Second Year

2022 / 2023

Capstone Design Project

Team work

Name	Section
Islam Mohamed Abdel Halem	1
Ahmed Ashraf El Sharkawy	1
Ahmed Nageh	1
Ahmed Waled	1
Ahmed Ali	1
Aza Sayed Ahmed	2
Haneen Elbendary	2

Issue	Mark
Project Identification	
System Request	
Feasibility Study	
Task Identification	
Pert Chart	
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Interview	
Questionnaire	
Context Diagram -- DFD	
Level-0 Diagram -- DFD	
Level-1 Diagram – DFD	
Process Specification	
Data Dictionary	
Normalization	
Entity-Relationship Diagram	

Project Identification

Project Name : Net Bank

Short Description about project :

Net Bank is a website that offers a range of financial services to its clients. With Net Bank, clients can securely access their bank accounts online, transfer funds, pay bills, and view their transaction history.

System Request

Project sponsor: Teamwork

Business needs:

People Need :

- **Convenience: Online banking allows people to access their accounts and perform transactions from anywhere in the world.**
- **Efficiency: Online banking transactions are typically much faster and more efficient than transactions that are processed through a branch.**
- **Cost savings: Online banking can often save people money on fees.**
- **Security: Online banking is just as secure as traditional banking.**
- **Personalization: Online banking allows people to customize their banking experience to meet their individual needs.**

Business requirements:

1. **Infrastructur**e: The first step in building Net Bank would be to create the underlying technological infrastructure.
2. **Security:** Next, robust security measures must be put in place to protect the system from cyber threats.
3. **User interface:** The user interface of Net Bank must be intuitive, user-friendly, and easy to navigate.
4. **Account management:** Net Bank should allow users to manage their accounts, including checking balances, viewing transaction history, and making transfers between accounts.

5. **Integration:** Net Bank should be integrated with other banking systems and financial institutions to facilitate transactions and transfers.

Business value:

1. **Increased Accessibility:** Net Bank provides a convenient and accessible way for clients to manage their finances online.
2. **Cost Reduction:** By offering online banking services, Net Bank can reduce costs associated with maintaining physical branches and hiring additional staff.
3. **Improved Efficiency:** With Net Bank, clients can quickly and easily access their account information, make transactions, and pay bills.

Special Issues or Constraints:

1. **Security:** Net Bank needs to be built with robust security measures to ensure that clients' sensitive financial information is kept safe from hackers and cyber threats.
2. The project was completed in less than a 6 months.
3. **Performance:** Net Bank needs to be able to handle high volumes of traffic and transactions without experiencing downtime or slow load times.

Feasibility Study

Technical Feasibility :

Can We Build It?

1- web Application: we can do the web site.

2-Technology: Resources Needed Web code editor software such as Visual Studio Code.

Front End (HTML , CSS , Bootstrap and Java script)

AND Back End (PHP AND database(My SQL or Oracle)) .

3-Project size: The size of the project is HIGH and does require much effort.

4-Compatibility: The system will be not compatible with the previous system.

Economic Feasibility :

Should We Build It?

Development costs: cost web developer

Front End → 20000 LE AND Back End → 20000 LE

Annual operating costs:

