SOFTWARE DEVELOPMENT LAYOUT

BANK MANAGEMENT SYSTEM

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Aim: Why make a software engineering project on banking?

To develop a software for solving financial applications of a customer in banking environment in order to nurture the needs of an end banking user by providing various ways to perform banking tasks. Also to enable the users workspace to have additional functionalities which are not provided under a conventional banking software.

Banking Management System thus ensures smooth operation of the Real-Estate management tasks as well as keep the information about the employees and their salary.

Bank is the place where customers feel the sense of safety for their property. In the bank, customers deposit and withdraw their money. Transaction of money also is a part where customer takes shelter of the bank. Now to keep the belief and trust of customers, there is the positive need for management of the bank, which can handle all this with comfort and ease. Smooth and efficient management affects the satisfaction of the customers and staff members, indirectly. And of course, it encourages management committee in taking some needed decision for future enhancement of the bank. Now a days, managing a bank is tedious job upto certain limit. So software that reduces the work is essential. Also today's world is a genuine computer world and is getting faster and faster day-by-day. Thus, considering above necessities, the software for bank management has became necessary which would be useful in managing the bank more efficiently.

-Our software will perform and fulfill all the tasks that any customer would desire.

-Our motto is to develop a software program for managing the entire bank process related to customer accounts, employee accounts and to keep each every track about their property and their various transaction processes efficiently.

-Hereby, our main objective is the customer's satisfaction considering today's faster world.

In the recent years, computers are included in almost all kind of works and jobs everyone come across in the routine. The availability of the software's for almost every process or every system has taken the world in its top-gear and fastens the day-to-day life. So, we have tried our best to develop the software program for the Bank Management System where all the tasks to manage the bank system are performed easily and efficiently. It manages all the transactions like new account entry, deposit as well as withdraw entry, transaction of money for various processes, loan entry, managing bills cash or cheque, etc. Thus, above features of this software will save transaction time and therefore increase the efficiency of the system. Requirements definition and management is recognized as a necessary step in the delivery of successful system s and software projects, discipline is also required by standards, regulations, and quality improvement initiatives. Creating and managing requirements is a challenge of IT, systems and product development projects or indeed for any activity where you have to manage a contractual relationship. Organization need to effectively define and manage requirements to ensure they are meeting needs of the customer, while proving compliance and staying on the schedule and within budge. The impact of a poorly expressed requirement can bring a business out of compliance or even cause injury or death. Requirements definition and management is an activity that can deliver a high, fast return on investment.

Requirement analysis and specifiaction

Fucntional requirment

- **Register a new customer**
  Input: the required data for requirement of a new customer in the bank (like name, address, phone number and id proof).

  Output: a success message will be given on successful registration or else an error confirmation will be given

- **View deatail of an account**
  Input: user id, account number.

  Output: on successful verification, the details of the respective entities are displayed or else an error confirmation will be given.

- **Create a fd**
  Input: user id, account number, income proff and fd tenure.

  Ouput: if detail are correct as per requiement then fd will be create oherwise erroe confirmation will be given.

- **Create a draft**
  Input: user id, account number, account number of reciever.

  Output: if the detail are correct and have sufficient balance in account then draft will be created ohterwise error confirmation will be given.

- **Apply for loan**
  Input: user id, account number, income and address proof, business detail, collateral.

Output: if the detail are correct and verified by branch manager the loan will be sanction oherwise feedback will be given.

- **Apply for locker**
  Input: user id, account number, locker specification

  Output: if the detail are correct and locker is available as per specification given then locker will be issued ohterwise a feedback will be given.

- **Transaction**
  Input: user id, account number, phone number

  Output: on the successful verification, amount will be given oherwise feedback will be given.

Other non-functional requirement

Performance requirement:

The database can store detail of up to about 10000 accounts, but that can vary according to bank need and would depends on data storage capacity of the server and not on database.

The response time depends on size of database on the size of database due to searching process, but still response will be just 3 sec.

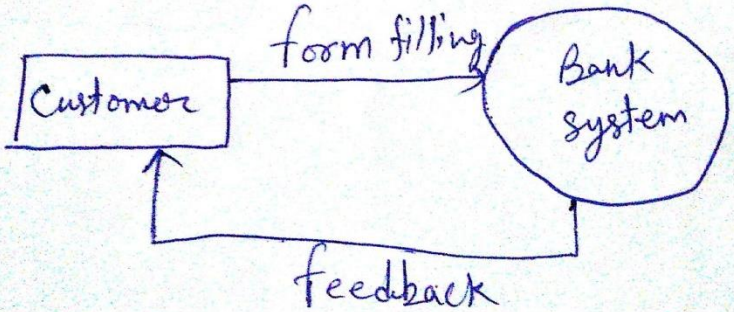
Security requirement:

The central of the server comprises of mysql server 5.2.To access the server you have to enter authentication password which is protected by WPA2 security and database backup is stored at cloud every month.

System specification:

- **Hardware requirements**
  1. Minimum 1ghz processor/dual core processor
  2. Minimum 512 mb of ram
  3. Minimum 2gb of hard-disk
  4. Optical mouse
  5. Super vga(800x600) or higher colour resolution with 256k colours
- **Software requirement**
  1. Operating system-windows xp
  2. Linux operating not supported.
  3. Sql must be installed for databases handling.
  4. Front end-html, android ,php.
  5. Back end-java, sql.

