PROJECT REPORT

ON

WALK & EARN

Submitted at

University Institute of Engineering and Technology,
Panjab University,Chandigarh.

Submitted for the requirement of completion of Six Weeks Industrial Training

Submitted By:

Sourav Gumber

ACKNOWLEDGEMENT

It is my proud privilege to express my profound gratitude to the entire management of UIET Chandigarh and teachers of the institute for providing me with the opportunity to avail the excellent facilities and infrastructure. The knowledge and values inculcated have proved to be of immense help at the very start of my career.

I would like to thank SPIC – Microsoft Centre of Excellence for providing me with an opportunity to pursue my industrial training, It taught and exposed me to the technology of COREJAVA. At the same time, it gave me an experience of working on a project on the same.

I highly indebted to my project guides Mr. Gurcharan Singh for steering me through tough and easier phases of the project in an expert and result oriented manner .They provided me with their invaluable guidance as and when required.

Sincerely

Triveni Mehta
Swati Arya
Aasminpreet Singh

DECLARATION

We hereby declare that this project report entitled “Walk & Earn” submitted to Department of Computer Science, UIET Chandigarh record of original work done by us under the guidance of Mr. Ashok Kumar.

The information and data given in this report is authentic to the best of my knowledge.

This project report is not submitted to any other university or institution for the award of any degree, diploma or fellowship or published any time before.

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ORGANISATION PROFILE

The Society for Promotion of IT in Chandigarh (SPIC) has been set up under the aegis of the Department of Information Technology, Chandigarh Administration for implementing the various plans of the Administration to promote the IT industry in Chandigarh. The Chairperson of the Society is the Adviser to the Administrator. SPIC and Microsoft have jointly set up a Centre of Excellence at Punjab Engineering College, Chandigarh. Under the aegis of Department of IT, SPIC and Microsoft have jointly set up a Centre of Excellence at Punjab Engineering College, Chandigarh. The Centre is a state-of-the-art Complex spread over an area of 3500 sq. ft. It consists of a spacious Conference Hall, Hi-tech class rooms, 30 work stations, a Meeting Room, and all the latest technological equipment for Training, Software Development and Presentations.

Under this understanding the partnership will work towards computerizing organizations in Chandigarh U.T., building skilled technical resources, develop expertise in providing technical consultancy, developing custom applications. Microsoft, in return will provide access to training and skills transfer on Microsoft Corporation technology.

The centre is offering various courses like MCSE, MCSD, MCDBA, VB and SQL 2000. Microsoft is carrying out training for the faculty, the students and employees of Chandigarh Administration on its new technologies / products for bench marking and demonstrating an array of Microsoft products, solutions and inter-operability with other platforms at this Centre. The Centre of Excellence is being used as a centre for the development of skills for the emerging software industry in the UT. The Centre also provides organized short-term courses for corporate executives, including executives from private companies.

High-end training is carried out for the executives as per their requirement. Software engineers deployed by the Department of Information Technology and Microsoft are working on various e-governance projects, some government projects like an accounting package for the Chandigarh Pollution Control Committee, projects related to counseling/guidance (Regional Employment Officer), a project on Loan System for the Social Welfare Department, Developing a library software for the Chandigarh College of Architecture, a project for the ITI Chandigarh and also developing website of Chandigarh Administration which includes all public interacting departments of Chandigarh Administration.

PROJECT DESCRIPTION

INTRODUCTION

People these days are more interested in travelling in vehicles even for short distances.That is one major cause of increasing air polution specially in India.

So to motivate them to walk more , I have developed this app that keeps record of distance you walk.And based on that distance, points are given to each user.

User can redeem these points for coupons of various food joints and other health related joints.

In this way the app not only motivates people to walk for an environmental cause but also helps them to stay healthy.

You can Login to the application either by your registered Phone Number or E-mail.

During SignUp the application verifies the Phone Number by sending OTP to the provided number.It also verifies that combination of Phone Number and E-mail for each user is unique.

The joints whose coupons are provided are benifitted by advertisement which they get for free of cost.The audience is all the people who use the app.And the app is benifitted by the google ads and other ads which are displayed if the user wants to increase its earning by watching videos.But the app is more interested in contributing for a global cause than earning profit.

LIMITATIONS

- **MOBILE APPLICATION:**

  Existing system is a mobile application that needs to be installed on every mobile to be used. It cannot be accessed online thus makes it a time consuming procedure.

- **FRONT END LANGUAGE:**

  Existing system is using Android Technology which is platform dependent. As, android applications run only in Android operating system.

- **LICENSE NEEDED:**

  Since the current system is developed using Android, therefore Account needs to be purchased for uploading app on Playstore.

TOOLS AND TECHNOLOGY

FRONT END TOOLS

JAVA

Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA) meaning that compiled Java code can run on all platforms that support Java without the need for recompilation.

Java applications are typically compiled to byte code that can run on any Java virtual machine (JVM) regardless of computer architecture. As of 2017, Java is one of the most popular programming languages in use particularly for client-server web applications, with a reported 9 million developers. Java was originally developed by James Gosling at Sun Microsystems (which has since been acquired by Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++, but it has fewer low-level facilities than either of them.

FEATURES OF JAVA

Simple :

- Java is Easy to write and more readable and eye catching.
- Java has a concise, cohesive set of features that makes it easy to learn and use.
- Most of the concepts are drawn from C++ thus making Java learning simpler.

Secure :

- Java program cannot harm other system thus making it secure.

- Java provides a secure means of creating Internet applications.
- Java provides secure way to access web applications.

Portable :

- Java programs can execute in any environment for which there is a Java run-time system.(JVM)
- Java programs can be run on any platform (Linux, Window, Mac)
- Java programs can be transferred over world wide web (applets)

Object-oriented:

- Java programming is object-oriented programming language.
- Like C++ java provides most of the object oriented features.
- Java is pure OOP. Language. (while C++ is semi object oriented)

Robust :

- Java encourages error-free programming by being strictly typed and performing run-time checks.