The company pays annual domain → 2000 LE

The company pays annual server →2000 LE

The company pays annual host →2000 LE

Annual benefits → 5% from project yearly profits

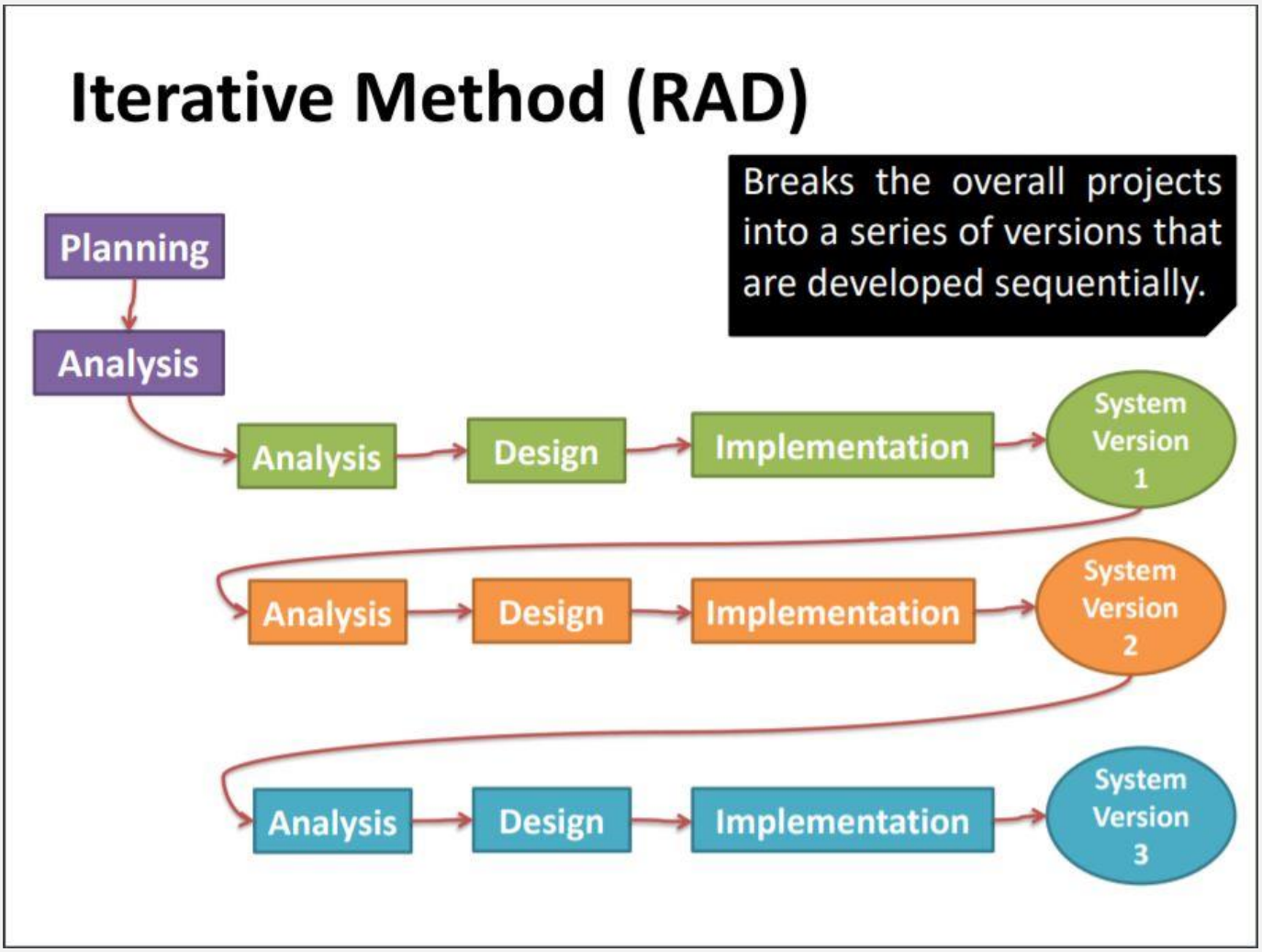
Organizational Feasibility

If We Build It, Will They use it?

Management → (Bank management)

Client → (Bank customers)

