BUS PASS AND ONLINE TICKET
SYSTEM

GROUP MEMBERS

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Certificate

This is to certify that Harshita Sohane,Garima Arora,Abhishek Shukla,Ayush Agarwal of BSc(H) Computer Science have successfully completed the project on Bus pass and online ticket system under the guidance of Mrs Anita Goel and Mrs. Sheetal Taneja .
It is to further certify that this project is the individual and bonafide work of the candidates.

Acknowledgement

Presentation inspiration and motivation has always played a great role in the success of any venture. We express our sincere thanks to our teachers Anita ma'am and Sheetal ma'am to encourage us to the highest peak and to provide us the opportunity to prepare the project. We are immensely obliged to our friends for their elevating inspiration,encouraging guidance and kind supervision in the completion of our project.
We feel a deep sense of gratitude to our teachers whose valuable guidance and kind supervision given to us throughout the course which shaped the present work as its show.

Table of content:

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Chapter 1:INTRODUCTION:

1.PROBLEM STATEMENT

- As technology starts growing we need to update ourselves to current trends and our upcoming generations looking forward for necessary services in one touch.

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- The current system of taking tickets in the buses and applying or renewing for bus pass is a tedious process. It takes long time for taking bus tickets and for bus passes, it involves a long queue in Bus Depot and it is a time consuming process . This also increases increase in time delay for passengers and it hurts more employees due to time delay in peak hours.

Bus Pass and Online Ticket System can be used to book tickets on the go and can be used to apply/renew the bus pass through smart phone, which helps all generation people. This system provides connection between government server, where data is managed and android app, which provides a GUI for the user.

The objective of the project is:

On the go ticket:
- The user taps the android phone on the Nfc tags placed on the bus stop.That will decide the source of passenger that is bus stop from where the passenger is taking the bus.Then the passenger enter the destination.
  - 1.The buses going to that destination get displayed and also the fair .
  - 2.If no buses going directly to that destination entered by passenger,it will display the map ,that will tell the passenger ,from where the passenger should take the another bus to reach to that destination and will display the buses going till bus stop previous to the junction bus stop,and corresponding fair to it.
- For the payment of the ticket,passenger will again tap the phone in front of NFC device ,that amount equivalent to price of ticket will get deducted.
- After the successful payment, a soft copy of the ticket with a QR containing encrypted information about the ticket(viewable only in the edit profile option), which can be useful in authenticating the user by checking inspectors.

Getting a bus pass:
- The user applying for the bus ,the first time,should provide username and password ,email id and Aadhar number for the login purpose.
- Then the user provide the details like residential address,Phone no,Period of pass and category of pass holder i.e. student,senior citizen,disabled person.
1.   If for eg, user selects on student,user is required to enter then Name,address of institution,Code no of college,Class ,Roll no ,Student Id card no.
2. Then,user is asked to upload the scanned copy of Icard,Marksheet with principal attested with date as well as college stamp,and the photograph.Then the user,clicking on the submit,w user will get updates on the mail,after verification process.

-

- After the confirmation email on the user's account,user can proceed with payment.That,will generate e-bus pass(viewable through view profile) and Qr code associated with it in case of loss.

Renewing bus pass:

- Most users forget the date of expiry of their bus passes. They get into the bus with expired bus pass. This system provides an efficient way for renewing the pass . When bus pass is about to expire, an android notification appears to the user. On viewing, the user may renew his bus pass
- online or take a ticket. Or the user,can view the validity of bus pass through Edit profile by providing username and password.The user provides the bus pass no and again follows the same procedure of filling details directs the user and choose category and then to the document uploadation and then to payment screen where the user pays online using Credit/Debit card.So,the database corresponding to bus pass no should update the validity of bus pass generated with some bus pass no by admin.

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2. PROCEDURE OF BUS PASS SYSTEM

Step1--> Client are required to fill up the bus form providing their necessary details, and get it stamped only after verification of documents.

Step 2--> They need to go the DTC bus office for the authorization of the documents and get it uploaded on server.

Step 3--> After going of two three rounds of verification, they are supposed to wait for another few hours more to get the hard copy of bus pass.

For each and every process there is time limit specified if the person fails to go on time then all the transactions will be cancelled.

- Hence, this is a quite tedious and hectic process to do manually because of this it will take time to generate bus pass and the passengers have to wait in long queue. This existing online bus pass systems involves manual work in which commuters have to fill their necessary information manually and thus this information is later verified by some authorized person in bus depots.

This long verification process causes delay to users in order to get their bus pass on time.

3.LIMITATIONS OF THE CURRENT SCENARIO

- The bus pass issue system that is currently in existence is a manual process in which students and other commuters are required to submit application forms along with their details filled.

These application forms are to be verified and then the bus pass is issued to the concerned person after the application form is verified. This is a tedious process, which requires the people to stand in long queues to get their passes. This results in a lot of time wastage for the commuters. Also,the bus pass issue takes place in the current system, only for a limited period of time during the day that is until evening. The commuters may not be able to acquire their passes , once the counters are shut down in the evening.

-

- Since ,the current system is totally offline , the user is required to come to office for the renewal and even if he/she wants to edit the bus pass details at certain fixed office hours only.

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- Through generation of pass goes under various verification process, still the some users manages to get duplicate copy of passes, so dangers security.

- The ticket inspector is required to come to every seat in order to issue the tickets for the passenger , thus wasting human resources and the problem of argument for change continues to prevail.

- The current system does not facilitate the user to book on the go ticket.
- It does not give information about bus route and filtering which bus goes to passenger's destination.

- As existing system is manual where data may not accurate, up to date and available on time.

Thus , current system requires more paperwork, it's tedious, time consuming and hence not efficient.

3.PROPOSED SOLUTION :-

- In this system, at first the user for issuing the bus pass, gets registered using Aadhar number ,email id,username,password. The aadhar number is used to collect information about the user from NIC database to Bus pass database and used for authentication of ticket/pass. Then the user logins .

- After that,user provide the detail his details,select category and upload the documents.After verification from the admin,confirmation mail will be sent.
- And so the user can proceed then with payment. .

- For the "on the go ticket",passenger scan the Nfc tag , provides destination ,get the route information and proceed with payment by tapping the phone in NFC device ,placed on the entry gate of bus and pay the fair related to it and get the e-ticket or QR code associated with it..

-

- The Bus pass and online ticket application also displays notifications when the bus pass is about to expire.

- Online ticket booking reduces the time delay for waiting before the office closing. The app is also provided with digital wallet which can be used to load money and spend it in each bus he/she travels.