Multithreaded:

- Java provides integrated support for multithreaded programming.

Architecture-neutral :

- Java is not tied to a specific machine or operating system architecture.
- Machine Independent i.e. Java is independent of hardware.

Interpreted:

- Java supports cross-platform code through the use of Java byte code.
- Byte code can be interpreted on any platform by JVM.

High performance:

- Byte codes are highly optimized.
- JVM can execute them much faster.

Distributed:

- Java was designed with the distributed environment.
- Java can be transmitting, run over internet.

Dynamic:

- Java programs carry with them substantial amounts of run-time type information that is used to verify and resolve accesses to objects at run time.

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. 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.

FEATURES OF ANDROID STUDIO:

- 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.

BACK END TOOLS

My SQL

MySQL is an open-source relational database management system(RDBMS). Its name is a combination of "My", the name of co-founder Michael Widenius' daughter, and "SQL", the abbreviation for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation. For proprietary use, several paid editions are available, and offer additional functionality.

MySQL is a central component of the LAMP open-source web application software stack (and other "AMP" stacks). LAMP is an acronym for "Linux, Apache, MySQL, Perl/PHP/Python". Applications that use the MySQL database include: TYPO3,MODx, Joomla, WordPress, phpBB, MyBB, and Drupal. MySQL is also used in many high-profile, large-scale websites, including Google (though not for searches), Facebook, Twitter, Flickr, and YouTube.

A database management, or DBMS, gives the user access to their data and helps them transform the data into information. Such database management systems include dBase, paradox, IMS, SQL Server and My SQL. These systems allow users to create, update and extract information from their database. A database is a structured collection of data. Data refers to the characteristics of people, things and events. My SQL stores each data item in its own fields.

PHP:

PHP is a server-side scripting language designed primarily for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by The PHP Development Team. PHP originally stood for Personal Home Page, but it now stands for the recursive acronym PHP: Hypertext Preprocessor.

PHP code may be embedded into HTML or HTML5 markup, or it can be used in combination with various web template systems, web content management systems and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server software combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical applications.

USE:

PHP is a general-purpose scripting language that is especially suited to server-side web development, in which case PHP generally runs on a web server. Any PHP code in a requested file is executed by the PHP runtime, usually to create dynamic web page content or dynamic images used on websites or elsewhere. It can also be used for command-line scripting and client-side graphical user interface (GUI) applications. PHP can be deployed on most web servers, many operating systems and platforms, and can be used with many relational database management systems (RDBMS). Most web hosting providers support PHP for use by their clients. It is available free of charge, and the PHP Group provides the complete source code for users to build, customize and extend for their own use.

SYSTEM REQUIREMENT

HARDWARE REQUIREMENTS

Hardware requirements include that hardware which is required for its working. It includes:

- ➢ Android Smartphone
- ➢ 512 MB RAM (Minimum)
- ➢ Internal memory:8GB (Minimum)
- ➢ Internet Connection (For Communication)

SOFTWARE REQUIREMENTS

The technical specifications of requirements for the software are as follows:

- ➢ **About Operating System:** Android 5.0 or Later.
- ➢ **FRONT END TOOL**: Android Studio.
- ➢ Java SDK (Software Development Kit)
- ➢ **BACK END TOOL** :My SQL,PHP.

Features Used in Application

Services: A Service is an application component that can perform long-running operations in the background, and it does not provide a user interface. Another application component can start a service, and it continues to run in the background even if the user switches to another application. Additionally, a component can bind to a service to interact with it and even perform interprocess communication (IPC). For example, a service can handle network transactions, play music, perform file I/O, or interact with a content provider, all from the background.

These are the three different types of services:

Foreground

A foreground service performs some operation that is noticeable to the user. For example, an audio app would use a foreground service to play an audio track. Foreground services must display a status bar icon. Foreground services continue running even when the user isn't interacting with the app.

Background

A background service performs an operation that isn't directly noticed by the user. For example, if an app used a service to compact its storage, that would usually be a background service.

Bound

A service is *bound* when an application component binds to it by calling bindService(). A bound service offers a client-server interface that allows components to interact with the service, send requests, receive results, and even do so across processes with interprocess communication (IPC). A bound service runs only as long as another application component is bound to it. Multiple components can bind to the service at once, but when all of them unbind, the service is destroyed.

In the application I have used bound services for calculating distance travelled by the user .So that If the user comes out of the activity, the distance is still being calculated in background.

GoogleApiClient: The main entry point for Google Play services integration.

GoogleApiClient is used with a variety of static methods. Some of these methods require that GoogleApiClient be connected, some will queue up calls before GoogleApiClient is connected; check the specific API documentation to determine whether you need to be connected.

Before any operation is executed, the GoogleApiClient must be connected. The simplest way to manage the connection is to use enableAutoManage(FragmentActivity, GoogleApiClient.OnConnectionFailedListener). See Accessing Google APIs.

GoogleApiClient instances are not thread-safe. To access Google APIs from multiple threads simultaneously, create a GoogleApiClient on each thread. GoogleApiClient service connections are cached internally, so creating multiple instances is fast.

I have used GoogleApiClient in application in order to connect to the GoogleFusedLoactionApi that uses Location Manager to keep record of the current location and change of location, and display it on the Google Map Activity.

FusedLocationAPI: If your app can continuously track location, it can deliver more relevant information to the user. For example, if your app helps the user find their way while walking or driving, or if your app tracks the location of assets, it needs to get the location of the device at regular intervals. As well as the geographical location (latitude and longitude), you may want to give the user further information such as the bearing (horizontal direction of travel), altitude, or velocity of the device. This information, and more, is available in the Location object that your app can retrieve from the fused location provider.

While you can get a device's location with getLastLocation(), as illustrated in the lesson on Getting the Last Known Location, a more direct approach is to request periodic updates from the fused location provider. In response, the API updates your app periodically with the best available location, based on the currently-available location providers such as WiFi and GPS (Global Positioning System). The accuracy of the location is determined by the providers, the location permissions you've requested, and the options you set in the location request.