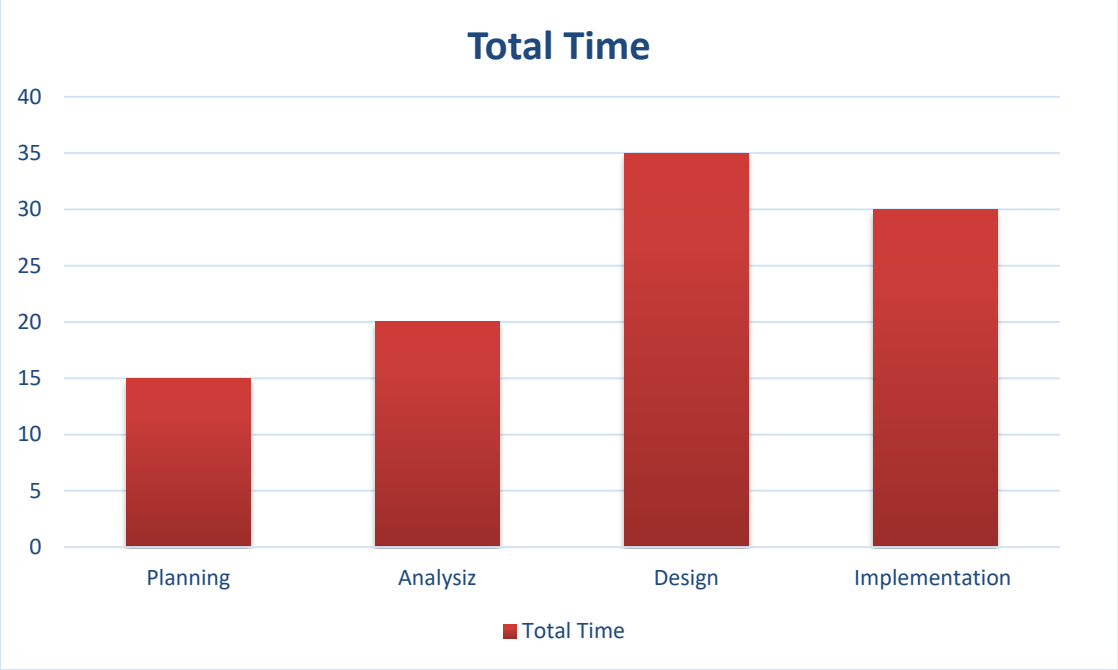
Methodology



1-The stages are dependent on each other.

2-Divide the project into versions

Time Estimation



Total Time → 100% 100 day

- **Planning → 15% → 15 day**
- **Analysis → 20% → 20 day**
- **Design → 35% → 35 day**
- **Implementation → 30% → 30 day**

Task Identification (At least six tasks must be identified)

Name of Task	Project Identification
Start Date	1-3-2023
End Date	7-3-2023
Person assigned to task	Islam Mohamed
Priority	High
Resources Needed	Microsoft Word
Estimated Time	4 day
Actual Time	3 day

Name of Task	System Request
Start Date	**1-3-2023**
End Date	**7-3-2023**
Person assigned to task	Ahmed Ashraf, Ahmed Waled
Priority	High
Resources Needed	Microsoft Word
Estimated Time	7 day
Actual Time	6 day

Name of Task	Feasibility Study
Start Date	**1-3-2023**
End Date	**7-3-2023**
Person assigned to task	Ahmed Nageh , Ahmed Waled
Priority	High
Resources Needed	Microsoft Word
Estimated Time	6 day
Actual Time	5 day

Name of Task	Methodology
Start Date	**1-3-2023**
End Date	**7-3-2023**
Person assigned to task	Haneen Elbendary
Priority	High
Resources Needed	Microsoft Word
Estimated Time	5 day
Actual Time	4 day

Name of Task	Time Estimation
Start Date	**1-3-2023**
End Date	**7-3-2023**
Person assigned to task	Ahmed Ali , Aza Sayed Ahmed
Priority	High
Resources Needed	Microsoft Word
Estimated Time	6 day
Actual Time	4 day

Name of Task	Interview
Start Date	8-3-2023
End Date	16-3-2023
Person assigned to task	Ahmed Ashraf El Sharkawy , Ahmed Nageh
Priority	High
Resources Needed	Microsoft Word
Estimated Time	7 day
Actual Time	7 day

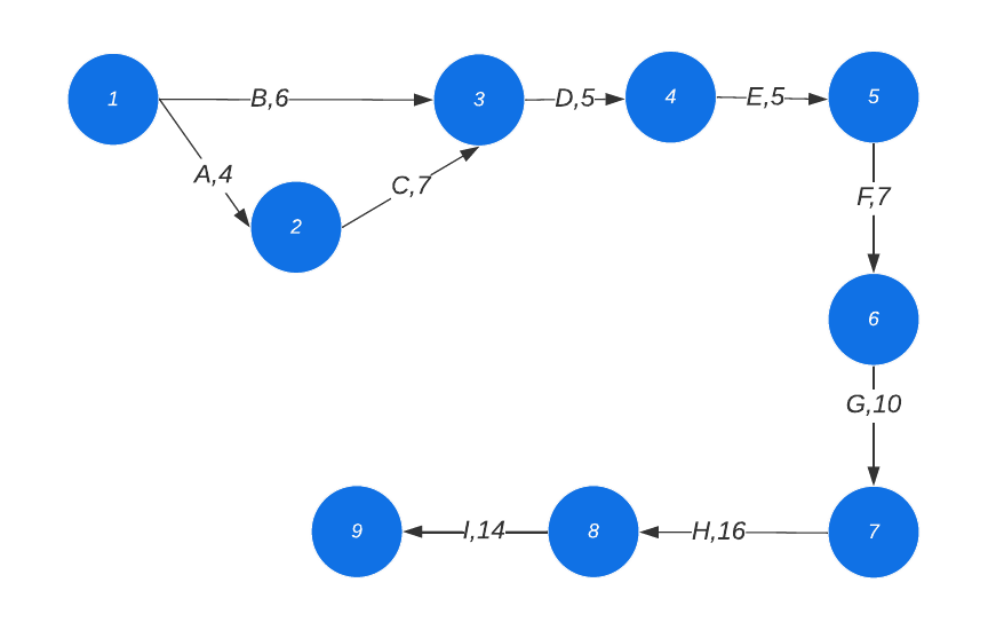
Name of Task	Data Flow Diagram
Start Date	17-3-2023
End Date	24-3-2023
Person assigned to task	Islam Mohamed & Haneen Elbendary
Priority	High
Resources Needed	Microsoft Word & PowerPoint
Estimated Time	7 day
Actual Time	6 day

