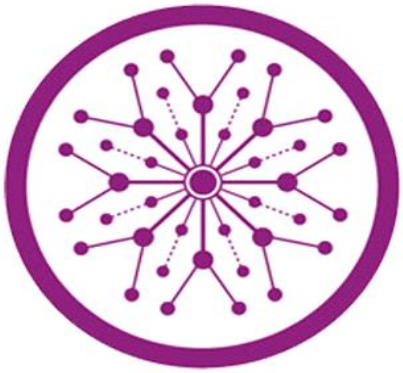
AW TRUST

(KHANA SAB K LIYE)

Session 2018-2022

A project submitted in partial fulfillment of the degree of

BS in Computer Science



Department of Computer Science

Faculty of Computer Science& Information Technology

Superior University, Lahore

FALL 2018

Type (Nature of project)		[✓] **D**evelopment [ ] **R**esearch [] **R&D**		
Area of specialization		Android And Django Python		
FYP ID		FYP-BCSM-F21-028		
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*The candidates confirm that the work submitted is their own and appropriate credit has been given where reference has been made to work of others

Plagiarism Free Certificate

This is to certify that, I Muhammad Raahim S/D ofMuhammad Ejaz, group leader of FYP under registration no Bcsm-F18-081 at Computer ScienceDepartment, The Superior College, Lahore. I declare that my FYP report is checked by my supervisor.

Date: Name of Group Leader: _____ Signature: _____

Name of Supervisor: Dr. ABC Co-Supervisor: Mr. XYZ

Designation: Lecturer Designation: Associate Professor

Signature: _____ Signature: _____

HoD: Dr. Arfan Jaffar

Signature: _____

Project Report

AW Trust

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
	1.0		<Original Draft>	
			<Changes Based on Feedback from Supervisor>	
			<Changes Based on Feedback From Faculty>	
			<Added Project Plan>	
			<Changes Based on Feedback from Supervisor>	

APPROVAL

PROJECT SUPERVISOR
Comments: _____
_____

Name:_____	
Date:_____	Signature:_____

PROJECT MANAGER
Comments: _____
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Date:_____	Signature:_____

HEAD OF THE DEPARTMENT
Comments: _____
_____

Date:_____	Signature:_____

Dedication

Thanks to ALLAH ALMIGHTY.

This work is dedicated to my parents, teachers and my university and thanks for their prayers.

They give us blessing to do this and on this day we are able to write a report.

Acknowledgements

We are really thankful to our supervisor Sir Saqib Ali for their valuable guidance, constructive criticism and encouragement through the project.

Thanks to my team members who have made valuable comment suggestions on this report which inspired us to improve our assignment.

We are thankful to all the people for their help directly and indirectly to complete this report.

Executive Summary

AW Trust is an app for AllahWalay Trust organization that is Non-Profit Food Charity Organization in Pakistan, under the slogan “ Khana Sab K Liye ''. Our vision is to provide nutritional food to marginalized communities around us and our mission is to provide highly nutritional, low cost, localized food to everyone. AW Trust has different meal programs which include serving Lower Staff, School Children, Hospitals, Porters at Railway station and General Public. It also has a Food Bank, which distributes subsidized Monthly Rashan to poor families. Moreover, the Wedding Food Program, a unique one of a kind program, has also been initiated, in which food is served in wedding ceremonies of deserving and poor families to lessen their societal burden/pressure. This app will provide a feature of donating from all over the world.

Table of Contents

List of Figures

List of Tables

Chapter 1

Introduction

Chapter 1: Introduction

AW Trust is an Android mobile application with a strong Backend of Firebase. AW Trust APP is a Non-Profit Food Charity application, under the slogan “Khana Sab K Liye”. The Main mission is to provide nutritional food to marginalized communities around us and our mission is to provide highly nutritional, low cost, localized food to everyone.

In this chapter, we are going to discuss the basics of the product, that is what the product is about, how it will work, motivations Behind This Project, and challenges faced during this project’s objectives And goals.

• Background

The Background of AW Trust application is designs for Allah Wally trust. Allah Wally trust is a Non-Profit Food Charity organization. Which serves food at multiple places and different areas. The app is designed to keep track of all their dastarkhwan and manage all the food supplies and activities. This app is for 3 kinds of users one is a guest account where the guest can see all the dastarkhwan details, their location, our services and the fields for donations. And second one is the register user who has more functionality like his donation buckets donate for different services like Zakat and Sadaqah and our food charity services. Users can also manage their profiles.And the third one is admin profile and profiles of organizations which can check the graph of donation statuses of dastarkhwan and add services and update services. And manage all the users and their profiles. The details of dastarkhwan will also be added by the admin and other major services, upcoming events, projects services can also be added by the admin.

• Motivations and Challenges

As there are many trust organizations which are serving the society but they mostly have manual systems and not proper computerized systems. Only a few one have web or mobile applications but they are only

like portfolios of organization. Moreover, there is a need for such a platform where all of these services can be handled with the help of technologies. The website of AW Trust is already done but same like other trust organizations, this is also a portfolio or a blog website. And it is very difficult to ask about Dastarkhwan details and track them, so all these things motivate us to develop this AW trust mobile application as we know that the mobile is the fastest way to communicate. We decided to facilitate all the services on mobile applications.

And let's admit that creation of an Application is not as easy as it seems. It's not always a great idea that makes a great App. Even the simplest of ideas can be used to create a great App. To do that, we need to consider every important aspect and inherent feature that a website includes. And gave that feature actual implementation. There are five biggest challenges that application creation entails. They are also the most important inherent features of an application. These include accessibility, compatibility, navigability, readability and usability.

• Goals and Objectives

Goal of AW Trust is as per the survey report, the labor class is spending 40% of their income on self-serving food. With an initiative to serve humanity, we are helping these people by offering free meals to them so that they can save their 40% of the income and can support their families

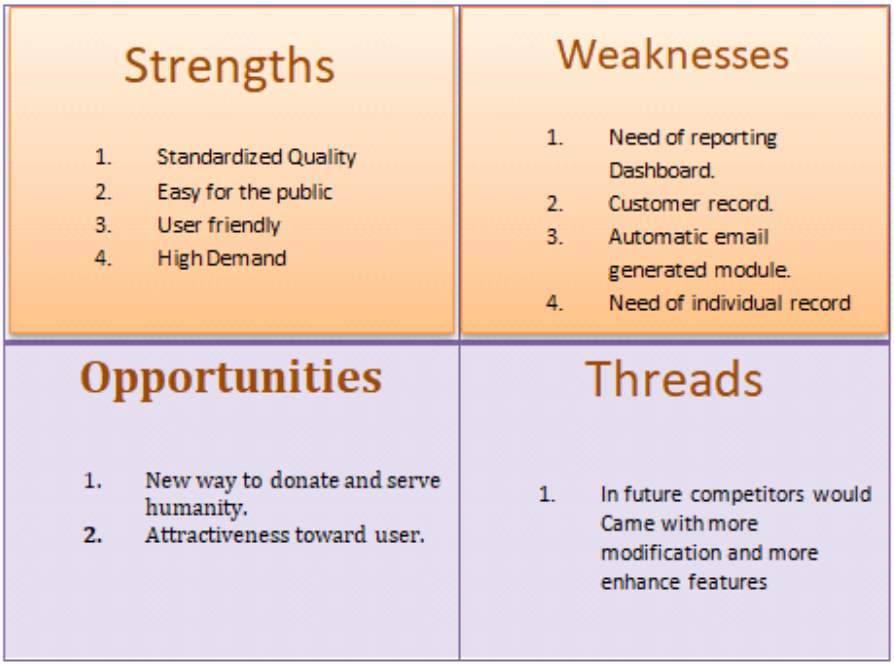
at back home for education, medical and other necessities of lives.So the vision is to provide nutritional food to marginalized communities around us and our mission is to provide highly nutritional, low cost, localized food to everyone.

• Literature Review/Existing Solutions

There are many trust organization mobile applications but they are only like a portfolio or a blog application. They only talk about what service they are providing but we can't get details or a proper knowledge. If we want to donate or avail these services we have to contact or mail the organization and that organization has to respond manually. Even AWT's own website is also a blog website. This process is time taking and very difficult. So to overcome all these situations we create an AW trust mobile application. In this application you can donate or avail all the services and their details in just one click. Or users have their own profile to view or manage their activities. The admin can add more services and edit services to graphically view the status of donations and other administrational activities. And also tell about the latest upcoming events or opportunities for Allah walay Trust.

• Gap Analysis

The major difference which keeps us unique from the other projects was the design and reliability of the app. On the other hand, we have also given them a pure secure platform.



- **Proposed Solution**

AW Trust is an Android mobile application with a strong Backend of Django python.AW Trust APP is a Non-Profit Food Charity application, under the slogan “Khana Sab K Liye”. The Main mission is to provide nutritional food to marginalized communities around us and our mission is to provide highly nutritional, low cost, localized food to everyone..So the vision is to provide nutritional food to marginalized communities around us and our mission is to provide highly nutritional, low cost, localized food to everyone.In this application you can donate or avail all the service and their details on just one click. Or users have their own profile to view or manage their activities. The admin can add more services and edit services to graphically view the status of donations and other administrational activities. And also tell about the latest upcoming events or opportunities in Allah walay Trust.

