4.	Aim & Objective	6
5.	Methodology	7
6.	Module Description	8-9
7.	Tools & platform	10-11
8.	System analysis	12
9.	Software Model	13-14
10.	Use Case Diagram	15
11.	DFD'S Design	16-18
12.	ERD'S	19
13.	ERD'S Design	20
14.	Data Base Design	21-22
15.	Input to the system	23
16.	Output from the system	24
17.	Testing/Security	25
18.	Future scope	26
19.	Bibliography	27

1.TITLE OF THE PROJECT

2. Problem Definition

In today's fast-paced world, travellers face a plethora of choices when planning their trips, from selecting destinations to arranging accommodations and activities. Navigating through these options can be overwhelming and time-consuming, often leading to suboptimal travel experiences. To address this challenge, I have come up with an idea of **Fun Voyage**, an android application that aims to develop a comprehensive Travel Recommendation and Planner System that leverages technology to streamline the travel planning process and provide personalized recommendations tailored to individual preferences and constraints.

Problem: The current travel planning process is inefficient and lacks personalization, leading to frustration and dissatisfaction among travellers. Key issues include:

1. Information Overload: Travelers are inundated with vast amounts of information from multiple sources, making it difficult to sift through and identify the most relevant options for their trip.

2. Lack of Personalization: Existing travel platforms often offer generic recommendations that do not take into account individual preferences, such as interests, budget constraints, and travel style.

3. Fragmented Experience: Planning a trip typically involves navigating through multiple websites and platforms for booking flights, accommodations, and activities, leading to a fragmented and disjointed experience.

4. Limited Accessibility: Some travellers, particularly those with limited time or expertise, struggle to plan their trips effectively, resulting in missed opportunities and subpar experiences.

3.Introduction

Are you ready to embark on unforgettable journeys to mesmerizing destinations around the globe? Look no further! Our innovative Travel Recommendation and Planning System is here to transform your travel experiences into seamless adventures filled with excitement and discovery.

In today's fast-paced world, planning a trip can be overwhelming. With countless destinations to choose from, an abundance of activities to consider, and the ever-present need for reliable recommendations, travellers often find themselves buried under a mountain of information. That's where we come in.

Our cutting-edge system leverages state-of-the-art technology and expert curation to streamline every aspect of your travel planning process. Whether you are dreaming of exploring exotic landscapes, immersing yourself in vibrant cultures, or indulging in culinary delights, our platform is your one-stop solution for personalized recommendations and hassle-free planning.

The application name is Fun Voyage which is a travel recommendation and planner application, aims to assist users in planning their trips by providing them with personalized recommendations resources, and tools to make their travel experiences smoother and more enjoyable. Users will be asked a few questions about the trip which they will answer according to their wishes then based upon their responses they will get options of places to choose from, if they like any option provided, they can proceed further by clicking on it, after that they will also get a complete itinerary for that particular place based on their interests, preferences, and constraints (such as budget or time constraints).

4. Aim& Objective

The Travel Recommendation and Planner System aims to address these challenges by:

1. Providing personalized recommendations based on user preferences, past behaviour, and contextual factors such as location and time of travel.

2. Streamlining the travel planning process by integrating various functionalities, including destination exploration, itinerary creation, accommodation booking, and activity recommendations, into a single platform.

3. Offering a user-friendly interface that simplifies the travel planning experience and caters to users with varying levels of expertise.

4. Enhancing accessibility through mobile optimization and intuitive design, ensuring that travellers can plan their trips anytime, anywhere.

Target Audience:

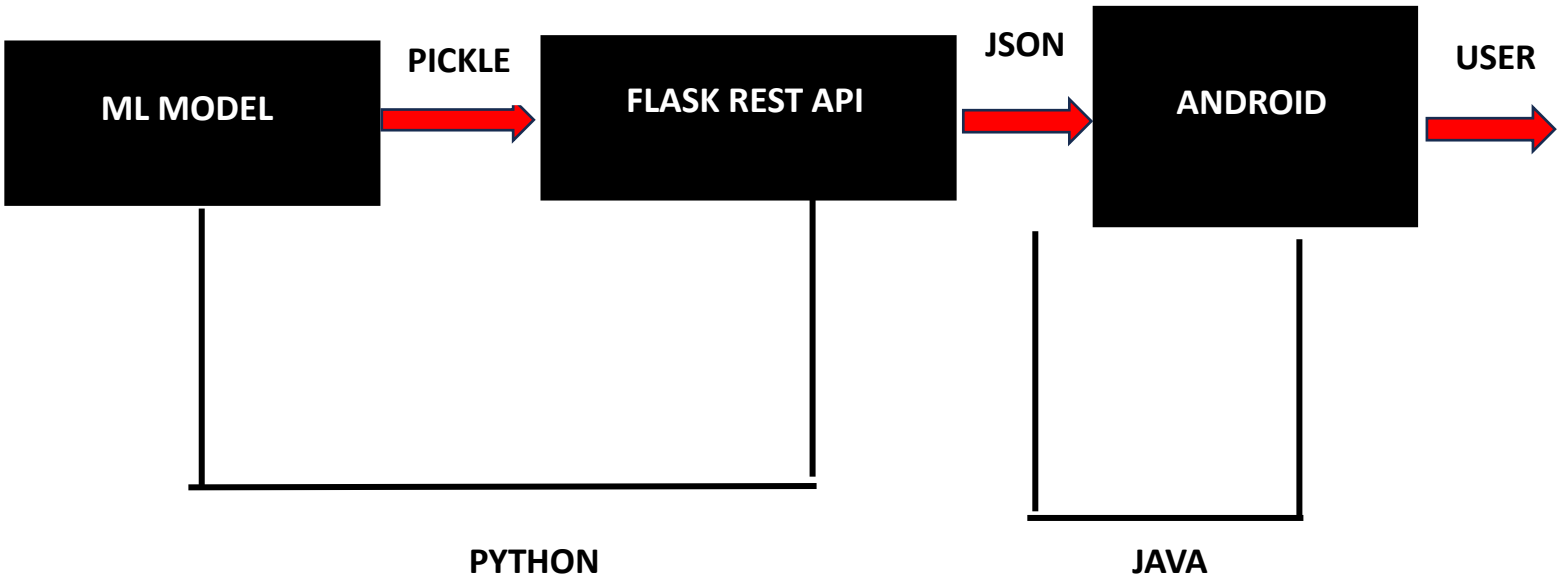
The target audience for the Travel Recommendation and Planner System includes:

- Individual travellers seeking personalized recommendations and assistance in planning their trips.
- Travel enthusiasts looking to discover new destinations and experiences.
- Busy professionals and families seeking convenient and efficient travel planning solutions.
- Tour operators and travel agencies looking to enhance their offerings and streamline their operations.

5. Methodology

Firstly we create a Machine Learning Model which offers a simple command-line interface for users to receive travel recommendations based on their preferences and the available data. Preferences include Attractions, Climate, Ratings, etc.

After that we pickle it. For implementing Android apps java is popular and working with android studio java is mostly preferred so here our frontend will depend on java and in middle we have to implement a Flask API which is our machine learning model whose output will be in JSON format(JSON is a universal format which any programming language can understand) and through java android app we will hit at Flask API whose response is in JSON and we will parse this JSON and print it in android frontend.



6.Modules Description

- **SplashActivity.java:**
  It is the introduction screen designed to provide users with a brief introduction to the app which include displaying the app's logo and name.

- **SignUpActivity.java:**
  It includes different edit text fields for filling information for registration**.**

- **LoginActivity.java:**
  Users will be asked to provide username and password created at the time of registration . Successful registration will lead to MainActivity.java.

- **MainActivity.java:**
  It includes Navigation View, different options to explore, and can interact with various features of travel recommendation system.

- **Menu.xml:**
  It contains the options to navigate in navigation menu like Profile ,Home, Feedback, Favourites .

- **GetRecommendationFragment.java:**
  This fragment module is connected to the recommendation engine, which analyses user input and generates personalized travel recommendations based on factors such as user state preferences.

- **HelperClass.java:**
  This class is designed to store information about a user, such as their name, date of birth, address, contact details, email, and password. Each field corresponds to a specific attribute of a user's profile.

- **AndroidManifest.xml:**
  This xml file is a crucial component of an Android application, serving as a declaration file that provides essential information about the app to the Android system.

- **Layouts:**
  It includes all the xml files for creating user interface for all the activities and fragments present in the application

- **Drawable:**
  It contains all the vectors assets and images we have included in the application.

- **Recommend.pkl:**

This .pkl file contain pre-processed data that is used by a recommendation system. This could include features extracted from user behaviour, item attributes, or other relevant information used to generate recommendations.

- **Fun Voyage.ipynb:**
  It includes importing libraries, reading data ,defining recommendation function, user input and recommendation display and pickling the function.

- **App.py:**
  It includes flask setup ,loading data and function definition, API Endpoint definition and server initialization

7. TOOLS &PLATFORM

1. Android Studio

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. Android Studio supports all the same programminglanguages of IntelliJ, e.g. Java, C++, etc.

2. Firebase

Firebase is a set of hosting services for any type of application (Android, iOS, Javascript, Node.js, Java, Unity, PHP, C++). It offers NoSQL and real-time hosting of databases, content, social authentication (Google, Facebook, Twitter and Github), and notifications, orservices, such as a real-time communication server.

3. Machine Learning

Machine Learning is a branch of artificial intelligence that develops algorithms by learning the hidden patterns of the datasets used it to make predictions on new similar type data, without being explicitly programmed for each task. Traditional Machine Learning combines data with statistical tools to predict an output that can be used to make actionable insights.