In brief ,each functionality:

On the go ticket:
- The user taps the android phone on the Nfc tags placed on the bus stop.That will decide the source of passenger that is bus stop from where the passenger is taking the bus.Then the passenger enter the destination.
    1.The buses going to that destination get displayed and also the fair .
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- Then the user provide the details like residential address,Phone no,Period of pass and category of pass holder i.e. student,senior citizen,disabled person.
3.   If for eg, user selects on student,user is required to enter then Name,address of institution,Code no of college,Class ,Roll no ,Student Id card no.
4. Then,user is asked to upload the scanned copy of Icard,Marksheet with principal attested with date as well as college stamp,and the photograph.Then the user,clicking on the submit,w user will get updates on the mail,after verification process.
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-

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  - online or take a ticket. Or the user,can view the validity of bus pass through Edit profile by providing username and password.The user provides the bus pass no and again follows the same procedure of filling details directs the user and choose category and then to the document uploadation and then to payment screen where the user pays online using Credit/Debit card.So,the database corresponding to bus pass no should update the validity of bus pass generated with some bus pass no by admin.

-

Edit Profile:
- If the user wishes to view his/her bus pass details,like validity of bus pass,can view by logging into edit profile.
- If the user wishes to change his password,can do it by this functionality.

4. ADVANTAGES OF BUS PASS AND ONLINE TICKET SYSTEM

- The online bus pass software system will help students and daily passengers get bus passes online and eliminate the need to stand in queues for passes or collecting ticket for each journey.

- The payment can be done through e-wallet , if required amount is not present is wallet, payment can be made through debit/credit card thus eliminating the argument with ticket inspectors for the changes when buying the ticket

- It also frequently warns to the people before completion of his validity period by sending Short Message Service or mails. Their renewal or registration can be done using a voucher or even by a credit card.

- The user can issue the bus pass or renew the bus pass 24 hours a day.

- Renewal is easier and Qr code associated with that bus pass also generated which will be helpful in case of loss or theft of pass.

- Further, the verification of the validity of the pass would ensure that the fraudulent activities would not be possible by the users, because the device used for verification would connect to the database wherein the information is stored. This would ensure safety and minimize the time wastage and would make life easier and comfortable for the users acquiring the pass.

- By scanning NFC tag on the bus stop passenger is getting to know which bus will direct him to reach to his destination.

7.IS THE SOLUTION OF THIS CURRENT SCENARIO IS FEASIBLE OR NOT?

The online bus pass system is economically feasible as
- It saves travel expenses.
- It limits the workload.

-

- As existence system is manual where data may not be accurate up to date and available on time but the proposed solution is computerized so insertion, deletion and modification of various data will be easier to handle.

The online bus pass system is technically feasible as
- It is secured.
- 24*7 service available.
- It is feasible to pay the amount online by using e-wallets, net banking etc instead of paying cash at the counter.
- Virtual bus pass will be quite helpful as it minimize the chances of losing or stealing.

It will be worked by scanning barcode to check the availability of bus pass and also reduces the chances of duplicacy.

The online bus pass system is behavioral feasible
- Since, graphical user interface made is user friendly , it's easy to use.
- Not such special training is required in order to use it ,if one knows to use the smart phones.

8.SOFTWARE PROCESS MODEL USED

Limitations:
- It requires large database and memory.
- 24*7 high internet speed.

Justification for the proposed solutions:
In the current mode of Buss Pass, providing system the passenger has to go and wait in a queue to get the pass and he/she has to worry about renewal but we proposed Bus pass and online ticket system that makes the process of taking bus pass easier, efficient and secure.And online ticket promotes digital payment .

Chapter 2: Software requirements specifications

1.Hardware requirements
- Android mobile(having NFC feature in it)
- NFC device on the bus
- Nfc tags on the bus stop

-

2.Software requirements
- Web based Application
- PHP
- Any operating system
- Apache server
- MySQL database
- Java script
- Android based application
- Android studio

3.Functional Requirements
- Registering user:

The user gets registered using Aadhar number,username ,password and email. The aadhar number is used to collect information about the user from NIC database to Bus pass database and used for authentication of ticket/pass. Then the user logins into the app .

- Updating Information:

  As the user get authenticated for the bus pass /ticket, bus pass database should also get updated.
- Generating pass:

After giving the necessary details for generation of buss pass, a soft copy of bus pass is generated with QR Code . He can take a print out of it and show to authorities when he is checked.
- Online payment:

The payment for the transaction can be made directly through e-wallet or if required amount is not present, then it is done through credit /debit card.
- Generating QR code:

The copy of QR code will be created which will be scanned by ticket inspector.

4.Non Functional Requirements:
- Reliability:

Since , the proposed solution is computerised ,so any insertion or deletion will be up-to-date in server ,no chances of concurrency.
- Availability:

-

Application will be working 24*7.

The application will be available in several languages.

Since ,the application will be having limited components , it will be more user friendly due to better graphical user interface.

- Security:

The ticket is provided with a QR code which is scanned by the checking inspector to verify the identity of the passenger. The QR code contains the link to the government server in an encrypted form which contains the identity of the passenger as gathered from aadhar card.

Since , the identity of user is revealed to ticket inspector, thus it provides better security.

5.User Characteristics:

Basically, for all those people who travels by bus will be benefited from this.

For the those users ,who are the daily travellers of bus are no more required to go to the bus depot ,waste their energy and resources to get their bus pass and for the renewal of bus pass after the pass expires.

For the non –bus pass holders, they do not need to worry for the change with ticket

inspectors, what they can do is, instantly book the ticket by scanning by the QR code printed on the bus , choosing the destination and pay the required amount through the e-wallet.

6,Interfaces involved:

- Customer Login:

Login interface:

The user login with the username and password ,and if do not have a already existing account then, sign up.

- Buy 'on the go ticket' interface:

For the non-bus pass holder, user clicks on it and tapping the phone in front of device and mentioning his destination location, enables him to buy online ticket.

- Generate pass interface:

For the user ,who wishes to issue a bus pass for him, clicks over here .User will be asked to enter aadhar number,username me,password email. .After that ,user can select the best suited plan for him and submitting details ,a PDF of QR code generated and then user will be directed to the payment window.

- Edit pass details:

Here ,if the user after generation of pass, may want to edit the details , like source and destination or the address.

- Renewal of pass interface:

-

When bus pass is about to expire, an android notification appears to the user. On viewing, the user may renew his bus pass online or take a ticket. The user clicks on the renew button for confirmation of plan and the app directs the user to payment screen where the user pays online using Credit/Debit card.

- Payment interface

It allows users to pay for the bus pass/ticket through e-wallet or if not enough money in e-wallet, then payment can be proceeded through credit/debit card.

- Verification interface:

The QR code is provided by the user which will be scanned by the bus conductor using QR code scanner. This verified the details and validates the user.

- Admin login:

Change bus route interface:

The admin who is managing all details about bus routes, if wishes to add a details for the new bus or if update existing bus stops for the buses.

-View user's details:

7.Assumptions

- Authorisation of government.
- 24*7 high internet speed.
- Aware of using smart phones.
- Maintenance of software.
- Android phones are compatible with NFC feature.
- It requires large database and memory.
- The ticket collector make sure that every passenger entering into a bus either have a bus pass,or e-ticket,or buy ticket from him personally.
- Implementing it for red buses and less crowded areas.