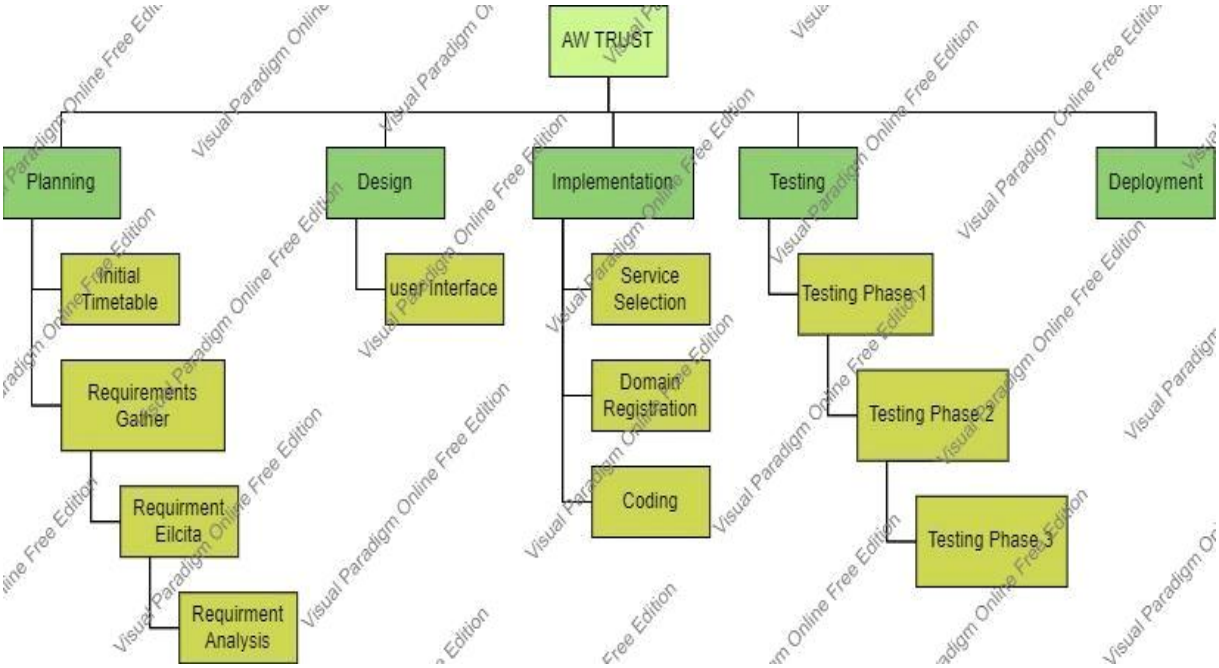
- **Project Plan**

Project plan is the most important part of any project. The major concern of our project is the development phase. The work breakdown structure of the project is shown below. Every phase is divided into many sub tasks. We decided to do all the tasks together which help us both to enhance our own skills and tasks are done under supervision of our supervisor. Planning is the key to success. The main concern of our project is the development phase. Every phase of the product has been divided into different sub phases. The basic benefits of these sub tasks are as follows:

- It will polish our own skills
- The task will be performed and completed in the supervision of the supervisor.

We will take financial assistance from the investors. Our target market is upper and middle class. This is really something youth will enjoy and students will also love this app because they enjoy connecting with each other.

- **Work Breakdown Structure**



Initialization

- Inception
- Problem
- Market analysis
- Conclusion of problem

Planning

- Elicitation
- Analyze problem

Design SRS

- Documentation
- Analyze documentation
- Review documentation
- Feasibility report

Diagram

- Use case
- Domain model
- Sequence diagram

- Activity diagram
- State chart diagram
- Class diagram

Implementation/execution

- Cover modules
- Review covered modules

Testing

- Testing tools used for the testing web applications

Testing methods

- Unit testing
- Integrate testing
- Alpha testing
- System testing

Deployment

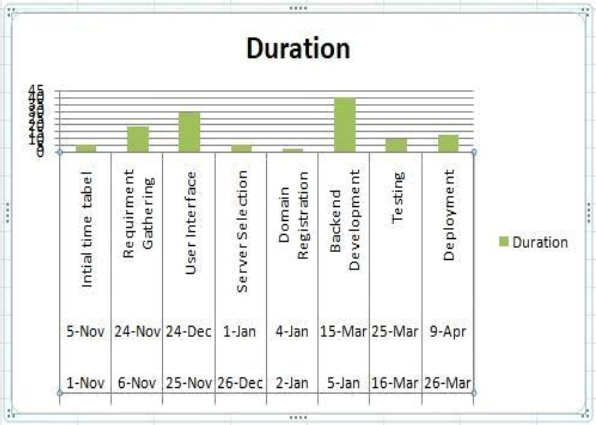
- **Roles & Responsibility Matrix**

WBS #	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member(s) & Role(s)

1.1	Initialization	1		2	Team
1.1.5		6	Solution	6	Team
1.1.6	Planning	7		3	Raahim, daniyal
1.1.6.3	Design SRS	10	SRS	6	client
1.1.6.3.1	Documentation	11	Document	3	Team
1.1.6.3.2	Analyze document	12			
1.1.6.3.3	Revised document	13	Revised document	1	Team
1.1.6.3.4	Feasibility report	14	Report	2	Team
1.1.6.3.5	Diagram	15			Raahim
1.1.6.3.6	Implementation	16	Modules	38	Team
1.1.6.3.7	Testing	17	System testing	8	Team,client
1.1.6.3.8	deployment	18		1	Team

- **Gantt Chart**

Start Date	End Date	Task Description	Duration
1-Nov	5-Nov	Intial time tabel	5
6-Nov	24-Nov	Requirment Gathering	18
25-Nov	24-Dec	User Interface	29
26-Dec	1-Jan	Server Selection	5
2-Jan	4-Jan	Domain Registration	2
5-Jan	15-Mar	Backend Development	40
16-Mar	25-Mar	Testing	9
26-Mar	9-Apr	Deployment	12



- **Report Outline**

The AW trust is basically an integrated module that an organization will use to collect data. We have done a lot of hard work to accomplish our project. The lack of any activity will be completed in other upgraded versions. We have tried our best to design a communicative resource for the customer. As a business, it is very important to know the minute details of the business. It can be very complex business to take on. The AW can be called as another industry which can serve their users

Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

- ## Introduction

- ### Purpose

The purpose of this app is that it is designed for Allah Wally trust. Allah Wally trust is a Non-Profit Food Charity organization. Which serves food at multiple places and different areas.

The app is designed to keep track of all their dastarkhwan and manage all the food supplies and activities. This app is for 3 kinds of users one is a guest account where the guest can see all the dastarkhwan details, their location, our services and the fields for donations. And second one is the register user who has more functionality like his donation buckets donate for different services like Zakat and Sadaqah. And our food charity services. Users can also manage their profiles. And the third one is admin profile and profiles of organizations which can check the graph of donation statuses of dastarkhwan and add services and update services. And manage all the users and their profiles. The details of dastarkhwan will also be added by the admin and other major services upcoming events projects services can also be added by the admin.

- ### Document Conventions

In this project we use, font style which we use is Calibri with font size '12'. And every requirement in this project has its own priority.

- ## Intended Audience and Reading Suggestions

The intended audience for this project are the web developers,mobile developers, project managers, customers and testers. It is designed in a way that web developers or customers [those who have a little bit of a technical environment] can understand easily.

- ## Product Scope

Due to the useful modules of this website it would have a wide scope in different sectors. The Main function is to provide nutritional food to marginalized communities around us and the main scope is to provide highly nutritional, low cost, localized food to everyone. .So the vision is to provide nutritional food to marginalized communities around us and our mission is to provide highly nutritional, low cost, localized food to everyone. In this application you can donate or avail all the services and their details in just one click. Or users have their own profile to view or manage their activities. The admin can add more services and edit services to graphically view the status of donations and other administrational activities. And also tell about the latest upcoming events or opportunities in Allah walay Trust.

• Overall Description

- ## Product Perspective

This product is a more enhanced version of the existing system as we are working on adding more helpful modules/features. The enhanced features on which we are going to work are;

New Feature	Description
Reporting Dashing	Where Administrators will be able to check the reports of dastarkhwan. They can compare area wise reports and evaluate them on the basis of their work. Whereas, administration could check staff and department's progress and staff could check dastarkhwan reports respectively. And customers can also check their map and donation details.

More services	In future many other services will also be offered. Like water plant details and many more services related to AW trust

Chart Modules	Admiration and customers can also see the progress of the service and their donation on the chart given in the application and from there they can make easy decisions for the future.
Direction to dastarkhwan	By looking on the map users can view and search all the dastarkhwan and they will also get the direction by root or air from their current location.

- ## Product Functions

Functionality of the product is given below:

Stimulus: User added his profile information.

Response: System connects the user with different users and shares his information.

Stimulus: User sends his message to another user .

Response: system transfer his message to other user

Stimulus: User can give feedback or rate the things according to quality and his satisfaction.

Response: System, see the feedback and take any action if required.

- ## User Classes and Characteristics

As this product would be used by any person or aw trust staff so its users would be Administrations, staff of AW trust , Project Managers, and other users.

Qualification:

Have enough Qualification that they could easily understand the commands of application.

Technical Experience:

Know the using or flow of application.

- ## Operating Environment

This software can be run on any Android mobile phone above version 4. The ram must be above 1 GB.

- ## Design and Implementation Constraints

You need to be able to identify the constraints involved in designing a application before diving into the few basic principles in page design that are common to most effective sites. The most fundamental of those constraints is that you can't fix where objects will appear on a viewer's screen. However, people see applications in different viewports — that is, different-sized screens. And so you have to design pages that will appear in mobile phones and maybe even projected onto wall-sized displays. Another constraint of website design is that unlike print designs, where the viewing area of any design is fixed, web users can (and do) zoom in or out as they interact with a web page, changing the size of text and images. And, by the way, different browsing environments handle zoom differently — some enlarge images as text is enlarged, and other times enlarging text doesn't affect other page elements.The system shall be developed using the kotlin Android Studio. The design of app is created on the language xml. This app will available on play store you can access it easily over there. The data base which is use is SQL and the backend is on python Django.

- ## User Documentation

· Creating a application
· The app information
· The app editor
· Importing supplier's data (Pro edition only)

- ## Assumptions and Dependencies

Human resource availability: All key project team members are available and have the necessary skills and knowledge to work on the project.

· Budget availability: The determined budget is accurate and covers all project expenses. Project Report: < write Project title here> Faculty of CS&IT, Superior University Lahore, Pakistan 22

· Scheduling accuracy: The set deadlines and milestones are achievable and the project can be finished on time.

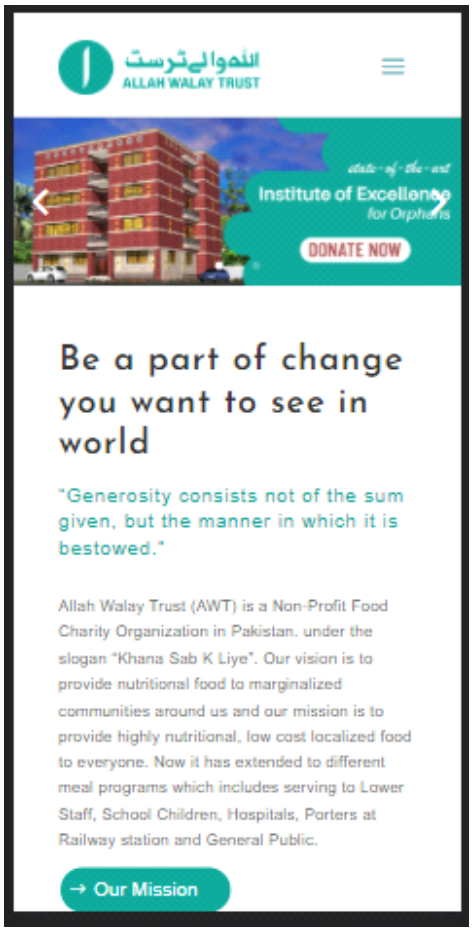
Upper management support: You have the support and buy-in from the C-Level and the project sponsor, who will back you up when issues arise.