Level - 0



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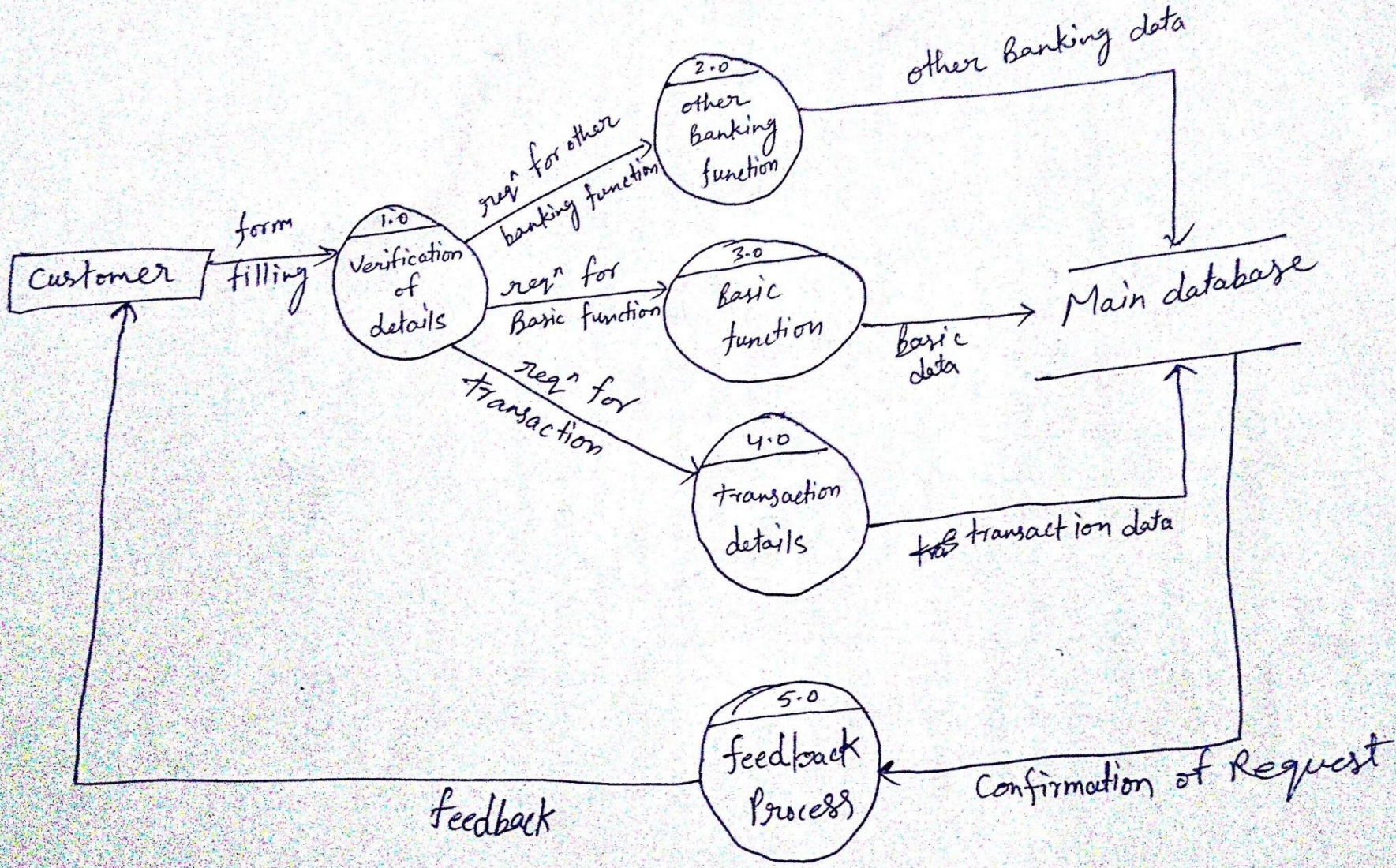

