DROP STOP

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CERTIFICATE

This is to certify that the content of this project entitled,"DROP STOP" by Ayushi Pandey, Bharti Mishra and Vishakha Yadav and is the bonafide work of them submitted to Shyama Prasad Mukherjee College, New Delhi for consideration in a particular fulfillment of the requirement of Delhi University as a part of the curriculum of B.Sc. (H) Computer science.

The original research work was carried out by them under my supervision in this academic year 2019 -2020.On the basis of declaration made by them I recommend this project for evaluation.

Certified By-

Dr. Baljeet Kaur

Project supervisor,

Shyama Prasad Mukherjee College,

Delhi University

PROBLEM STATEMENT

Drop stop an online bus pass generation system is helpful as it reduces the paperwork, time consumption and make the process of getting bus pass in simple and faster way.

There are three actors involved in the software which are:

Bus Department Corporation

public organization such as student, universities, schools, etc.

private organization such as IT companies, etc;

Bus department admin for updating information, notification etc.

Login -

This functionality provide end users to open the account using the user id number and password given to the user at the time of registration.

This function would ask the end user to provide the bus user id and password and forgot password in case they forget the password and sign up options if they had not registered yet.

Register- (if user hasn't registered yet)

The user need to add all the details regarding registration upload all the necessary details.

- :- First name
- :- Address
- :- Email
- :- Organization

<u>Confirming Documents-</u> The documents would be verified by the bus corporation which is provided by the user at the time of registration.

Pass number and user id will be provided to the new pass user.

The bus admin and organization will confirm all the details such as phone number and email via otp.

Renew Pass - This functionality will allow the user to renew their pass by increasing the validity of the pass user are required to fill this details -

Month- will select month from dropdown menu.

username-name of the user

from/to- select the date.

Recharge- This functionality will provide the user to pay the fees through Google pay, PayPal etc., by selecting card method it will direct the user to payment gateway page.

Search bus route- This functionality will provide the user to search their destination route. It also has bookmark option to save their favorites. On selecting the bus route number user can see the following details-

- :- Schedule
- :-Timing
- :-Bus stops

Edit profile- This functionality will provide the user to edit their profile such as user id name, email, phone number, etc. User can also update their documents such as ID etc.

Get notifications- Here user can view all the notification related to their pass such as, expiry of pass, change in bus route, etc. These notification will be updated by the bus department admin.

View Pass History - User can see the pass history it will also show the validity of the pass.

Feedback - User can give the feedback regarding their experience about the software and methods to improve the software.

SOFTWARE LIFECYCLE MODEL

Our project will use the incremental model because:

- :- The requirement are very clear in a project
- :- It is really a flexible project it has high chances to change or edit any function
- :- It can have multiple function that can be updated in repetition cycles
- :-The chances of risk is high and it is easier to manage risk in incremental model
- :- According to the present needs we can say that customer demand is quick
- :- We can develop prioritized requirements first.

Incremental model is a process of software development where requirement is divided into multiple standalone modules of the software development cycle. In this model, each module goes through the requirement, design, implementation and testing phase.

Every subsequent release of the module as function to the previous release.



Advantages of incremental model

:- Errors are easy to recognize.

- :- Easier to test and debug.
- :- More flexible.
- :- Managing risk is easier because of iteration
- :- Client get important function easily.

Disadvantages of incremental model

- :- Need for good planning.
- :- Total cost is high.
- :- well define module interfaces are needed.

PROJECT SCHEDULING

Work Task	PLANNED	ACTUAL	PLANNED	ACTUAL	ASSINGED	EFFORT	NOTES
	START	START	COMPLETE	COMPLETE	PERSON	ALLOCATED	
PROBLEM	M1,W2	M1,W2	M1,W2	M1,W3	Bharti ,	3P-W	
STATEMENT					Ayushi ,		
					Vishakha		
SOFTWARE LIFE-	M1,W3	M1,W3	M1,W3	M1,W4	Bharti ,	3P-W	
CYCLE MODEL					Ayushi ,		
					Vishakha		
PROJECT	M1,W4	M2,W1	M2,W1	M2,W2	Bharti ,	3P-W	
SHEDULING					Ayushi ,		
					Vishakha		
SOFTWARE	M2,W2	M2,W2	M2,W3	M2,W4	Bharti ,	6P-W	
REQUIREMENT					Ayushi ,		
SPECIFICATION					Vishakha		

ENTITY	M3,W4	M4,W1	M3,W4	M4,W1	Bharti ,	3P-W	
RELATIONSHIP					Ayushi ,		
DIAGRAM					Vishakha		
DATA DICTIONARY	M4,W2	M4,W2	M4,W2	M4,W2	Bharti ,	3P-W	
					Ayushi , Vishakha		
					Visitakila		
CONTEX LEVEL	M2,W4	M3,W1	M2,W4	M3,W1	Bharti ,	3P-W	
DIAGRAM					Ayushi ,		
					Vishakha		
DFD LEVEL 1	M3,W1	M3,W2	M3,W2	M3,W2	Bharti ,	3P-W	
					Ayushi ,		
					Vishakha		
DFD LEVEL 2	M3,W1	M3,W2	M3,W2	M3,W3	Bharti ,	6P-W	
	,		,		Ayushi ,		
					Vishakha		
USE CASE	M3,W2	M3,W3	M3,W3	M3,W4	Bharti ,	3P-W	
DIAGRAM					Ayushi ,		
					Vishakha		
USE CASE	M3,W2	M3,W3	M3,W4	M3,W4	Bharti ,	3P-W	
DISCRIPTION					Ayushi ,		
					Vishakha		
WORK TASKS	M2,W1	M2,W1	M2,W2	M2,W2	Bharti ,	6P-W	
					Ayushi ,		
					Vishakha		
FUNCTION POINTS	M4,W2	M4,W2	M4,W2	M4,W3	Bharti ,	6P-W	
MATRICS					Ayushi ,		
					Vishakha		
COCOMO-II	M4,W2	M4,W3	M4,W3	M4,W3	Bharti,	3P-W	
					Ayushi ,		
					Vishakha		
RISK ANALYSIS	M3,W3	M3,W4	M3,W4	M4,W1	Bharti ,	6P-W	

					Ayushi , Vishakha		
TESTING	M2,W3	M2,W4	M2,W4	M3,W1	Bharti , Ayushi , Vishakha	6P-W	
SCREENS	M1,W3	M1,W4	M2,W1	M2,W2	Bharti , Ayushi , Vishakha	9P-W	

WORK TABLE

	JAN	IUAR	<u> </u>		FEB	RARU	RY		MAI	RCH			APR	IL		
Work Task	W	W-	W-	W-	W-	W-	W-	W-	W-	W-	W-	W-	W-	W-	W-	W-
	-1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
PROBLEM																
STATEMENT																
SOFTWARE																
LIFE-CYCLE																
MODEL																
PROJECT																
SHEDULING																
SOFTWARE																
REQUIREMENT																
SPECIFICATION																
ENTITY																
RELATIONSHIP																
DIAGRAM																
DATA																
DICTIONARY																

CONTEX LEVEL								
DIAGRAM								
5								
DFD LEVEL 1								
DFD LEVEL 2								
USE CASE								
DIAGRAM								
USE CASE								
DISCRIPTION								
WORK TASKS								
WORK TASKS								
FUNCTION								
POINTS								
MATRICS								
COCOMO-II								
RISK ANALYSIS								
TESTING								
SCREENS								

SOFTWARE REQUIREMENT SPECIFICATION

Introduction:

This section gives a scope description and overview of everything included in this SRS document. And the purpose of this document is also described.