Dependencies:- There are four types of project planning dependencies. They establish the relationships among the tasks. They are listed in the order most often used. Finish To Start (FS). The first task must complete before the second task can start. For example, the task "Write code module 1" must finish before the task "test code module 1" can begin. Finish To Finish (FF). The second task cannot finish before the first task finished. The task "all code tested" cannot finish before the task "test code module x" finishes. Start To Start (SS). The second task doesn't start until the first task starts. The task "write training manual" must start before the task "write chapter 1 of training manual" can start. Start To Finish (SF). The first task must start before the second task can finish. The task "assign coder for module 3" must start before the task "all work assigned" can finish.

- **External Interface Requirements**

- **User Interfaces**

We make the user interface as simple as we can because it is very important for a software. We will use efficient icons to make it understandable for everyone because every user of the application may be educated, maybe not so it's important to do that. Customer or administrator will login first with his account. Customers can see the availability of products. Customers can also get feedback. Administrators can get an interface of delete, add or can edit products. He can also see the quantity.



- **Hardware Interfaces**

Hardware requirements for insurance on internet will be same for all parties which are follows:

any Android mobile or above

RAM:- 1 GB or above

And about 40 mb space is require

- **Software Interfaces**

AW trust will be available on play store. MySQL database will be used to store the data. Internet Service is required to access the application. Once a user accesses the app he/she performs relative tasks.

Software required to make working of product is:

1:- Operating system:

The operating system should be minimum lollipop or above

- **Communications Interfaces**

Users can connect with the system using mobile phones and the internet. And communicate with each other.

- **System Features**

We are working on adding four major modules that are further subdivided according to the role of the user. Those major features are user authentication, mapping all dastarkhwan details on one touch on a map, and getting the donation statistics.

- ## User Authentication

  - **Description and Priority**

User authentication is a process that allows a device to verify the identity of someone who connects to a network resource. There are many technologies currently available to a network administrator to authenticate users.

In AWT the user authentication is for the protection of the user information and organizational information. They have their own email password to use the app in the process only the authorized person can get the app information. User has its own profile where he / she can add their personal information and can share it only with the trusted user.

  - **Stimulus/Response Sequences**

User authentication works according to the specific user. As Administrators, staff, Project Manager,users get different charts displayed on their portal side according to their roleasAdministratorcouldabletochecktherеportsofdonationandemployeeorother services. As he clicks to login he will display a list according to the specific chart .

  - **Functional Requirements**

Stimulus: User requests to create a new account.

Response: System provides a form for the user to enter the information. After that account will be created.

Stimulus: User added his profile information.

Response: System connects the user with different users and shares his information.

Stimulus: User sends his message to another user.

Response: system transfer his message to other user

Stimulus: User can give feedback or rate the things according to quality and his satisfaction.

Response: System, see the feedback and take any action if required.

- ## Dastarkhwan Mapping

  - **Description and Priority**

AWT is a Non-Profit Food Charity organization. They serve food at multiple places and different areas.The app is designed to keep track of all their dastarkhwan and manage all the food supplies

and activities. So for this purpose we use Google maps to map all the dastarkhwan for the day offered by AWT so the user can get their nearest dastarkhwan and avail the service.

- **Stimulus/Response Sequences**

Dastarkhwan mapping works according to the no of dastarkhwan added by the administrator. As Administrators can add the dastarkhwan and their details staff, Project Manager,users can get

according to their locations different dastarkhwan display on their application according to their location. Administrators would be able to check the reports of donation and employee or other services.

- **Functional Requirements**

Stimulus: admin requests to create a new service.

Response: System provides a form for the user to enter the information. After that service will be created.

Stimulus: admin added his information.

Response: System connects the user with different users and shares his information.

Stimulus: User clicks on the service.

Response: system transfers his message and provides the service details.

Stimulus: User can give feedback or rate the things according to quality and his satisfaction.

Response: System, see the feedback and take any action if required.

- ## Other Nonfunctional Requirements

- ### Performance Requirements

More than 100 users can access this website at the same time.

- ### Safety Requirements

Customer information is not given to any other person. Data of the user will not be given to any person.

- **Security Requirements**

Use http protocols to secure the application

- **Software Quality Attributes**

Safe for all users. System should not hang. System should respond to the user very speedily. Strong management system. System should be reliable.

- **Business Rules**

This system has some important rules; a speedy response should be given to customers. Make sure that customer details should not be leaked. Usability of the system should be very easy. Easy access to the system should be given. Everyone will easily use the system.

- **Other Requirements**

The system should reliable and easy to use you have to create id in one platform this will automatically merge to another this is basically used for the business app advertising is the main feature of this app

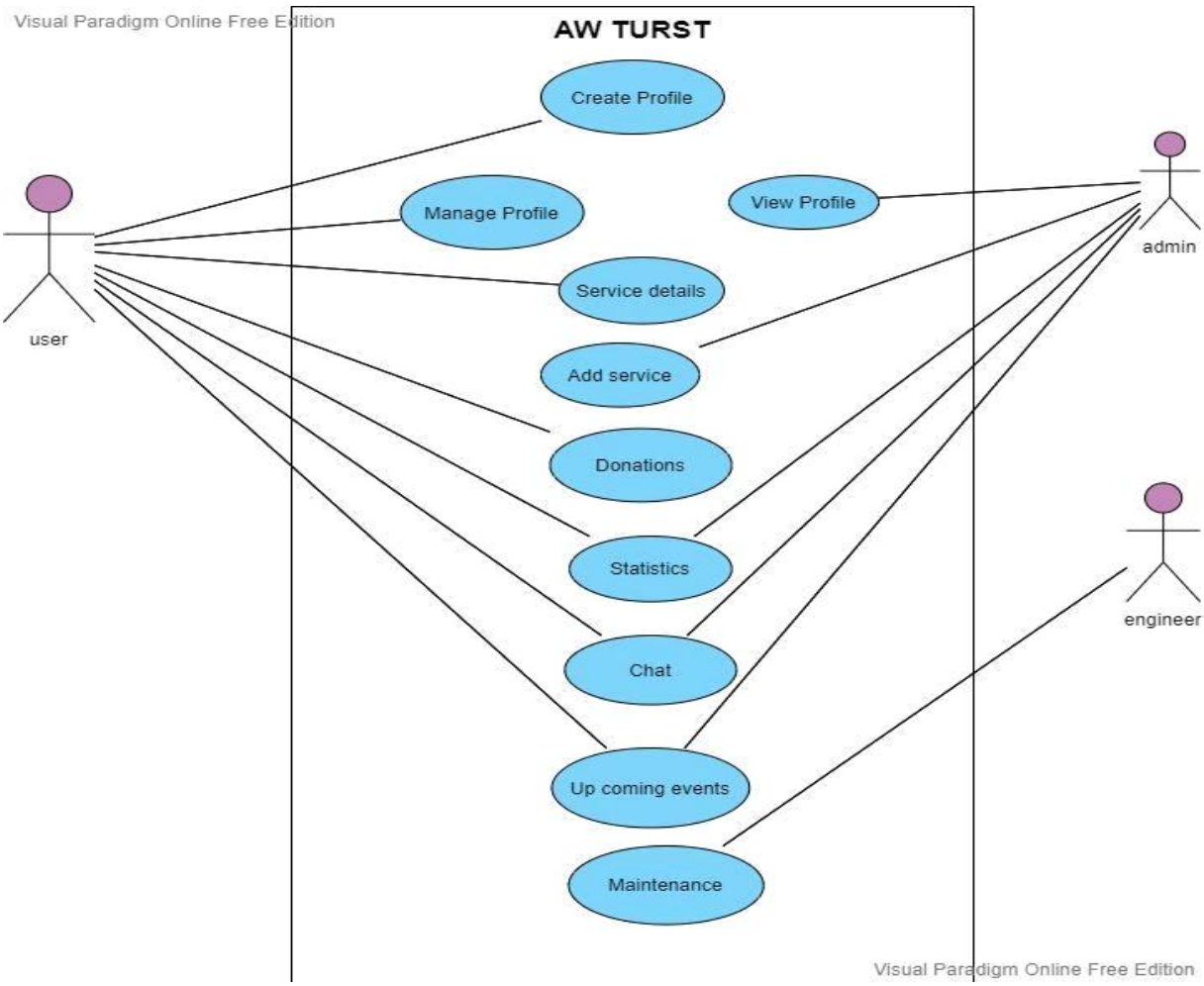
Chapter 3

Use Case Analysis

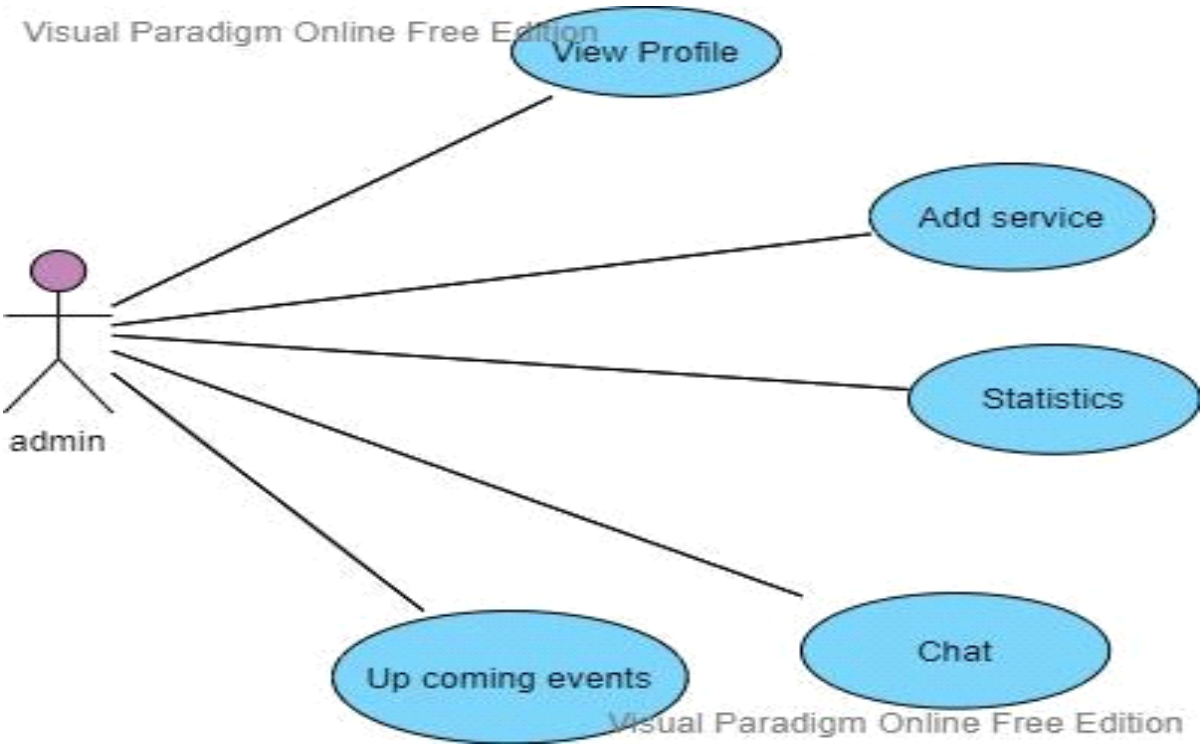
Chapter 3: System Analysis

System analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose. Analysis specifies what the system should do. Methodology has been teamed with an object-oriented approach to provide a component based solution which includes a bowling machine able to recreate any common bowling delivery, a visualization to provide temporal and spatial information about the delivery and an independent user interface to ensure robustness. This paper looks in more detail at the design and analysis methodologies used to create this solution.