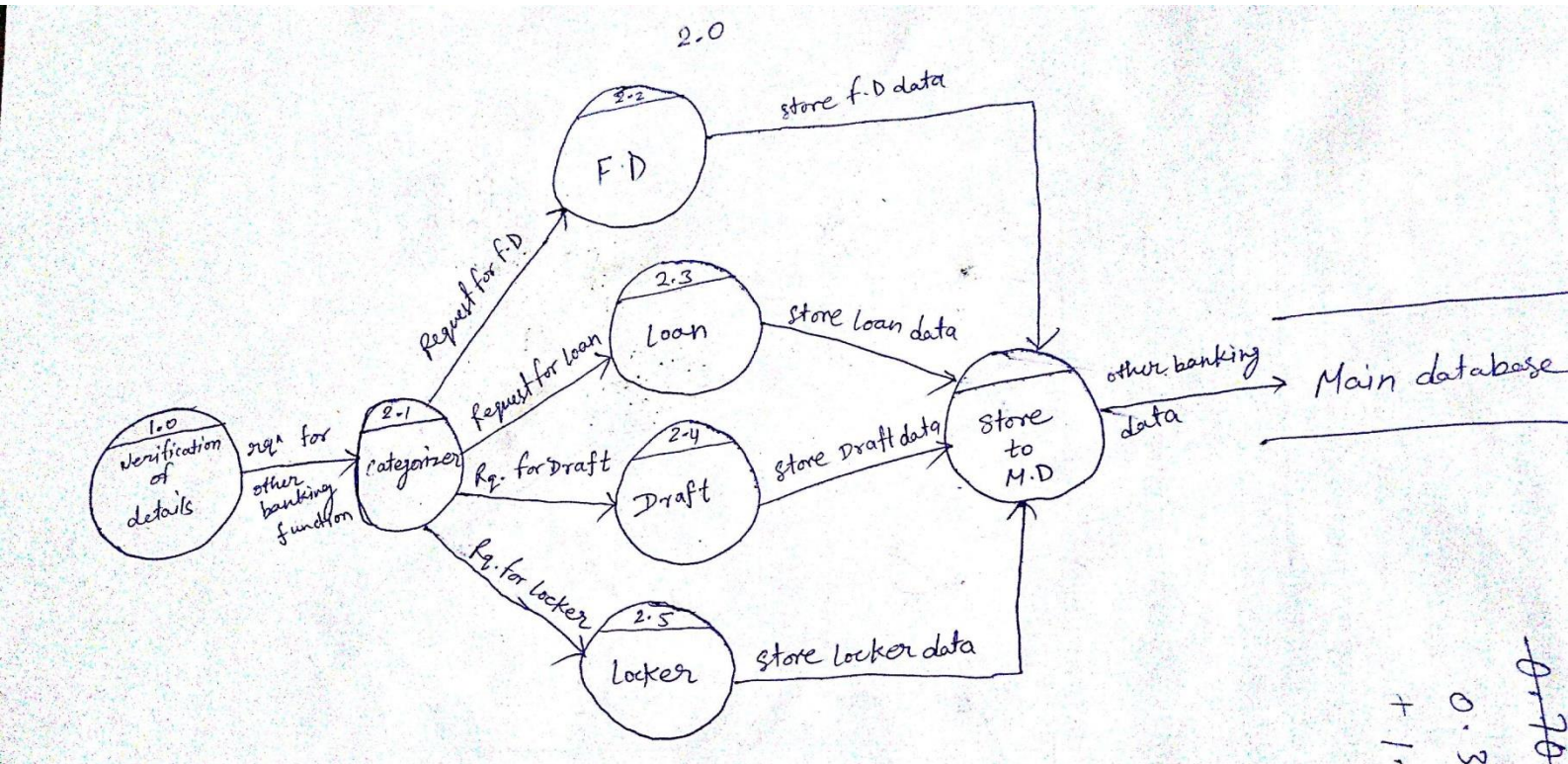

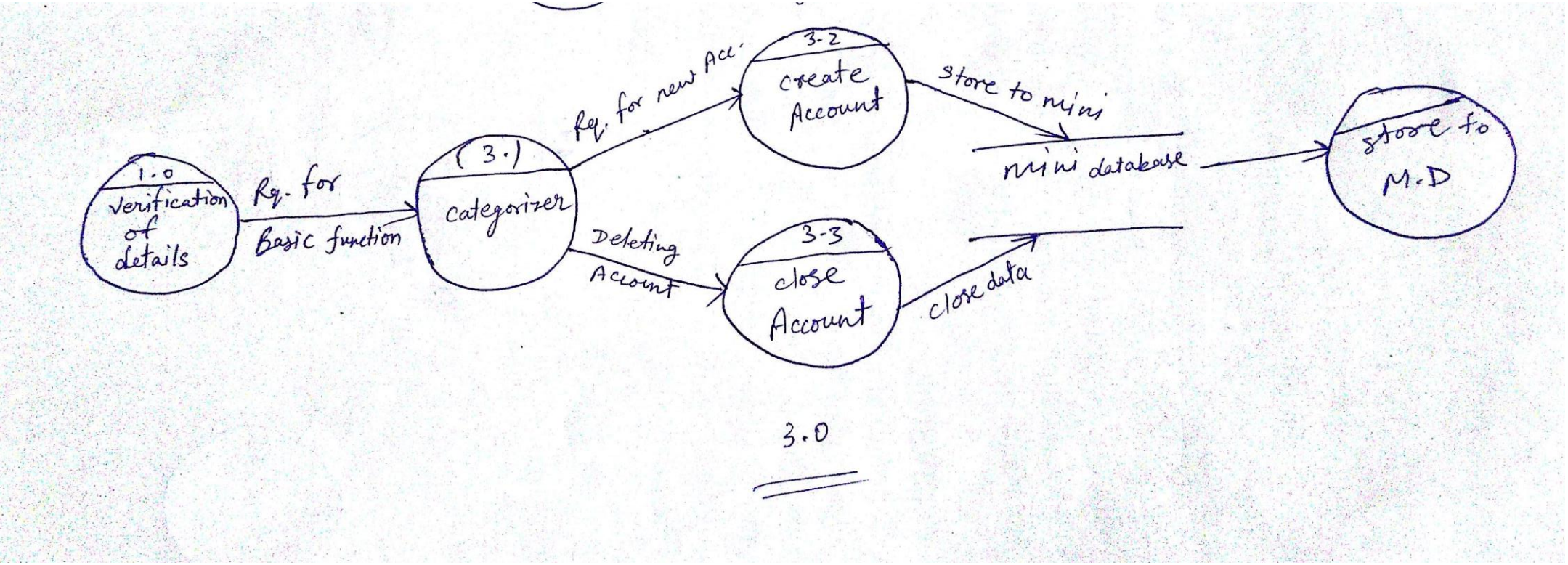

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