This lesson shows you how to request regular updates about a device's location using the requestLocationUpdates() method in the fused location provider

FusedLocationAPI is used in the project to keep record of the current location of the device by requesting for the location periodically after 1000ms.

In service used to measure distance, I have used onLocationChange( ) function of this API .By measuring the distance of last location from current location.

FEASIBILITY STUDY

Introduction :

The feasibility study of any system is mainly intended to study and analyze the proposed system and to decide whether the system under consideration will be viable or not after implementation. That is it determines the usability of the project after deployment. To come to result a set of query is answered keeping the efficiency of the software and its impact on the domain for which it was developed. It main emphasis is on the following three questions elucidated below as:

- What are the user's requirements and how does a candidate system meet them?
- What resources are available for the proposed systems? Is it worth solving the problem?
- What is the likely impact of the proposed system on the organization? I.e. how does the proposed system fit within the organization?

Thus since the feasibility study may lead to commitment of large resources, it becomes necessary that it should be conducted competently and no fundamental errors of judgment are made. Different types of feasibility study and the way we performed on our project "TASA".

Technical Feasibility:

In technical feasibility, we study all technical issues regarding the proposed system. It is mainly concerned with the specifications of the equipment and the software, which successfully satisfies the end-user's requirement. The technical needs of the system may vary accordingly but include:

- The feasibility to produce outputs in a given time.
- Response time under certain conditions.

- Ability to process a certain volume of the transaction at a particular speed.

- Facility to communicate data.

Under this analysis process questions like

- Does the compatible platform exist within our domain or can we procure it?

- Does the proposed equipment have the technical capacity to hold the data required using the new system? Both at the development site and at server where we will be hiring the space for the website, and also the database would it be possible to upgrade the system after it is developed and implemented, if necessary? And would the recommended technology guarantee the reliability, accuracy and data security?

Economic Feasibility:

Meaning: Are there sufficient benefits in creating the system to make the acceptable? Or are the costs of not creating the system so great that it is advisable to undertaken the project.

This will include three major costs as described below:

- Cost of Hardware and Software

- Cost of Software to be acquired to build and run the product is a onetime cost.

- Buying a back and database is the major part of hardware and Software cost.

- Comparison between the oracle database high cost and better features with the my SQL low cost and better support for the same vendor operating system make this decision need oriented.

- Benefits in reduced cost, error and saving will be made by reduction of present system expenses, time saving and increased accuracy.

- Cost Avoidance: Future cost reduction in form of reduction in the number of administrative staff needed and manual records maintains in organization. Rise in cost will be avoided.

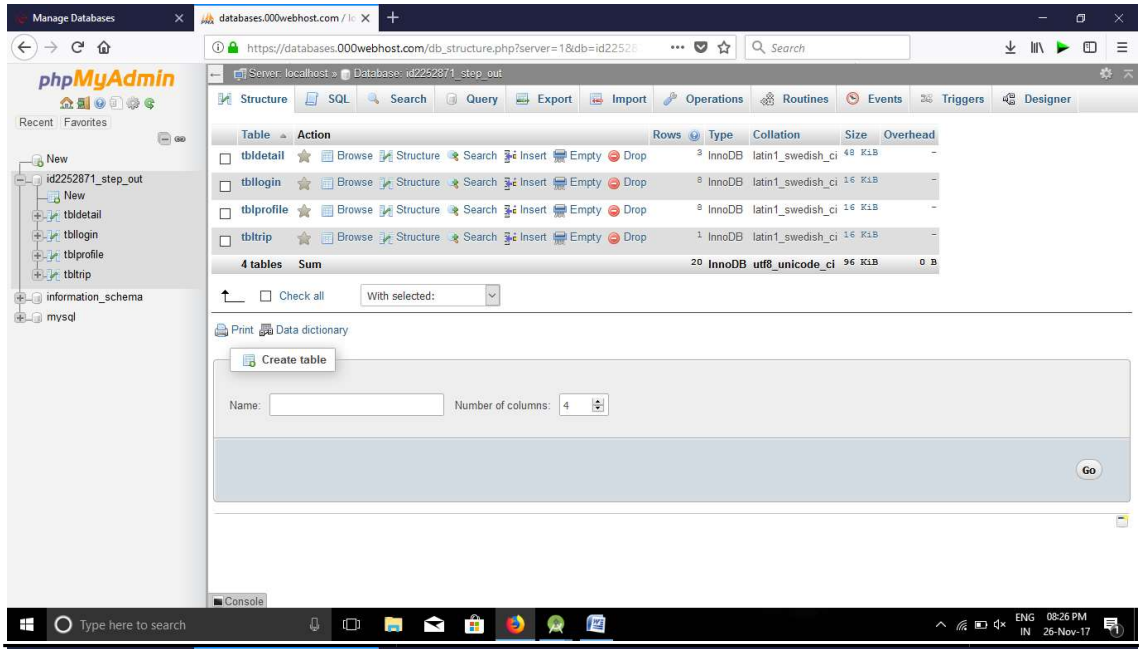
Operational Feasibility:

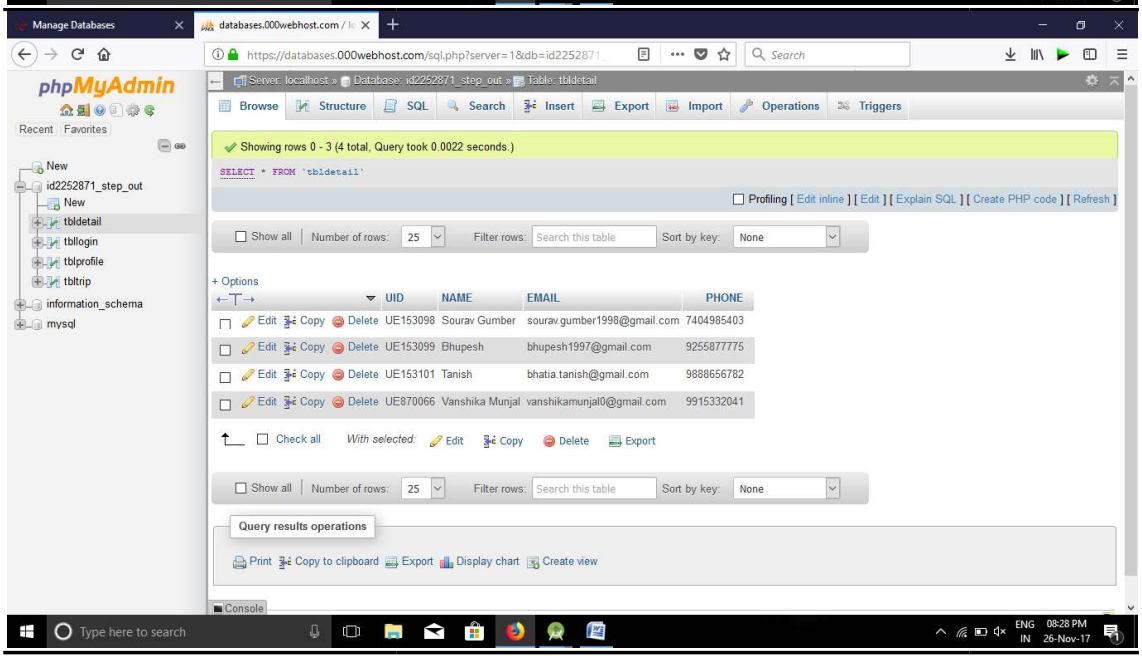
Meaning: The system will be used if it is developed well then be resistance from users that undermine the possible application benefits.

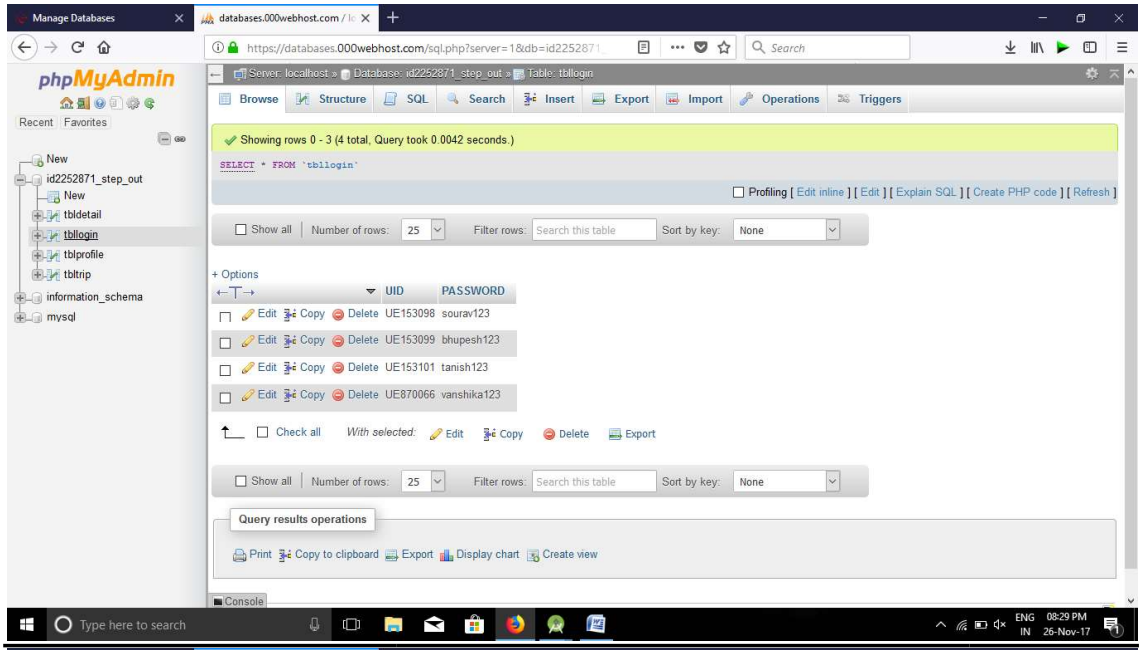
Clients Supports: Client and user support for present system is there, as the current procedure used takes more time and effort than proposed system. No major training and new skills are required as it is based on DBMS model. It will help in the time saving and fast processing and dispersal of user request and application. New product will provide all the benefits of present system with better performance such as improved information, better management and collection of the reports.

User Support: User involvement in the building of present system is sought to keep in mind the user specific requirement and needs. User will have control over own information. Important information such as Test result can be generated at the click of a button.