Purpose

This project is created to provide "safe, reliable, saving, efficient and affordable" services for user. This idea would help the user in a better way. As per the previous system the user had to do each and every process manually, but this system helps user to make the work bit faster. The user can then take print out of this bus pass from their mail id and use them. In this bus pass, all the required details such as candidate name, address, date of birth, mail id, name of the school(government/private), validity period, amount paid (free for government school students) and photo copy of the candidate are provided. Instead of school details, working organization details will be provided in employees bus pass. The renewal process can be done either monthly or yearly as per user wish. Based on that renewal period amount will be deducted.

Scope

Drop stop system manages and provides various bus pass functionalities. The project allows users to register on the bus pass website and interact online to manage their account and bus pass related transactions. It's free and open source software that solve problems like:-

- 1) Long queues for issuing passes.
- 2) Tedious procedure for issuing renewal process.
- 3) Passes are still physical slips of paper not digital passes.

This system will include a web application to access users account, a mobile application to access remotely and QR code scanner.

Definitions, acronyms and abbreviations:-

None.

References:-

Websites

#www.scribd.com

#www. Slideshare.com #www.wikipedia.org

Books

Software engineering project by Roger S pressman.

Overview

This system was intended to develop application to perform functionalities like accessing the basic information of students from educational institutions for authentication and provide bus pass to a particular student without placing him or her in a queue for longer time.

It reduces a paper work and the time consumption and make a bus pass easy and fast.

Overall Description

This section will give an overview of the whole system. The system will be explained in its context to show how the system interacts with other system and introduce the basic functionality of it. It will also describe what type of people that will use the system and what functionality is available for each type. At last the constraints and assumptions for the system will be presented.

User Interface:

The user interface for this software shall be compatible to any browser like Internet, Mozilla Firefox, etc. by which user can access to the system. User accesses, such as login and then homepage is provided for all the members using the software.

Through this homepage interface the basic users functions is shown but can be accessed after login and based on user access authorization .This system is very user-friendly that the new users of the system can sign up without any problems and then can drop feedbacks from the experience after using it.

Hardware Interface:

Just like any other systems, this system requires basic computer that consist of CPU monitor keyboard and mouse for laptop or computer and smartphones for input and output. For

direction the system is connected with GPS device in every organization transportation vehicles to get the transportation details.

Software Interface:

The system will require software Xampp to program and create the online booking system. Booking process of the system organises the distribution of users in the local network and make it able to do this online booking.

Communication Interfaces:

The system communication interface is completely dependent on server software to ensure, correct, send and retrieve data from the database. Other than that is an online protocol to connect between GPS and the system.

Product Function:

This online booking system aims to make the booking, checking, and availability of passes, view, update and cancellation of pass on the system easier. Below are the major functions of the system:

a. User module:

New quest or user are allowed to go to homepage then can view the facilities and activities of software promotion and prices, terms and condition of using the software and also can contact us to find the location of the users easily as well. The function of this user module is only able to sign up to the system and give feedback about the webpage.

b. Member Module:

Pass users in online booking system may login into member login system for booking, after the confirmation, member can do the payment via payment methods. The member can also add their profile anytime if in case the user forget the password then they could reset the password using forgot password function.

User Characteristics:

The online booking system is designed to be very user-friendly. The user of the system will not require special training before operating this system, however all the users must acquire

basic computer knowledge and knowing English in order to use the software. The user can also experience that time is saved by using the software.

Constraints:

These are the few constraints that the online bus pass system holds for proper functionalities.

- a. The promotion update can only be created as template and then need to attach to the template. This can be viewed by customer but can only be edited or deleted by admin.
- b. The system is designed on one screen where user can only execute one task at a time.
- c. The system must connect to local area network of the organisation before operating.

3. Specific requirements

3.1 External Interface Requirements

Fees required in the online platform provided by the plan for internet connections. The value must be entered by the user through screen or keyboard. The virtual keyboard can be used.

Specific interface

Payment gateway-To do the transactions of money for recharge and checking its status. Paytm ,Pay Pal,Net Banking, Google pay like app can also be used.

3.2 Function

- 1. Login
- 2. Registration
- 3. Renewal of pass
- 4. Recharge of the pass
- 5. Searching routes
- 6. Edit Profile
- 7. Getting Notifications
- 8. View Pass History
- 9. Feedback

3.3 performance requirements

- 1. The performance shell depend upon hardware component of the customer.
- 2. The transaction in this software take place at lightning speed.
- 3. Hard real time is required for the verification of the documents.
- 4. The three terminals to be supported by the user.

3.5 Design Constraint

- 1. All the transactions shall take place only through the net banking.
- 2. Confirmation documents and validity is provided by the organization related to the user.
- 3. All the data stored in the cloud space such as Google Drive and even better Google App Engine.

3.6 Software System Attributes

3.6.1 Availability –

Since we are uploading our project on the server it will available all the time.

3.6.2 Maintainability -

Our Project is easy to maintain after deployment it does not require special effort or any team

3.6.3 Security –

The software is secure as it is prevented from being accessed malicious user.

3.6.4 Reliability -

The system is reliable as it is provided the correct data of bus route and provide complete verification of the documents even secure platform.

3.6.5 Portability –

The software can be used on any machine with any operating software.

DATA DICTIONARY

User details

FIELD NAME	DATA TYPE	FIELD LENGTH	DESCRIPTION
User Id	Integer	8	Id will be provided by the
			user
First Name	Varchar	15	Will entered by the user at
			registration time
Last Name	Varchar	15	Will entered by the user at
			registration time
Phone no.	Integer	10	Will entered by the user at
			registration time
Email Id	Varchar	25	Will entered by the user at
			registration time
Password	Varchar	20	Will entered by the user at
			registration time
Address	Varchar	100	Will entered by the user at
			registration time
Organization	Varchar	50	Will entered by the user at
			registration time
DOB	Date	10	Will entered by the user at
			registration time
Gender	char	1	Will entered by the user at
			registration time
Aadhaar card no.	Integer	16	Will entered by the user at
			registration time
User Image	Image	413 X413 Pix	Will upload by the user at
			registration time
Id Proof	Image	413 X413 Pix	Will upload by the user at
			registration time

Organization Details

FIELD NAME	DATA TYPE	FIELD LENGTH	DESCRIPTION
User id	Integer	8	Will be provided to the
			user after registration
Name of registering	Varchar	12	Will entered by the user at
person			registration time
Organization contact	Integer	10	Will entered by the user at
			registration time
Organization Email Id	Varchar	50	Will entered by the user at
			registration time
Main office Address	Varchar	100	Will entered by the user at
			registration time
Password	Varchar	20	Will entered by the user at
			registration time
Address proof	Image	413 X413 Pix	Will upload by the user at

			registration time
Id proof of registrar	Image	413 X413 Pix	Will upload by the user at
			registration time

Bus Admin Details

FIELD NAME	DATA TYPE	FIELD LENGTH	DESCRIPTION
Name	Varchar	20	Admin will submit
Phone no.	Integer	10	Admin will submit
User Id	Integer	8	Admin will provided by
			the software
Password	Varchar	20	Admin will submit
Favorites	Varchar	1000	User will save later

Bus Details

FIELD NAME	DATA TYPE	FIELD LENGTH	DESCRIPTION
Bus no.	char	4	
Type	Varchar	10	
Daily Timing	time	4	
No. of Bus Stops	Integer	2	
Starting stop	Varchar	50	
Ending Stop	Varchar	50	

Bus Stop Details

FIELD NAME	DATA TYPE	FIELD LENGTH	DESCRIPTION
Name	Varchar	50	
No. of Bus Routes	Integer	3	
Bus no.	Char	4	
Time	time	4	