- **Use Case Model**



- **Use Case Descriptions**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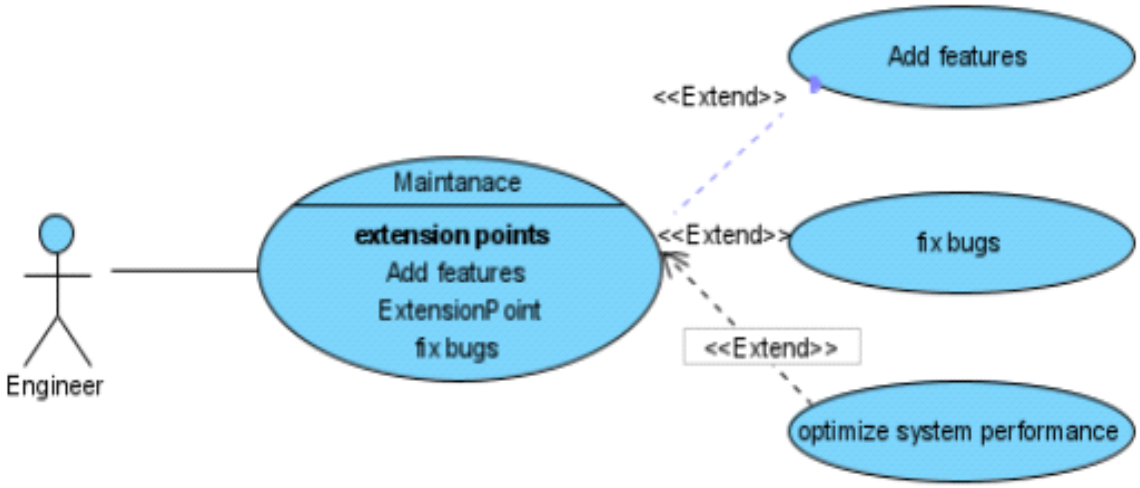
View Profile
Add service
Statistics
admin
Chat
Up coming events
Visual Paradigm Online Free Edition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fix bugs
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fix bugs
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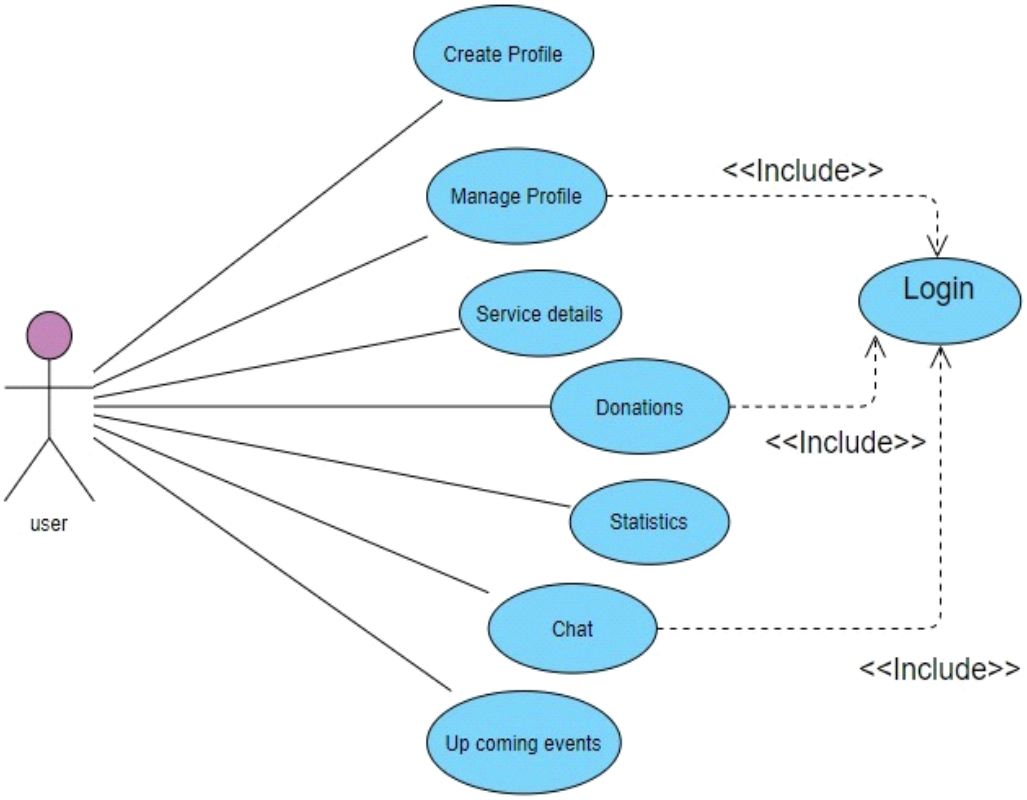
optimize system performance
Engineer



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- **Fully Dressed Use Cases**

For create profile:

Number	2	
Name	Create Account	
Summary	the user must have to create an account to use the app.	
Priority	2	
Pre-condition	Users must have to install the app to create an account.	
Post-condition	Users have to enter his credentials to login.	
Primary Actor	User	
Secondary Actor	secondary actor	
Trigger	ck on register account	
Main Scenario	Step	Action
	1	Users open the app.
	2	Users select the register account option.
	3	User have to enter valid email and password.
	4	User verifies his mail through mobile no and an account is created.
Extensions	Step	User Action
	5(a)	User enter invalid entry
	6(a)	User email is not verified.

For manage account:

Number	2	
Name	Manage account	
Summary	User manage his own account by adding his basic information pictures and the social media platforms.	
Priority		
Pre-condition	Users must have to create an account to manage it.	
Post-condition	Users have to save their information after adding it.	
Primary Actor	User	
Secondary Actor	secondary actor	
Trigger	Click on Edit profile	
Main Scenario	Step	Action
	1	User login to the app.
	2	Users select the edit profile option.
	3	User enters his basic information which he wants to

		add.
	4	User select his p[profile picture, add his social platforms and save it.
Extensions	Step	User Action
	5(a)	Users enter invalid username in their platform.
	6(a)	User did not save the added information.

For view profile:

Number	2	
Name	View profile	
Summary	User view the profile of another user to connect with him and share data and information.	
Priority		
Pre-condition	Users must have to login into the app.	
Post-condition	Users have to connect to the other user.	
Primary Actor	User	
Secondary Actor	secondary actor	
Trigger	Click on the search profile.	
Main Scenario	Step	Action
	1	Users have to login first.
	2	Users select the search profile option.
	3	User have to enter the user name of other user to search him.
	4	Users view this profile and connect it .
Extensions	Step	User Action
	5(a)	User enter invalid username
	6(a)	Users don't connect to the profile.

For chat:

Number		
Name	Chat	
Summary	User send and receive the messages from or to the connected users. .	
Priority		
Pre-condition	User must have to connect with the other user to chat with him.	
Post-condition	Users must close the chat to chat with another.	
Primary Actor	User	
Secondary Actor	secondary actor	
Trigger	Click on chat button	
Main Scenario	Step	Action
	1	User login to the app.
	2	Users select the chat option.
	3	In the chat box he have the connected users.
	4	User click on any user to send and receive messages.
Extensions	Step	User Action
	5(a)	Users open the chat without connecting to any user.
	6(a)	Users login the app.

Chapter 4

System Design

Chapter 4: System Design

System design is the process of designing the elements of a system such as the architecture, modules and components, the different interfaces of those components and the data that goes through that system. For assessing user requirements, an SRS (Software Requirement Specification) document is created whereas for coding and implementation, there is a need for

more specific and detailed requirements in software terms. The output of this process can directly be used in implementation in programming languages.

Software design is the first step in SDLC (Software Design Life Cycle), which moves the concentration from problem domain to solution domain. It tries to specify how to fulfill the requirements mentioned in SRS.

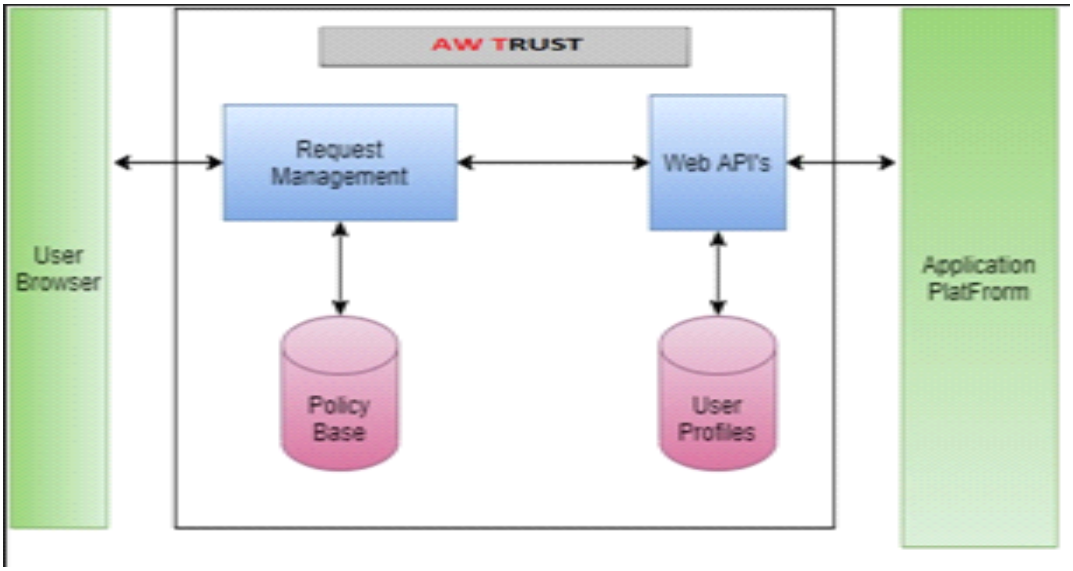
Software design yields three levels of results:

- **Architectural Design** - The architectural design is the highest abstract version of the system. It identifies the software as a system with many components interacting with each other. At this level, the designers get the idea of the proposed solution domain.