Product Requirements (Questionnaire)

-

GOOGLE FORMS SNAPSHOTS

Name
24 responses
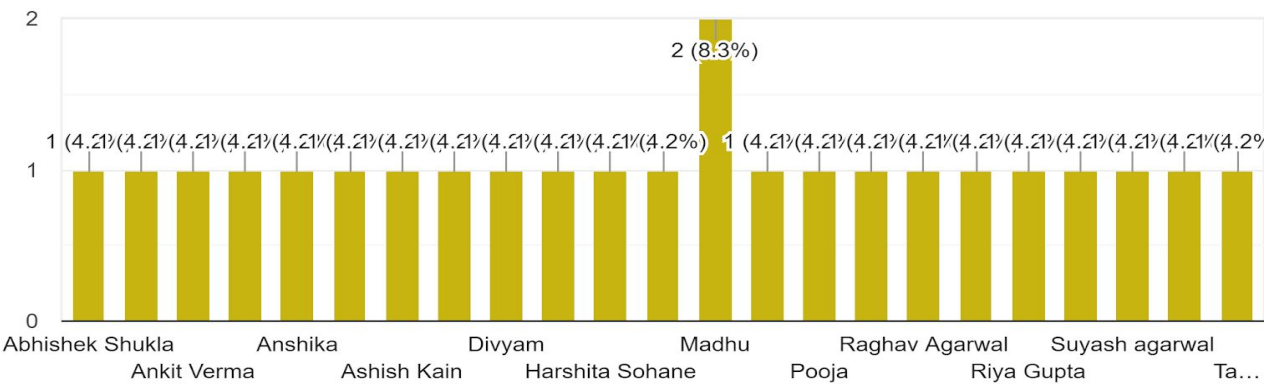
Age
24 responses

-

Category

24 responses

- ● Student
- ● Office worker
- ● Senior citizen
- ● Physically disabled
- ● Ticket Conductor

83.3%
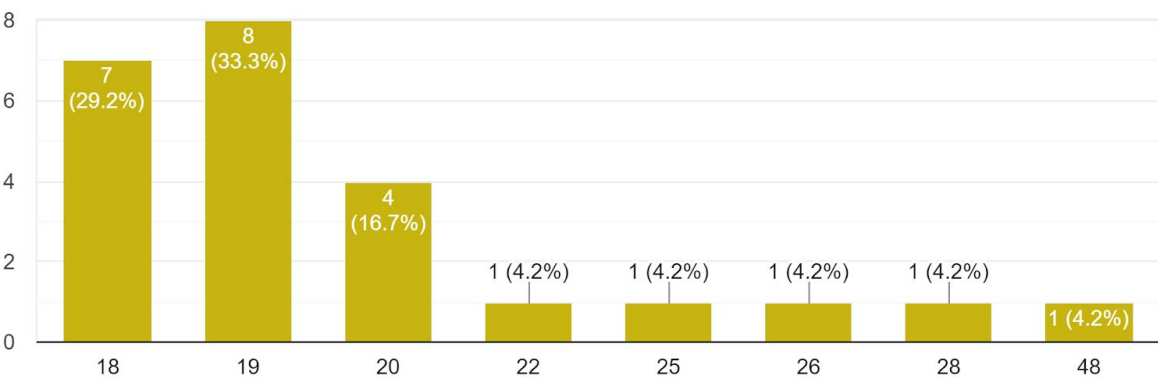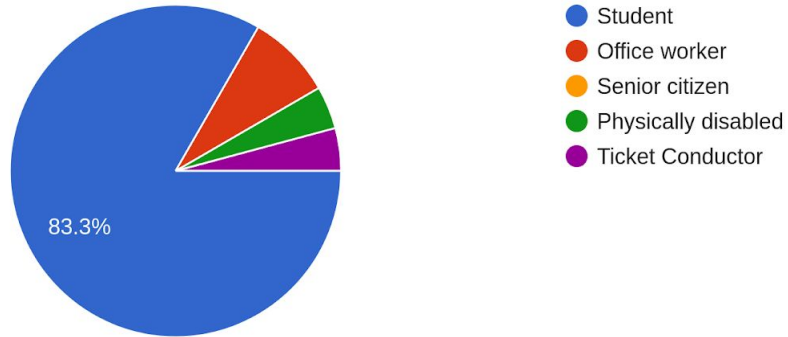
Are you facing problems in issuing/renewing bus pass??

24 responses

- ● Yes
- ● No
- ● Sometimes

50%

8.3%

41.7%
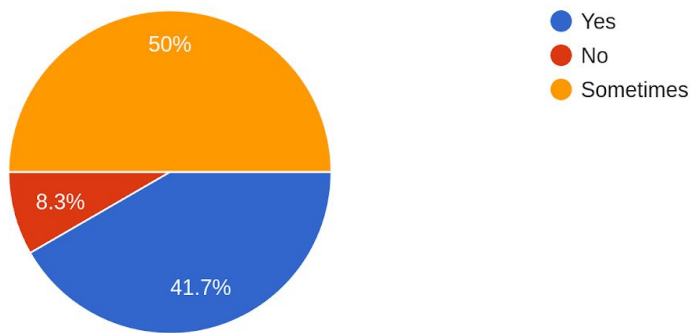
Do you feel current process of verification is time consuming??

24 responses

- Yes
- No
- Maybe

75%

20.8%
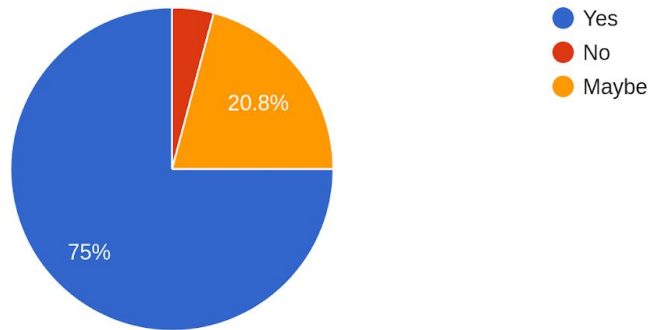
In case, if you a non bus pass holder, do you face difficulty in getting your ticket issued??

23 responses

- Yes
- No
- Sometimes

13%

21.7%

65.2%

-
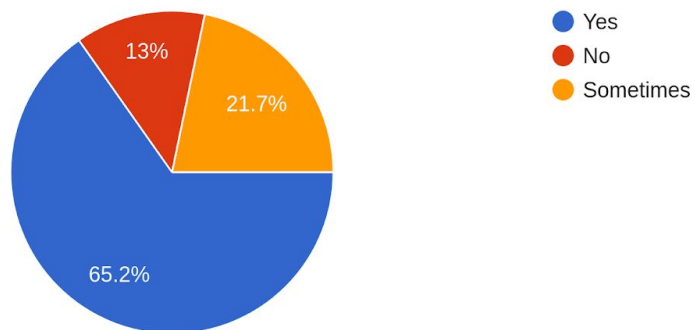
What kind of problems you face most when your bus pass get lost??