4. Flask

Python Flask is a popular framework for building web applications and APIs in Python. It provides developers with a quick and easy way to create RESTful APIs that can be used by other software applications. Flask is lightweight and requires minimal setup, making it a great choice for building small to medium-sized APIs. This makes Flask an ideal choice for developers looking to build robust and scalable APIs in Python.

5. Pycharm

PyCharm is an integrated development environment used for programming in Python. It provides code analysis, a graphical debugger, an integrated unit tester, integration with version control systems, and supports web development with Django. PyCharm is developed by the Czech company JetBrains.

Recommended System Requirements:

- Supported Operating Systems: Windows XP Service &above
- Computer with Intel or compatible 2GHz or faster processor (2 GHz or faster is recommended. Only a single processor is supported.)
- Minimum of 512 MB of RAM (1 GB or more is recommended)
- 1GB of free hard Disk space
- 64-bit systems

8. System Analysis

System analysis refers to the process of gathering data, interpreting information, identifying issues and using the results to recommend or develop possible system improvements. During this stage, companies may also evaluate future business needs and how improvements may answer them. System design involves the process in which an organization, in an appropriate situation, develops a newer system or strategy to complement or replace an existing one. This design and development cycle includes planning, analysis, design, implementation and maintenance.

The basic aim of problem analysis is to obtain a clear understanding of the needs of the clients and the users. Analysis involves interviewing the clients and end users. These people and the existing document about the current mode of operation are the basic source of information for the analyst. The process of obtaining answers to the questions that might arise in an analyst's mind continues until the analyst feels that all the information has been obtained.

The benefits you and your employing organization may enjoy from this practice:

- Enabling comprehension of complicated structures.
- Allowing for better management of any business changes.
- Aligning the organization with its environment and strategic priorities.
- Minimizing IT issues and reducing the workload of IT employees.

9. SRS & Software Modules

A Software requirements specification (SRS), a requirements specification for a software system, is a complete description of the behaviour of a system to be developed and may include a set of use cases that describe interactions the users will have with the software. In addition it also contains non-functional requirements. Non-functional requirements impose constraints on the design or implementation (such as performance engineering requirements, quality standards, or design constraints) .

The software requirements specification document enlists all necessary requirements that are required for the project development.[1] To derive the requirements we need to have clear and thorough understanding of the products to be developed. This is prepared after detailed communications with the project team and customer. The SRS may be one of a contract deliverable Descriptions or have other forms of organizationally-mandated content.

