

BIKERS PORTAL

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ABSTRACT

This project comprises of getting several locations required by all the bikers. May be in the case of emergency / accident, the biker may require nearby hospital, police station to lodge a complaint and file a FIR or in case of breakdown the biker may require garages near to him. Also while travelling the biker may want to know the places of interest to visit. While travelling, be it a 1 day ride or long distance ride, the bikers need to fill up their fuel tanks. For this the app facilitates the bikers to find out nearby petrol pumps. One can also search for nearby hotels, restaurants and boarding and lodging. One can fix the distance and the app will search for the given criteria within the selected radius. Only thing one has to register with the name, email id and password. Once registered, the biker can login and get all the required information and also get the directions for getting to the particular destination. For bikers interested in seeking tourist attractions, one will rarely miss any as this app will show all the sites within the specified range.

One can definitely get this information from search engine, however the biker will have to type every time for searching various criteria. However the app will be very useful for the biker as all the criteria are included in it and one can get the information at a glance.

Chapter 1

Introduction

1 Background:

Biking apps and websites providing various features have become an integral part of everyday life for many people. During the last few years, several software methodologies often known as agile software development have been widely used by the software developers to address issues such as time consuming processes and high costs. One of the software development methodologies is the evolutionary software method which as the name hints takes an evolutionary approach and allows the project to evolve through different stages of the project.

This portal in form of application has brought all the features required by the bikers at one place. But be aware, bikers portal is a lot more than just internet technology.

This project with evolutionary approach will surely be beneficial for the bikers, independently at any time of the day.

Objectives :

- This app will provide a new way for the existing bikers to connect to the world easily.
- Searching and getting info about all routes has been made comfortable from anywhere.
- App will also provide a new way to search all the places of given criteria in the nearby or specified location.

1.1 Purpose, Scope, Applicability:

Purpose:

The purpose of making this application is to provide easiness of finding the maps, and locations at one place. The user will find all the information at one place in one application instead of searching on search engine by typing the required criteria. The invention satisfies users and avoids the drawbacks, constraints limitations and frustration by providing better, more timely and effective process of getting routes for proper location by utilizing Internet-based application. This is the one in all app tailored to meet all the information required by the bikers.

Scope:

The scope of the project includes creating a user interface to Android system as well as

a backend that will emulate some of its behavior.

- This Bikers Portal is application of management to the creation connecting the bikers to navigation.
- This Application provides the user, especially the prospective biker the reliability in finding nearby hospitals, police stations, garages, fuel stations, places of interest – tourist places at one place rather than to visit various websites.
- This Application will definitely save the time involved in searching different websites.

Applicability:

This project is applicable to all the people in the world who would like to be bikers, and existing bikers. In case of emergency the app would be helpful to common people also.

- First the user will create their account by registering their name and email id and password.
- Secondly the users can login and go to the menu. Search for the required criteria by entering their location. The biker can also choose to automatically trace his location and the radius in which he wants the particular criteria to be searched.

1.2 Feasibility Analysis:

A feasibility study is short focused, which aims to answer a number of questions:

- Does the system contribute to the overall objective of the portals server?
- Can the system be implemented using the current technology and within given cost and schedule constraints?

Can the system be integrated with system which is already in place?

Preliminary investigation is the first phase in any SDLC. Feasibility Study is a major part of this phase. Feasibility study means selecting the best system to meet the performance requirement. It is the measure of how beneficial, or practical the development of an Information System would be to the organization. The study of feasibility development of the software is going to be in terms of the following aspects.

Economic Feasibility:

The project is economically feasible as it only requires a mobile phone with Android operating system. The application is free to download once released for bikers and

other people into Android market. The users should be able to connect to internet through mobile phone and this would be the only cost incurred on the project.

Technical Feasibility:

To develop this application, an internet connection, a database server, a web server and software are required. The current project is technically feasible as the application was successfully deployed on Android Emulator.

Behavioral Feasibility:

The application is behaviorally feasible since it requires no technical guidance, all the modules are user friendly and execute in a manner they were designed to.

1.3 Achievements :

The invention satisfies users by avoiding the drawbacks, limitations and frustration of providing better, more timely and effective process to locate by utilizing Internet-based application.

1.4 Organization of Report:

The remaining chapter of the project includes the ways in which the further parts of the project were built in a definite and manageable way. The further parts include the Survey of Technology which is all about the software used in making of project and its other ways of building the same project. After that all the requirement of the project and its analysis are described briefly. System Design and all the Design diagrams were built and discussed in next part. The most important part of the project is Implementation and Testing. After testing if our project runs successfully then the Implementation is done on the users machine.

Chapter 2

Survey of Technologies

For completing the Bikers Portal project there were many Technology available. Here a brief detail about the technology used and its advantages:

2.1 Android Studio :

Android Studio is the official integrated development environment (IDE) for Google Android operating system, built on JetBrains & Intelligence IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems. It is a replacement for the Eclipse Android Development Tools (ADT) as primary IDE for native Android application development. Android Studio was announced on May 16, 2013 at the Google I/O conference. It was in early access preview stage starting from version 0.1 in May 2013, then entered beta stage starting from version 0.8 which was released in June 2014. The first stable build was released in December 2014, starting from version 1.0. The current stable version is 3.1.4, which was released in August, 2018.

The following features are provided in the current stable version:

- Gradle-based build support
- Android-specific refactoring and quick fixes
- Lint tools to catch performance, usability, version compatibility and other problems
- ProGuard integration and app-signing capabilities
- Template-based wizards to create common Android designs and components
- A rich layout editor that allows users to drag-and-drop UI components, option to preview layouts on multiple screen configurations
- Support for building Android Wear apps
- Built-in support for Google Cloud Platform, enabling integration with Firebase Cloud Messaging (Earlier 'Google Cloud Messaging') and Google App Engine
- Android Virtual Device (Emulator) to run and debug apps in the Android studio.