Name of Task	Entity Relationship
Start Date	30-3-2023
End Date	24-4-2023
Person assigned to task	Ahmed Ali , Aza Sayed Ahmed,
Priority	High
Resources Needed	Microsoft Word
Estimated Time	20 day
Actual Time	15 day

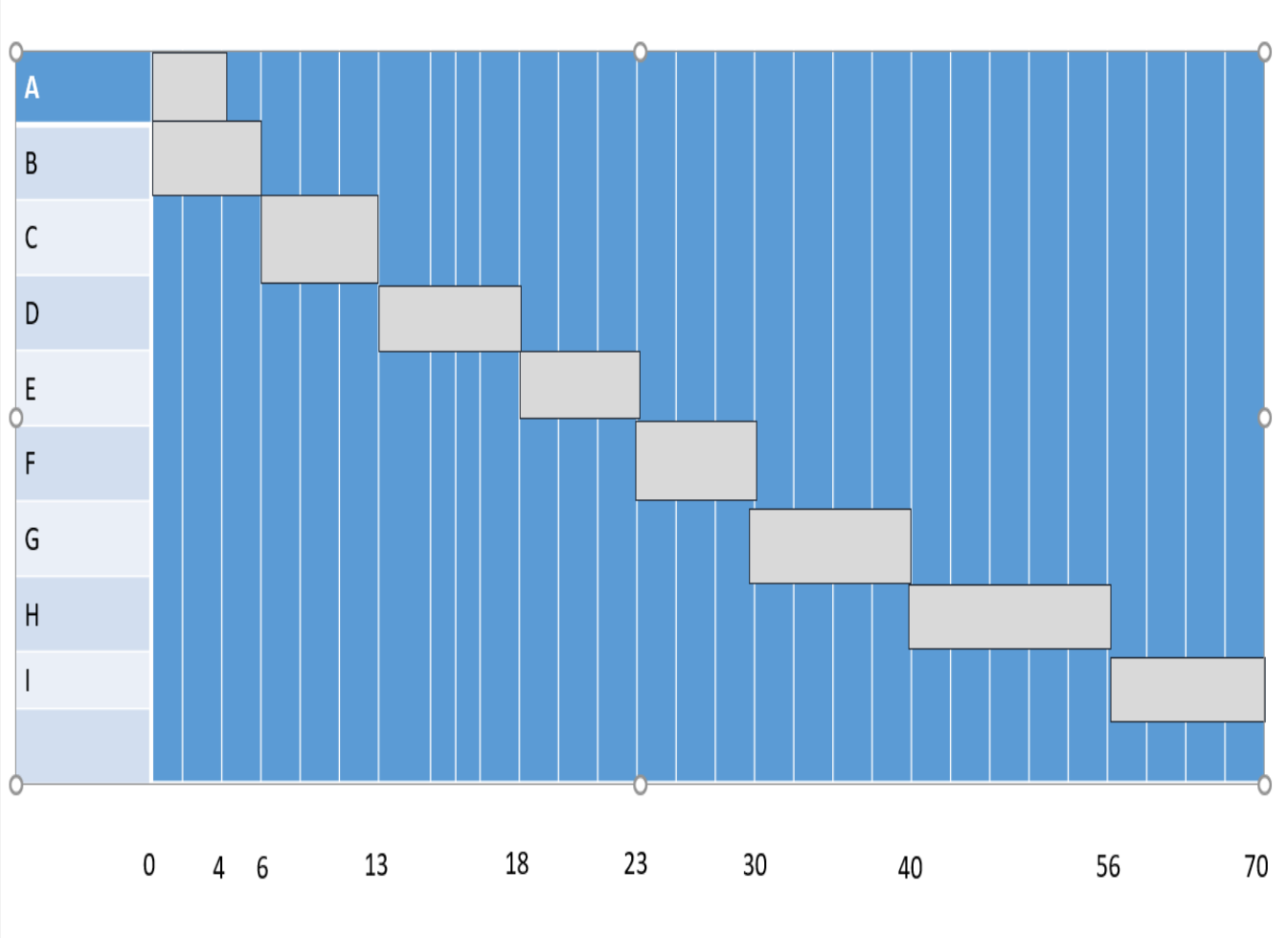
Name of Task	Normalization
Start Date	25-4-2023
End Date	3-5-2023
Person assigned to task	Haneen Elbendary
Priority	High
Resources Needed	Microsoft Word & PowerPoint
Estimated Time	8 day
Actual Time	6 day