DATABASETABLES



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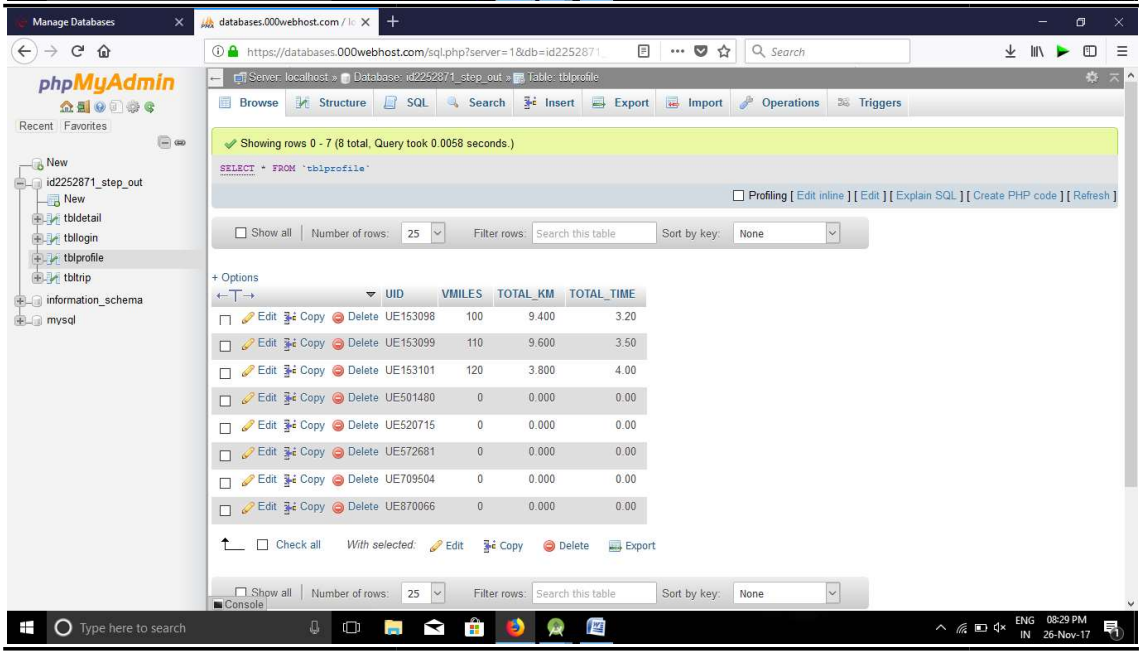
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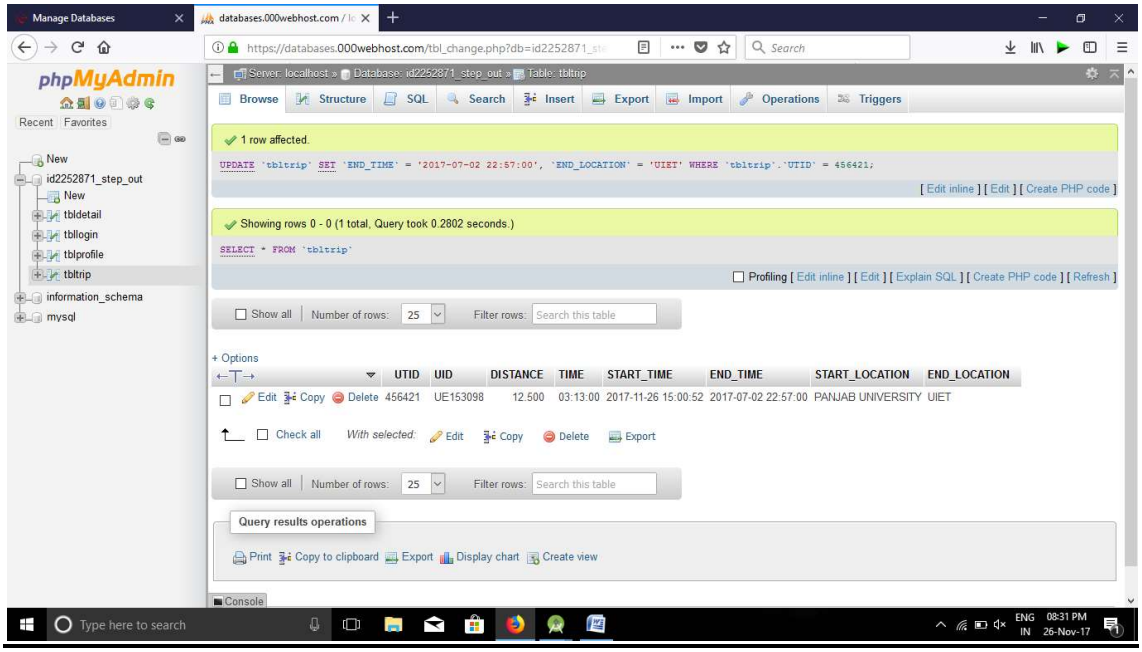
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tbllogin
tblprofile
tbltrip
information_schema
mysql
Server: localhost » Database: id2252871_step_out » Table: tbltrip
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Structure
SQL
Search
Insert
Export
Import