24 responses

Response	Value
you have to issue another bus pass alon…	10 (41.7%)
file an FIR	5 (20.8%)
it takes a lot of time and physical str…	12 (50%)
all of above	5 (20.8%)

(horizontal axis: 0.0, 2.5, 5.0, 7.5, 10.0, 12.5)

-
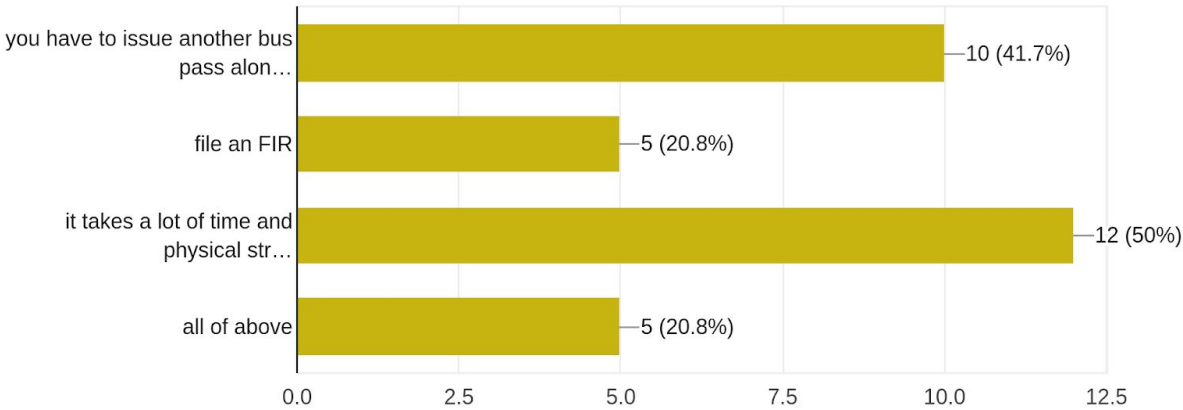
Will it be convenient if there will be facility of issuing bus pass online and availability of virtual bus pass/ticket ??

24 responses

- Definitely
- Okay
- No

8.3%

91.7%
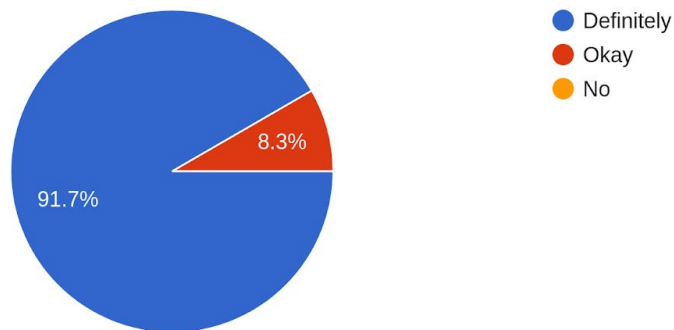
Any other problems are you facing in this current system??

7 responses

Crowd , high rated tickets

Waiting for ur turn in getting ur pass

There should be a system to know the estimated arrival and departure time of buses

Poor quality and condition of bus.

The only one bus pass can be used by twins students. Because ticket checkers doesn't ask for any other details to cross check the pass details. Even from my Bus Pass , my friend (Nearly similar faces)has been travelled and checkers was unable to detect the faulter.

Inc no of buses

Occurence of bus on different routes such as bus no : 523 ,these buses comes very few time on the route . There must be more buses for convenient traverse.

The problems you're facing if you choose the category of ticket conductor??

17 responses

- 🔵 have to go to every passenger for issuing the tickets
- 🔴 facing arguments with passengers for the change
- 🟠 face difficulties when there is excessive crowd in bus
- 🟢 all of above
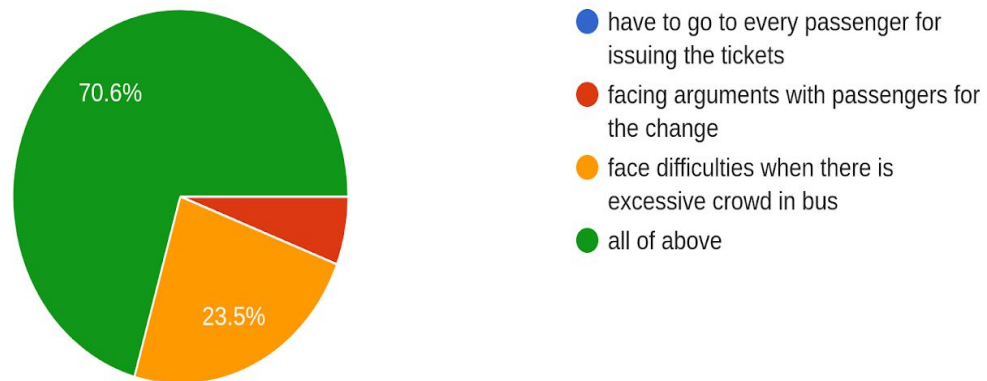
Chapter 3:Design

-

1.Data Design:

Create table account_pass(
Username varchar(20) Not NULL ,
Password varchar(20) Not Null,
Email_id varchar(20) Not Null,
Aadhar_no integer(12) Not Null,
Primary key(Username,Password)
);
Create table userinfo(
Resident_addr varchar(20) Not Null,
Phone_no integer(20) Not Null
Category varchar(20) Not Null,
Validity_time date Not Null
);
Create table student
(
Name_inst varchar(20) Not Null,
Code_no integer(20) Not NUll,
Roll_no integer(20) Not Null,
Student_idno varchar(20) Not Null,Primary key
);
Create table pass_info(
Name varchar(20),
Address varchar(20),
Validity date(20),
Bus_pass_no integer(20) primary_key,
Foreign key(Name) references account_pass(Aadhar_no),
Foreign key(Validity) references userinfo(Validity_time)
);

2.Interface Design:

-

A

CHOOSE

○ **ON THE GO TICKET**

○ **APPLY NEW BUS PASS**

○ **RENEW BUS PASS**

○ **EDIT PROFILE**

A
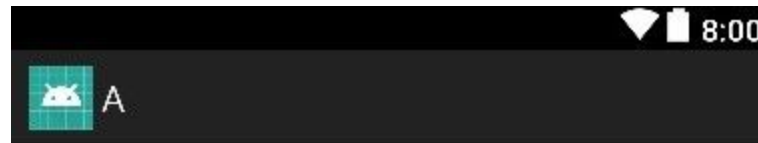
ON THE GO TICKET

SCAN QR

SOURCE

Item 1

DESTINATION

Item 1

BUS 623

BUS 624

NO OF PASSENGERS

FARE

->Proceed payment by tapping phone in front NFC device

GET TICKET

CITY BUS SERVICE

03-03-2019   15:20

SOURCE   DESTINATION

Moolchand   Dyal Singh College

TICKET ID

#Valid for buses 623,624

D
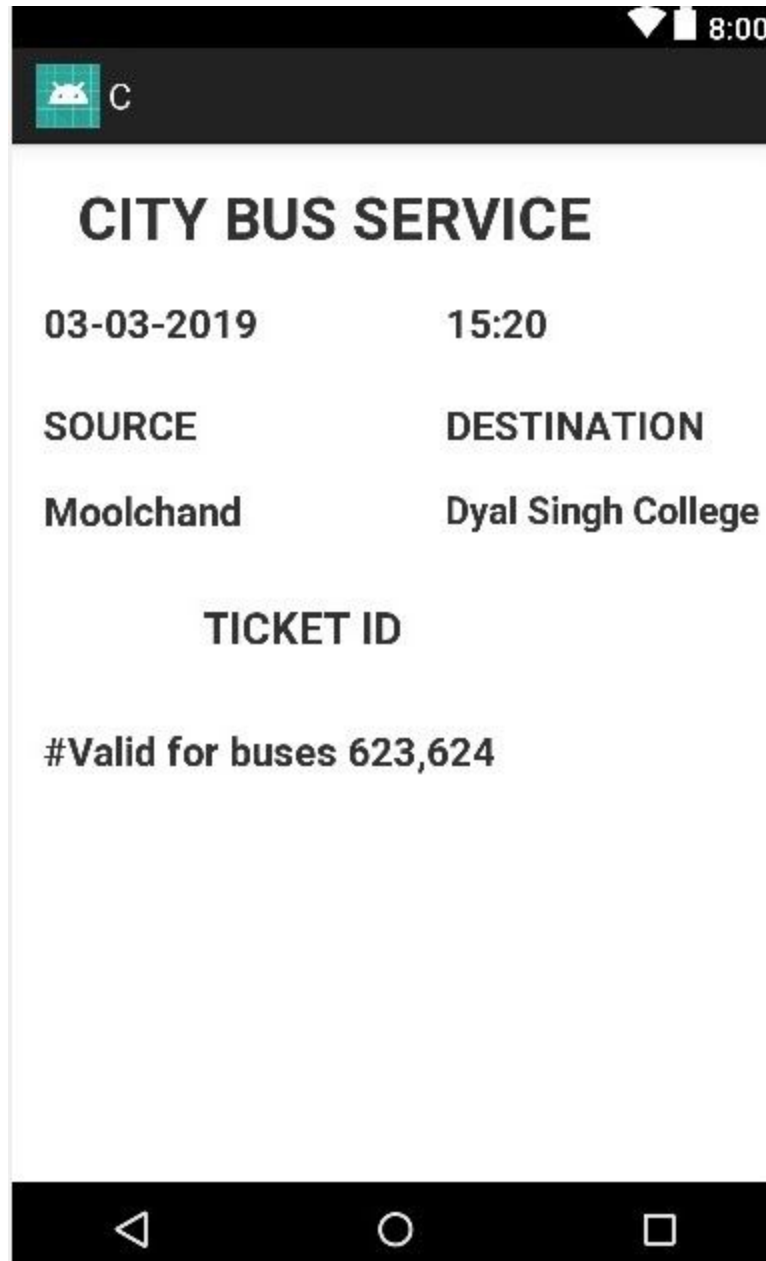
APPLY NEW BUS PASS

Username

Password

email_id

Aadhaar_no

GET REGISTER

E

BUS FORM

Residential Address

_____

Phone_no   _____

Pin Code   _____

Category(Pass_Holder)   Item 1 ▸

period_of_holder

FROM   To
_____   _____

Types Of Pass

○ **All Route AC**

○ **All Route Non-AC**

F

STUDENT CATEGORY

Institution's Name and Address

_____

CODE_NO
                        _____

CLASS
                        _____

R_no
                        _____

Student Id_Card No
                        _____

G

SENIOR CITIZENS

☐ **RESIDENCE PROOF**

☐ **AGE PROOF**

UPLOAD REQUIRED
DOCUMNETS

APPLY

DISABLED PERSON

TYPE OF DISABILITY

☐ DEAF

☐ DUMB

☐ BLIND

☐ OTHER

☐ UPLOAD CETIFICATE

APPLY
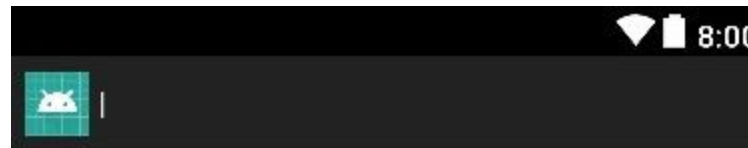
DETAILS

NAME _____

ADDRESS _____

STUDENT ALL ROUTE PASS

photo

VALIDITY   UPTO-------

Signature

[CONFIRM]   [EDIT]

AMOUNT   Rs---

PAYMENT MODE

◯ PAYTM WALLET

◯ BHIM UPI

J

RENEW BUS PASS

Username

Password

LOGIN

EDIT PROFILE

Username

Password

Phone_no

VIEW BUS PASS

forgot password?

CONFIRM

DFD DIAGRAM

Level 0

Request for changes

View Profile 0.4

Admin

Request

Register 0.1

After documents uploaded & verified

Issue Online Bus Pass 0.1

Checks

User

Buss Pass DB

Login 0.2

After getting registered and verified

Renewal 0.6

Payment 0.7

Generate e bus pass and QR code ,associated with iy

Checked By

Scan QR and provide details

On the go Ticket 0.3

Ticket Official

Generate e-ticket with timing on it

FIG 1:LEVEL 1

After get register

0.1.1
Fill all req. details

0.1.2
Select category for concession

Ticket Conductor

0.1.3
Choose plan

Generate non transferrable file, with QR scanned by TC

0.1.4
Receive Notification for renewal

Choose Payment

Pass Db

FIG 2: LEVEL 2

3.DETAILED USE CASES

LOGIN:-

- User enters its username/email.
- Then enter its respective password.
- If user id exists then user will be successfully login into its account.

<SCENARIO 1>
  - If user has forgotten its password then user will click on **RECOVER PASSWORD**.
  - Here user will be asked to enter username/email to recover password.
  - After enter username/email, user will get **OTP** at its corresponding invitation.
  - Here after user can recover its account.

<SCENARIO 2>
  - If there is no user account exists entered by user.
  - Here user goes for **REGISTRATION** to create its new account.

REGISTRATION:-

- User fill personal details required for registration.
- **<SCENARIO 1>**
  - IF MANDATORY CONDITIONS ARE NOT FILLED, SHOW ERROR.
- User Fills ADHAR Card and Enter the Received OTP for verification.
- **<SCENARIO 2>**
  - WRONG AADHAR CARD NUMBER OR THE OTP IS WRONG, USER FILLS AGAIN.
- User Submits the Form.
- All the data is verified and registered in database as a new user.