Pert Chart

Activity	Description	Predecessors	Duration
A	Project Identification	----------	4
B	System Request	----------	**6**
C	Feasibility Study	**A,B**	**7**
D	Methodology	**C**	**5**
E	Time Estimation	**D**	**5**
F	Interview	**D**	**7**
G	Data Flow Diagram	**F**	**10**
H	Entity Relationship	**G**	**16**
I	Normalization	**H**	**14**



Gantt chart



Interview

1- Why we do the interview?

1-Collecting data about system requirements.

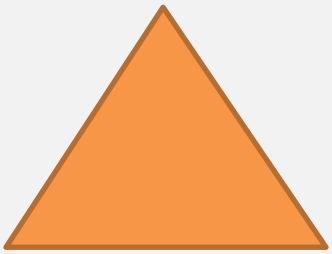
2-What is the Clint want and understand what I need to do.

3-To talk about the details of the contract between us and the Current state of the system.

4-System Goals.

Questions Structure:

-pyramid (closed →open).



Questions Type:

(Closed ended)

(Open ended)

Interview Report

- manager and Administrators and some employees can modify the data in the project.
- Should the project easier for people.
- It well be secure.
- Login page and sing up.
- schedule a maintenance check It will be monthly.
- budget 10000→15000 and can be more .
- want the service to be more than excellent.
- distinct from competitors.

Questionnaires

1-What do you think of the project and why we needed?

- I see that this project will make it easier for people in terms of banking transactions

2- What do you need in the project?

- I will need a login page, a registration page, I will need security, and I will need a database

3- What is most important to you in the project?

- It is safe, responsive, fast and easy to handle

4- Who has the authority to modify the data?

- Administrators
- Some employees
- manager

5- What data do you need to register for the first time on the system?

- Full name, ID of the person, date of birth and national number

6-Would you like to schedule a maintenance check for your system?

Of course, I agree to this service, so that we will make it monthly

1- What is 'digital' for banks?

Most banks plan to spend ‘high amounts’ on digitising their business. Deutsche Bank said it plans to spend up to EUR 1 billion on digital technology until 2020

2- Do you have a budget in mind?

I think it could range from 10,000 to 15,000 and it can be larger If we need

3- Do you have any features you would not like in your product?

I don’t have any particular features in mind that I want to avoid But if we find the features that well help us we will contact with You

4- Are you facing any other challenges you haven’t spoken of so far?

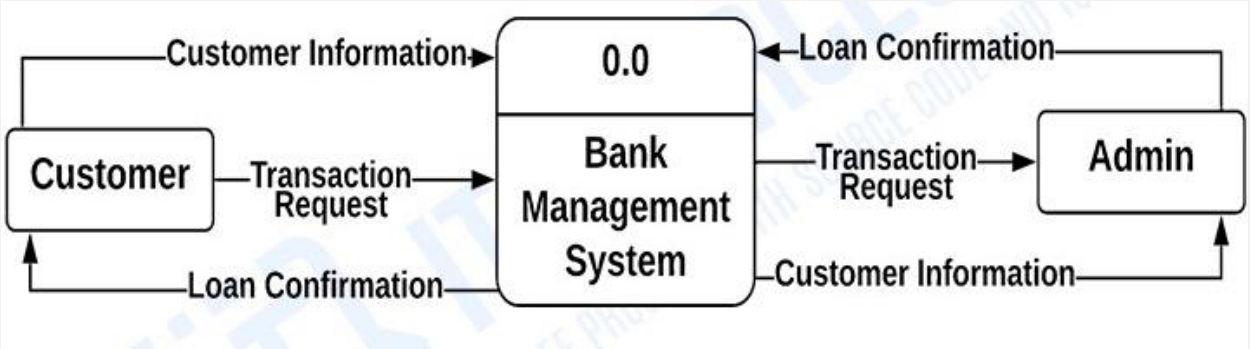
Yes, I’ve been struggling to find a good balance between work and my personal life.

There is the more company provide the same thing so we want the service to be more than excellent and also to be distinguished from competitors

5- How do you define success for this project?

