FACULTY: Faculty of Information Computing Information Management (FOCIM).

COURSE: Bachelor in Science Information Security and Forensics (BISF)

SYSTEM DESIGN SPECIFICATION

UNIT CODE: BISF 2208

UNIT NAME: Security and Forensics Project

PROJECT: CFF Church Management System.

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1.0. Business Rules

1.1. What happens in the church

Member Registration - The church maintains a database of its members, tracking their personal information and participation in church activities. This data helps in maintaining an accurate membership record.

Financial Management - Managing church finances is crucial for budgeting, planning, and ensuring transparency. This involves tracking offerings and donations.

Birthday Celebrations - Recognizing and celebrating member birthdays is an integral part of building a sense of community. This includes sending birthday wishes and messages.

Teen and Sunday School - CFF maintains a database of the teens and Sunday school children in the church. Coordinating their classes requires attendance tracking, communication with parents, and resource management.

Event Coordination - The church organizes various events, including special services, meetings, and gatherings. This involves scheduling, resource allocation, and communication with members.

Visitor Engagement -Welcoming and managing church visitors is essential for fostering a welcoming atmosphere. It includes capturing visitor contact information and details of their visits to facilitate follow-up and integration into the church community.

1.2. Operations of church

- Membership Management - The system will handle the registration of new church members and maintain a database of existing members. This includes capturing personal details, contact information, and membership status. It will also enable administrators to update member records as needed.

- Member Information Access: The system will provide members with the ability to access and update their personal profiles. This self-service feature empowers members to maintain accurate records, such as contact details
- Financial Management: The system will facilitate the recording and tracking of financial contributions, including offerings and donations, with detailed transaction records. It will expedite financial calculations and reporting for transparent financial management.
- Birthday Celebrations: The CFF Management System will automate the identification of upcoming member birthdays. It will ensure that birthday wishes and messages are sent in a timely manner, fostering a sense of belonging and connection within the church community.
- Teen and Sunday School Management: The system will include tools for church administrators to efficiently manage and organize activities related to teen and Sunday school classes. This involves tracking attendance, communicating with parents, and managing resources to support the spiritual growth of young members.
- Event Coordination: The system will streamline the management of church events, including scheduling, resource allocation, and communication with members. It will provide a digital platform for event planning and execution.
- Visitor Engagement: The system will facilitate the management of church visitors by capturing their contact information and visit details.

1.3. System boundaries

The system boundary of the CFF Management System encompasses the entire digital infrastructure and processes that support the management of Christian Foundation Fellowship (CFF) church's operations. The core users are the church administrators, who will actively interact with the system to perform tasks related to membership management, financial tracking, event coordination, and visitor engagement.

The system will also serve as a self-service platform for all CFF members, allowing them to access and update their personal information. This interaction, while pivotal, is largely limited to data input and retrieval. The system boundary extends to cover the hardware and software

components required for its operation, as well as the interfaces needed to facilitate data exchange and communication.

The system interfaces with the broader church community, including church members who interact with it to access and update their personal profiles. While this interaction is essential, the primary actors within the system are the church administrators. The system's primary goal is to optimize and streamline the administrative processes of the church, making it more efficient and effective in fulfilling its spiritual mission.

2.0. Process Modelling

all the processes

you will need to conduct a thorough analysis of the system and its operations. Start by breaking down the system's functions and activities into individual processes or tasks. These processes should cover all the activities relevant to the system being developed. Here is a high-level example of identified processes for a church management system:

Member Registration

Member Information Update

Financial Transactions Management

Birthday Celebrations

Teen and Sunday School Management

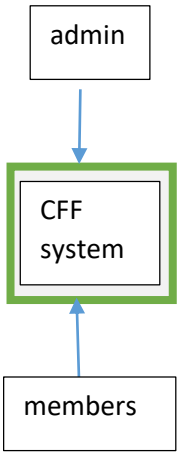
Visitor Management

Event Coordination

Reporting and Analysis

DFD diagram

Level 0



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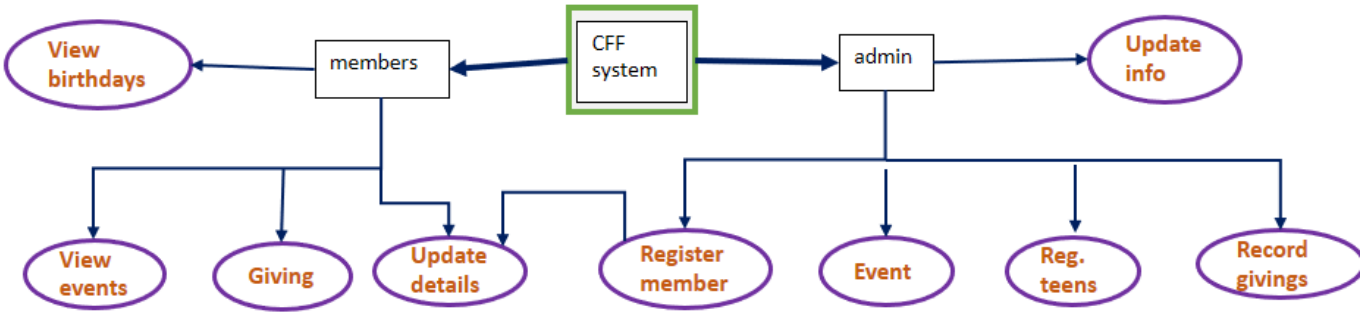

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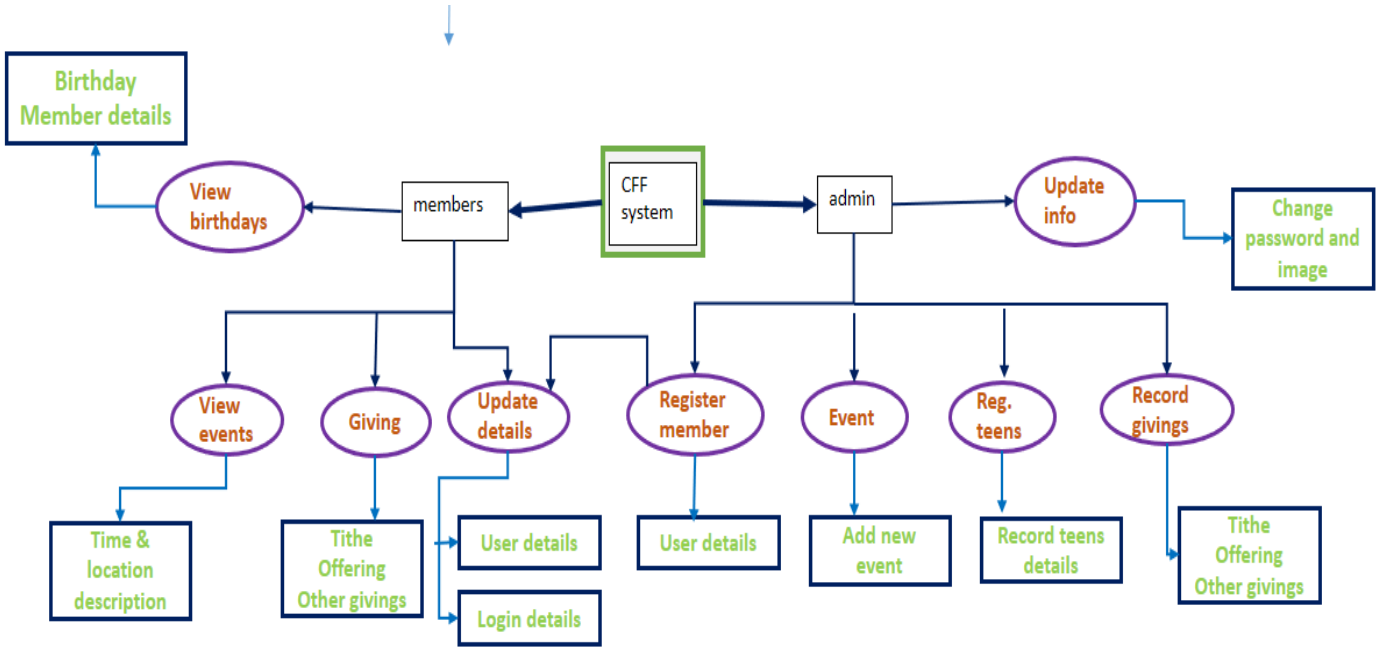