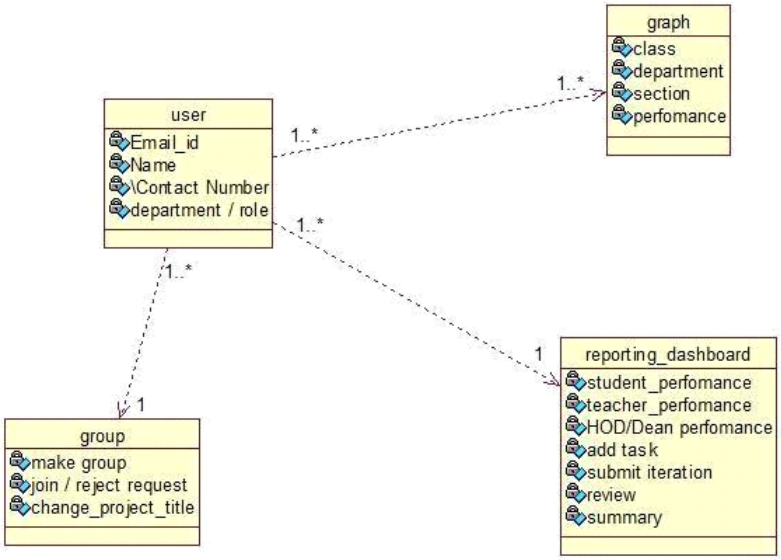
- **High-level Design**- The high-level design breaks the 'single entity-multiple component' concept of architectural design into a less-abstracted view of subsystems and modules and depicts their interaction with each other. High-level design focuses on how the system along with all of its components can be implemented in forms of modules. It recognizes the modular structure of each sub-system and their relation and interaction among each other.

- **Detailed Design**- Detailed design deals with the implementation part of what is seen as a system and its sub-systems in the previous two designs. It is more detailed towards modules and their implementations. It defines the logical structure of each module and their interfaces to communicate with other modules.