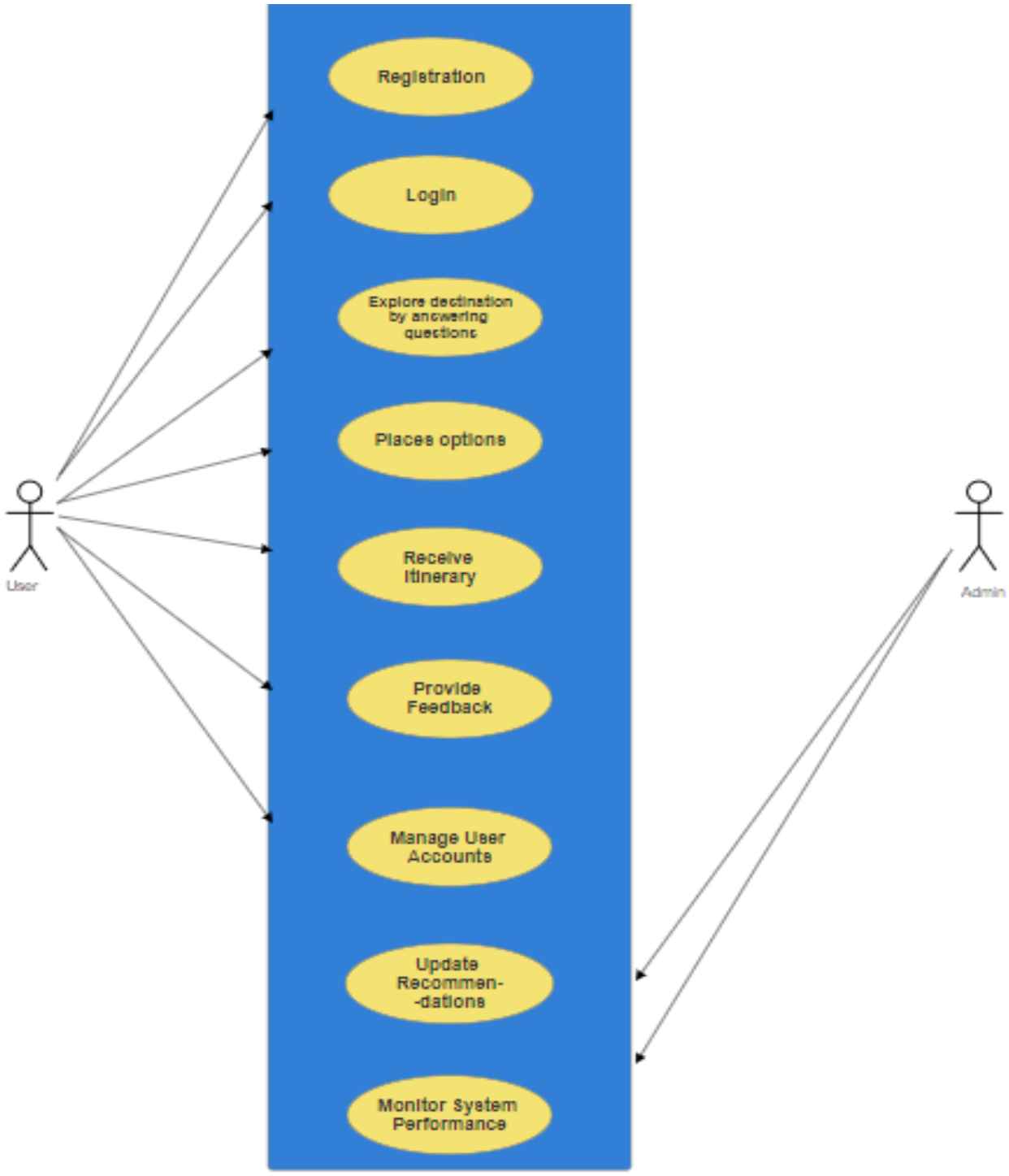
Software Approach

The spiral model combines the idea of iterative development with the systematic, controlled aspects of the waterfall model.

Spiral model is a combination of iterative development process model and sequential linear development model i.e. waterfall model with very high emphasis on risk analysis. It allows for incremental releases of the product, or incremental refinement through each iteration around the spiral. In each iteration of the spiral approach, software development process follows the phase-wise linear approach. At the end of first iteration, the customer evaluates the software and provides the feedback.

Based on the feedback, software development process enters into the next iteration and subsequently follows the linear approach to implement the feedback suggested by the customer. The process of iteration continues throughout the life of the software.