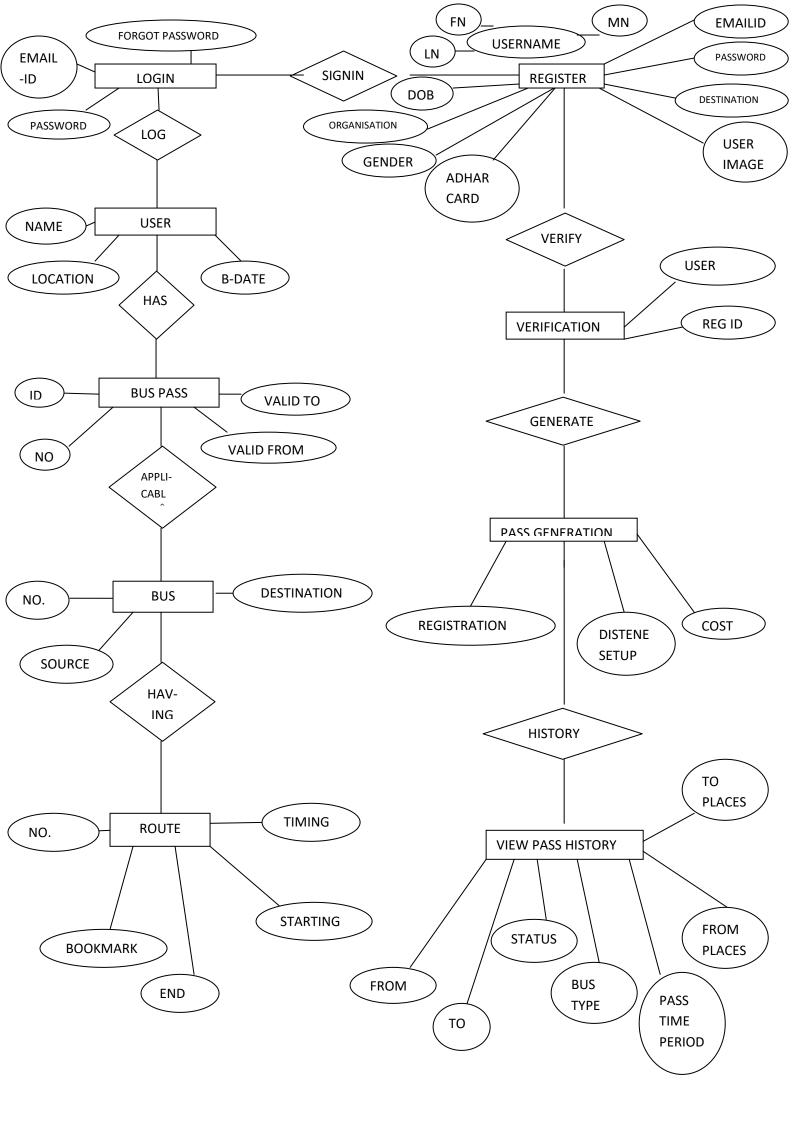
Pass Details

FIELD NAME	DATA TYPE	FIELD LENGTH	DESCRIPTION
Pass no.	Integer	15	
User id	Integer	8	
Validity date	Date	10	
Recharge left	Decimal	(5,2)	

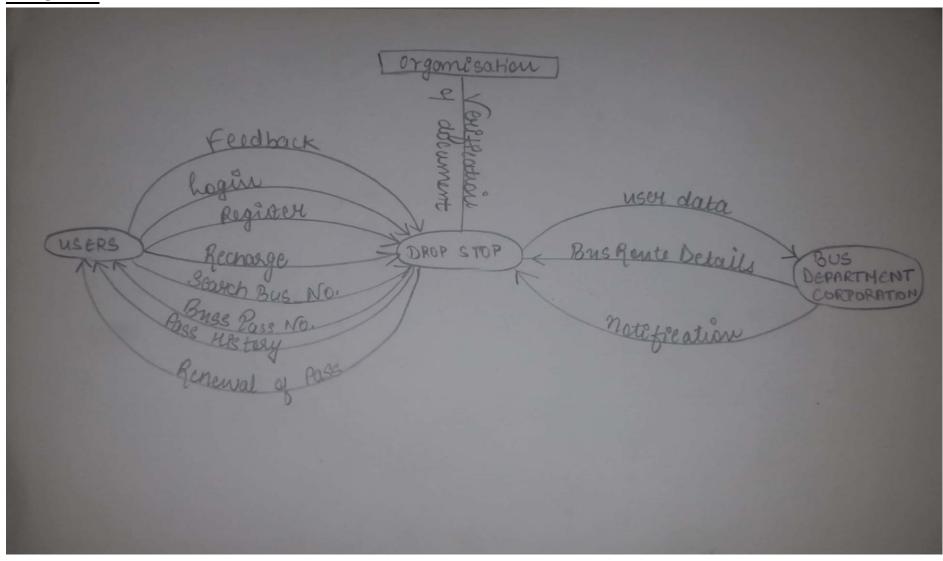
Pass history details

FIELD NAME	DATA TYPE	FIELD LENGTH	DESCRIPTION
Pass no.	Integer	15	
Pass type	Varchar	10	
Validity left	Integer	3	
From stop	Varchar	50	
To stop	Varchar	50	
Fare	Decimal	(5,2)	
Status	Varchar	10	