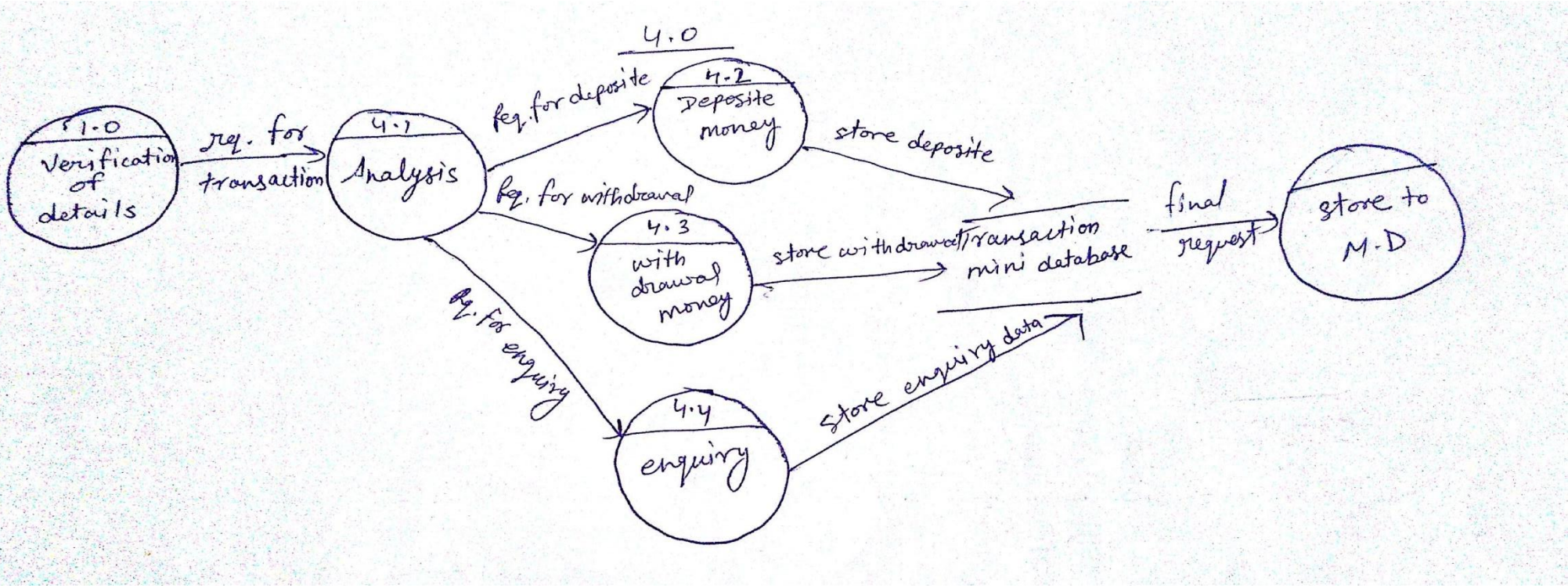

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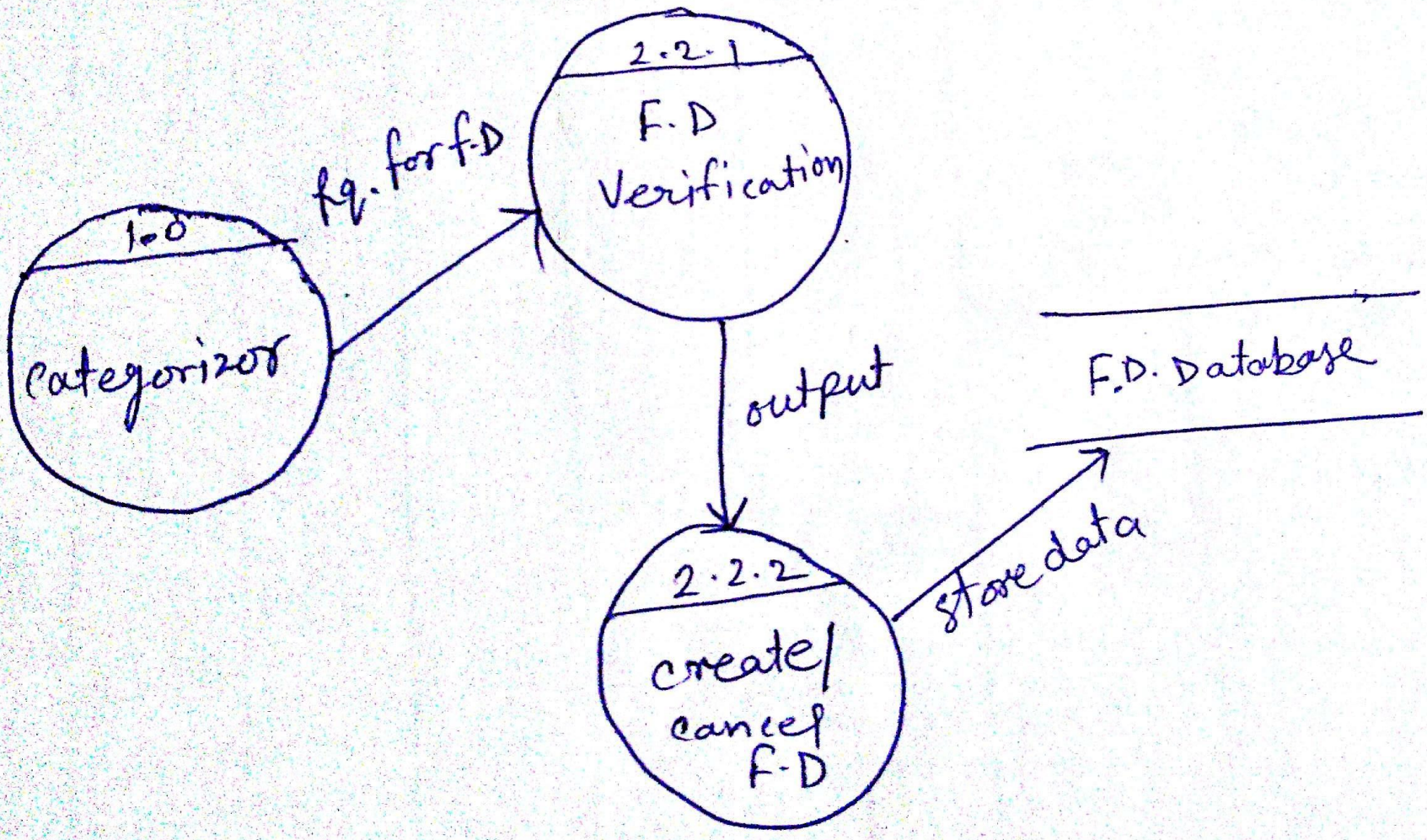