Operations
Triggers
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SELECT * FROM `tbltrip`
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Show all
Number of rows: 25
Filter rows: Search this table
+ Options
UTID UID DISTANCE TIME START_TIME END_TIME START_LOCATION END_LOCATION
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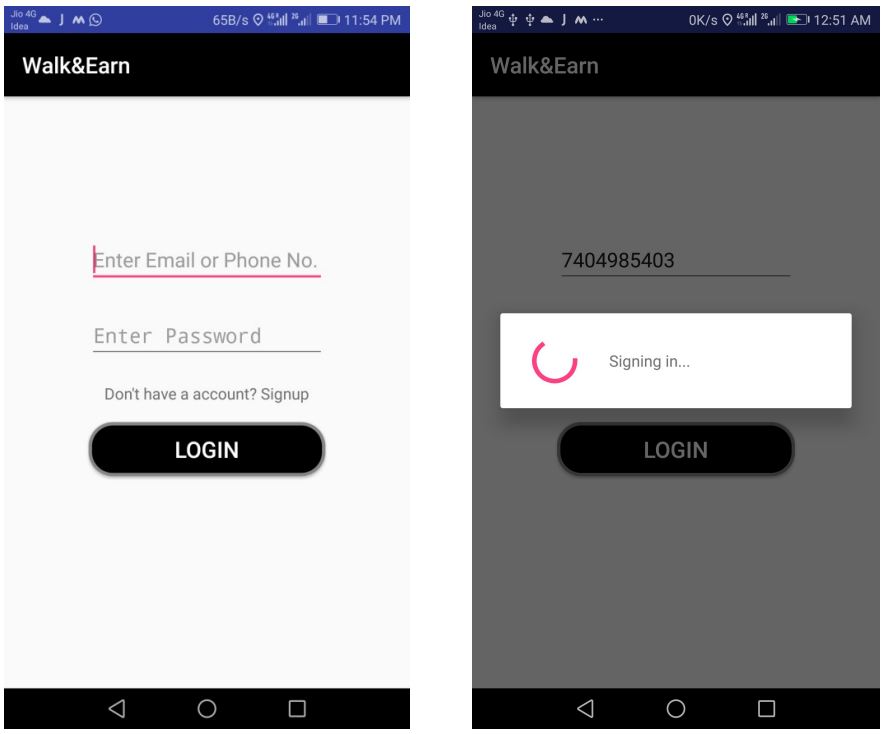
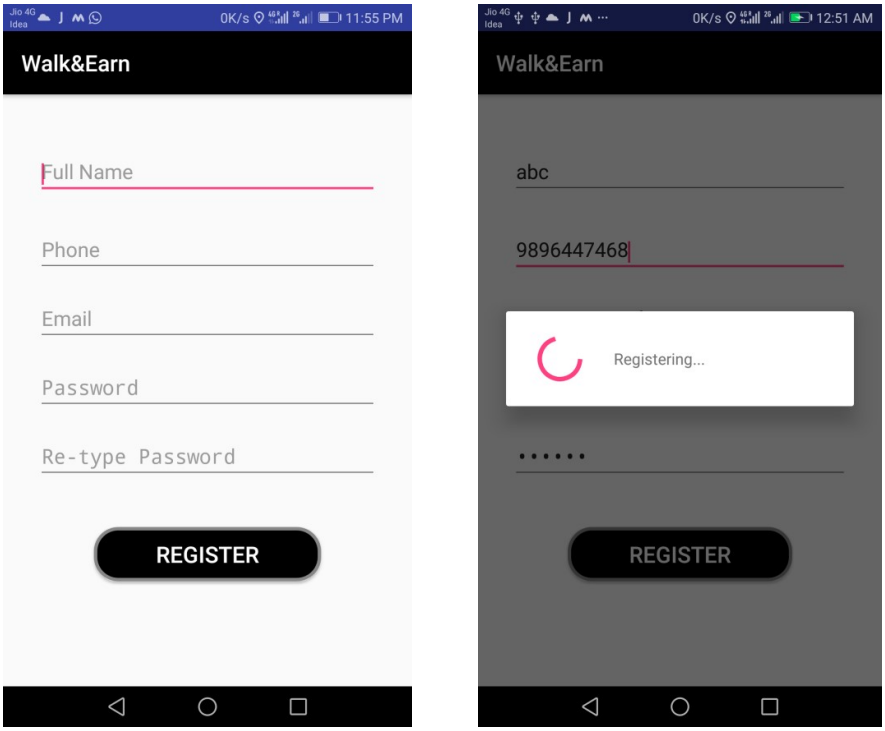
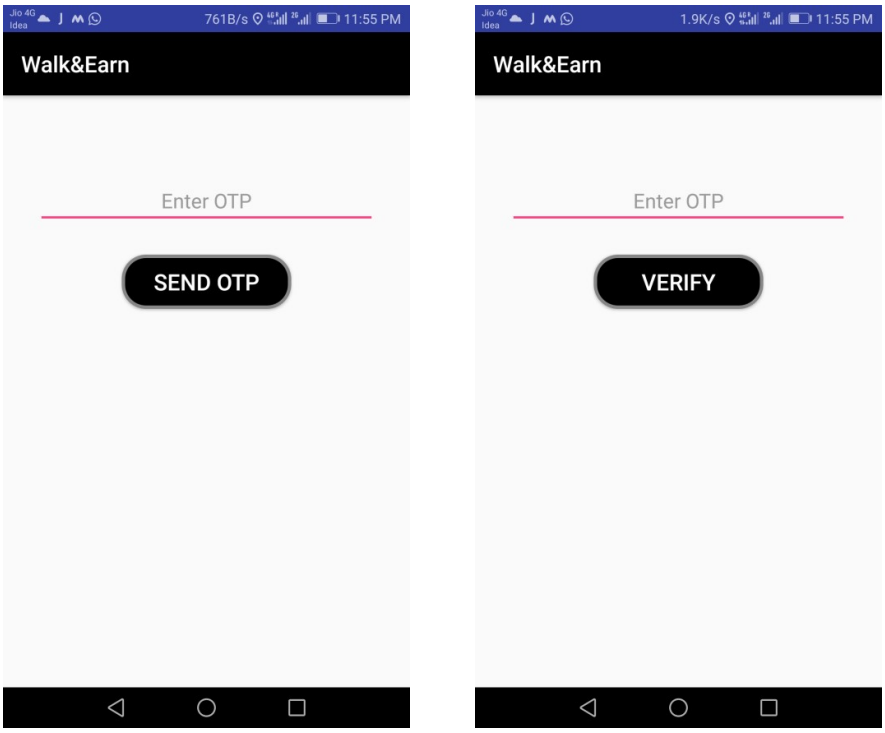
SNAPSHOTS:



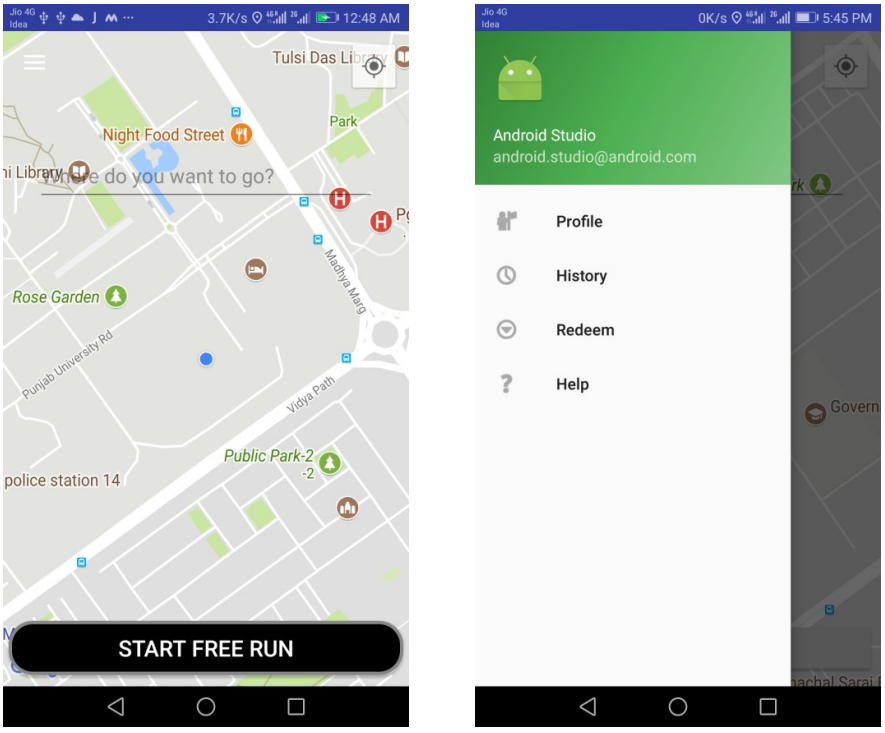
Login Activity



SignIn Activity



OTP Activity



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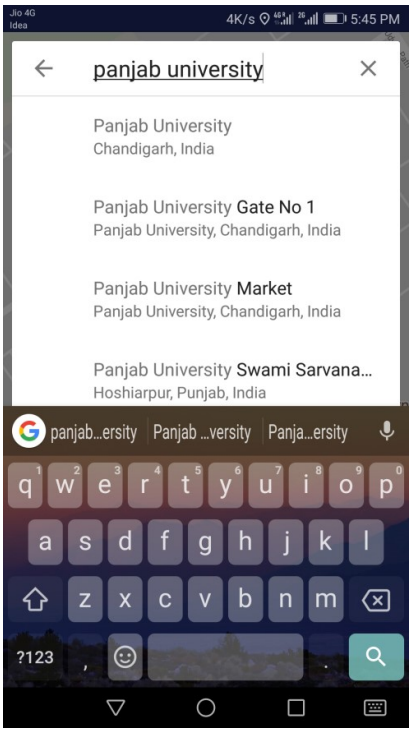
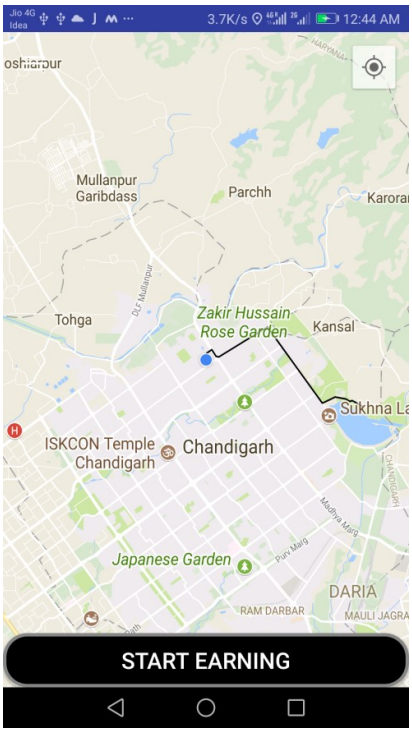
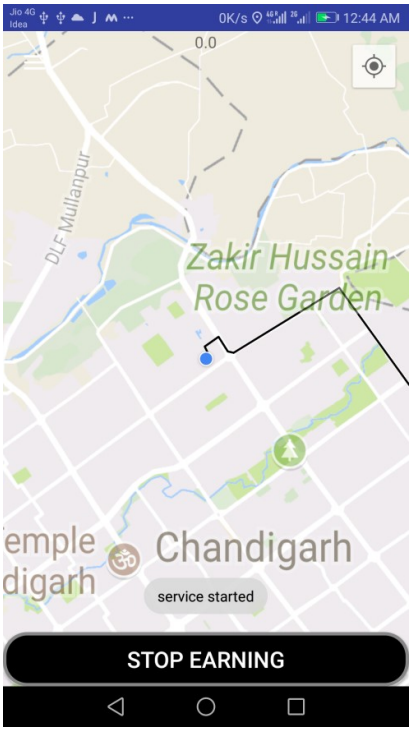
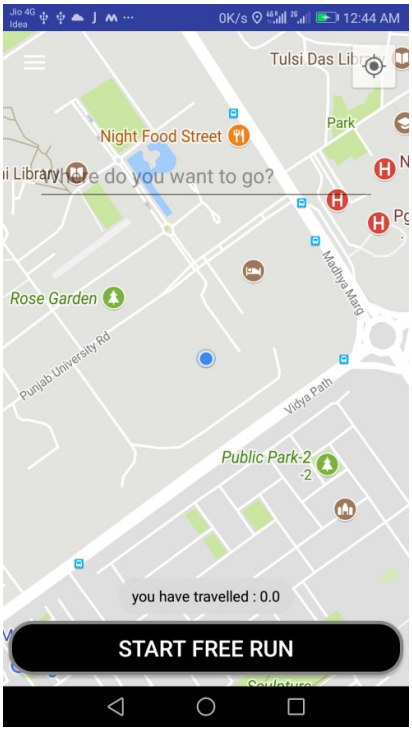