2.2 Java :

When it comes time to develop Android apps, the first and most popular option is Java. Java

is the official language of Android development, meaning it is the one that has the most support from Google and the one that most apps on the Play Store are built with.

The number one way to develop Android apps, is to go ahead and download Android Studio. This is a piece of software called an IDE, or Integrated Development Environment. It will come packaged with the Android SDK (a set of tools to facilitate Android development specifically) and basically this will give you everything you need in one place to get up and running.

Java itself was released by Sun Microsystems back in 1995 and is used for a wide range of programming applications. Java code is run by a “virtual machine,” which runs on Android devices and interprets the code.

Unfortunately, Java is also a little complicated and it’s not a great “first language.” This is what will provide the biggest barrier for many people who want to get started with Android development, in fact. Android is an object oriented programming language with confusing topics like constructors, null pointer exceptions, checked exceptions and more. It’s not terribly readable and you’ll use a lot of “boiler plate” code doing simple things. Add in the Java SDK and things get more complicated still – a first time coder can struggle to know what’s Java and what’s Android! Development using this route also requires a basic understanding of concepts like Gradle, like the Android Manifest and the markup language XML.

That’s not to say that Java is a bad language – far from it. Not only would it be wrong to call any language “bad,” but it’s also true that most of the inconveniences of Java are actually there for our own good and encourage clean code. A lot of people love Java for this reason, and it’s also one of the most versatile and widely used. According to the PYPL (Popularity of Programming Languages) table, Java is the most sought after programming language among employers.

Making life a lot simpler is Android Studio, which has been going from strength to strength over the last few years.

2.3 Firebase :

Firebase is a mobile and web application development platform developed by Firebase, Inc. in 2011, then acquired by Google in 2014. As of October 2018, the Firebase platform has 18 products, which are used by 1.5 million apps.

Firebase Cloud Messaging

Formerly known as Google Cloud Messaging (GCM), Firebase Cloud Messaging (FCM) is a cross-platform solution for messages and notifications for Android, iOS, and web applications, which as of 2016 can be used at no cost.

Firebase Auth

Firebase Auth is a service that can authenticate users using only client-side code. It supports social login providers Facebook, GitHub, Twitter and Google (and Google Play Games). Additionally, it includes a user management system whereby developers can enable user authentication with email and password login stored with Firebase.

Realtime database

Firebase provides a realtime database and backend as a service. The service provides application developers an API that allows application data to be synchronized across clients and stored on Firebase's cloud. The company provides client libraries that enable integration with Android, iOS, JavaScript, Java, Objective-C, Swift and Node.js applications. The database is also accessible through a REST API and bindings for several JavaScript frameworks such as AngularJS, React, Ember.js and Backbone.js. The REST API uses the Server-Sent Events protocol, which is an API for creating HTTP connections for receiving push notifications from a server. Developers using the realtime database can secure their data by using the company's server-side-enforced security rules. Cloud Firestore which is Firebase's next generation of the Realtime Database was released for beta use.

Firebase Storage

Firebase Storage provides secure file uploads and downloads for Firebase apps, regardless of network quality. The developer can use it to store images, audio, video, or other user-generated content. Firebase Storage is backed by Google Cloud Storage.

2.4 GIT :

Git is a distributed version-control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows.

Git was created by Linus Torvalds in 2005 for development of the Linux kernel, with other kernel developers contributing to its initial development. Its current maintainer since 2005 is Junio Hamano.

As with most other distributed version-control systems, and unlike most client–server systems, every Git directory on every computer is a full-fledged repository with complete history and full version-tracking abilities, independent of network access or a central server.

Git is free and open-source software distributed under the terms of the GNU General Public License version 2.

Git supports rapid branching and merging, and includes specific tools for visualizing and navigating a non-linear development history. In Git, a core assumption is that a change will be merged more often than it is written, as it is passed around to various reviewers. In Git, branches are very lightweight: a branch is only a reference to one commit. With its parental commits, the full branch structure can be constructed.

Git gives each developer a local copy of the full development history, and changes are copied from one such repository to another. These changes are imported as added development branches and can be merged in the same way as a locally developed branch.

2.5 JSON :

JSON stands for **JavaScript Object Notation**. JSON is a lightweight format for storing

and transporting data. JSON is often used when data is sent from a server to a web page. JSON is "self-describing" and easy to understand. The JSON format is syntactically identical to the code for creating JavaScript objects. Because of this similarity, a JavaScript program can easily convert JSON data into native JavaScript objects. JSON is built on two structures:

A collection of name/value pairs. In various languages, this is realized as an *object*, record, struct, dictionary, hash table, keyed list, or associative array.

These are universal data structures. Virtually all modern programming languages support them in one form or another. It makes sense that a data format that is interchangeable with programming languages also be based on these structures.

An ordered list of values. In most languages, this is realized as an *array*, vector, list, or sequence. JSON is a language-independent data format. It was derived from JavaScript, but as of 2017 many programming languages include code to generate and parse JSON-format data.

Chapter 3

Requirement and Analysis

3.1 Problem Definition :

- Time Consumption
People to search various routes and go here and there in search of Maps with proper routes consumes a lot of time.
- Problem Management includes the activities required to diagnose the root cause of incidents identified through the Incident Management process, and to determine the resolution to those problems. It is also responsible for ensuring that the resolution is implemented through the appropriate control procedures, especially Change Management and Release Management.
- Reliability
If any users forget password, they can just click on the Forget Password button, add their email and ready to go. The users will be sent a mail with reset link through which they can add their new password.