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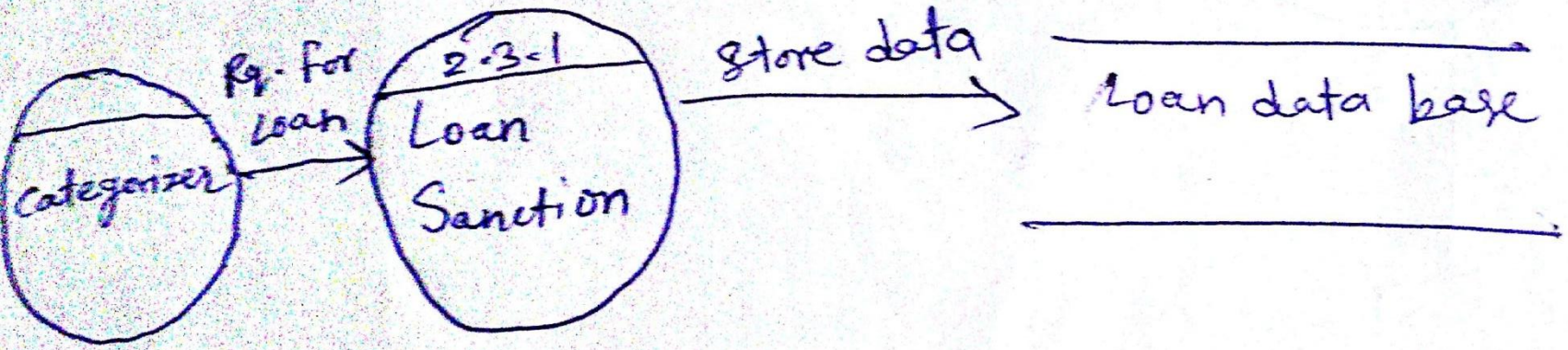

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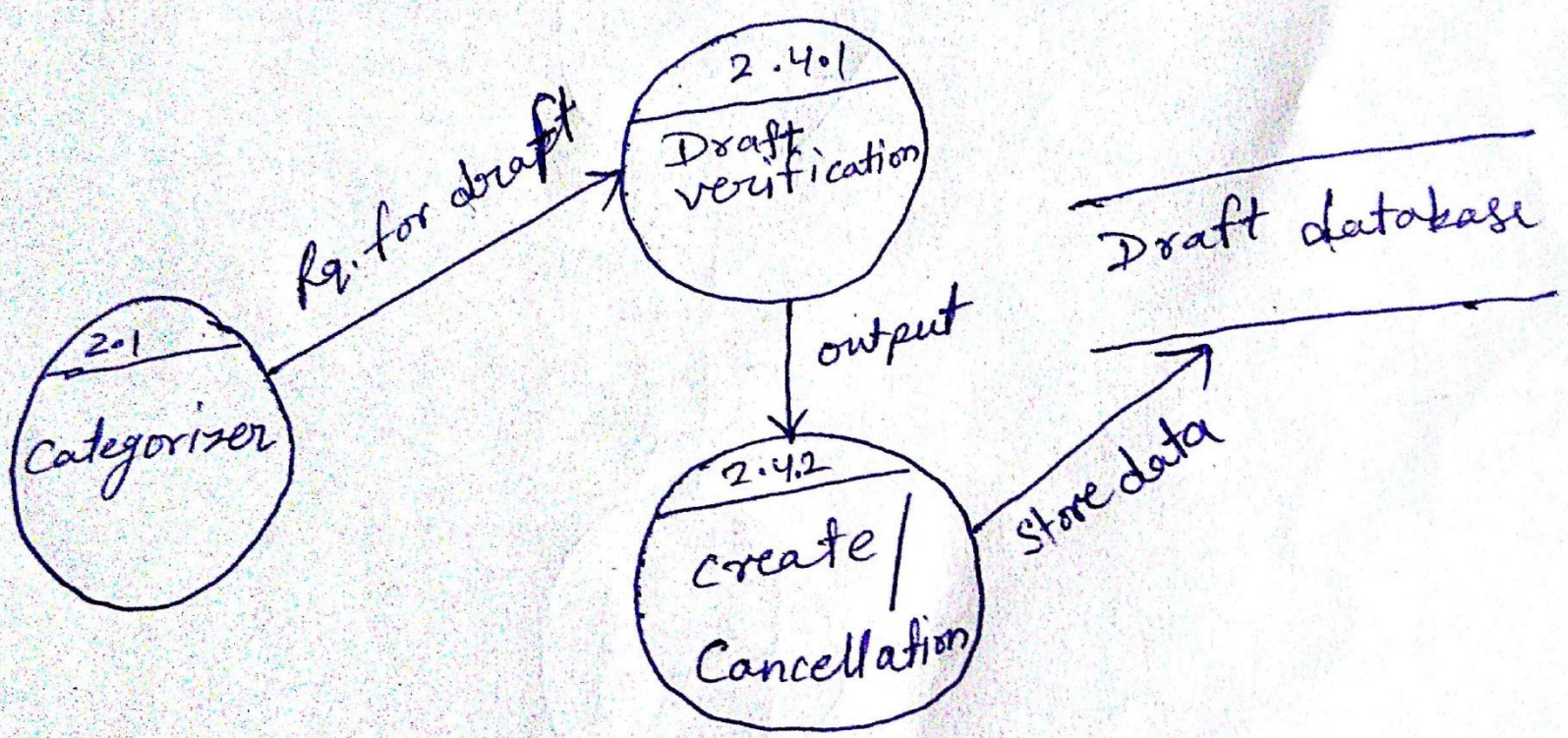