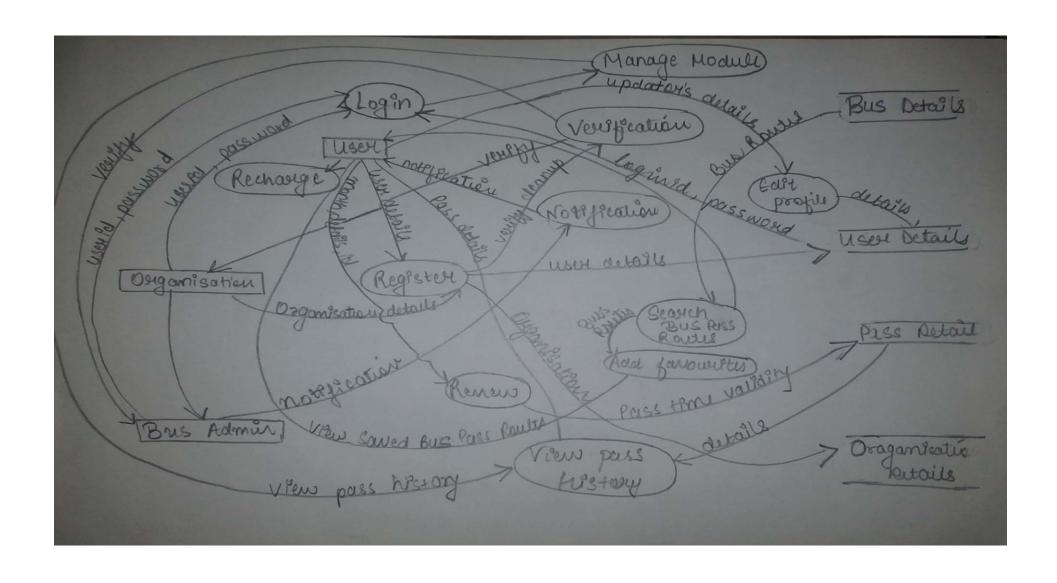
ENTITY RELATIONSHIP DIAGRAM



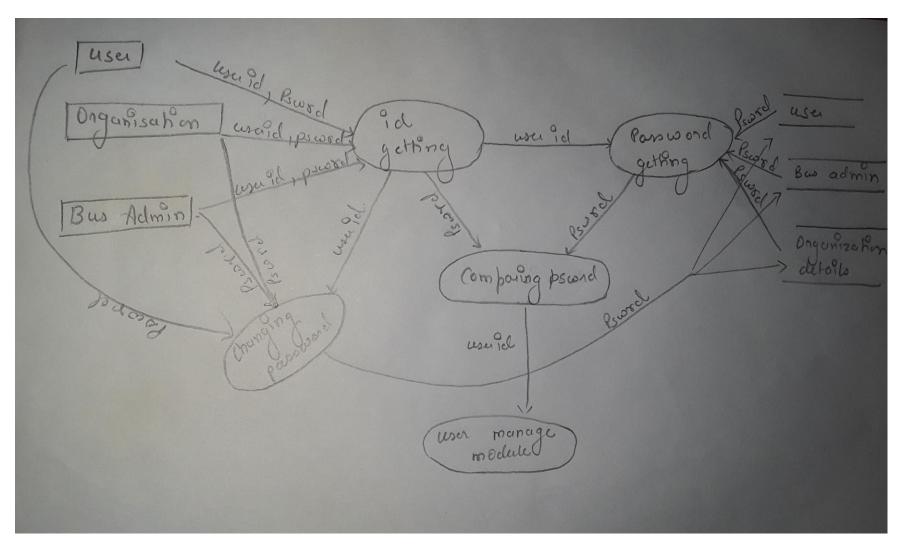
CONTEXT LEVEVL DIAGRAM

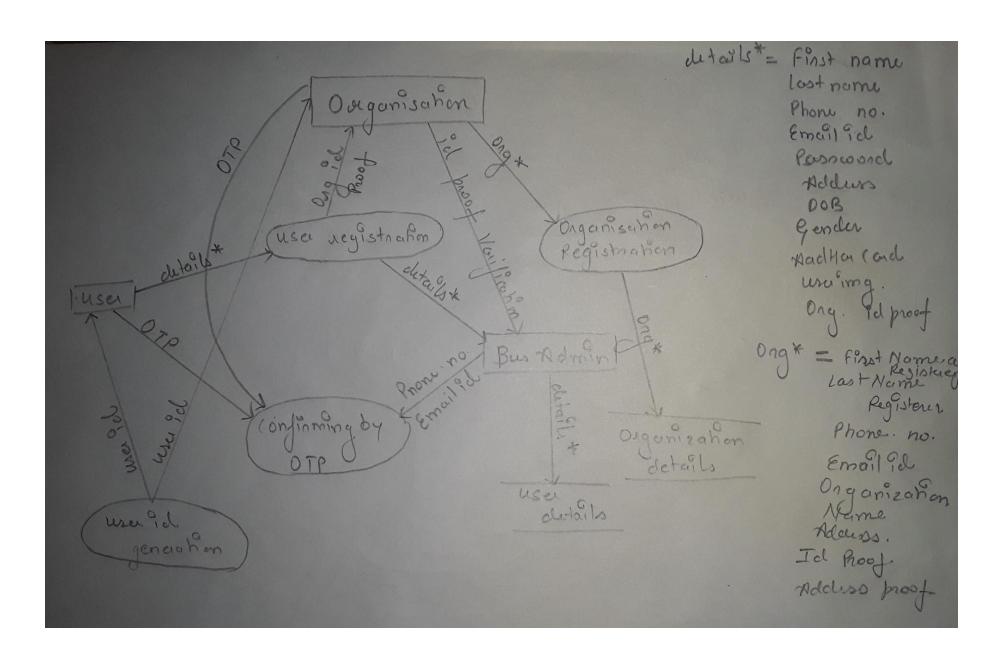


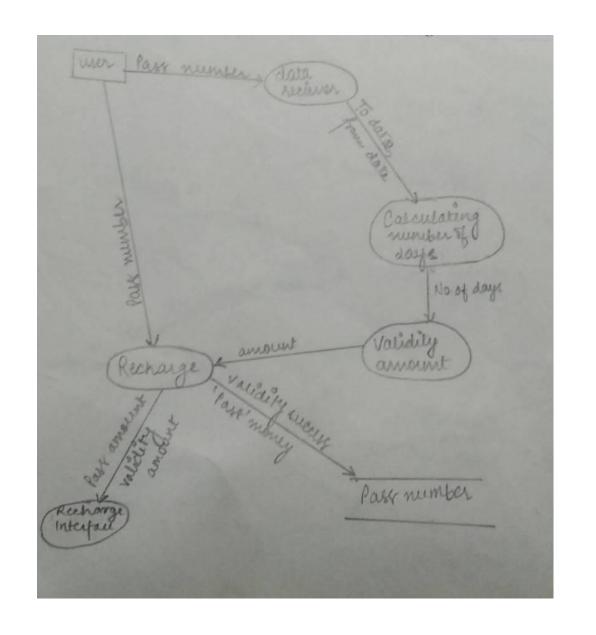
DATA FLOW DIAGRAM (DFD LEVEL-1)

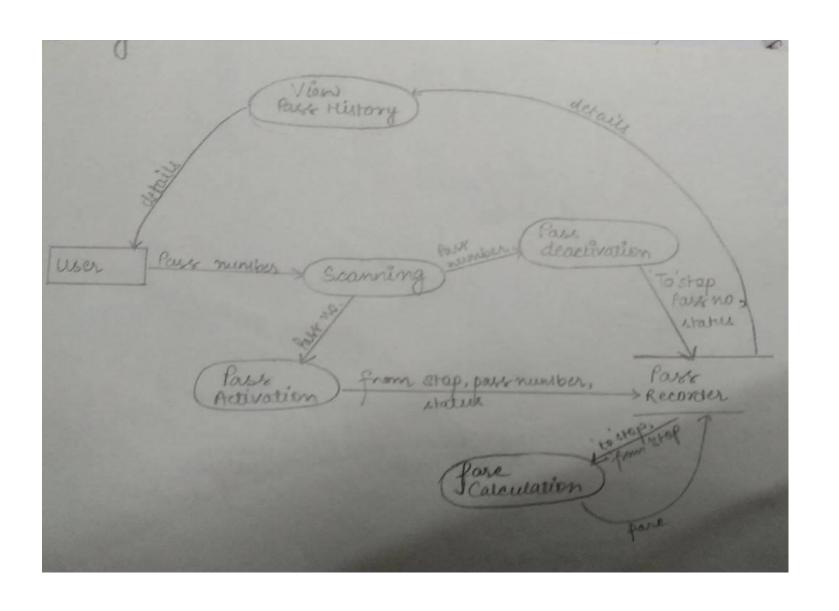


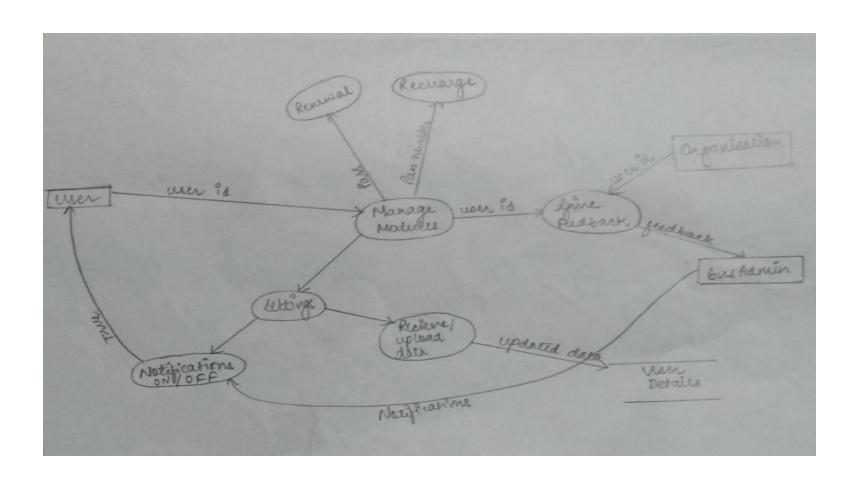
DATA FLOW DIAGRAM (DFD LEVEL-2)