10.USE CASE DIAGRAM

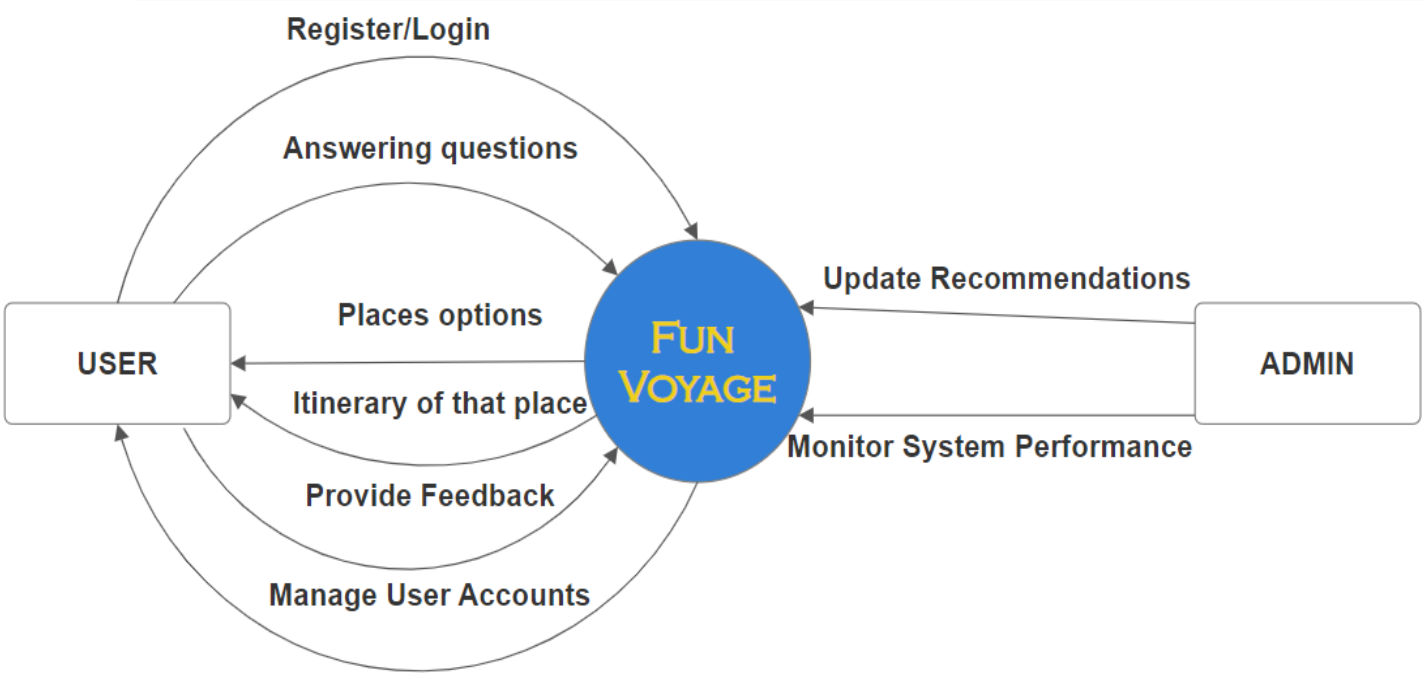


11. DFD'S

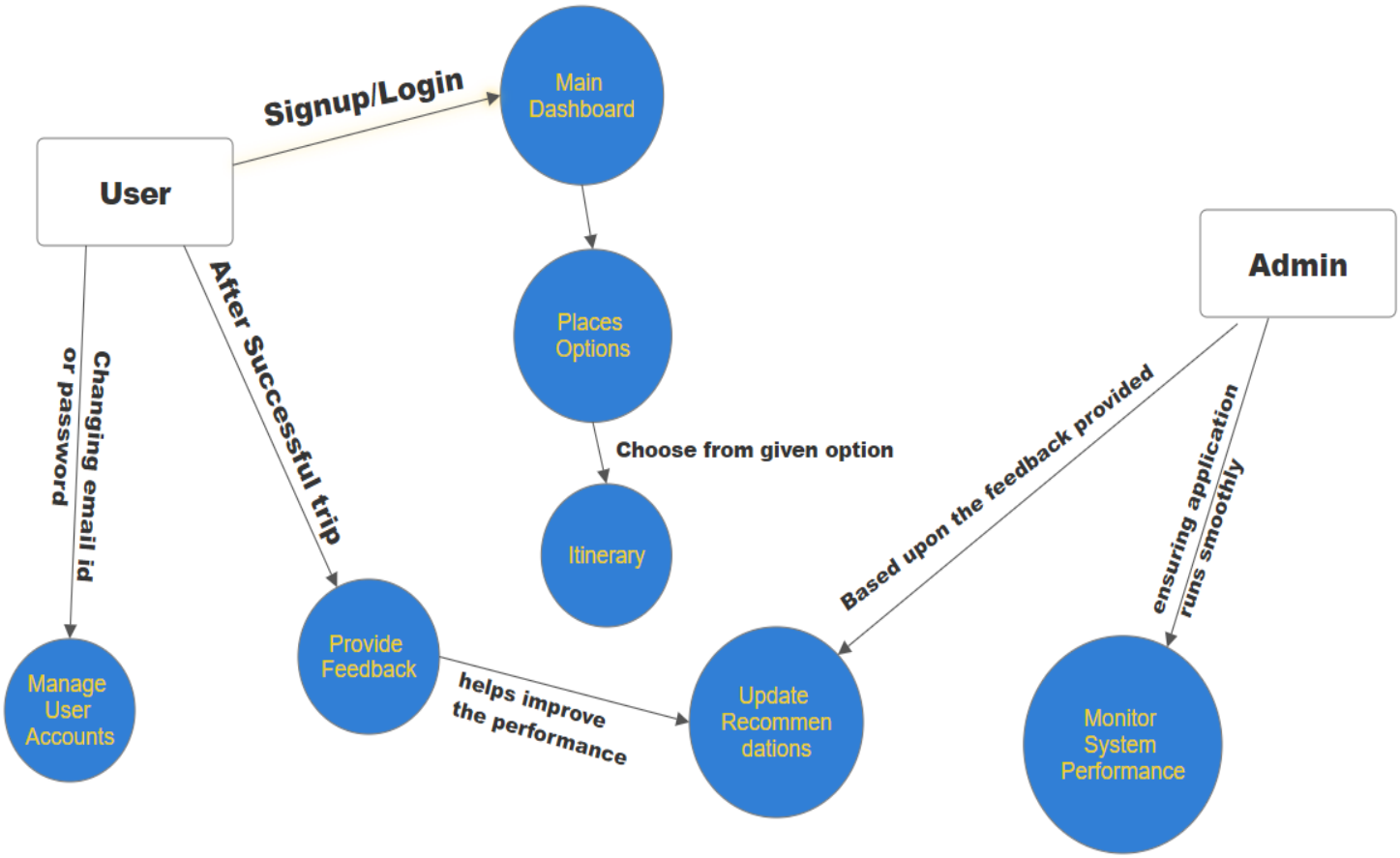
A data flow diagram (DFD) is a graphical representation of the "flow" of data through information, modelling its process aspects. Often they are a preliminary step used to create an overview of the system which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design).

A DFD shows what kinds of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of processes, or information about whether processes will operate in sequence or in parallel (which is shown on a flowchart).