DATA DICTIONARY

1) CUSTOMER NAME=[FIRST_NAME+MIDDLE_NAME+LAST_NAME]|

2) CONTACT=[PHONE_NUMBER+MOBILE NUMBER]|

3) ACCOUNT_DETAILS=[CUSTOMER_ID+[CUSTOMER_NAME]|+ACCOUNT_NUMBER+
ACC_ TYPE+BALANCE]|

4) FD_DETAIL=[CUSTOMER_ID+[CUSTOMER_NAME]|+FD_NUMBER+FD_AMOUNT+
FD_CREATION_DATE+FD_MATURITY_DATE+FD_TIMEPERIOD]|

5) LOAN_DETAIL=[CUSTOMER_ID+[CUSTOMER_NAME]|+LOAN_NUMBER
+LOAN_AMOUNT+LOAN_CREATION_DATE+LOAN_MATURITY_DATE+LOAN_TIMEPERIOD
]|

6) LOCKER_DETAIL=[CUSTOMER_ID+[CUSTOMER_NAME]|
+LOACKER_NUMBER+LOCKER_AMOUNT+
LOCKER_CREATION_DATE+LOCKER_SIZE+LOCKER_INTEREST]|

PROCESS MODEL

We are using spiral model in our project because of the following resons:

1. Reliability requirement, so that data can be used on multiple platform.
2. Reuse of component.
3. Tight project scheduling.
4. Requirement change frequently, so that if user changes the requirements at time of development of project, so that we able to makes changes in the project .

COMPUTING FUNCTION POINT

CALCULATING COMPLEXITY ADJUSTMENT FACTOR

	GRADE POINT
DOES THE SYSTEM REQUIRE RELIABLE BACKUP AND RECOVERY?	4
IS DATA COMMUNICATION REQUIRED?	4
ARE THERE DISTRIBUTED PROCESSING FUNCTION?	3
IS PERFORMANCE CRITICAL?	4
WILL THE SYSTEM RUN IN AN EXISITING, HEAVILY UTILIZED OPERATIONAL ENVIROMENT?	4
ARE THE INPUTS, OUTPUT, INQUIRES COMPLEX?	2
IS THE INTERNAL PROCESSING COMPLEX?	3
IS THE CODE DESIGNED TO BE REUSABLE?	3
ARE CONVERSION AND INSTALLATION INCLUDED IN THE DESIGN?	2
IS THE SYSTEM DESIGNED FOR MULTIPLE INSTALLATIONS IN DIFFERENT ORGANISATION?	0
IS THE APPLICATION DESIGNED TO FACILITATE CHANGE AND EASE OF USER BY EMPLOYEE?	3
DOES THE SYSTEM REQUIRE ON-LINE DATA ENTRY?	3

$$\sum fi = 35$$

CALCULATION OF FUNCTION POINT:

MEASUREMNT PARMETER	COUNT	WEIGHTING FACTOR (AVERAGE)	WEIGHTING COUNT
NUMBER OF USER INPUTS	20	4	80
NUBER OF USER OUPUT	15	5	75
NUBER OF USER INQUIRIES	2	4	8
NUBER OF USER	5	10	50
NUBER OF USER	3	7	21
		TOTAL COUNT =	224

FUNCTIONAL POINT = TOTAL COUNT X (0.65 + 0.01 X (∑ fi))
= 224 X (0.65 + 0.01 X 35)
= 224

The organizational average productivity for system of this is 8 FP/pm. Based on a burdened labor rate of $12000 per month, the cost per FP is approximately is $1500. Based on the FP estimate and the historical productivity data, the total estimated project cost is $336,000 and the estimated effort is 28 person-months.

RISK TABLE

RISK	CATEGORY	PROBABILITY (%)	IMPACT
SERVER BREAKDOWN	TE	60	1
FUNDING WILL LOST	CU	35	2
LARGE NO. OF USER THAN PLANNED	PS	30	2
CUSTOMER WILL CHANGE REQUIREMENT	PS	20	3
DELIVERY DEADLINE WILL BE TIGHTENED	BU	20	3

IMPACT TABLE:-

CATEGORY	VALUE
CATASTROPHIC	1
CRITICAL	2
MARGINAL	3
NEGLIGIBLE	4

CATEGORY:-

CATEGORY NAME	CATEGORY
CU	CUSTOMER MAY CHANGE REUIREMENT
TE	TECHNOLOGICAL RISK
BU	BUSINESS RISK
PS	PROJECT SIZE RISK

RISK: **SERVER BREAKDOWN**

MITIGATION

This risk can be arises when there is some hardware problem and due to some external problem. This type of risk is unavoidable and it can cause a failure of software or data loss. So, to avoid this type of risk, what we can do is take to backup of data on weekly basis saving over cloud as well as use various security technique such as IP filtering technique that doesn't enable a particular IP address to open the site more than once.