ON THE GO TICKET:-

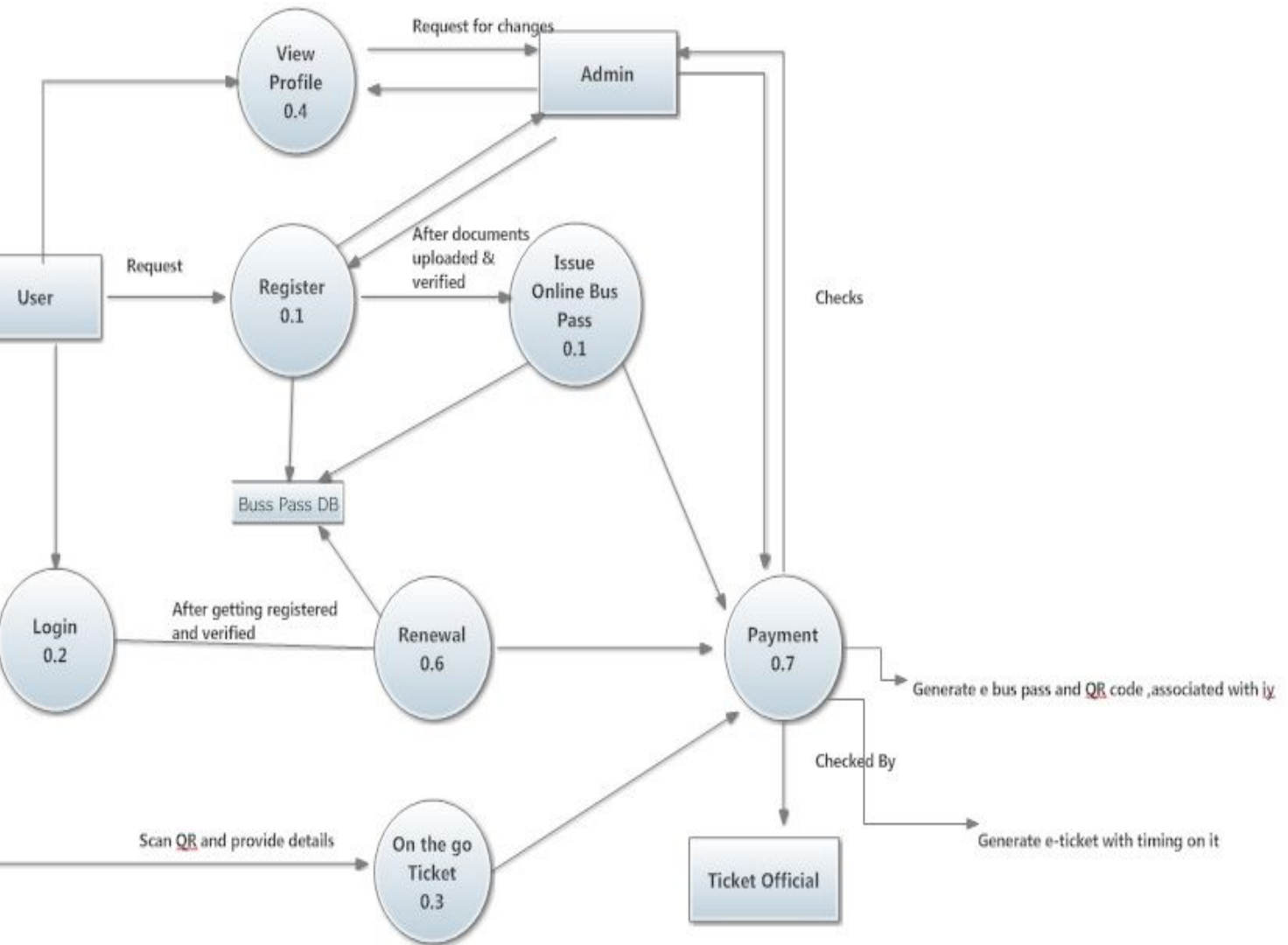- User scans Nfc tag code on Bus stop.
- Select the destination through various stop from that bus stop.
- Show all the buses and their routes to user.
- User confirms it, and move to payment.
- Pays from a Secured method via. By wallet or Debit Card.
- Receive a receipt with a non-transferable bus ticket valid for some specific time.

NEW BUS PASS:-

-

- Checks whether the user is Registered or not.
- **<SCENARIO 1>**
  - ○ IF NOT REGISTERED MOVE TO **REGISTRATION** PAGE.
- Then user selects the type of Bus Pass with Its Duration.
- Application Asks For specific Document as per required by the type of bus pass.
- Required documents are submitted by user.
- User goes to the payment portal and pays the amount to be paid.

- **<SCENARIO 2>**
  - ○ IF THE REQUIRED DOCUMENTS ARE NOT CORRECT ADMIN REJECTS THE FORM AND THE PAID AMOUNT IS REFUNDED.
- After the Documents are verified the Bus is issued to the user in the application.
- **BUS PASS IS NON-TRANSFERABLE.**

RENEW BUS PASS:-

- Ask User to issue new BUS PASS like the last one or to make new changes.
- User selects the type of BUS PASS and subts the documents as per required by the type of bus pass.
- User goes to the payment portal and pays the amount to be paid.
- **<SCENARIO 2>**
  - ○ IF THE REQUIRED DOCUMENTS ARE NOT CORRECT ADMIN REJECTS THE FORM AND THE PAID AMOUNT IS REFUNDED.
- After the Documents are verified the Bus is issued to the user in the application.

-

Chapter 4:Project Management

1.Functional point Estimation:

Functional Type	Simple	Average	Complex
External Input	3	4	6
External Output	4	5	7
External Inquiry	3	4	6
Internal Logical Files	7	10	15
External Interface files	5	7	10

Functional Types:

No of user inputs: 3

- Register
- Documents to be uploaded
- On the go ticket information

No of external outputs: 3

- View Profile
- Virtual Bus pass/QR code
- E ticket generated

External Inquiries: 2

- View fare info about destination
- View profile

-

Internal Logical Files: 2

- Route information
- User information

External Logical Files: 1

- AAdhar card information

Unadjusted Function Point:

Domain	Count*Complexity	Func point count
External Input	**3*4**	**12**
External OutPut	**3*5**	15
External Inquiries	2*4	8
External Interface Files	2*10	20
Internal Logical Files	1*7	7

Count Total: 62

Value Adjustment Factor:

0:No incidental
1:Incidental
2:Moderate
3:Average
4:Significant
5:Essential

S.No	Value Adjustment Factor	Score

-

1	Does the system require reliable backup and recovery?	5
2	Are specialized data communication required to transfer information to or from the application?	4
3	Are these distributed processing functions?	4
4	Is performance critical?	4
5	Will the system run in an existing , heavily utilized operational environment?	2
6	Does the system require online data entity?	5
7	Does the online data entry require the input transaction to be built over multiple screens or operstions?	2
8	Are the ILFs updated online?	4
9	Are the inputs , outputs , files, or inquiries complex?	1
10	Is the internal processing complex?	2
11	Is the code designed to be reusable?	3
12	Are conversation and installation included in the design?	2

-

13	Is the system designed for multiple installation in different organisations?	0
14	Is the application designed to facilitate change and use by the user?	4
	Sum (∑Fi)	38

Function point=Total count*[0.65+0.01*∑**Fi**]