3.2 Requirements Specification :

A software requirements specification (SRS) is a detailed description of a software system to be developed with its functional and non-functional requirements. The SRS document shows all the features which are planned for the simple and better implementation of the project. This SRS document is planned and created to give a simple interface of the setup with its features.

The proposed system has following requirements:

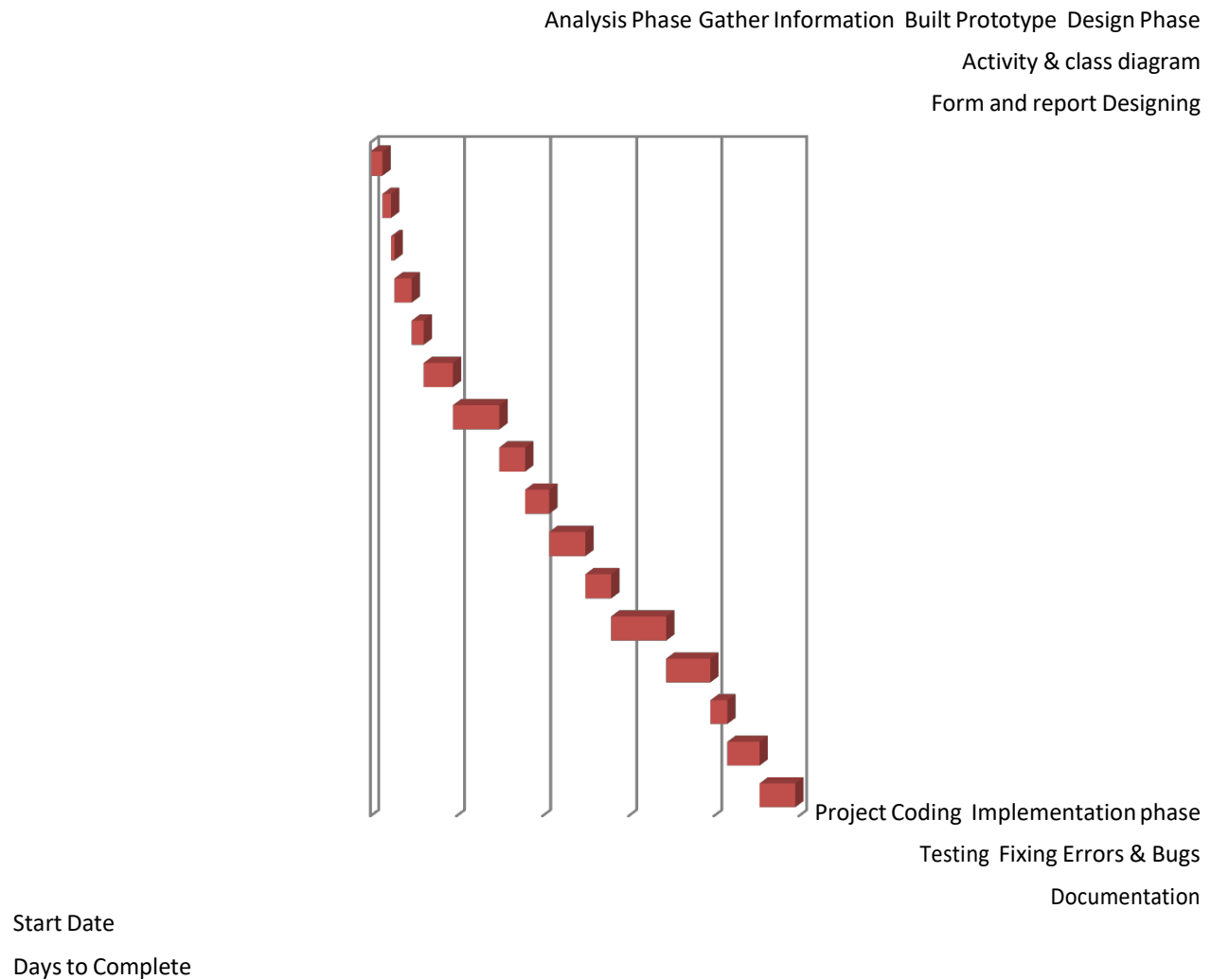
- System needs to store information about the users.
- System needs to get longitude and latitude parameters of current position.
- System needs to update the record.
- System also needs a search area to search preferred places at nearby location.
- System needs Security to private data.

3.3 Planning and Scheduling :

Firstly myself being a biker, I thought of the project which would more helpful for the bikers. Then I researched a lot about websites and apps available at present and the requirements. Thinking on it I decided to all the features with new features at one place in my project. Then I thought of a suitable name for the project. I created a project schedule and set-prioritized my goals for the project. I gathered all the information required. I created the design in such a way that the user will find it easy and interesting to use the app. Then I identified some issues and questioned myself to eliminate those issues and difficulties. On some occasions, I had to pretend as if I was the app user so as to try to figure out some of the things that user would desire, such as the friendliness of the user interface and ease of navigation through the software.

Gantt chart :

Project Planning
Project Search Finalize Project Requirement of Project Scheduling of Project



3.4 Software and Hardware Requirements :

- **Software**

Requirement :-

Android Studio

Android SDK and emulator

Firebase

Operating System : Windows 7 or above, Android

- **Hardware Requirement**

:- Intel i3 or higher

version . Ram 4 GB or

above.

Hard Disk 5 GB or above.

3.5 Preliminary Product Description :

The system will ask for the Login/Register as a customer.