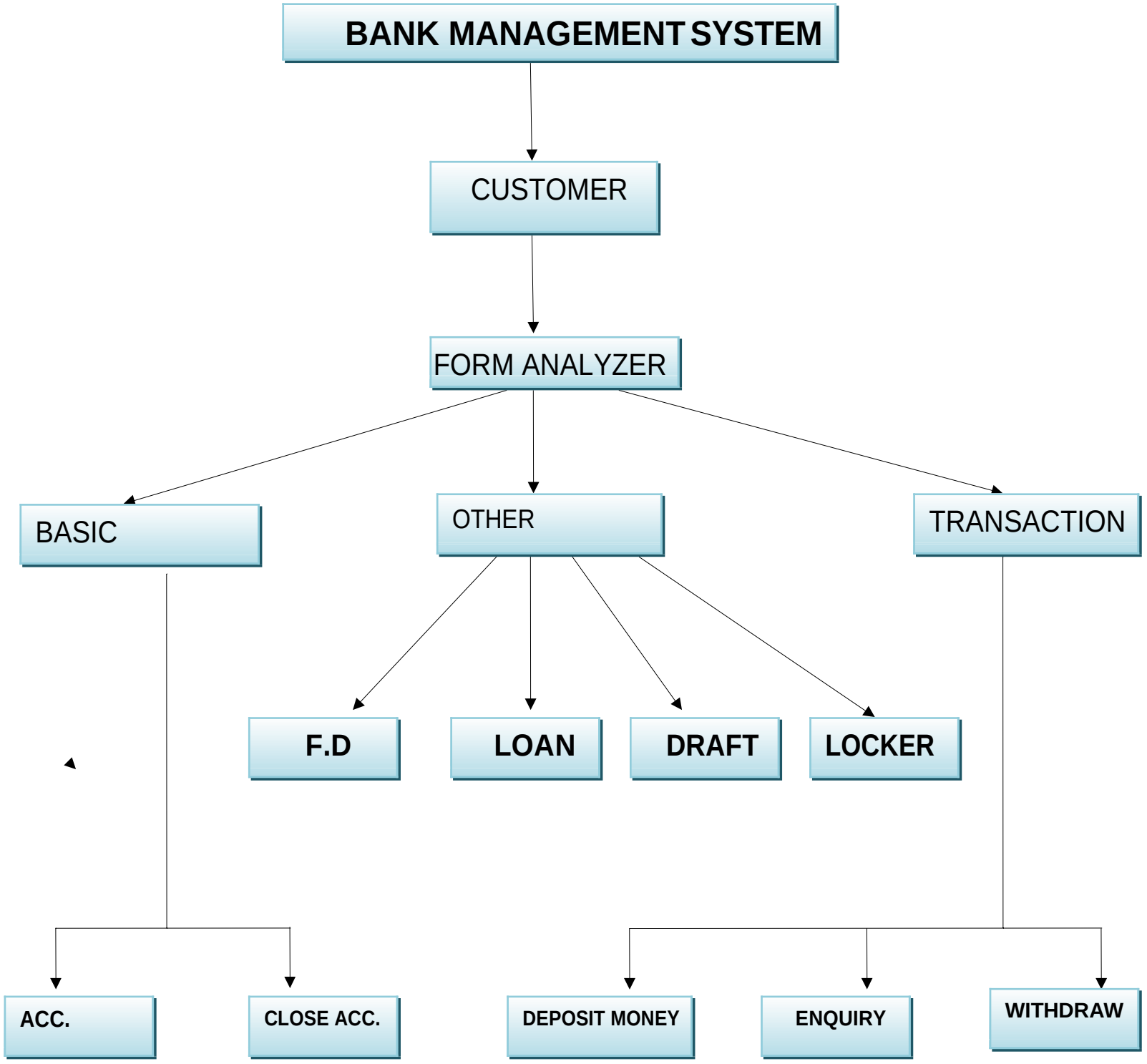
MONITERING

When working on the product or documentation, the staff member or employee should always be aware of the stability of the computing environment they're working in. Any changes in the stability of the environment should be recognized and taken seriously.

MANAGEMENT

If server get breakdown due to some problem .The development team should turn off all sites, so that there is no security threat or data loss during this time period while the server is shut down .After shutting down they should replace the server with the backup server on which the data is backed up. After the main server is fixed, shutting down again the temporary server should be replaced with the main server that is fixed now and turn on the working software.

ARCHITECTURAL DESIGN



DATA BASE DESIGN

CUSTOMER DETAILS

Attribute Name	Type	Key/Constraints	Default Value	Description
Cld	Varchar(15)	Primary Key	NULL	Customer Id
CName	Varchar(10)	-	NULL	Customer name
Phone	Integer	-	NULL	Phone number
Addr	Varchar(50)	-	NULL	Address
Pincode	Integer	-	NULL	Pincode

BANK ADMIN DETAILS

Attribute Name	Type	Key	Default Value	Description
Bld	Integer	Primary key	-	Bank Admin ID
Phone	Integer	-	NULL	Phone Number
cid	Integer	FOREIGN KEY	-	Customer ID

Account Details

Attribute Name	Type	Key/Constraints	Default Value	Description
AccNo	Integer	Primary Key	-	Account Number
cId	Integer	Foreign Key	-	Customer Id
Type	Char(20)	-	NULL	Type of account
Balance	Integer	-	NULL	Phone number

Fixed Deposit Details

Attribute Name	Type	Key/constraints	Default Value	Description
FD_ID	Integer	Primary Key	-	FD Number
AccNo	Integer	Foreign Key	-	Account Number
Famount	Integer	-	NULL	Fixed deposit amount
FInterest	Integer	-	NULL	Fixed Deposit interest
time	Integer	-	NULL	Fixed Deposit Time period
Int_date	Integer	-	NULL	Fd creation date
Mtr date	Integer	-	NULL	Fd maturity date

loan details

Attribute Name	Type	Key/constraints	Default Value	Description
Loan_Id	Integer	Primary Key	-	Loan number
AccNo	Integer	Foreign key	-	Account Number
Loan_amt	Integer	-	NULL	Loan amount
Linterest	Integer	-	NULL	Loan Interest rate
Tenure	Integer	-	NULL	Loan Time period
Loan int date	Integer	-	NULL	Loan initiation date
loan_exp_date	Integer	-	NULL	Loan expiration date

locker details

Attribute Name	Type	Key/constraints	Default Value	Description
Loacker_id	Integer	Primary key	-	Locker number
AccNo	Integer	Foreign key	-	Account Number
Locker size	Integer	-	NULL	Locker size
Locker_int	Integer	-	NULL	Locker Interest

PSEUDO CODE

1.Do while loop

2.Enter account no.