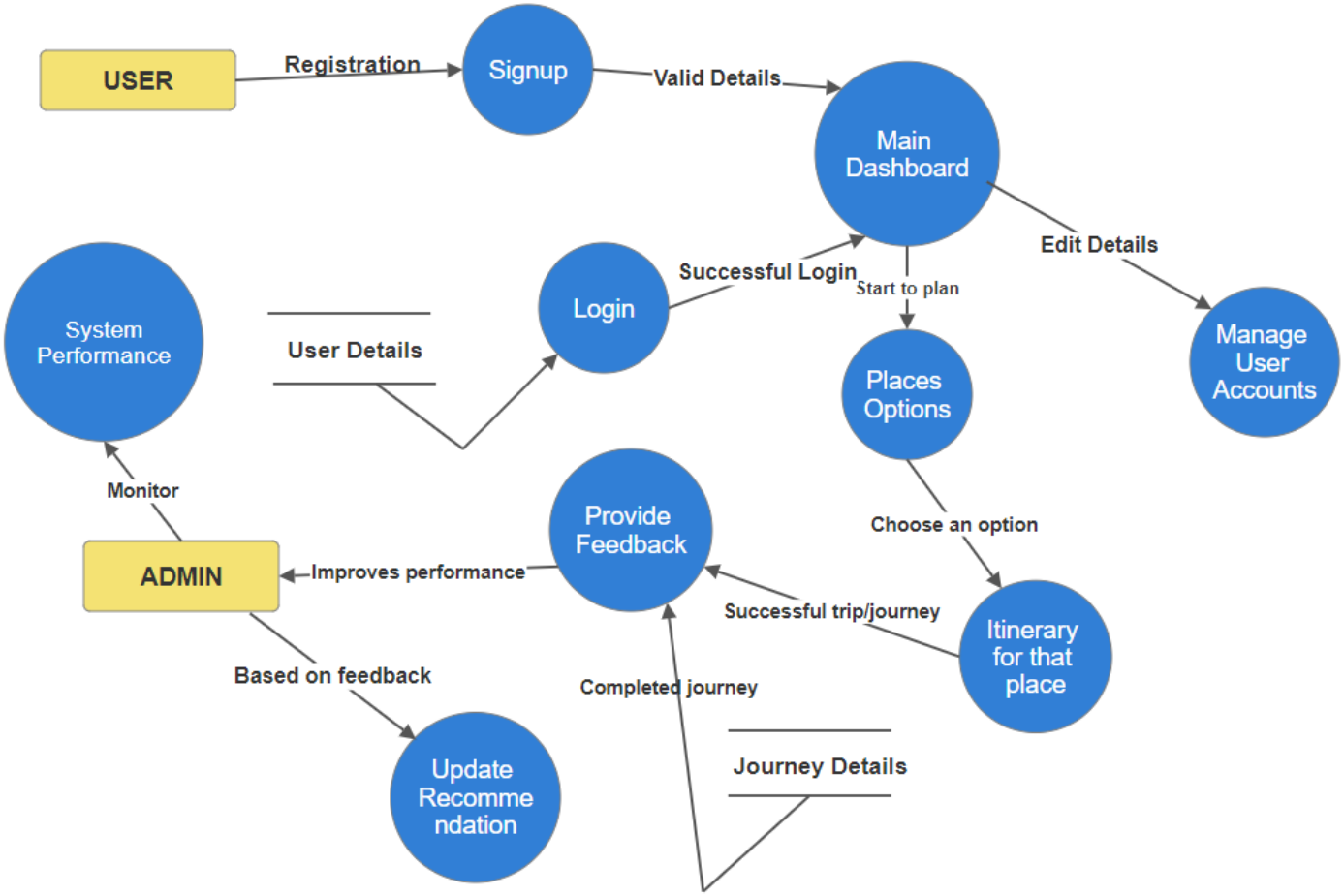
Context Level DFD



Level -0 DFD


User
Signup/Login
Main Dashboard
Places Options
Choose from given option
Itinerary
Admin
Changing email id or password
Manage User Accounts
After Successful trip
Provide Feedback
helps improve the performance
Update Recommen dations
Based upon the feedback provided
ensuring application runs smoothly
Monitor System Performance

Level-1 DFD


USER
Registration
Signup
Valid Details
Main Dashboard
Edit Details
Manage User Accounts
Start to plan
Places Options
Choose an option
Itinerary for that place
Successful trip/journey
Provide Feedback
Improves performance
ADMIN
Monitor
System Performance
User Details
Login
Successful Login
Based on feedback
Update Recommendation
Completed journey
Journey Details