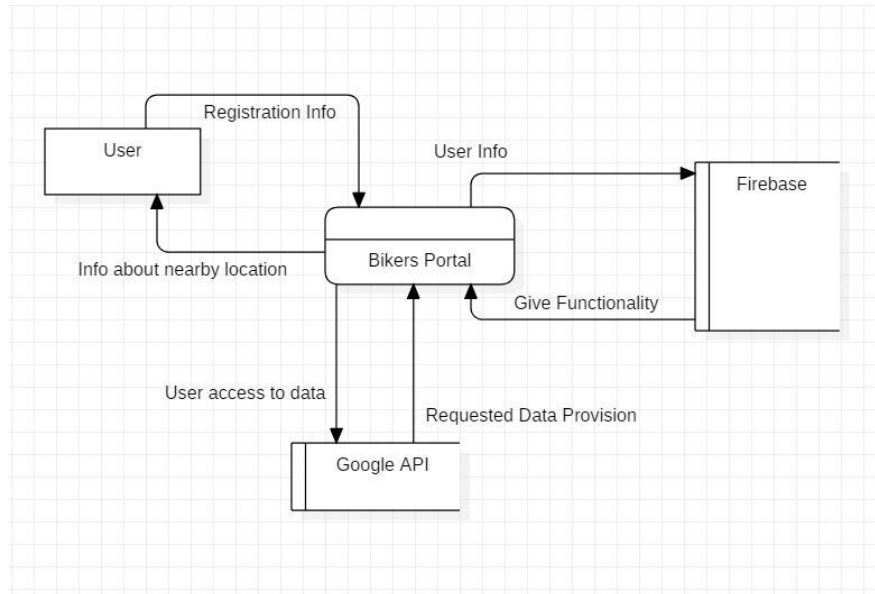
Logging in as a customer will allow the user to view the menu and its details. Selecting any one from that menu will take the user to the filter page where the user can get his own location with the help of GPS (Global Positioning System) or else he can search any area in the search bar. Then the user has to select the distance(the radius or the range) in which he/she has to search the preferred criteria. As soon as Search button gets pressed, various suggested results as per the criteria get display. This result shows the name and address of the location. Just clicking on it will redirect the user to Google Maps so as to get directions to the location.

3.6 Conceptual Models :

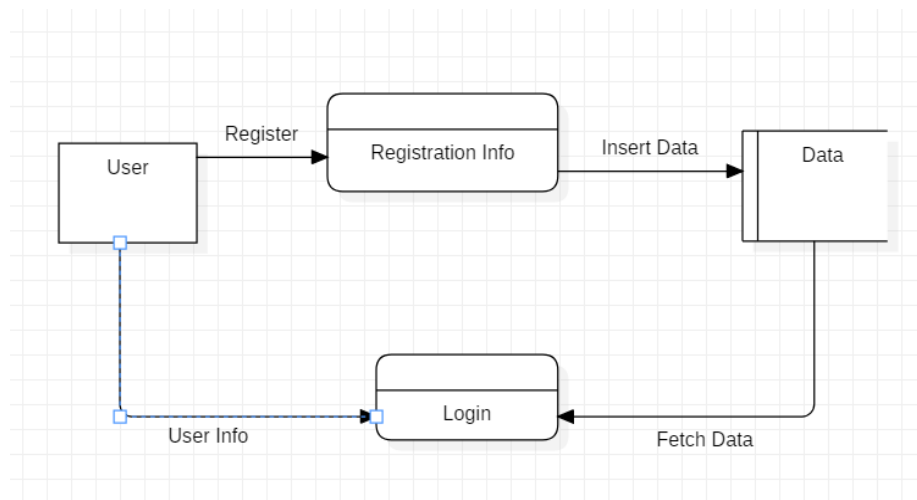
3.6.1 Data Flow Diagram

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. A DFD is often used as a preliminary step to create an overview of the system without going into great detail, which can later be elaborated. DFDs can also be used for the visualization of data processing. A DFD shows what kind of information will be input to and output from the system, how the data will advance through the system, and where the data will be stored. It does not show information about process timing or whether processes will operate in sequence or in parallel, unlike a traditional structured flowchart which focuses on control flow, or a UML activity workflow diagram, which presents both control and data flows as a unified model.