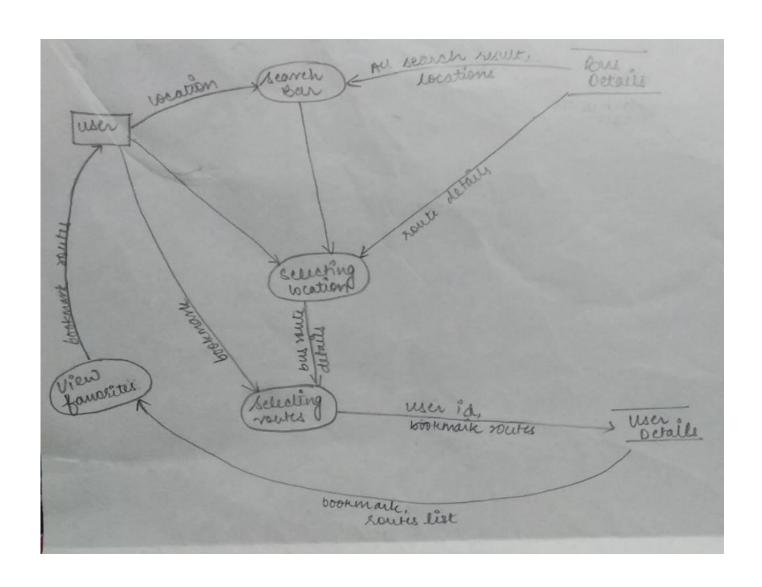












COCOMO MODEL

COCOMO model is a hierarchy of software estimation model and stands for Constructive Cost model. The COCOMO II model is a more comprehensive estimation model, and like its predecessor addresses following areas:

- 1. Application Composition Model
- 2. Early Design stage model
- 3. Post architecture stage model

The COCOMO II application composition model uses object points. The object point is the indirect measure that is computed using counts of the number of:-

- 1. Screens
- 2. Reports
- 3. Components likely to be required to build the application.

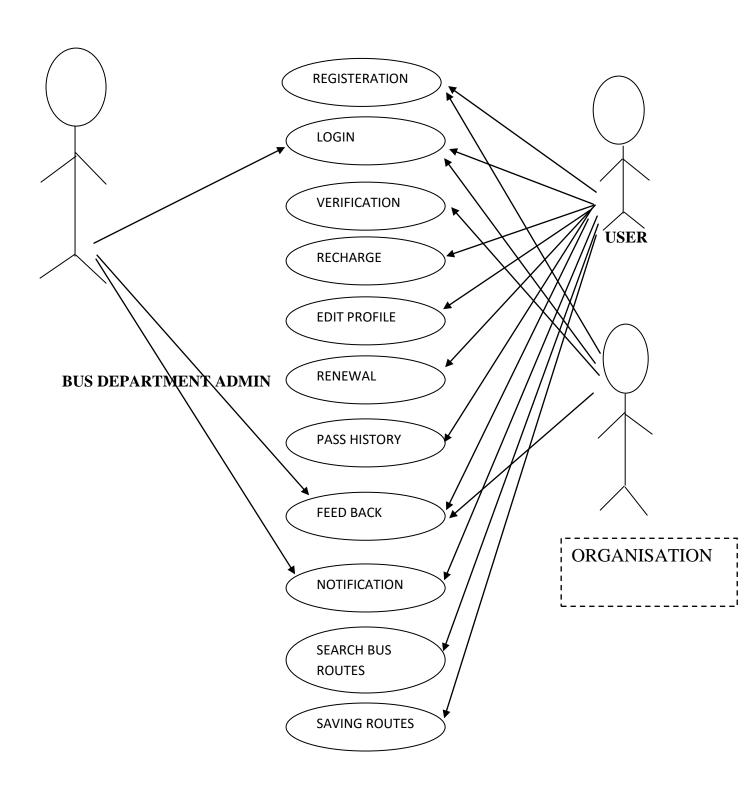
OBJECT TYPE	COMPLEXITY WEIGHT			
	SIMPLE	MEDIUM	DIFFICULT	
SCREEN	1	2	3	
REPORT	2	5	8	
3GL COMPONENTS			10	

OBJECT TYPE	NUMBER	WEIGHT	OBJECT PONITS
			PONIIS
SCREEN	25	2	50
REPORT	4	5	20
3GL COMPONENTS	0	0	0
TOTAL OBJECT POINTS			70

Developer's	Very low	Low	Normal	High	Very
Experience/Capability					high
Environment maturity/Capability	Very low	Low	Normal	High	Very high
PROD	4	7	13	25	50

Person per month=3
PROD = 70/3
=23.3
Estimated Effort =NOP / PROD
=70/23.3
=3.001 person/ month

Use Case Diagram



USE CASE DISCRIPTION

REGISTERATION

• Brief Description

This use case describes how an end user and organization will register himself into the software.

Actor

- 1. Pass user
- 2. Organization

• Flow of events

o Basic Flow

This use case allows the end user to register himself into the software

- The pass user enter his/her username email id, password, phone no., DOB, gender, aadhar card no., user image, and proof of id of organisation.
- Enter the register button.
- o Alternative flow

None

• Special Requirement

None

• Pre-Condition

None

• Post-Condition

After the registration process user can login into the system.

• EXTERNAL POINTS

None

LOGIN

• Brief Description

This use case describe us that the end user, organization and bus department admin can login in the software

• Actor

- 1. Pass user
- 2. Organization
- 3. Bus department admin

• Flow of events

o Basic Flow

This use case allows the end user to login himself/herself into the software

- The pass user will enter its user id and password.
- There user id and password will get verified from the saved data entered by end user at the registration time.

- Enter the login button.
- o Alternative flow

None

• Special Requirement

None

• Pre-Condition

The end user must have registered themselves.

• Post-Condition

After the registration process user can login into the system.

• EXTERNAL POINTS

None

VERIFICATION

• Brief Description

This use case describes how data entered by the end user are get verified by the organization.

• Actor

- 1. Bus department admin
- 2. Organization

• Flow of events

o Basic Flow

This use case allows the end user to verify their details

- The organization will verify the pass user proof of id of organization.
- Organization will inform the bus department admin.
- Bus department admin will verify all other details of the pass user such as adhaar card no., email id and phone no. through OTP.
- After verification the bus department admin will provide pass no to the user.
- o Alternative flow

None

• Special Requirement

None

• Pre-Condition

Details and documents should be uploaded at the time of registration.

• Post-Condition

After the verification user can login and use the pass for travelling.

• EXTERNAL POINTS

None

RECHARGE

• Brief Description

This use case describes how pass user can transfer money from their bank accounts their pass wallet.

• Actor

1. Pass user

Flow of events

o Basic Flow

This use case allows the end user to transfer money into the software wallet.

- The pass user will go on recharge fun and chose the platform to pay the money.
- After choosing the platform different interface will open to pay the money
- o Alternative flow

None

• Special Requirement

Payment interface

• Pre-Condition

Pass no. should have the validity

• Post-Condition

The money will transfer to the pass wallet.

EXTERNAL POINTS

None

EDIT PROFILE

• Brief Description

This use case describe how pass users will able to change and update their details enter at the time of registration.