12. ERD'S

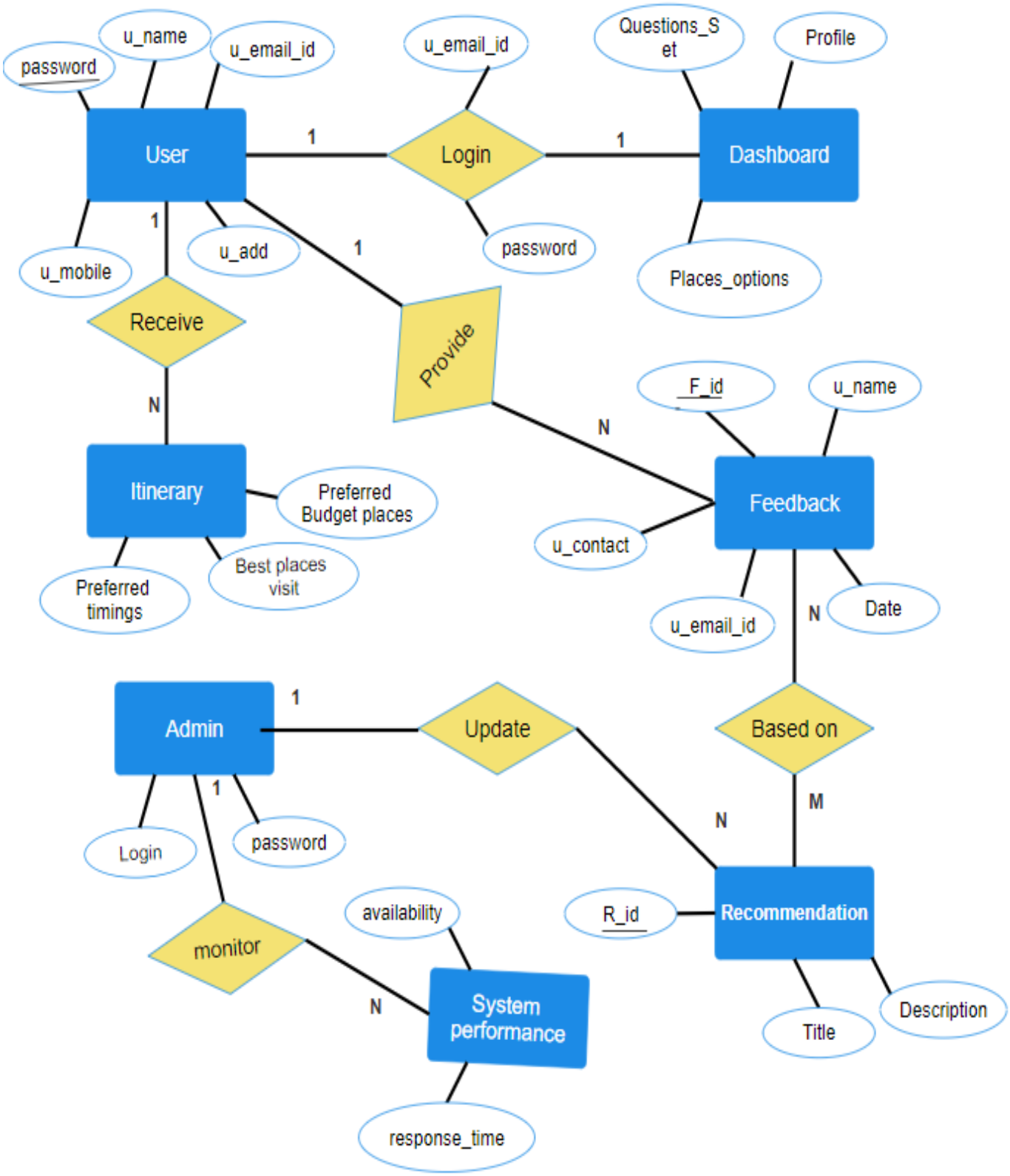
The Entity Relational Model is a model for identifying entities to be represented in the database and representation of how those entities are related. The ER data model specifies enterprise schema that represents the overall logical structure of a database graphically.

The Entity Relationship Diagram explains the relationship among the entities present in the database. ER models are used to model real-world objects like a person, a car, or a company and the relation between these real-world objects. In short, the ER Diagram is the structural format of the database.

ER Model is used to model the logical view of the system from a data perspective which consists of these symbols:

- **Rectangles:** Rectangles represent Entities in the ER Model.
- **Ellipses:** Ellipses represent Attributes in the ER Model.
- **Diamond:** Diamonds represent Relationships among Entities.
- **Lines:** Lines represent attributes to entities and entity sets with other relationship types.
- **Double Ellipse:** Double Ellipses represent Multi-Valued Attributes.
- **Double Rectangle:** Double Rectangle represents a Weak Entity.