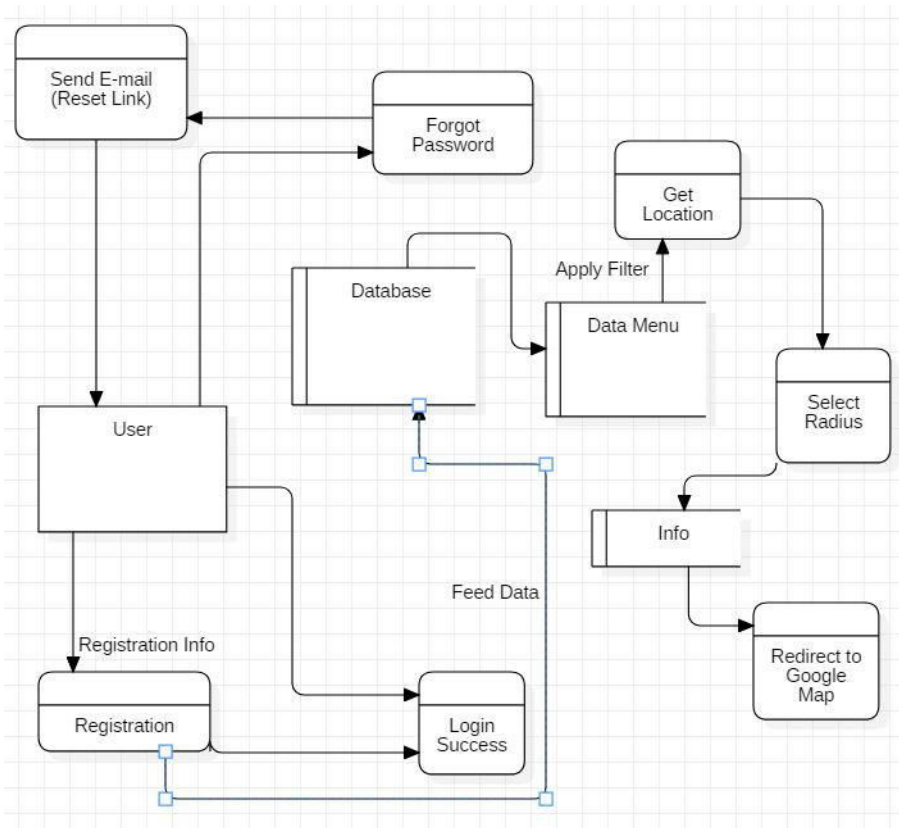
Context Diagram



Level 0 DFD



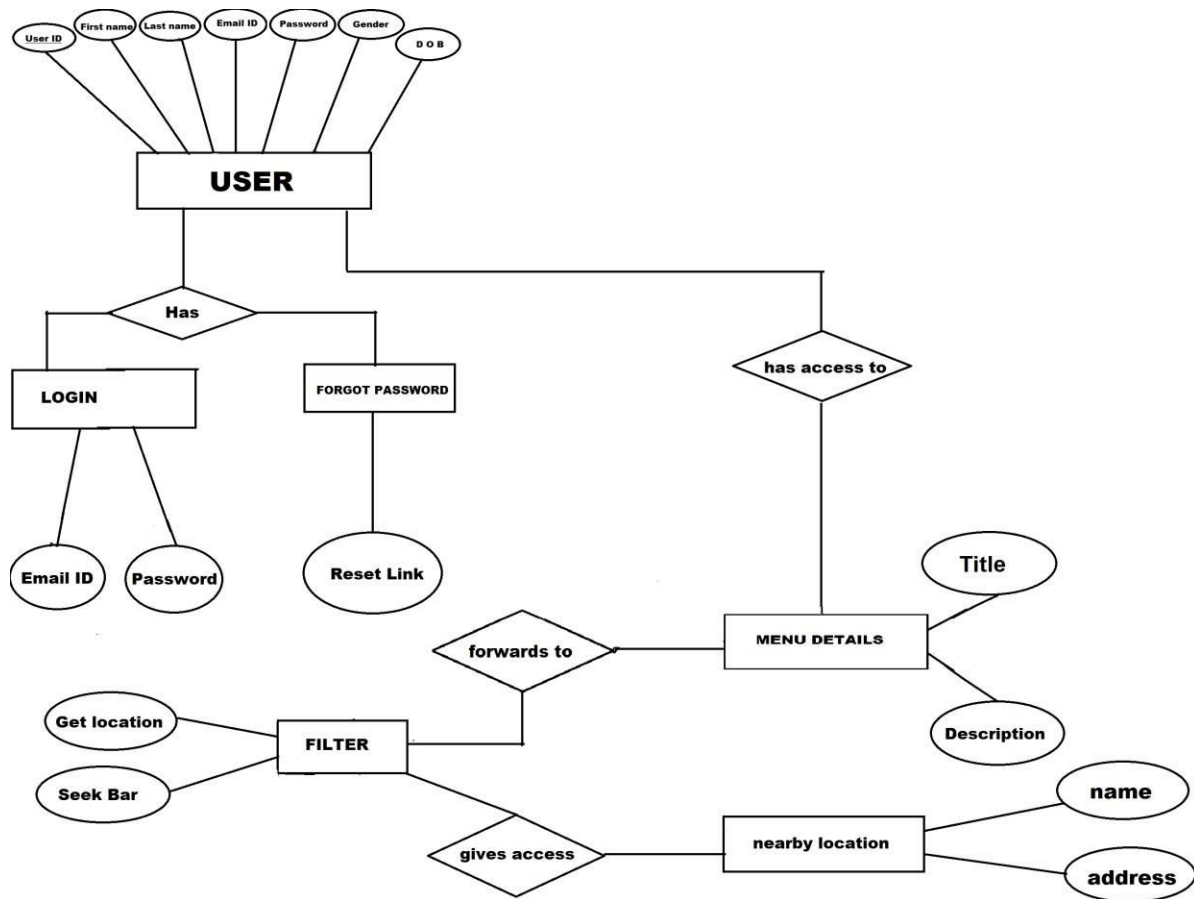
Level 1 DFD



3.6.2 Entity Relationship (ER) Diagram

The Entity-Relationship (ER) model was originally proposed by Peter in 1976 [Chen76] as a way to unify the network and relational database views. An entity relationship model, also called an entity-relationship (ER) diagram, is a graphical representation of entities and their relationships to each other, typically used in computing in regard to the organization of data within databases or information systems. An entity is a piece of data-an object or concept about which data is stored. There are three basic components of an entity relationship diagram:

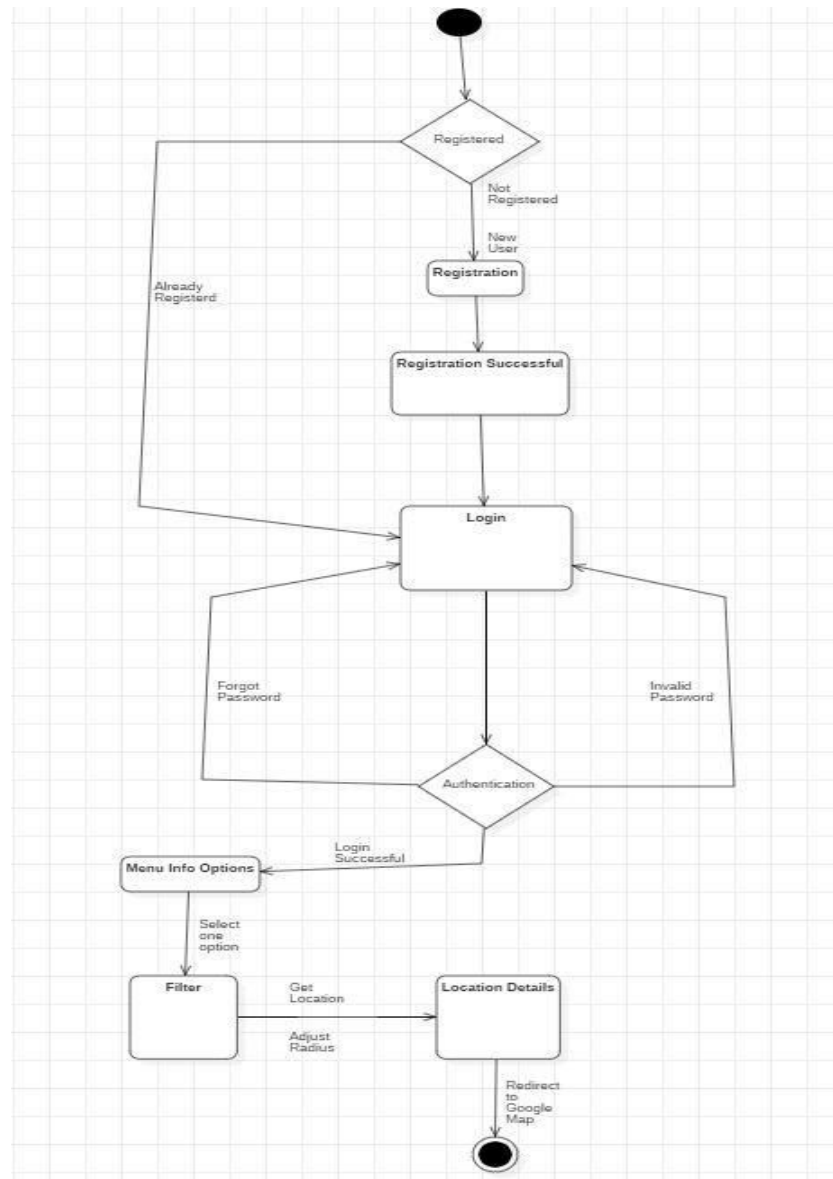
1. Entities, which are objects or concepts that can have data stored about them.
2. Attributes, which are properties or characteristics of entities. An ERD attribute can be denoted as a primary key, which identifies a unique attribute, or a foreign key, which can be assigned to multiple attribute.
3. The relationships between and among those entities.



3.6.3 System Flow Chart

System Flow charts use special shapes to represent different types of actions or steps in a process. Lines and arrows show the sequence of the steps, and the relationships among them. These are known as flowchart symbols.

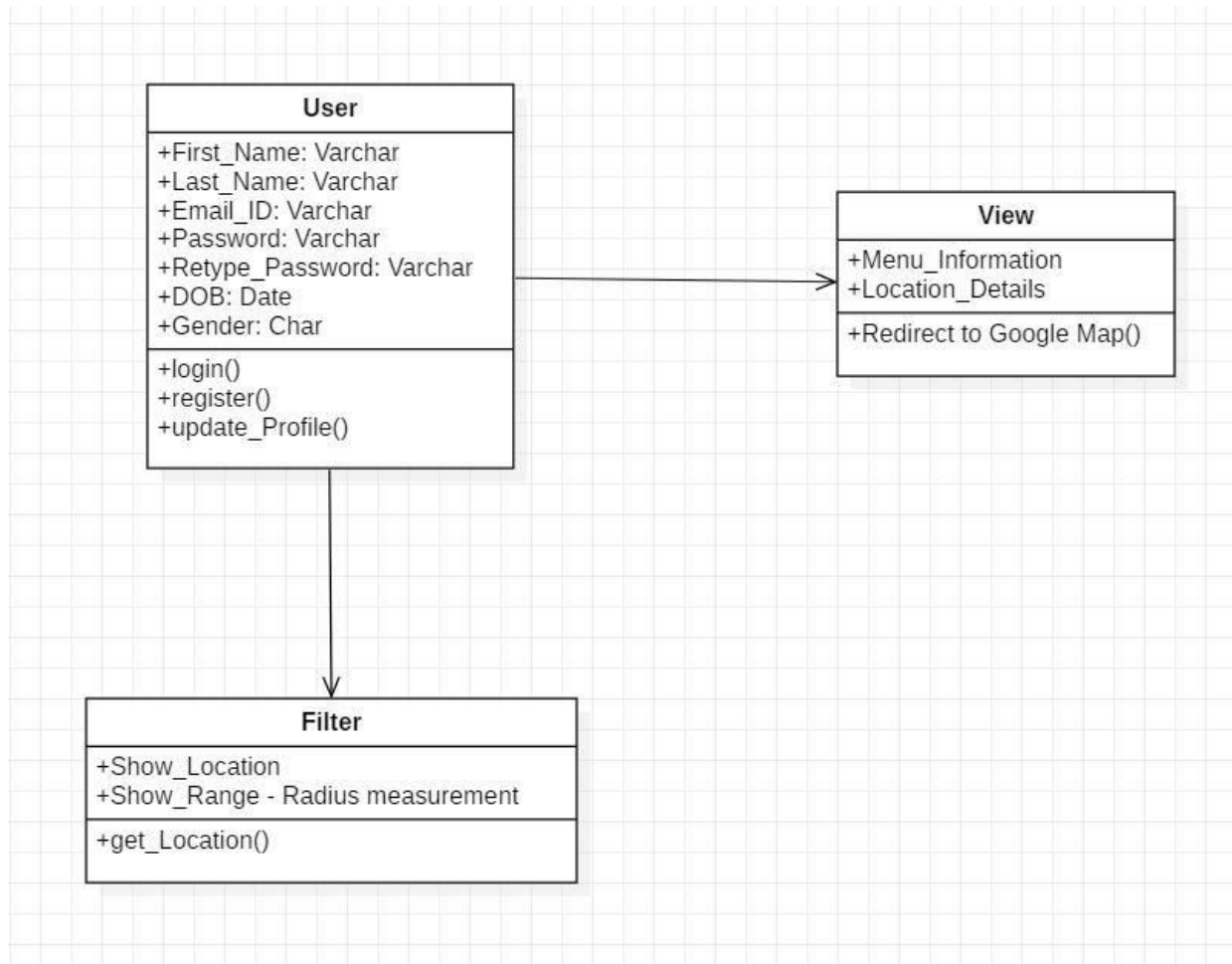
The type of diagram dictates the flowchart symbols that are used. For example, a data flow diagram may contain an Input/ Output Symbol (also known as an I/O Symbol), but you wouldn't expect to see it in most process flow diagrams.