• Actor

1. Pass users

Flow of events

o Basic Flow

This use case allows the end user to update himself/herself to the software

- The pass users can update their details such as name, DOB, password, email id, phone no. and profile image.
- After clicking on the update button then updated data will be save.
- o Alternative flow

None

• Special Requirement

None

• Pre-Condition

Pass user must have registered successfully.

• Post-Condition

None.

• EXTERNAL POINTS

None

RENEWAL

• Brief Description

This use case describe how pass users will able to increase the time validity of their pass.

• Actor

1. Pass users

• Flow of events

o Basic Flow

This use case allows the end user to increase time validity of pass into the software

- The pass users can update the time validity of the pass by selecting the month and from-to date.
- After selecting next button our pass validity will increase from-to date.
- o Alternative flow

None

• Special Requirement

None

• Pre-Condition

The pass user must have login successfully.

• Post-Condition

Validity will increase max for one month.

• EXTERNAL POINTS

None

VIEWING PASS HISTORY

• Brief Description

This use case describe how pass users will able to see their pass usage history in the software.

• Actor

1. Pass users

• Flow of events

o Basic Flow

This use case allows the end user to see the usage of their pass in the software

• The pass users can see their pass history in which they can see when on what time their pass is used on which buss.

- After clicking on the update button then updated data will be save.
- o Alternative flow

None

• Special Requirement

None

• Pre-Condition

Pass user must have login successfully.

• Post-Condition

None.

• EXTERNAL POINTS

None

FEEDBACK

• Brief Description

This use case describe how pass users will give their reviews on the software.

Actor

- 1. Pass users
- 2. Bus department admin
- 3. Organization

Flow of events

o Basic Flow

This use case allows the end user to give their reviews on the software

- The end users can tell us how their experience is on the software and enter the details how we can improve our software.
- After submitting the feedback will be reported to the response team.
- o Alternative flow

None

• Special Requirement

None

• Pre-Condition

End user must have one month experience.

• Post-Condition

The response team will try to improve the software.

• EXTERNAL POINTS

None

NOTIFICATION

• Brief Description

This use case describe how pass users will get the notification in the software.

Actor

1. Pass user

2. Bus department admin

• Flow of events

o Basic Flow

This use case allows the end user to receive notification on the software

- The Bus department admin will update notification on the software.
- After updating the notification on the software the organization and pass user will receive the notification.
- o Alternative flow

None

• Special Requirement

None

• Pre-Condition

None.

• Post-Condition

None.

• EXTERNAL POINTS

None

SEARCH BUS ROUTES AND FOVOURITES

• Brief Description

This use case describe how pass users will able to search the location and bus routes on the software.

Actor

1. Pass user

Flow of events

o Basic Flow

This use case allows the pas user to search routes on the software

- The pass user will enter the bus stop name or location and know all the details related to bus such as timing, schedule and upcoming bus stops.
- You can bookmark your regular bus routes and save them in favourites.
- o Alternative flow

None

• Special Requirement

None

• Pre-Condition

None.

• Post-Condition

You can bookmark the bus routes.

PROJECT METRICS

These are metrics that pertain to Project Quality. They are used to quantify defects, cost, schedule, productivity and estimation of various project resources and deliverables.

The intent of project metrics is twofold. First, these metrics are used to minimize the development schedule by making the adjustments necessary to avoid delays and mitigate potential problems and risk. Second, project metrics are used to access product quality on an ongoing basis and when necessary, modify the technical approach to improve quality.

Function-Oriented Metrics

Yes (4)

Function-oriented software metrics use a measure of the functionality delivered by the application as a normalization value. The most widely used function-oriented metric is the function point (FP). Computation of the function point is based on characteristics of the software's information domain and complexity.

Does the system require reliable backup and recovery? Yes (4) Are specialized data communications required to transfer information to or from the application? Yes (3) Are there distributed processing functions? Yes (2) Is performance critical? Yes (3) Will the system run in an existing, heavily utilized operational environmental? Yes (2) Does the system require online data entry? Yes (5) Does the online data entry require the input transaction to be built over multiple screens or operations? Yes (5) Are the ILFs updated online?

Are the inputs, outputs, files, or inquiries complex? Yes (3)

Is the internal processing complex? Yes (3)

Is the code designed to be reusable?

Yes (3)

Are conversion and installation included in the design?

Yes (2)

Is the system designed for multiple installations in different organizations? Yes (2)

Is the application designed to facilitate change and ease of use by the user? Yes (4)

Information Domain Value	Count		Weighting factor				
			Simple	Average	Complex		
External Inputs(EIs)	47	*	36*3	11*4	6	=	152
External Output(EOs)	25	*	16*4	8*5	1*7	=	111
External Inquiry(Es)	2	*	3	2*4	6	=	8
Internal Logical Files(ILFs)	18	*	8*7	8*10	2*15	=	166
External Interface Files(EIFs)	8	*	5	7	8*10	=	80
Count Total		•		,	•	ı	517

```
FP= count total* [0.65+0.01* \Sigma \text{ (Fi)}]
= (517)* [0.65+0.01*(45)]
= 568.7
```

SOFTWARE RISKS

- 1. Project Risk:-It threatens the project plan. That is, if project risk become real, it is likely that the project schedule will slip and that cost will increase. Project risk identify potential budgetary, personnel requirement, stakeholder, and requirement problems and their impact on the software project.
- 2. Technical Risk: It threatens the quality and timeliness of the software to be produced. If a technical risk becomes reality, implementation may become difficult or impossible. Technical risks identify potential design, implementation, interface, verification and maintenance problems.
- 3. Project or the product. Candidates for the top five business risk are:
 - 1. Market Risk
 - 2. Strategic Risk
 - 3. Sales Risk
 - 4. Management Risk
 - 5. Budget Risk

RMMM PLAN

A risk management strategy can be defined as a software project plan or the risk management steps. It can be organized into a separate Risk Mitigation, Monitoring and Management Plan. The RMMM plan documents all work performed as part of risk analysis and is used by the project manager as part of the overall project plan.

Teams do not develop a formal RMMM document. Rather, each risk is documented individually using a risk information sheet. In most cases, the RIS is maintained using a database system, so that creation and information entry, priority ordering, searches, and other analysis may be accomplished easily.

Once RMMM has been documented and the project has begun, risk mitigation and monitoring steps commence. As we have already discussed, risk mitigation is a problem avoidance activity. Risk monitoring is a project tracking activity with three primary objectives:

- (1) To assess whether predicted risks occur.
- (2) To ensure that risk aversion steps defined for the risk are being properly applied; and
- (3) To collect information that can be used for future risk analysis.

RISK ANALYSIS

Risk analysis is the review of the risks associated with the particular event or action. It is applied to projects, information technology, security issues and any action where risks may be analyzed on a quantitative and qualitative basis.

Although a formal risk management process cannot prevent risk from occurring, such a practice can help organization minimize the impact of their project risks.

Q1:-Have top software and customer manages formally committed to support the project? Answer:-yes

Q2:-Are end users enthusiastically committed to the project and the system/product to be built? Answer:-yes

Q3:-Are requirements fully understood by the software engineering team and its customer? Answer:-yes

Q4:-Have customer been involved fully in the definition of requirements? Answer:-yes

Q5:-Do end users have realistic expectations? Answer:-yes

Q6:-Is the project scope stable?

Answer:-yes

Q7:-Does the software engineering team have the right mix of skills? Answer:-yes

Q8:-Are project requirements stable?

Answer:-yes

Q9:-Does the project team have experience with the technology to be implemented?

Answer:-No

Q10:-Is the number of people on the project team adequate to the job?