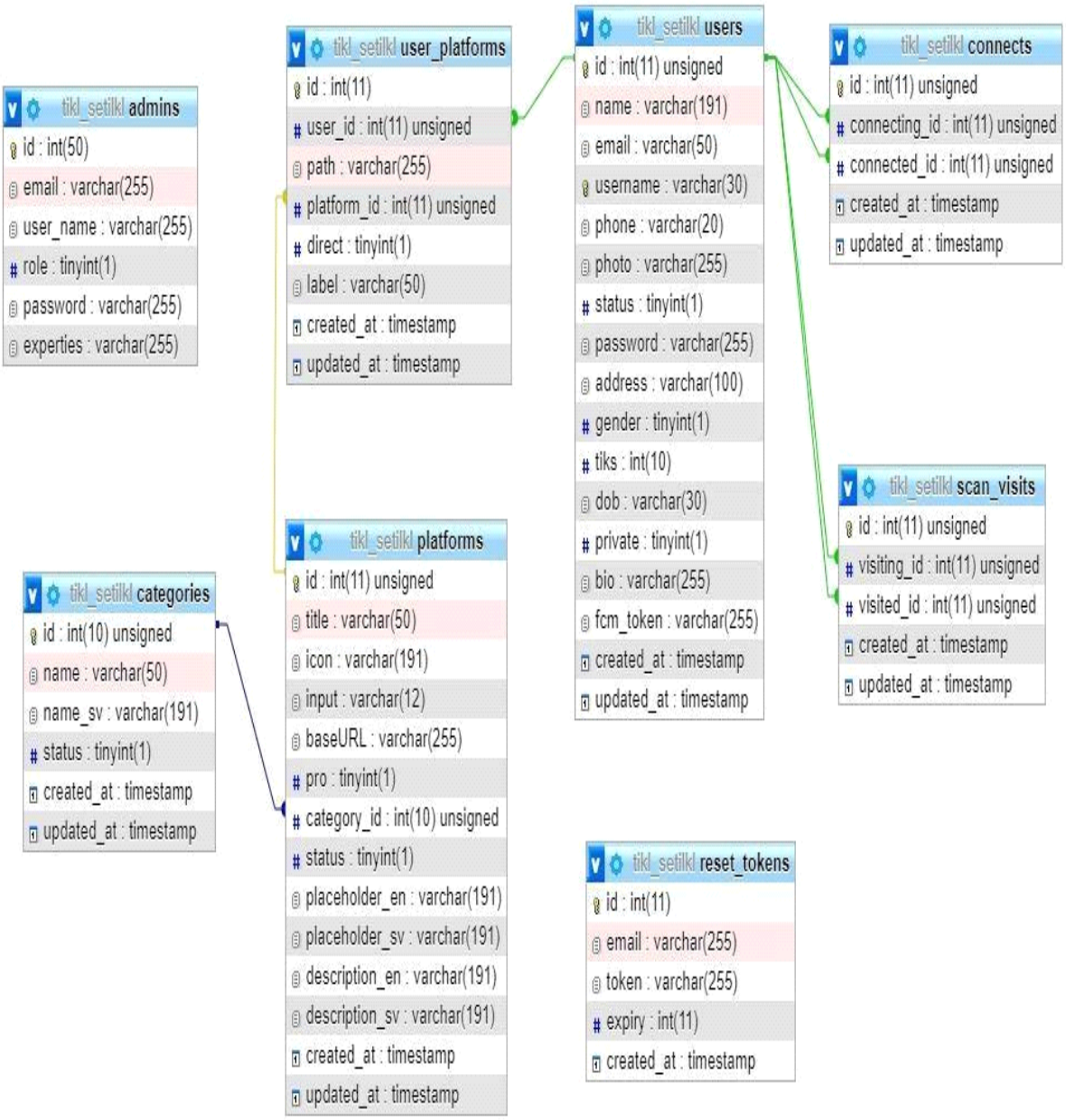
• Architecture Diagram



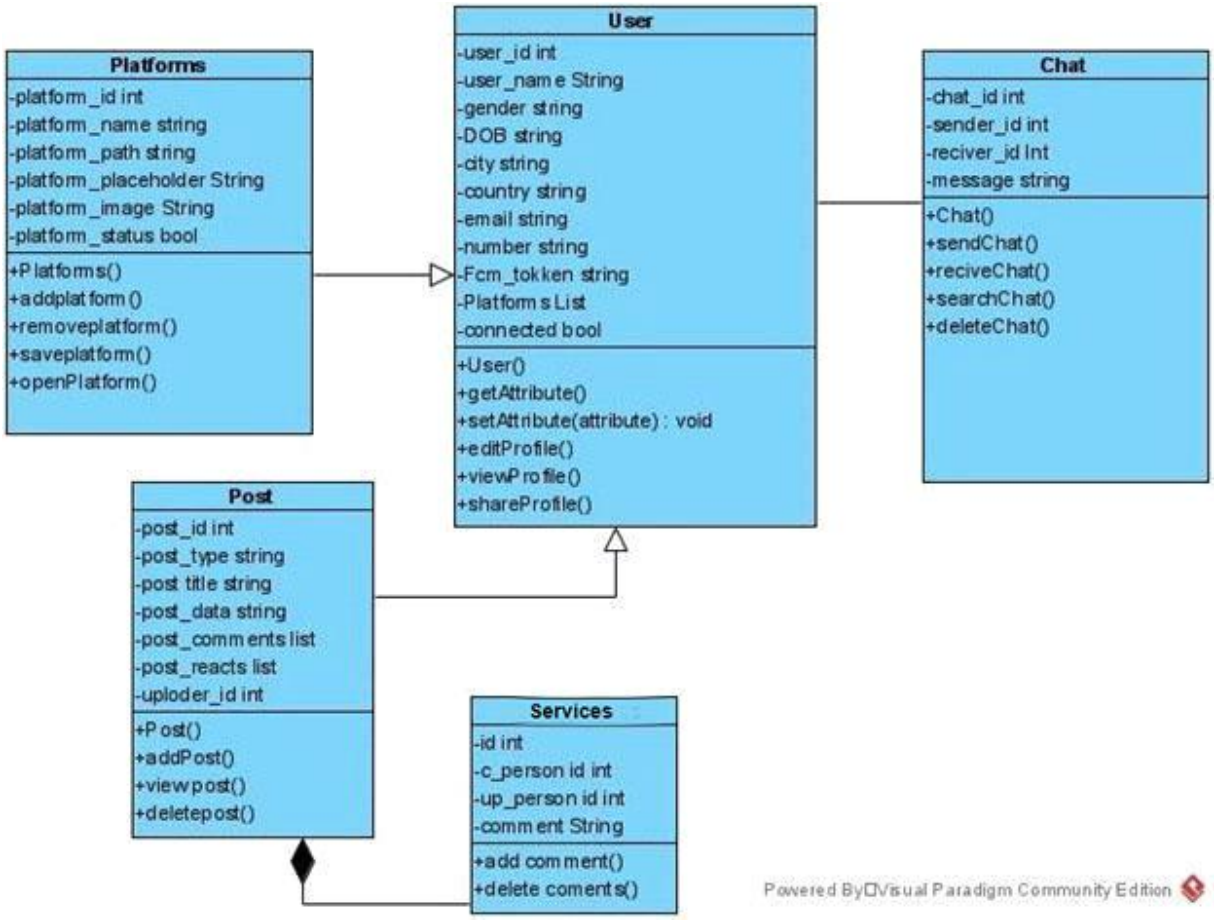
- **Domain Model**



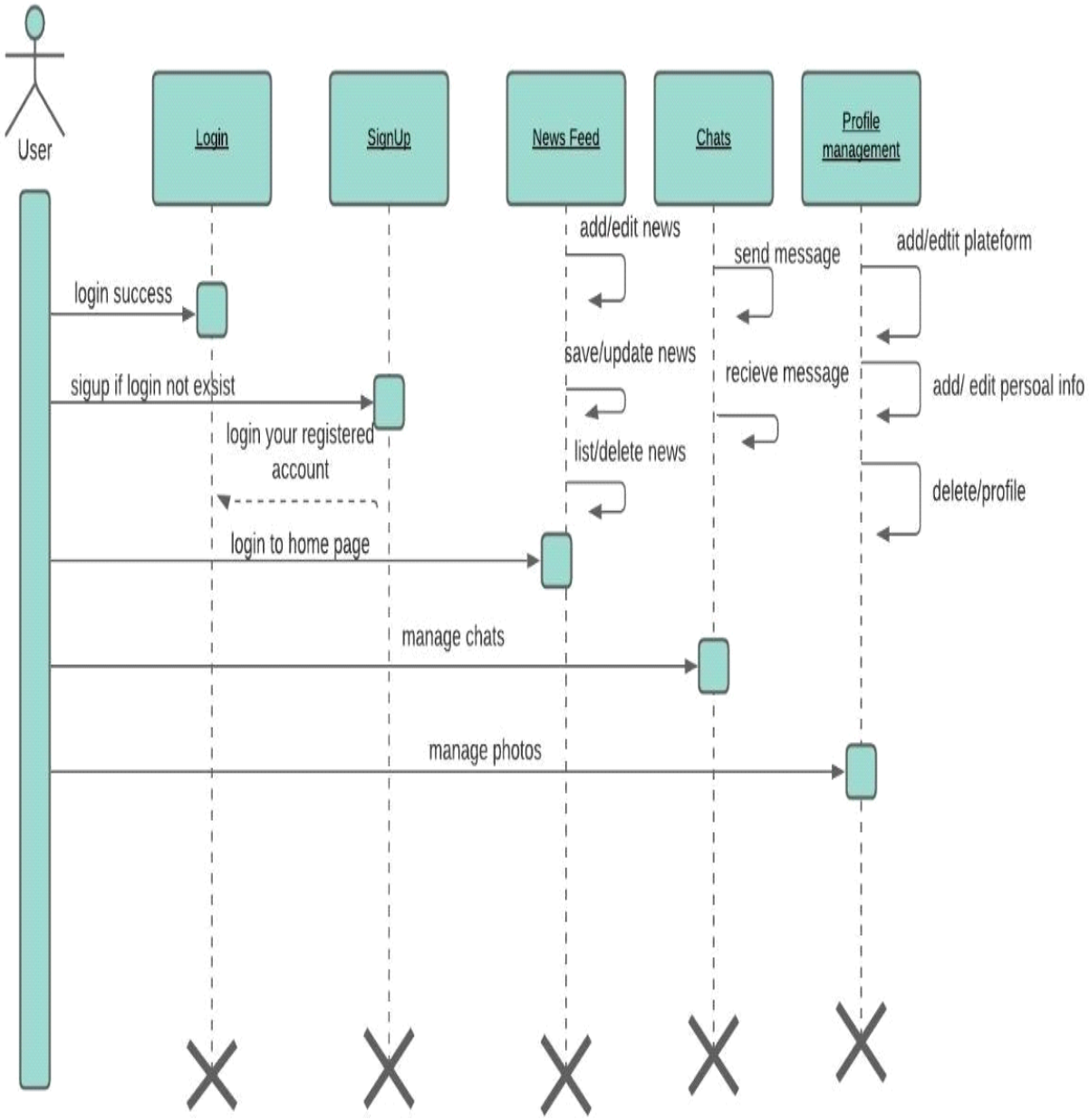
- **Entity Relationship Diagram with data dictionary**



- **Class Diagram**



- **Sequence / Collaboration Diagram**

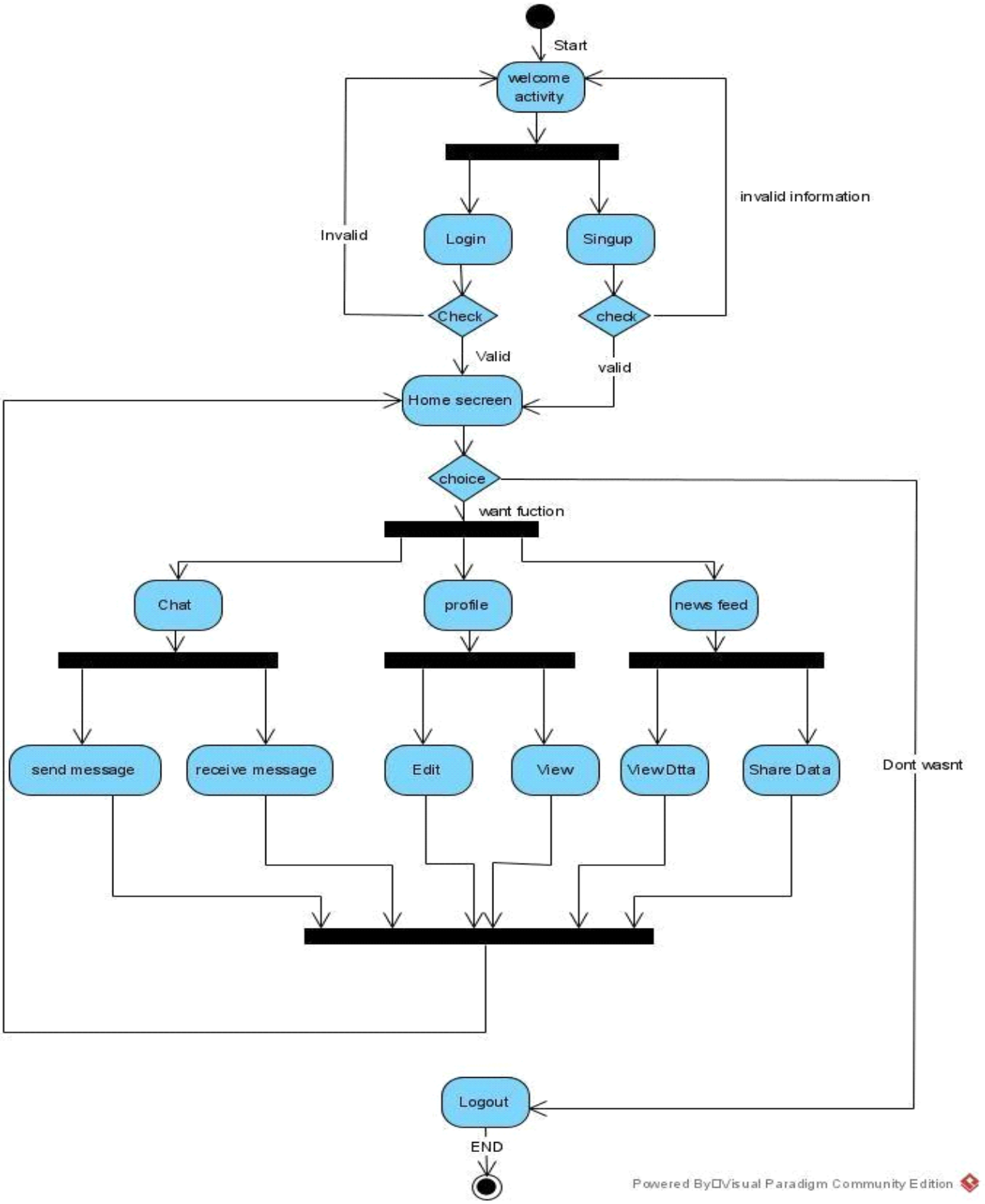


- ## Operation contracts

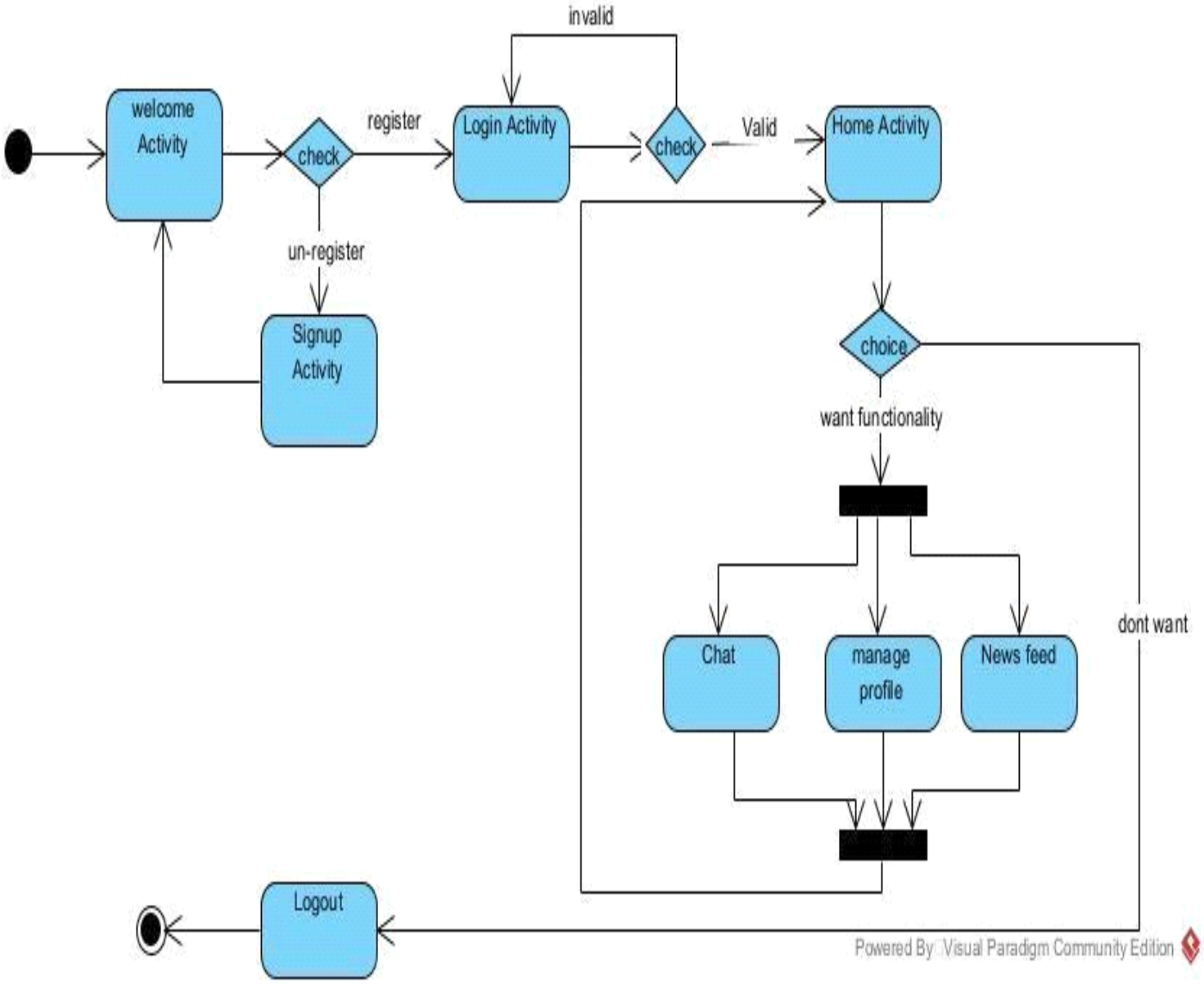
Project-based agreements can vary depending on the parameters of the work and how much of it has already been planned. Common types of agreements include:

- Fixed fee contract: When the company and contractor agree on a fee for the entire project.
- Cost-plus contract: When the contract includes payments for labor and materials, as well as a percentage for overheads.
- Incentive-based contract: When payments are tied to the project achieving specific goals.