=62*[0.65+0.01*38]
=62*[0.65+0.38]
=62*[1.03]
=63.86

2.RISK MANAGEMENT:-

SNO	RISKS	IMPACTS
1	LARGER NO OF USERS THAN PLANNED	MARGINAL
2	BAR CODE FAILS TO SCAN	CATASTROPHIC
3	ADMIN ID GOT HACKED	CRITICAL
4	CHANGE OF CUSTOMER REQUIREMENTS	CRITICAL
5	UNAVAILABILITY OF H/W COMPONENTS	MARGINAL
6	STAFF UNEXPERIENED	CRITICAL
7	TECHNOLOGY WILL NOT MEET EXPECTATIONS	CATASTROPHIC
8	FAILURE IN ONLINE PAYMENTS DUE TO LOW CONNECTION	CATASTROPHIC
9	DISCREPANCY WHILE UPLOADING DOCUMENTS	CRITICAL
10	INCORRECT TIME ESTIMATION FOR DOCUMENTS	MARGINAL

-

Risk projection, also called risk estimation, attempts to rate each risk in two ways—
(1) the likelihood or probability that the risk is real and (2) the consequences of the
problems associated with the risk, should it occur. You work along with other managers
and technical staff to perform four risk projection steps:
1. Establish a scale that reflects the perceived likelihood of a risk.
2. Delineate the consequences of the risk.
3. Estimate the impact of the risk on the project and the product.
4. Assess the overall accuracy of the risk projection so that there will be no
misunderstandings.

IMPACT ASSESSMENT:-
1. CATASTROPHIC:-Failure to meet the requirement would result in mission failure.
2. CRITICAL:-Failure to meet the requirement would degrade system performance to a point where mission success is questionable.
3. MARGINAL:-Failure to meet the requirement would result in degradation of secondary mission.
4. NEGLIGIBLE:-Failure to meet the requirement would create inconvenience or non operational impact.

RISKS:-
1. Larger no of users than planned:- The risk of having more no of bus pass users than planned after the launch of the bus pass system online.
2. Bar code fails to scan:- The chances of having risk if the barcode fails to scan the virtual bus pass.
3. Admin Id Got Hacked:-The higher chances of having risk when the Id of the admin who is managing all the data of bus pass users or ticket user gets hacked.
4. Change of customer requirements:- The chances of risk when the customer/bus pass user's requirements start getting change while using the online bus pass system.
5. Unavailability of Hardware components:- The chances of risk when there is unavailability of tools/hardware components which will be using for maintenance of the online system.
6. Staff Inexperienced:- The probability of having risk when the staff who is responsible for maintaining the procedure of this online bus pass system is inexperienced.
7. Technology will not meet expectations:- The probability of having risk when the technology which is using in this system will not meet expectations.
8. Failure in the online payments due to low connection:-The chances of having risk when the payment of ticket which is booked online gets failed due to low connection.

-

9. <u>Discrepancy while uploading documents:-</u>The risk when the errors get occurred while uploading documents either it is of not scanning the signatures or not uploaded documents properly.
10. <u>Incorrect time estimation for documents:-</u> The chances of having risk when the user do not get the notification of his/her documents being verified after he/she uploaded the documents. The risk of taking the longer time than expected.
11. <u>E-ticket transferrable:</u>A passenger on the bus may transfer the ticket generated to accompanying passengers.

.Gantt Chart Specifications

Task ID	Task Description	Start date	Time Period
Task 1	**Collecting informations<u>3</u>**		
1.1	**Surveying informations**	**26-Jan**	**2**
1.2	**Identifying requirements**	**28-Jan**	**3**
1.3	**Data Documentation**	**31-Jan**	**3**

-

Task 2   Specifying System Requirements

2.1	**Software Requirements**	**03-Feb**	**3**
2.2	**Hardware Requirements**	**06-Feb**	**4**

Task 3   Modelling/Sketching

3.1	**Selecting process model**	**10-Feb**	**3**
3.2	**Designing process model**	**13-Feb**	**3**

Task 4   Specifying Product Requirements

4.1	**Basic UI**	**16-Feb**	**4**
4.2	**Product functions**	**20-Feb**	**2**
4.3	**User characterstics**	**22-Feb**	**6**
4.5	**General constraints**	**28-Feb**	**2**

Task 5   Forming DFD

5.1	**DFD level 0**	**02-Mar**	**0**
5.2	**Data dictionary**	**02-Mar**	**1**
5.3	**DFD level 1**	**03-Mar**	**1**
5.4	**DFD level 2**	**04-Mar**	**2**