Answer:-yes

Q11:-Do all customer/user constituencies agree on the importance of the project and on the requirements for the system/product to be built?

Answer:-yes

RISK TABLE

RISKS	RISKS CATEGORY		IMPACT
Lack of users	BR	5%	3
Overloading due to	TR	30%	4
lot of users			
Server system crash	TR	10%	1
Error in coding schemes	TR	7%	3
schemes			
Improper budget estimation	BR	10%	2
estimation			
Performance risk	TR	20%	4
Underutilization of	PR	30%	3
resources			
Conflicting	OPERATIONAL	10%	2
priorities	RISK		
Change in Gov.	PR	2%	1
strategies			

Additional	PR	8%	2
requirements			
Implementation	TR	2%	4
delay			

<u>Impact values:</u>

1. Catastrophic

2. Critical

3. Marginal

4. Negligible

BR-BUSSINESS RISK TR-TECHNICAL RISK PR-PROJECT RISKS

TESTING

Software testing is the evaluation of the software against requirement gathered from user and system specifications. Testing is conducted at the phase level in software development life cycle or at module level in program code. Tests can be conducted based on two approaches: Functional testing and implementation testing. When functionality is being tested without taking the actual implementation in concern it is known as black box testing. The other one is white box testing where not only the functionality is tested, but the way it is implemented is also analyzed.

WHITE BOX TESTING

White box testing is also called glass box testing, is the test case design philosophy that uses the control structure described as part of component-level design to derive test cases. Using white box testing methods, you can derive test case that

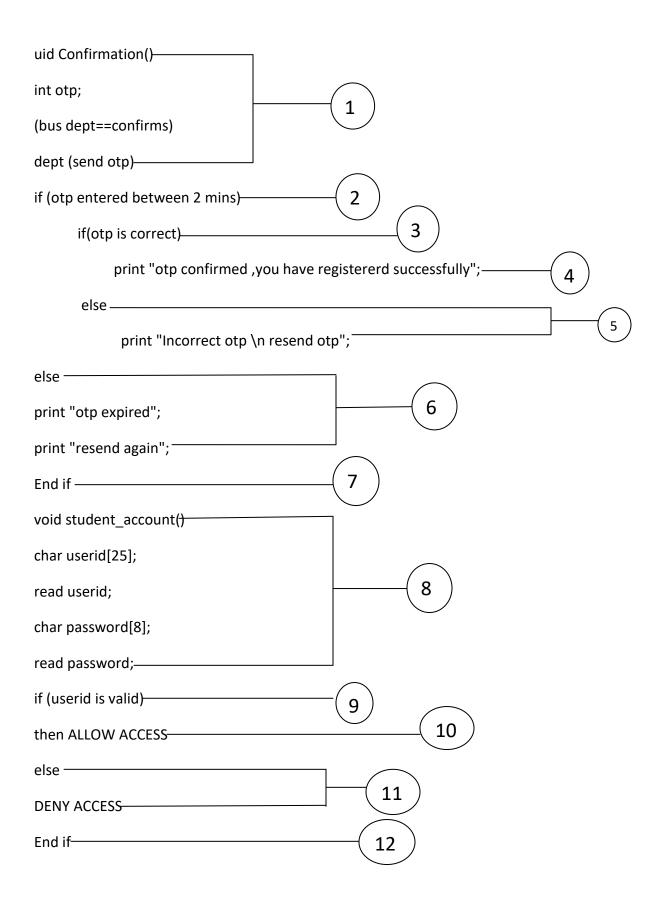
- Guarantee that all independent path is executed At least once.
- Exercise all logical decisions on their true and false sides.
- Execute all loops at their boundary and within their operational bounds
- Exercise internal data structure to ensure their validity.

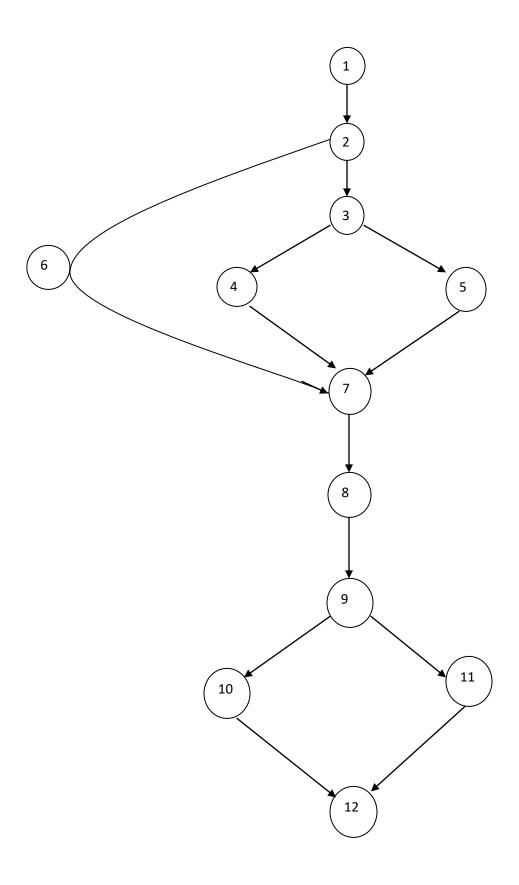
BASIS PATH TESTING

Basis path testing is a white box testing technique first proposed by Tom McCabe. The basis path method enables the test case designer to derive a logical complexity measure of a procedural design and use this measure as a guide for defining a basis set of execution paths. Test case derived to exercise the basis set are guaranteed to execute every statement in the program at least one time during testing.

Pseudo code

```
uid Confirmation ()
int otp;
(bus dept==confirms)
dept (send otp)
if (otp entered between 2 mins)
      if(otp is correct)
            Print "otp confirmed ,you have registererd successfully";
       else
             print "Incorrect otp \n resend otp";
else
print "otp expired";
print "resend again";
End if
void student_account()
char userid[25];
read userid;
char password[8];
read password;
if (userid is valid)
then ALLOW ACCESS
else
DENY ACCESS
```





Independent paths

Path1: 1-2-3-4-7-8-9-10-12

Path2: 1-2-3-4-7-8-9-11-12

Path3: 1-2-3-5-7-8-9-11-12

Path4: 1-2-6-7

Predicate node=3

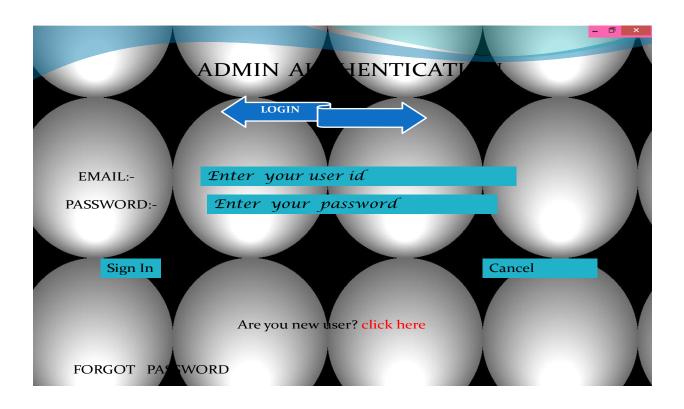
Cyclomatic complexity = Number of independent path = 4