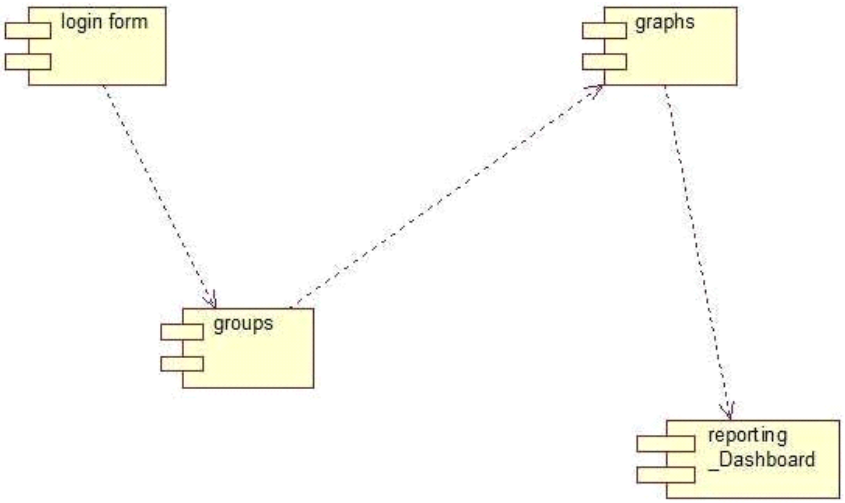
- **Activity Diagram**



- **State Transition Diagram**



- **Component Diagram**



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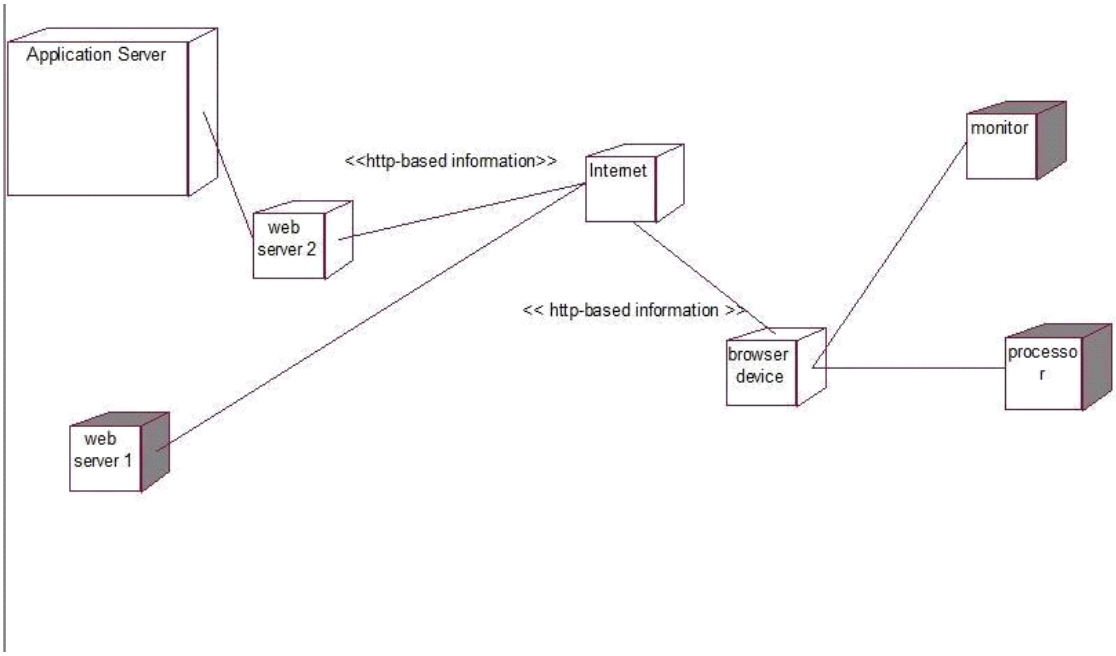
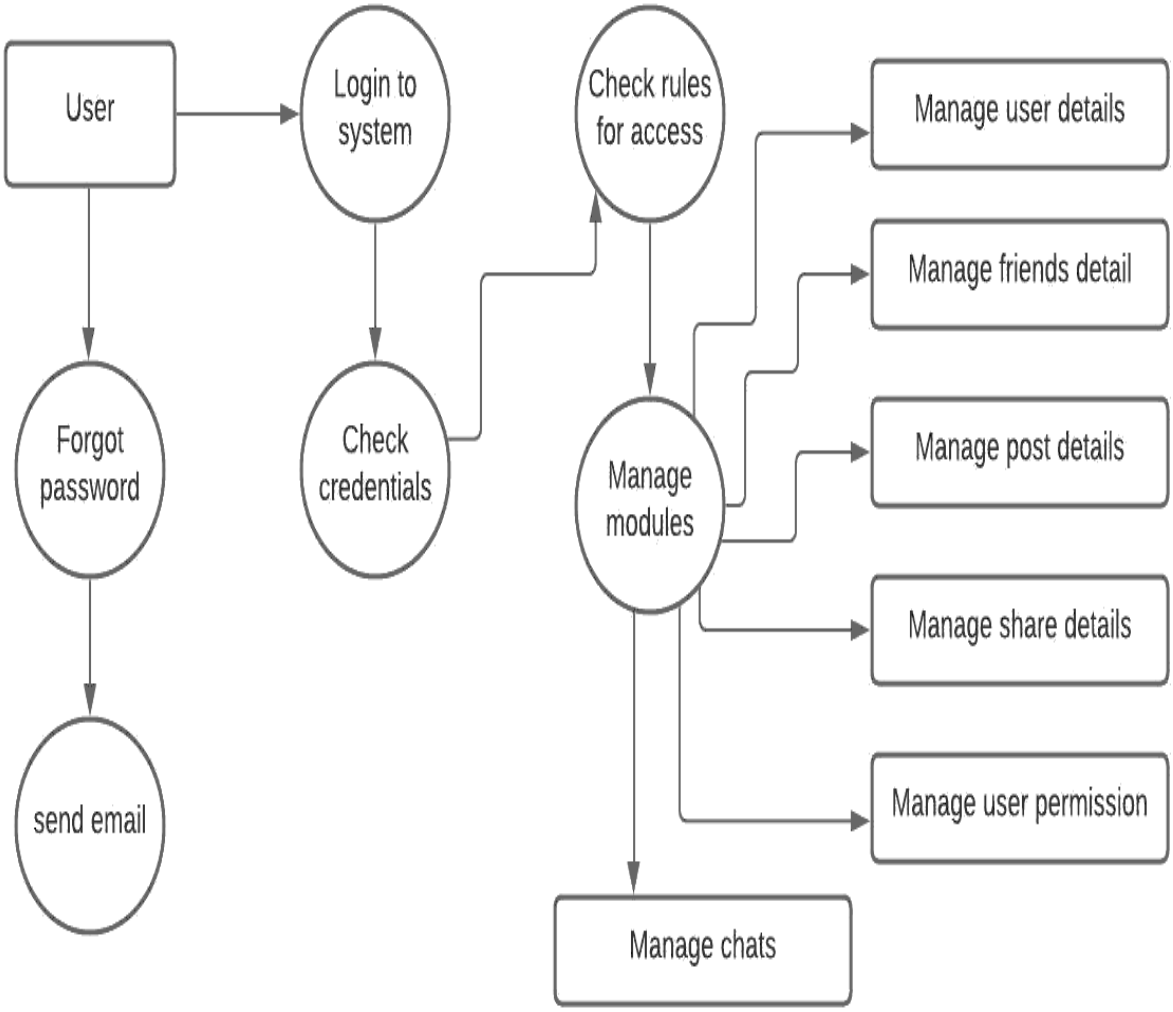
- **Deployment Diagram**



- **Data Flow diagram**



Chapter 5

Implementation

Chapter 5: Implementation

Planning for AW Trust application takes a lot of time and effort. You have to create an engaging driving question to focus the inquiry. You need to select and plan for products and authentic audiences while being mindful of voice and choice. You have to plan a great project launch. You must align the project to standards. And the list goes on and on.

Implementation phase is the process of converting a system specification into an executable system. A software design is a description of the structure of the software to be implemented, data models, interfaces between system components, and maybe the algorithms used.

Software implementation begins with the effort of software fabrication. Fabrication is an act of making something. Software fabrication involves programmatic design, source code editing or programming, and testing of each software unit. This series of technical tasks represents how software procedures, routines, modules, objects, or graphical models are produced. The result of software fabrication should be a documented unit of source code that has been tested against its structural unit specification. This source code (software unit) is then available to be assembled, integrated, and compiled with other fabricated software elements to craft larger software components.

• Important Flow Control/Pseudo codes

There are three types of flow of control

- Sequential flow
- Selection or Conditional flow
- Iterative flow

Selection flow are of three types

- Single Alternative
- Double Alternative
- Multiple Alternative

Iterative Flow

Iterative flow are of three types:

- for loop
- while loop
- do-while loop

• Components, Libraries, Web Services and stubs

OCLC has several code libraries that we make available in the PHP programming language to make it easier to use our web services. The OCLCAUTH LIBRARY is a key library we provide to help developers authenticate and authorize our web services. It was originally released in 2013.

Over the last three years, we've made subtle changes to the library to improve error handling and to support a more robust set of tests.

This fall, I began work on some new functionality for the library to support an upcoming change in our OAuth server, which will allow clients to call a "Where Are You From" (WAYF) screen during the authentication process rather than specifying a particular institution to have the user log in at. While working on these changes and reviewing the library, I discovered that the HTTP client the library uses was seriously out of date and needed to be updated. The update required upgrading the HTTP client from version 3.x to version 6.x. This kind of substantial version update meant all of the code that utilized the HTTP library needed to be rewritten and tested. Additionally, the update meant the OCLC / Auth library needed to explicitly support Django, which it hadn't been tested against.