3.6.5 Class Diagram

A class diagram is an illustration of the relationships and source code dependencies among classes in the Unified Modeling Language (UML). In this context, a class defines the methods and variables in an object, which is a specific entity in a program or the unit of code representing that entity.

Class diagram describes the attributes and operations of a class and also the constraints imposed on the system. The class diagrams are widely used in the modeling of object oriented systems because they are the only UML diagrams, which can be mapped directly with object-oriented languages.



Chapter 4

System and Design

4.1 Basic Modules :

Modules of Bikers Portal System are as follows :

- Login Module : Used for managing the login into accounts.
- Registration Module : Used for carrying out Registrations.
- Menu Management Module : Used for adding Menu and their respective locations.
- Notification Management Module : Used for managing the sending of Notifications via E- mail for forgot password.

4.2 Data Design :

1. Database

- a. Part of an information system
- b. Carefully designed and constructed repository of facts

2. Information System

- a. Provides data collection, storage, and retrieval
 - i. Composed of people, hardware, software, database(s), procedures, and application programs - applications transform data into information (e.g., report, tabulation, graphic display)

3. Database Design

- a. Foundation of a successful information system
- b. Should promote
 - i. data integrity
 - ii. prevent data redundancies & anomalies
- c. Must yield a database that
 - i. Is efficient in its provision of data access.
 - ii. Serves the needs of the information system.

4.2.1 Schema Design:

1.User Login/Register:

Name	Data Type	Size	Null
Username	Varchar	30	Not Null
Password	Varchar	30	Not Null
First Name	Varchar	30	Not Null
Last Name	Varchar	30	Not Null
Gender	Boolean	2	Not Null
DOB	Date	10	Not Null
Email Id	Varchar	30	Not Null

4.2.2 User Table :

Serial No.	Fields	Data type	Description
1.	UID	int	Primary Key
2.	Name	varchar(50)	User Name
3.	Email	varchar(50)	Unique Key
4.	DOB	date	Date of Birth
5.	Gender	char	User Gender

4.3 Procedural Design:

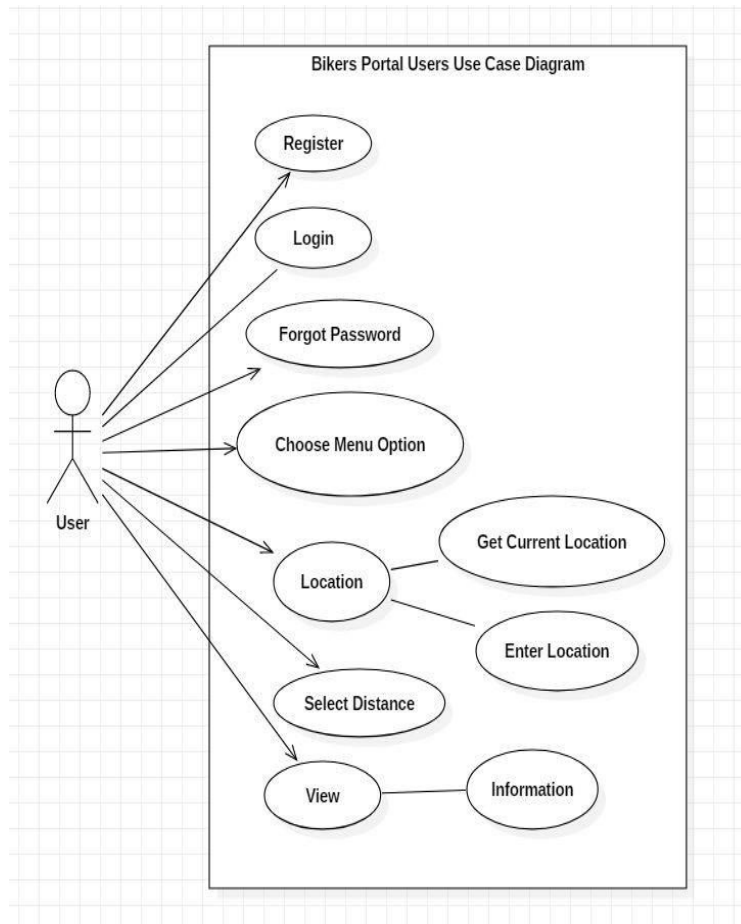
Procedural design is a systematic way for developing algorithms or procedurals.