Task 6   Project management

-

6.1	Cost estimation	06-Mar	4
6.2	Efforts	10-Mar	3
6.3	Risk table	13-Mar	4

Task 7   Design Engineering

7.1	Architectural design	17-Mar	1
7.2	ER diagram	18-Mar	1
7.3	Data design	19-Mar	5

Task 8   Creating testing plans

8.1	Test cases	24-Mar	2
8.2	Bugs fixing	26-Mar	4
8.3	Test reports	30-Mar	3

-
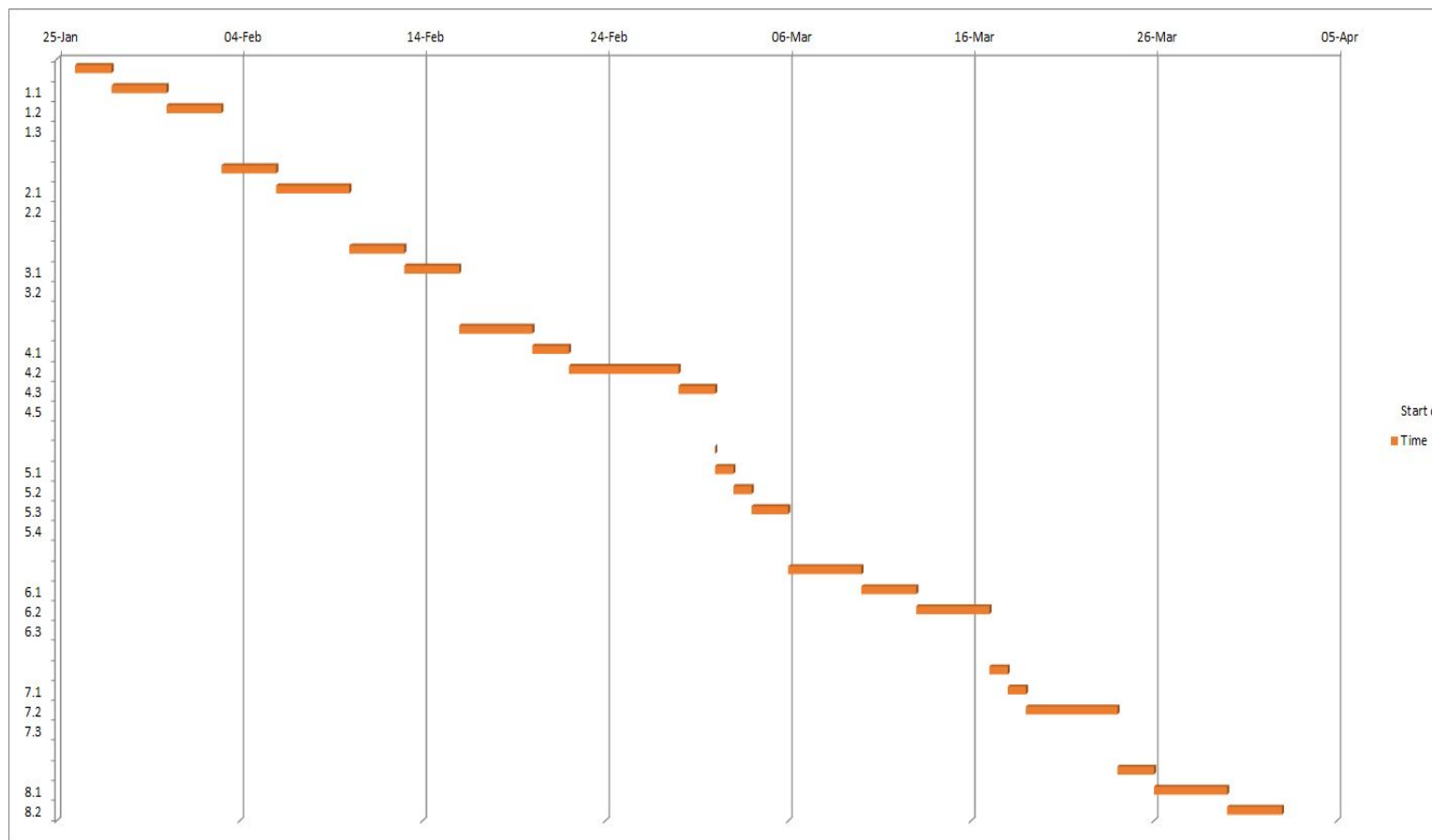
Gantt Chart

Chapter 5 Testing:

Test Cases for Buss Pass and Online Ticket System

Test Case 1: Register Account

Test Conditions	Entered Input	Expected Result
1.	User register with new id and password	Registration will successful
2.	User Register with existing id	Registration will not done
3.	User register with invalid password	Registration will not done
4.	During Registration aadhar card details don't match with the filled details .	Requested to enter the aadhar card again.

Test case :2   Login Account

TEST Conditions	Entered Input	Expected Output
1	User Enters a Valid ID With valid password	Login Successful

-

2	User Enter a Invalid ID	Login Unsuccessful
3	Entered Password is Wrong or Doesn't match the password in database with the respected ID	Login Unsuccessful
4	User forgets password and clicks on Forget Password Option.	Redirected to new link to recover Password
Examples:	Invalid ID: Xyz @... XYZ!@... PASSWORD IS INVALID WHEN IT DOESN'T MATCH THE DATABASE	Login Unsuccessful

Test Case :3 On the go Ticket

Test Conditions	Expected Input	Expected Output
1	Passenger tap Nfc tag on the bus stop,enter destination	Show the buses which goes to that destination
2	Passenger enter destination,that does not exist	Doesn't show any destination
3	User enter in bus and again scan NFC for check In	Check In time will be started
4	User scan improper NFC in bus	Check time will not be started
5	User scan NFC of other route bus	Show error and check time will not be started

Test Case 4.Apply for new bus pass

-

Test conditions	Expected Input	Expected Output
1	Enter correct username,aadhar no etc by the user.	Proceed
2.	Redundancy in aadhar number	Does not proceed
3	Upload required documents	Gets verified
4.	Discrepancy in the documents uploaded	Does not gets verified
5	Payment successful	Pass issued
6	Failure of payment	Pass not issued

Cyclomatic Complexity:

Login Section:

```
                    ┌─────────┐
                    │  Start  │
                    └─────────┘
                         │ Input
                         ▼
              ┌──────────────────┐
              │       Form       │
              └──────────────────┘
     If not registered      │  If registered
  ┌──────────┐              │
  │ Reg for  │◄─────────────┘
  │ bus pass │
  └──────────┘              ▼
       │         ┌──────────────────┐
       │         │ Issue/Renew/Vie  │
       └────────►│ w bus pass       │
                 └──────────────────┘
                         │ Proceed
                         ▼
```
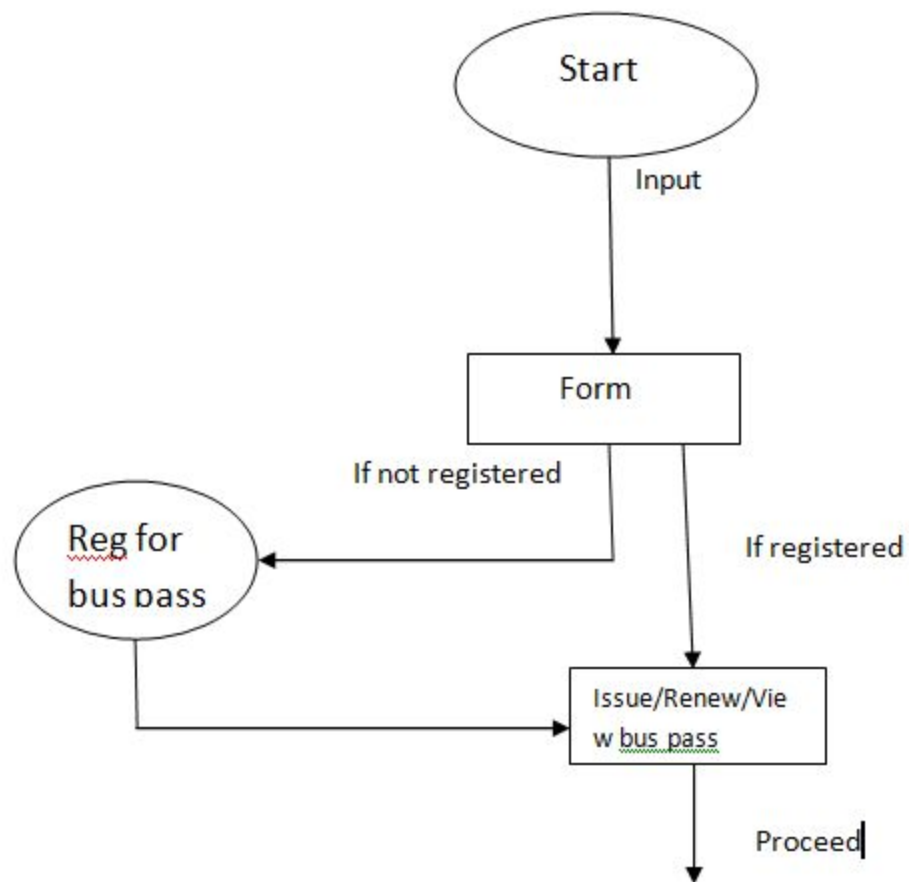
Edges(E)=5
Nodes(N)=4
No of connected components(P)=2
Cyclomatic complexity=E-N+2P=3

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