- ## Deployment Environment

  - The development environment of the AW Trust Mobile application is a mobile application which is deployed at a local server and Google play store. The backend system is deployed on domain godady.com and application is on play store This System being web-based and an undertaking of Cyber Security Division, needs to be thoroughly tested to find out any security gaps.

  - A console for the data center may be made available to allow the personnel to monitor the sites which were cleared for hosting during a particular period.

  - Moreover, it is just a beginning; further the system may be utilized in various other types of auditing operation viz. Network auditing or similar process/workflow based application

- ## Tools and Techniques

AW Trust is a Mobile application which is developed using the latest tools and technologies. To implement these features in our Mobile application, we will use Android studio 4.1.3 beta and 13 SDK. For back-end functionality, we use a live database and backend system which is based on PHP and we integrate both systems by using Rest APIs. The database will be designed on Microsoft SQL SERVER 2017.

- ## Best Practices / Coding Standards

  - A coding standard gives a uniform appearance to the codes written by different engineers.
  - It improves readability, and maintainability of the code and it reduces complexity also.
  - It helps in code reuse and helps to detect errors easily.
  - It promotes sound programming practices and increases efficiency of the programmers. Software requirement

  - Life cycle
  - Design
  - Architecture

As listed near the end of coding conventions there are different conventions for different programming languages, so it may be counterproductive to apply the same conventions across different languages. It is important to note that there is no one particular coding convention for any programming language. Every organization has a custom coding standard for each type of software project. It is therefore imperative that the programmer chooses or makes up a particular set of coding guidelines before the software project commences. Some coding conventions are generic which may not apply for every software project written with a particular programming language.

The use of coding conventions is particularly important when a project involves more than one programmer (there have been projects with thousands of programmers). It is much easier for a programmer to read code written by someone else if all code follows the same conventions.

For some examples of bad coding conventions, R Green provides a lengthy (tongue-in-cheek) article on how to produce unmaintainable code

- ## Version Control

Deals with the development of a generalized model for version control systems application as a support in a range of project-based learning methods. The model is given as a UML sequence diagram and described in detail. The proposed model encompasses a wide range of different project-based learning approaches by assigning a supervisory role either to instructor or students in different project stages. Different strategies for supervisor role assignment are given. Project duration, project milestones, as well as a number of team members are discussed in respect to project-based learning methods that the proposed model supports. Possible implementations of different project-based learning approaches on the proposed model are demonstrated by setting the model parameters. Version control server security issues are discussed in the manner of implementation aspects of the proposed model. One of possible model implementations is evaluated in respect of cooperation on the test group of 21 students. Implementation details are presented and compared with other approaches. Mentoring and monitoring students' efforts during the development by implementing proposed models with specific model settings introduces controlled cooperation with high clarity in evaluation of individual students' work.

Using open source version control software on the Linux platform, with a web interface package, we implemented low-cost support for project-based learning.

Chapter 6

Testing and Evaluation

Chapter 6: Testing and Evaluation

Designing interactive systems with graphic user interfaces is an important step in the development of mobile applications. It is important to understand customers' needs and preferences and to take them into account. In this regard, several online shopping and Uber and Careem systems rely on customer preference elicitation while others suggest products based on other customers recommendations. An evaluation and testing method is utilized to obtain user feedback on how effective the system is and how easy it is to use, compared to other systems.

• Use Case Testing

Use Case Testing is defined as a software testing technique that helps identify test cases that cover the entire system, on a transaction by transaction basis from start to the finishing point. Use case Testing is a type of black box testing where we check whether our app is working in predefined manner or not and performing intended functionalities and that helps testers to identify test scenarios that exercise the whole system on each transaction basis from start to finish. Use Cases capture the

interactions between 'actors' and the 'system'. 'Actors' represents users and their interactions that each user takes part into. Test cases are based on use cases and are referred to as scenarios.

Test case no	Test case name	purpose	Pre-condition	Test steps	Expected result
01	Registration	To verify registration function	none	Enter user name password	Admin /user registration
02	Log in	To verify authorized admin/user	registration	Enter user name password	Admin/user logged in to the system
03	Add item	To verify add item	login	Item name, item prize	Add successfully
04	IOT Check	To verify our NFC services	scan the card	Scan card from NFC sensor.	Data Read sucessfully

05	Updated item	To verify updated item	Add item	Select item click on update button Popped up dialogue box Want to updated data press yes	Updated successfully
06	Donate now	For donation	Add donation	User can donate on different services	Donation done.
07	Log out	To logout	Login	Can log out to the system and perform action	logout

- **Equivalence partitioning**

There are an infinite number of models that can be derived from a Meta model, whereas the models with different values of attributes are considered as distinct models. For example, a

Name attribute that is of type string may have infinite values and assigning each value for that name creates a different model. One of the problems in transformation testing is the difficulty of selecting a finite set of these models. We use equivalence partitioning for resolving this problem. Equivalence partitioning is a software technique that partitions the input space such that test cases can be derived from these partitions. The key idea of using this concept is that the elements that belong to one partition are equivalent. Class Partitioning is a black box technique (code is not visible to testers) which can be applied to all levels of testing like unit, integration, system, etc. In this technique, you divide the set of test conditions into a partition that can be considered the same.

- It divides the input data of software into different equivalence data classes

- You can apply this technique, where there is a range in the input field

• Data flow testing

Data flow testing is a family of test strategies based on selecting paths through the program's control flow in order to explore sequences of events related to the status of variables or data objects. Data Flow Testing focuses on the points at which variables receive values and the points at which these values are used.

- Data variables are defined, created and initialized, along with the allocation of the memory to that particular data object.

Declared data variables may be used in the programming code, in two forms

- As the part of the predicate(P), such as "If (A>B)"
- In the computational form(C), when the data items are involved in the calculations to Give some output.

Memory allocated to the variables, gets freed and is put into for some other use

• Unit testing

Using Unit testing frameworks we write unit tests quickly and easily. Most of the programming languages do not support unit testing with the inbuilt compiler. Third party open source and commercial tools can be used to make unit testing even more fun.

List of famous unit testing tools are

C++ framework, unit test++, google c++NET framework

	atomic	Uniquely identify	Complete	consistent	traceable	Prioritize	testable
Req 1	Yes	yes	Yes	yes	Yes	yes	Yes

Req 2	Yes	Yes	Yes	Yes	Yes	Yes	No
Req 3	Yes	Yes	Yes	Yes	No	Yes	Yes
Req 4	Yes	No	No	No	Yes	Yes	Yes
Req 5	Yes	Yes	No	Yes	Yes	Yes	Yes
Req 6	Yes	Yes	Yes	Yes	Yes	Yes	yes
Req 7	yes	No	yes	Yes	yes	Yes	yes

```
class EmailValidatorTest {
  @Test fun emailValidator_CorrectEmailSimple_ReturnsTrue() {
    assertTrue(EmailValidator.isValidEmail("name@email.com"))
  }

}
```

- **Integration testing**

We feel that Integration testing is complex and requires some development and logical skill 6.6. That's true! Then what is the purpose of integrating this testing into our mobile App testing strategy?

- In the real world, when an online mobile application is developed, it is broken down into smaller modules and individual developers are assigned 1 module. The logic implemented by one developer is quite different from another developer, so it becomes important to check whether the logic implemented by a developer is as per the expectations and depiction the correct value in accordance with the set standards.
- Travels from one Many times the face or the structure of data changes when module to another. Some values are appended or removed, which causes issues in the later modules.
- A very common problem in testing frequent requirement change. Many a time developers deploy the changes without unit testing it. Integration testing becomes important at that time

Here we should understand that Integration testing does not happen at the end of the cycle, rather it is conducted simultaneously with the development. So most of the time, all the modules are not actually available to test and here is what the challenge comes to test something which does not exist! The main function or goal of this testing is to test the interfaces between the units/modules.

- ## Performance testing

Stores	Performance evaluation
Android 8	Absolutely great performance with no error and no crashing used at least 20 mins
Android 9	Absolutely great performance with no error and no crashing used at least 20 mins
Android 11	Good performance with some small bugs, errors and crashes a few times.
Android 12	Most of the NFC Sensors doesn't work

- ## Stress Testing

Stress testing is used to test the stability & reliability of the system. This test mainly determines the system on its robustness and error handling under extremely heavy load conditions. Most

Prominent use of stress testing is to determine the limit, at which the system or software or hardware breaks. Stress testing executes a system in a manner that demands resources in abnormal quantity, frequency, or volume. Special tests may be designed that generate ten interrupts per second, when one or two is the average rate input data rates may be increased by an order of magnitude to determine how input functions will respond, Test cases that require maximum memory or other resources are executed, Test cases that may

cause thrashing in a virtual operating system are designed, Test cases that may cause excessive hunting for disk resident data are created. Essentially, the tester attempts to break the program. Variation of stress testing is a technique called sensitivity testing

Chapter 7

Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

• Project Summary

AW Trust is an Android mobile application with a strong Backend of Firebase. AW Trust APP is a Non-Profit Food Charity application, under the slogan “Khana Sab K Liye”. The Main mission is to provide nutritional food to marginalized communities around us and our mission is to provide highly nutritional, low cost, localized food to everyone.

In this chapter, we are going to discuss the basics of the product, that is what the product is about, how it will work, motivations Behind This Project, and challenges faced during this project’s objectives And goals.

• Achievements and Improvements

While doing this project we are successfully able to implement different types of functionalities of mobile-app programming and we are able to learn about the different terms in mobile programming so we can be able to get jobs in our respective field. As well as during the development of this project we achieve skill to develop the mobile applications and improve the skills. We improve the development skill, Project management skill, documentation skills and programming skills also we are able to work in the team.

• Critical Review

In the history of mobile application, no App can This technology has provided a new interface linking businesses as well as individuals, and spanning many fields, from information systems to marketing, worldwide. The mobile application provides an easy way to perform different actions. It will make our life easier and make it profitable.

• Lessons Learnt

While completing this project we have a lot of things. Let us divide these things into major activities.

- Programming: We have a lot of new techniques in web programming, so we can implement them easily which can help us to get some attractive jobs.
- Project management: We have learned how to manage a project and how to lead a project and complete the project successfully.
- Socially: We have learned how to deal with people socially. So, we can sum-up there problems and give some ideas about that so, these people can survive in this society and can contribute in the development of great society

• Future Enhancements/Recommendations

In future we are going to expand this application and bring new features in it and launch its version 2.0.