13. ERD'S Design



14. Database Design

Database design is the process of producing a detailed data model of a database. This logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a Data Definition Language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

- **User Registration Table:**

Fields Name	Data Type(Size)	Constraint	Description
U_Name	Varchar(15)	Not Null	Store user name
DOB	Date	Not Null	Store user DOB
Address	Varchar(90)	Not Null	Store user Address
Contact	Integer	Not Null	Store user contact no.
E-Mail	Varchar(100)	Not Null	Store user email
CreatePasword	Varchar(10)	Not Null()	password

- **Login Table:**

Fields Name	Data Type(Size)	Constraint	Description
Username	Varchar(15)	Not Null	Name of the user
Password	Varchar(10)	Not Null	Password created at the time of registration

- **Feedback Table:**

Fields Name	Data Type(Size)	Constraint	Description
F_ID	Int	Primary key	It unique key of this table
U_E-Mail_Id	Varchar(50)	Not Null	User Email ID

U_Name	Varchar(50)	Not Null	Name of User
U_Contactno	Int	Not Null	User Contact No
Date	Varchar(35)	Not Null	Date of feedback

- **Admin Table:**

Fields Name	Data Type(Size)	Constraint	Description
Login_ID	Varchar(100)	Not Null	Store id of admin
Pasword	Varchar(50)	Not Null	Store id of password

- **Recommendation Table:**

Fields Name	Data Type(Size)	Constraint	Description
R_id	Varchar(100)	Not Null(PK)	ID of recommendation
Title	Varchar(50)	Not Null	Title of recommendation
Description	Varchar(300)	Not Null	Stores description about the recommendation required.

- **Profile Table:**

Fields Name	Data Type(Size)	Constraint	Description
Change_U_Name	Varchar(15)	Not Null	Change user name
Change_DOB	Varchar(50)	Not Null	Change user DOB
Change_Address	Varchar(90)	Not Null	Change user Address
Change_E-Mail	Varchar(100)	Not Null	Change user email
Change_Password	Varchar(10)	Not Null	Change password

15.Input to the System

1. Registration:-

User have to fill their Name, Dob, Email_id, Address, Mobile no., and Create a password at the time of registration process. User can also modify these details later on in the application profile menu present in the navigation bar.

2. Login:-

User have to fill their username and password to login into the application. After successful login they will be able to navigate to main dashboard.

3. Choosing options:-

Users will get many options like get trip recommendation, explore city, gallery, feedback, etc on the dashboard and they can select any option by clicking on that particular button.

4. Feedback:-

After successful completion of the trip ,user can provide their valuable feedback about the whole journey that can help to improve the overall functionality of the application and also impel to update the application with more advancements and features.

5. Get Trip Recommendation:-

In this Place ,user will answer the following questions present on screen and must write their preferences in the edit text box provided. By clicking on recommend ,they will get recommended cities based on their inputs

16. Output from The System

1. **Places options:-**

Users will be provided with set of questions which they have to answer and according to their responses they will get many options of places to choose from.

2. **Itinerary/description based on user's response:-**

If user choose an option of any city which they wish to travel , they will get an itinerary of places which they can visit at that particular place with suitable timings and keeping in mind other constraints like budget, mood, etc.

3. **Profile info:-**

User will be able to see, modify or update their personal info from profile menu.

4. **Notifications:-**

User can see any notifications related to app in the notification fragment present in the navigation menu.

5. **Favourites:-**

User can see their liked images in Favourites.

6. **Gallery:-**

This will include memories created by user throughout their journeys.

17. Testing/Security

1. Software Testing:

Software testing is the process of evaluation a software item to detect differences between given input and expected output. Also to assess the feature of a software item Testing assesses the quality of the product. Software testing is a process that should be done during the development process. In other words software testing is a verification and validation process.

2. Verification:

Verification is the process to make sure the product satisfies the conditions imposed at the start of the development phase. In other words, to make sure the product behaves the way we want it to.

3. Validation:

Validation is the process to make sure the product satisfies the specified requirements at the end of the development phase. In other words, to make sure the product is built as per customer requirements.

18. Future Scope

The future scope of travel recommendation and planner systems is promising, with several potential advancements and areas for development like:-

1. Integration with Emerging Technologies :-

Integration with emerging technologies such as augmented reality (AR), virtual reality (VR), and mixed reality (MR) can enhance the travel planning and booking experience. For example, AR applications can provide immersive previews of destinations, attractions, and accommodations, allowing users to visualize their travel experiences before making reservations.

2. Blockchain for Secure Transactions:-

Blockchain technology can be utilized to improve the security, transparency, and efficiency of transactions within travel recommendation and booking systems. Smart contracts powered by blockchain can automate and streamline payment processes, eliminate intermediaries, and ensure trust and accountability in transactions, leading to enhanced user confidence and satisfaction.

3. Collaborative Planning and Social Integration:-

Future systems can facilitate collaborative travel planning by enabling users to share itineraries, recommendations, and experiences with friends, family, or fellow travellers. Social media integration can also allow users to connect with their social networks, seek advice, share insights, and discover travel inspiration from trusted sources within their online communities.

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