4.3.2 Logic Diagrams:

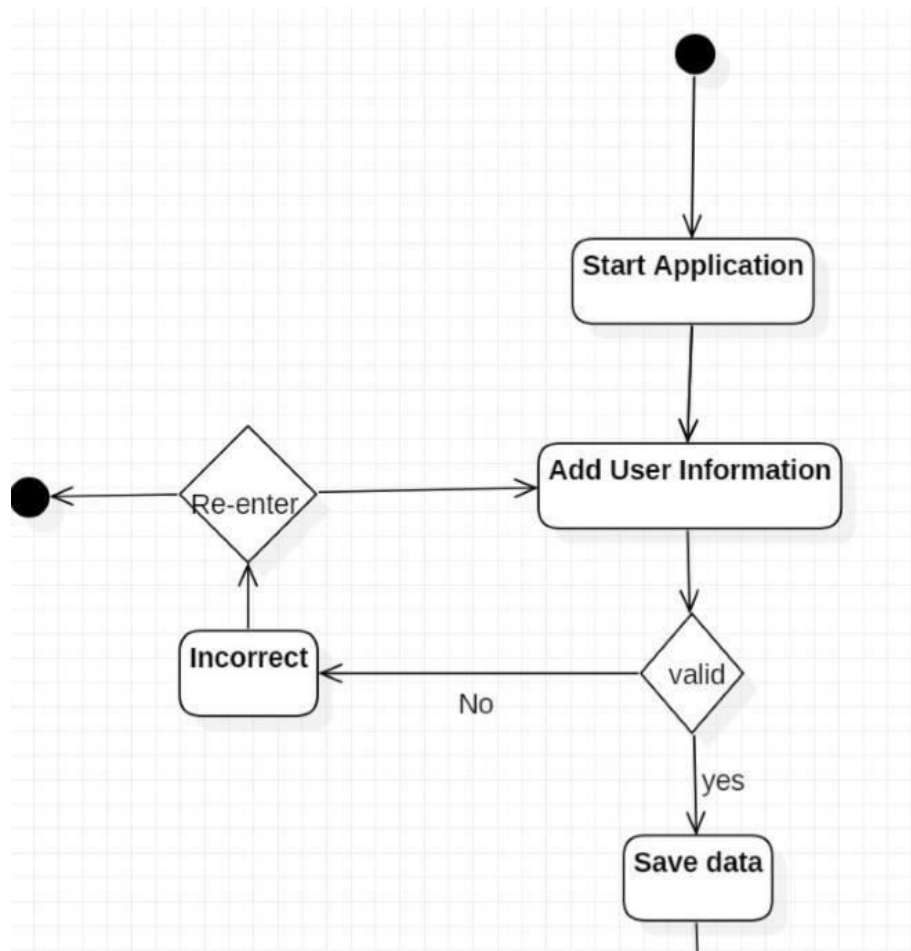
Use Case Diagram

Use case diagrams are usually referred to as behavior diagrams used to describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors). Use Cases are used to come to common understanding with system end user and domain experts. They help in validating the system architecture and its evolution process. After a thorough understanding of the requirements of the system the use cases are modeled following steps mention below:

- Identify the actors that interact with the system.
- Organize actors according their roles.
- Identify the primary ways in which the actor interacts with the system elements.
- Organize these behaviors as use cases.



Activity Diagram



4.3.3 Algorithm

Input design is the process of converting the user-originated inputs to a computer-based format. The design for handling input specifies how data are accepted for computer processing. Input design is a part of overall system design that needs careful attention and if includes specifying the means by which actions are taken. A system user interacting through a workstation must be able to tell the system whether to accept input produce a report or end processing. The collection of input data is considered to be the most expensive part of the system design. Since the inputs have to be planned in such a manner so as to get the relevant information extreme care is taken to obtain the information. If the data going into the system is incorrect then the processing and outputs will magnify these errors. The major activities carried out are

- 1 Collection of needed data from the source

- 2 Conversion of data into computer accepted form
- 3 Verification of converted data
- 4 Checking data for accuracy

The following are the major input screens used for Bikers Portal application:

Login Screen: used for providing user id and password.

Registration form: used for storing the details of different users.

Menu Screen: used for selection of type to be located.

Filter Screen: used for getting current location or any location and passing the range in which location should be searched.

Output Design

The output design has been done so that the results of processing should be communicated to the user. Effective output design will improve the clarity and performance of outputs. Output is the main reason for developing the system and the basis on which they will evaluate the usefulness of the application.

Output design phase of the system is concerned with the Convergence of information to the end user - friendly manner. The output Design should be efficient, intelligible so that system relationship with the end user is improved and thereby enhancing the process of decision making.

In this project, we can view the following output:

1. Login Page.
2. Registration Page.
3. Splash Screen.
4. Forgot Password Page.
5. Menu Option Selection Page.
6. Filter Page.
7. Results Page of searched Locations.

4.6 Test Cases Design:

A test case is a set of conditions or variables under which a tester will determine whether a system under test satisfies a requirement or works correctly. The process of developing test cases can also help find problems in the requirement or design of an application.

Software testing is a process which is used to measure the quality of software developed. It is also a process of uncovering errors in a program and makes it a feasible task. It is a useful process of executing a program with the intent of finding bugs.

In order to prove that a piece of software works, the software must be tested to determine if the requirements of the application are met. There are several different types of tests used throughout the development process. The two main types of testing are white box and black box testing.

White box test cases are used to test specific paths through the code. At decision points you can test the boundaries of the decision (boundary testing) and the partitions of the decision (partition testing).

Sr .	Test Case	Validation Or Requirement	Test Dat	Expected Result	Actual	Modification done
1	New user registration	All Data is mandatory	Adding new User	Adding done successfully	successful	No modification
2	New user Login	User ID and Password should match	Details	Successful entry	successful	No modification
3	New entry as user	All Data Inserted	Existing user id	Show Error	Showing Error	No modification
4	New user login	Username and password Required	Login details not matche	Show Error send	Showing Error	No modification