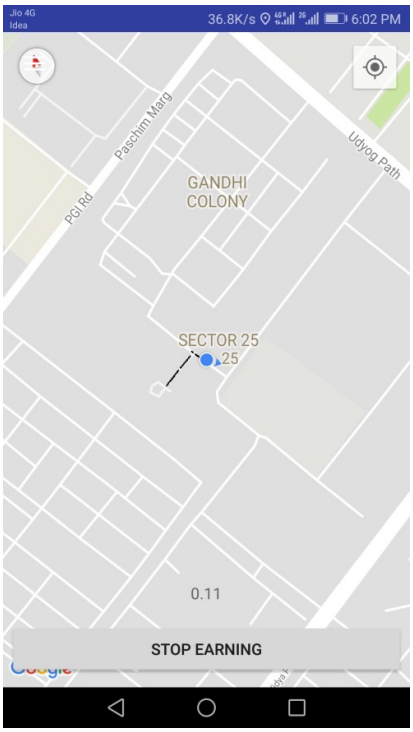


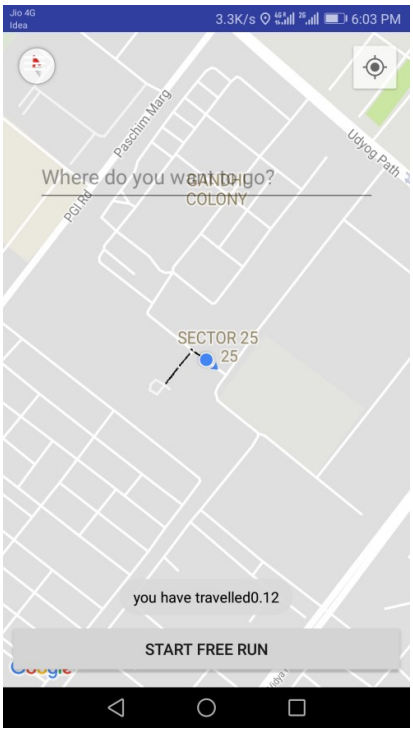
Searching for a Place



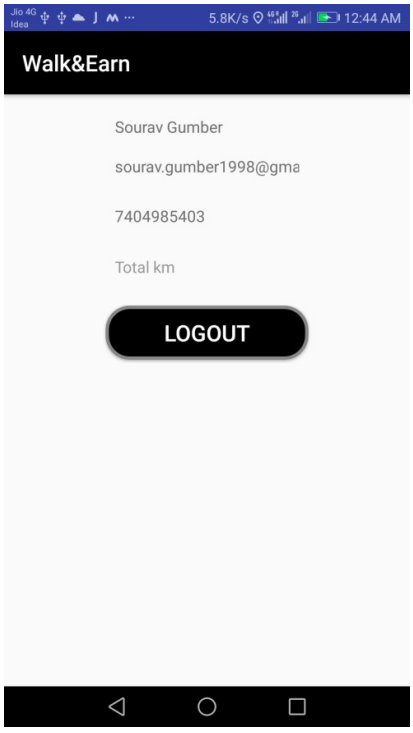


When you stop walking





When you walk freely (Without Destination)



Profile & Login Activity

TESTING

Software testing is a critical element of the ultimate review of specification design and coding. Testing of software leads to the uncovering of errors in the software functional and performance requirements are met. Testing also provides a good indication of software reliability and software quality as a whole. The result of different phases of testing are evaluated and then compared with the expected results. If the errors are uncovered they are debugged and corrected. A strategy approach to software testing has the generic characteristics:

- Testing begins at the module level and works "outwards" towards the integration of the entire computer based system.
- Different testing techniques are appropriate at different points of time.
- Testing and debugging are different activities, but debugging must be accommodated in the testing strategy

GOALS AND OBJECTIVES :

"Testing is a process of executing a program with the intent of finding an error". A good test case is one that has a probability of finding an as yet undiscovered error. A successful test is one that uncovers an as yet undiscovered error. Our Objective is to design test processes that systematically uncover different classes of errors and do so with minimum amount of time and effort**.**

UNIT/MODULE TESTING :

Testing for implementation defects begins with the most basic unit of development. This unit may be function, class or component. This kind of testing occurs during coding; therefore, intention is to direct the testing search to those portion of the code that are most likely to contain faults – complex, control structures for example. As each unit is constructed, it is tested that it – Does everything that its specification claims? A test case associates a set of input values with the result that should be produced by correctly functioning system. The functional testing strategy uses the specification of the units to determine which inputs to use. A second strategy, termed structural testing selects test inputs on the basis of the structure of the code that implements the functionality of the unit. Unit testing is typically done by the developer and not by the end users.

INTEGRATIONTESTING :

Top-Down Testing –

This approach tests high levels of system before detailed components. This is an appropriate when developing the system top-down likely to show up structural design errors early (and therefore cheaply) has advantage that a limited, working system available early on. Validation (as distinct from verification) can begin early. Its disadvantage is that stubs needs to be generated (extra effort) and might be impracticable if component is complex (e.g. converting an array into a linked list; unrealistic to generate random list; therefore end up implementing unit anyway). Test output may be difficult to observe (needs creation of artificial environment). This is not appropriate for systems (except within a class).

Bottom-Up Testing –

This is opposite of top-down testing. This testing test low-level unit then works up hierarchy. Its advantages and disadvantages of bottom-up mirror those of top-down. In this testing there is need to write test drivers for each unit. These are as reusable as the unit itself. Combining top-down development with bottom-up testing means that all parts of system must be implemented before testing can begin, therefore does not accord with incremental approach discussed above. The bottom-up testing is less likely to reveal architectural faults early on. However, bottom-up testing of critical low-level components is almost always necessary. Appropriate for Object Oriented systems.

Test Data and Test Cases

The primary objective of test case design is to derive a set of tests that have the highest likelihood of uncovering errors in software. The test case specification is the major activity in the testing process. Careful selection of test cases that satisfy the criterion on approach specified is essential for proper testing. Various characteristics of test cases that are required for portal are:

- A good test has a high probability of finding an error.
- A good test is not redundant.
- A good test should be “Best of Breed”.
- A good test should be neither too simple not too complex.

Test plan

Testing commences with a test plan and terminates with acceptance testing. A test plan is a general document for the entire project that defines the scope, approach to be taken and schedule of testing as well as identifies the test item for the entire testing process and the personnel responsible for the different activities of testing.

Test Reports and Debugging

Various outputs are produced as a result of test case execution for the unit under test. These outputs are needed to evaluate whether the testing has been satisfactory. The test report is meant for project management where the summary of the entire test case execution is provided. The summary gives the total number and nature of errors found and the summary of any metrics data collected. Debugging, in the form of error report, gives the summary of all the errors found. The errors may also be categorized into different levels, if such a categorization is available and its use has been planned in the test plan. In our case, initially many errors were found out. All such errors were rectified.

POST IMPLEMENTATION

Once the design is complete most of the major decisions about the system have been made. The goal of the implementation phase is to translate the design of the system into code in a given programming language. For a given design the aim in this phase is to implement the design in the best possible manner. Since the testing and maintenance costs of the software are high, the goal of the coding should be to reduce the testing and maintenance effort. Simplicity and clarity should be striven for during the implementation.