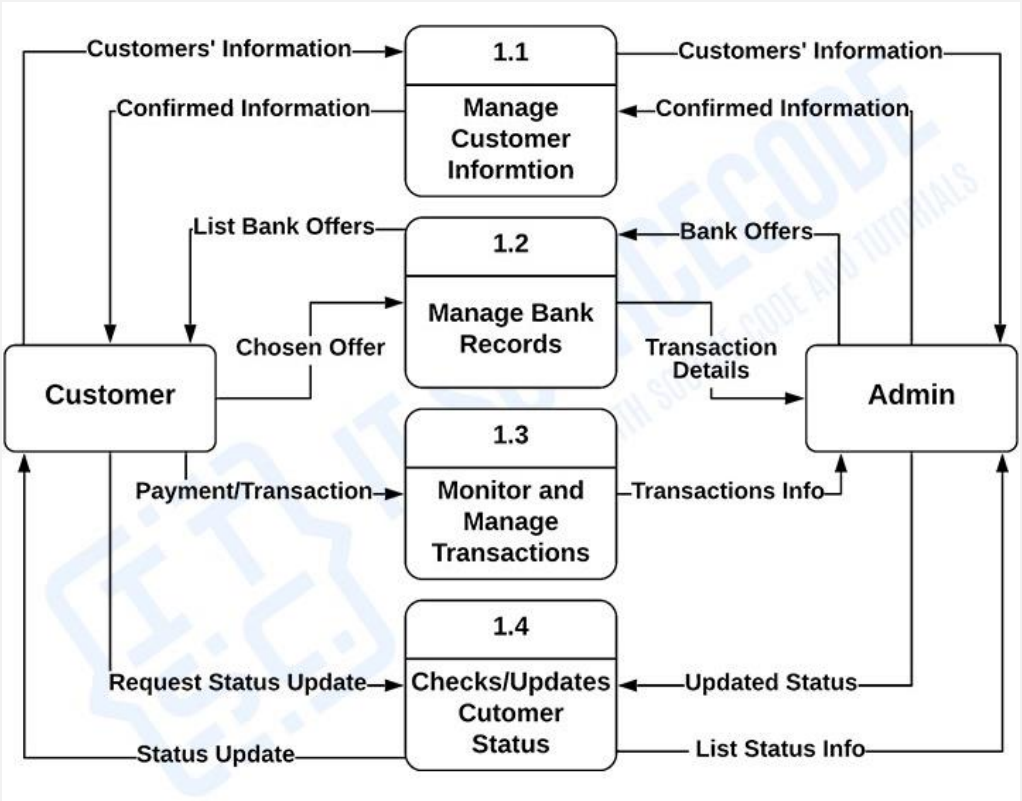
Success for this project means that I feel proud of the work we’ve done and that we’ve made a positive impact