3.Search database

4.If(account no. Matches)

5.Print (minor details such as name and account type)

6.Break statement

Else

7. continue do while loop

8.Print (choose option) such as i)withdrawal ii)Deposite iii) Inquery

9.Enter option

10.If(withdrawal)

11.Enter amount

12.Check Account enquery

13.If(Balance is greater than amount)

14.Call pay_money function

Else

15. Print (Error message)

Else

16 if (Deposite)

Enter amount

16.If(Amount is greater than limit)

17.Print (Error message)

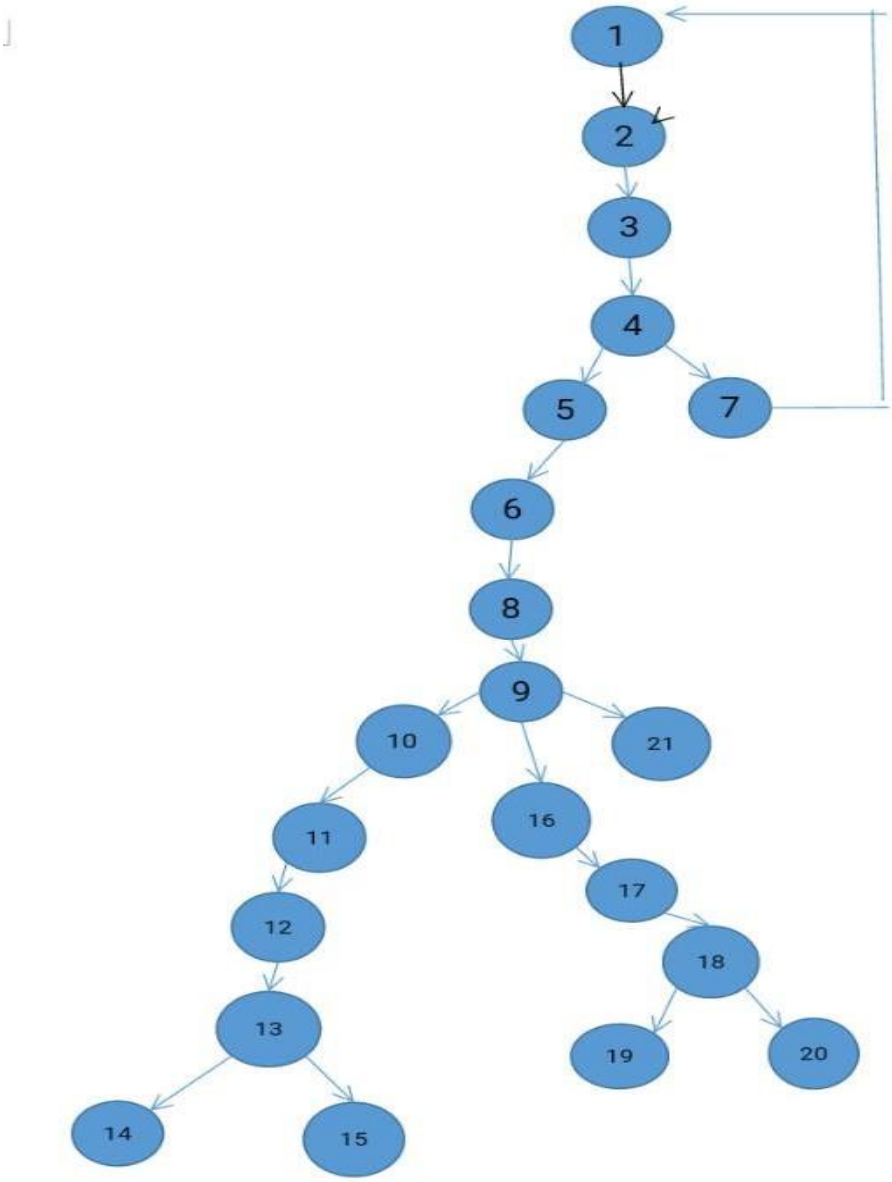
Else

18.call accept_payment function

Else

19. call Account_inquery function

Control Flow Diagram



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Independent path:

1. 1->2->3->4->7.
2. 1->2->3->4->5->6->8->9->21.
3. 1->2->3->4->5->6->8->9->16->17->18->20.
4. 1->2->3->4->5->6->8->9->16->17->18->19.
5. 1->2->3->4->5->6->8->9->10->11->12->13->15.
6. 1->2->3->4->5->6->8->9->10->11->12->13->14.

Cyclomatic complexity:

V(G)= N+1

= 1+1=2.

Where V(G)= cyclomatic complexity,

N= Number of enclosed region in flow graph.

Test case design

S.no	Condition being tested	Input	Expected result	Output
1.	Acc. No. text box encodes entry	"123456789"	Acc. No. text box should display "12345****"	same
2.	Invalid login id password(for Locker)	Empty/invalid srting	Display message "incorrect login_id/password"	same
3.	Invalid current password(for Locker)	Invalid current password	Password doesn't match	same
4.	Insufficient balance for withdrawal	Amount greater than balance	Display "you have insufficient balance"	same
5.	Invalid Account Number	Invalid account number	Display "Invalid Account no."	same