Cyclomatic complexity = Number of Region = 4

Cyclomatic complexity = predicate nodes + 1 = 3+1=4

Cyclomatic complexity, V (G) =E-N+2= 14-12+2=4

SCREENS

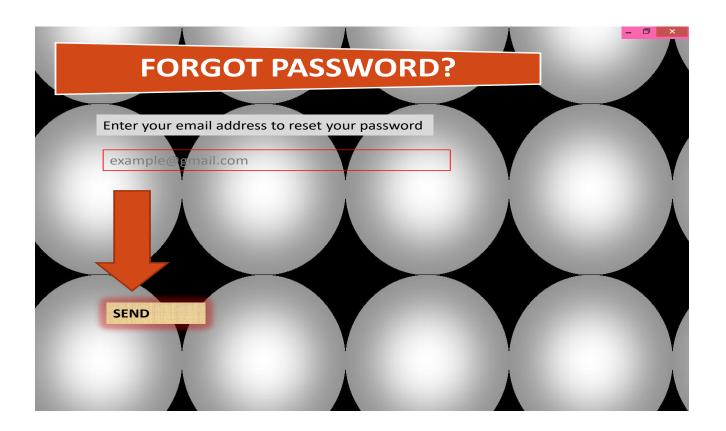


External Inputs (EIs) =2

External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0



_ 🗇 ×

NEW PASSWORD

CONFIRM PASSWORD

CHANGE MY PASSWORD

External Inputs (EIs) =2

External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1

BUS PASS REGISTRATION

FIRST NAME
LAST NAME
PHONE NO.
EMAIL ID
PASSWORD
ADDRESS
ORGANISATION
DOB
GENDER

MALE
FEMALE

AADHAR CARD

USER'S IMAGE

CHOOSE FILE

NEXT

- 🗇 ×

External Inputs (EIs) =11

External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1



THE FILE WILL BE UPLOADED TO THE https://docs.busifysystem.com/docs/

OR

BROWSE THE SERVER

BROWSE

External Inputs (EIs) =1

External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1

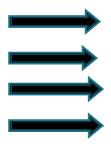


External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0

RECHARGE THROUGH



Google Pay
Paytm
Pay Pal
Master Card

External Inputs (EIs) =0

External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1



External Output (EOs) =0

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0

EDIT YOUR PROFILE



CHANGE YOUR PROFILE

NAME:-

LOCATION:-

PHONE NO.:-

EMAIL ID:-

PASSWORD CHANGE:-

External Inputs (EIs) =5

External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0

YOU HAVE A NEW NOTIFICATION

*YOUR PASS IS GOING TO EXPIRE

*AMOUNT HAS EXCEEDED THE LIMIT

External Inputs (EIs) =0

External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0

BUS ROUTES....



PRAGATI MAIDAAN

BUS ROUTE NO.	STARTING	END	BOOKMAR K	TIMING
2	INDRAPURI	SHAHDARA BORDER	◆	6:00AM
3	PRAGATI MAIDAAN	SHAKTI NAGAR		7:30AM

External Inputs (EIs) =1

External Output (EOs) =1

External Inquiry (Es) =1

Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =1

Internal Logical Files (ILFs) =1

FAVOURITES

SOURCE TO DESTINATION

ROUTES HAVE BEEN BOOKMARKED

3-PRAGATIMAIDAN-SHAKTINAGAR 729-MARI GATE -KAPASEEDA BORDER

External Inputs (EIs) =0

External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1

VIEW PASS HISTORY

NO.	FROM DATE	TO DATE	BUS TYPE	PASS TIME PERIOD	FROMPLA CE	TO PLACE	STATUS
1	20/3/20	20/12/20	LOCAL	MONTHLY	PUNJABIBA GH	MEHSERM A	APPROVED
2	20/3/20	20/12/20	LOCAL	MONTHLY	ROHINI	KAROL BAGH	APPROVED

External Inputs (EIs) =0

External Output (EOs) =0

External Inquiry (Es) =0

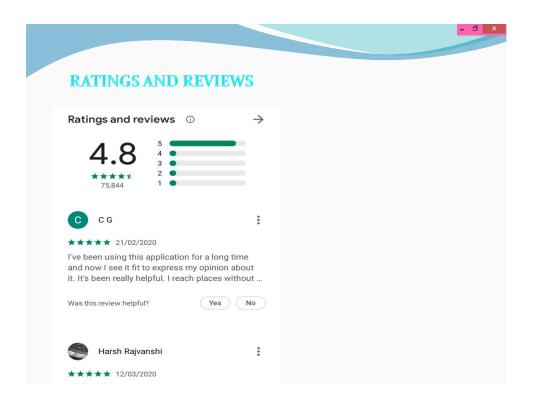
Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =0

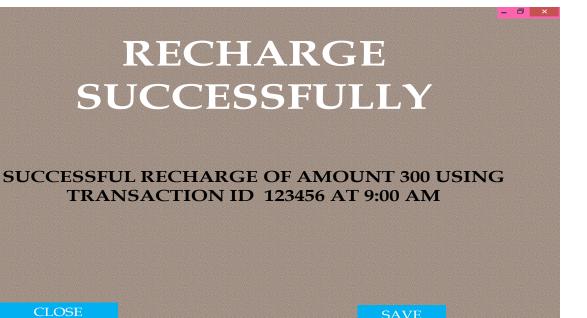
Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0

External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1

IRIEGISTIRATIION

FIRST NAME

LAST NAME

PHONE NO.

EMAIL ID

ORGANIZATION

ADDRESS

DOCUMENTS

ID PROOF

ADDRESS PROOF

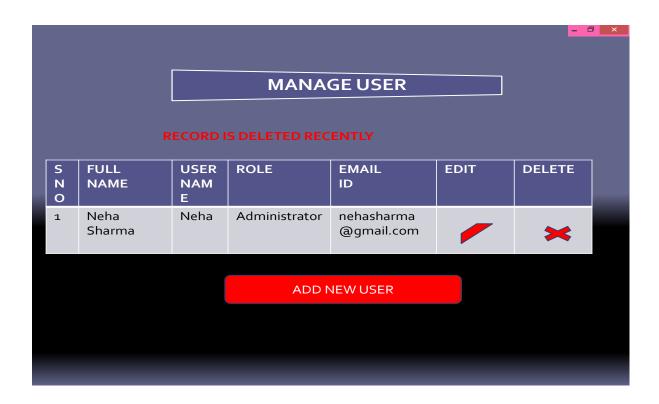
ADHAAR CARD

External Inputs (EIs) =8

External Output (EOs) =1

External Inquiry (Es) =0

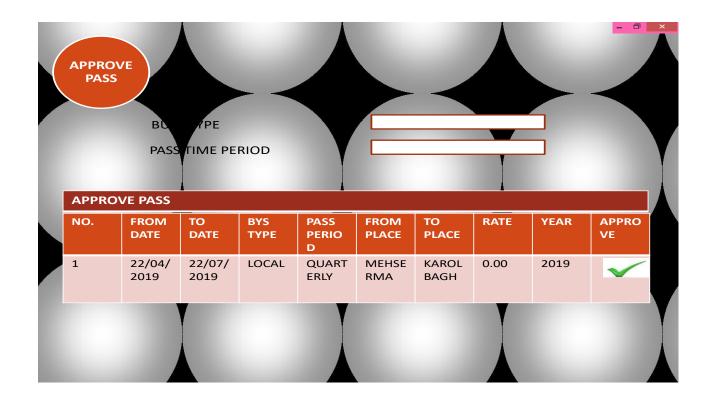
Internal Logical Files (ILFs) =1



External Output (EOs) =1

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0



External Output (EOs) =0

External Inquiry (Es) =0

Internal Logical Files (ILFs) =1



External Output (EOs) =0

External Inquiry (Es) =0

Internal Logical Files (ILFs) =0

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- Roger S. pressman, Software engineering A. practitioner's approach, Fifth Edition
- Introduction to Software engineering by K>K. Aggarwal and Yogesh Singh