Context Diagram – Data Flow Diagram



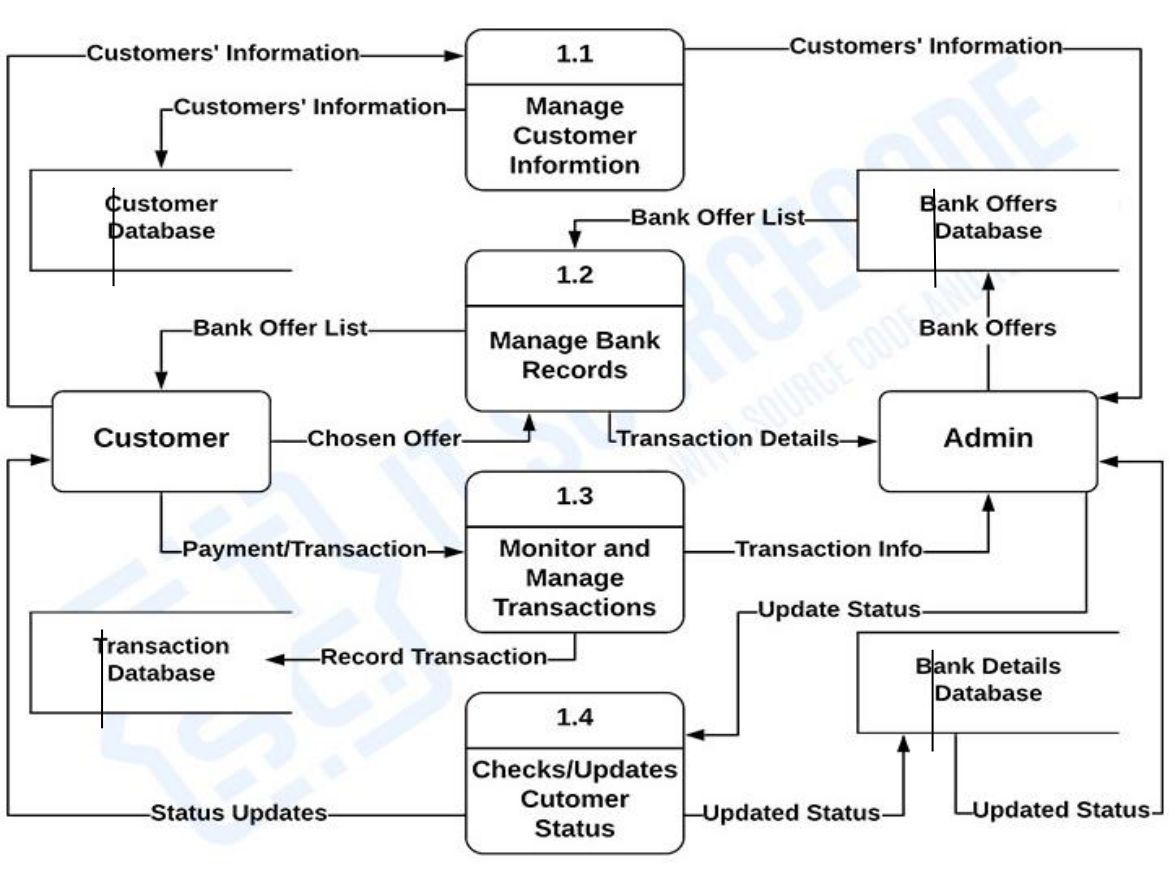
Level 0

Diagram 0 – Data Flow Diagram



Level 1

Child Diagram – Data Flow Diagram



Level 2

Process Specification (at least two processes)

Process Specification
Number: **Name:** **Description:**
Input Data Flow
Output Data Flow
Type of Process Online Batch Manual
Process Logic:
Structured English Decision Table Decision Tree
Unresolved Issues:

Data Dictionary

Data Flow (At least three Data Flows needed)

ID	
Label	
Description	
Source	
Destination	
Type	
Data Structure	
Volume/Time	
Comments	

Normalization

Normal Tables

Account Number	BSB	Customer ID	Customer Name	Account Balance	Branch ID	Branch Name	Account Type	Account Name
90471234	062345	C001	Loki	500	Branch1	Burwood	SAV	Savings
90471234	062345	C002	Iron Man	500	Branch1	Burwood	SAV	Savings
91232313	062345	C001	Loki	3000	Branch1	Burwood	CHECK	Checking
91323412	024213	C003	Thor	5400	Branch2	Ashfield	GOAL	Goal Saver
95462134	024213	C003	Thor	2300	Branch2	Ashfield	CHECK	Checking
95462134	024213	C004	Black Widow	2300	Branch2	Ashfield	CHECK	Checking
90213241	034234	C005	Wanda .M	4000	Branch3	Hornsby	IRA	Retirement
90471244	021123	C006	Hulk	800	Branch4	Epping	IRA	Retirement

Tables after 1NF

Account Number	BSB	Branch ID	Account Type	Account Name	Branch Name
90471234	062345	Branch1	SAV	Savings	Burwood
91232313	062345	Branch1	CHECK	Checking	Burwood
91323412	024213	Branch2	GOAL	Goal Saver	Ashfield
95462134	024213	Branch2	CHECK	Checking	Ashfield
90213241	034234	Branch3	IRA	Retirement	Hornsby
90471244	021123	Branch4	IRA	Retirement	Epping

Account Number	Customer ID	Customer Name	Account Balance
90471234	C001	Loki	500
90471234	C002	Iron Man	500
91232313	C001	Loki	3000
91323412	C003	Thor	5400
95462134	C003	Thor	2300
95462134	C004	Black Widow	2300
90213241	C005	Wanda .M	4000
90471244	C006	Hulk	800

Tables after 2NF

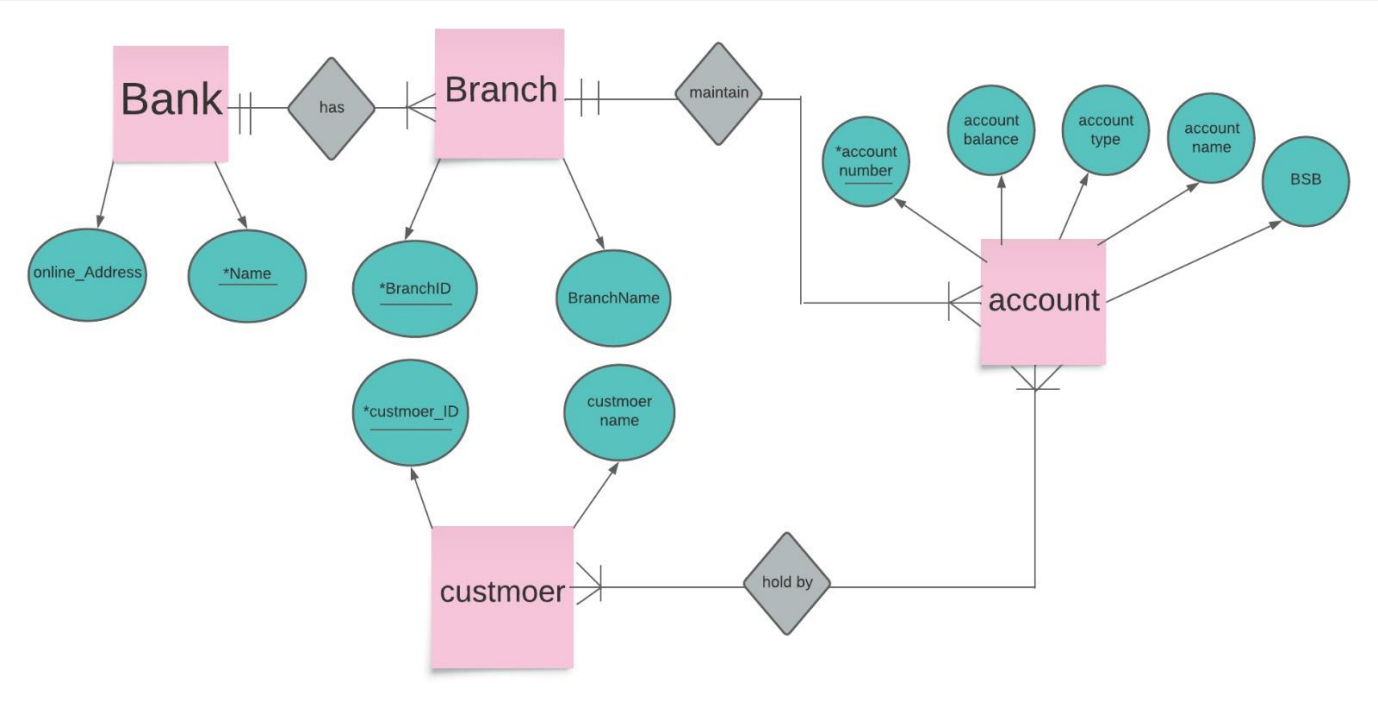
Customer ID	Customer Name
C001	Loki
C002	Iron Man
C003	Thor
C004	Black Widow
C005	Wanda .M
C006	Hulk

Account Number	Account Balance
90471234	500
90471234	500
91232313	3000
91323412	5400
95462134	2300
95462134	2300
90213241	4000
90471244	800

Tables after 3NF

Branch ID	Branch Name	Account Type	Account Name
Branch1	Burwood	SAV	Savings
Branch2	Ashfield	CHECK	Checking
Branch3	Hornsby	GOAL	Goal Saver
Branch4	Epping	IRA	Retirement

Entity Relationship Diagram



ER Diagram of Bank Management System :

This bank ER diagram illustrates key information about bank, including entities such as branches, customers, accounts, and loans. It allows us to understand the relationships between entities.

Explanation of Entities :

1. Bank Entity : Attributes of Bank Entity are Bank Name, OnlineAddress .

2. Customer Entity : Attributes of Customer Entity are Customer_id, Name, Customer_id is Primary Key for Customer Entity.

3. Branch Entity : Attributes of Branch Entity are Branch_id, Name Branch_id is Primary Key for Branch Entity.

4. Account Entity : Attributes of Account Entity are Account_number, Account_Type , Account_name , BsB , Account_Balance . Account_number is Primary Key for Account Entity.

Relationships between entities :

1. **Bank has Branches => 1 :N**
   One Bank can have many Branches but one Branch can not belong to many Banks, so the relationship between Bank and Branch is one to many relationship.

2. **Branch maintain Accounts => 1 : N**
   One Branch can have many Accounts but one Account can not belong to many Branches, so the relationship between Branch and Account is one to many relationship.
3. **Account held by Customers => M : N**
   One Customer can have more than one Accounts and also One Account can be held by one or more Customers, so the relationship between Account and Customers is many to many relationship.