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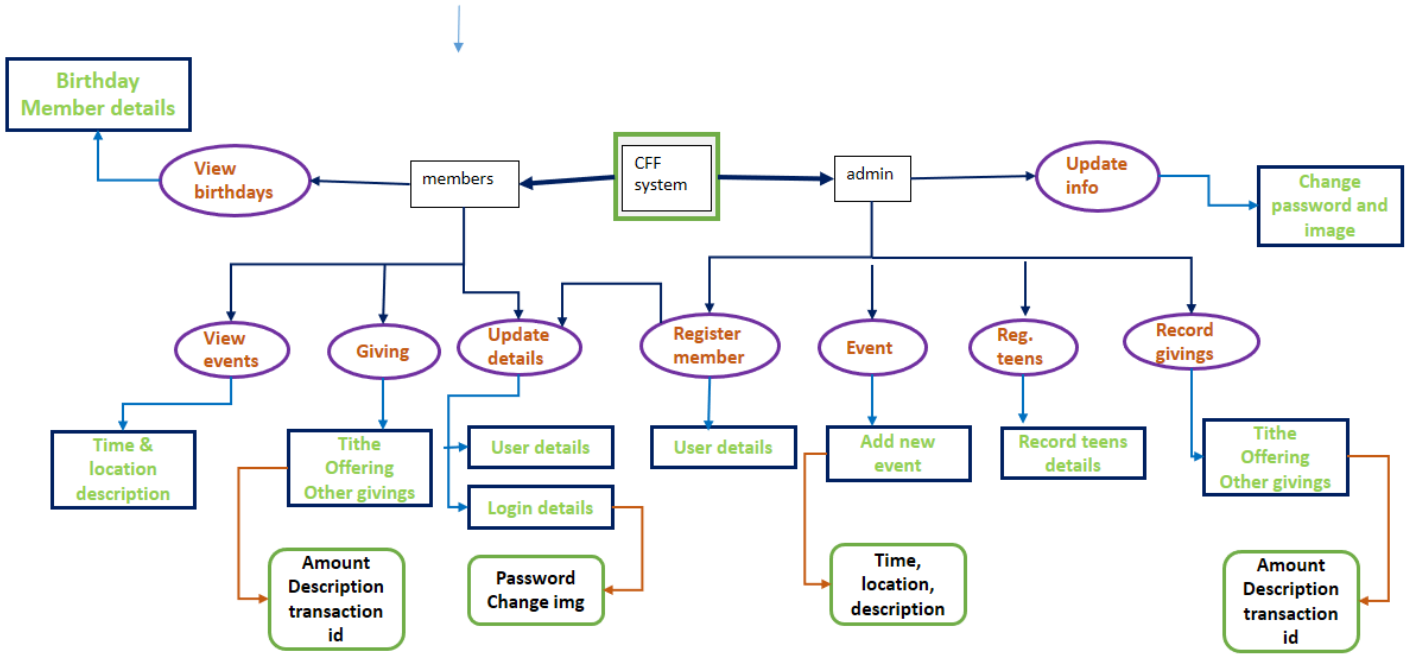

3.0. data modelling

3.1 major entities and attributes

3.1.1. Entities:

1. Members
2. Events
3. Birthdays
4. User Accounts (for administrators)
5. Contributions (such as Tithes, Offerings, and Other Givings)

3.1.2. Attributes for Major Entities:

Members

- First Name

- username
- Last Name
- Mobile Number
- Residence
- Place of birth
- Ministry
- Date of Birth
- Gender
- Email Address

Events

- Event ID
- Event Name
- Event Date
- Event Description
- Event Location

Birthdays:

- Birthday ID
- Member's ID (linked to Members)
- Birthdate

User Accounts (for administrators):

- User ID
- Username
- Password

Contributions (Tithes, Offerings, and Other Givings):

- Contribution ID
- Member's ID (linked to Members)
- Contribution Type (e.g., Tithes, Offerings, Other Givings)

- Amount
- Contribution Date

3.2.Normalise to third normal form

Let's start by normalizing the tables:

Normalization Steps:

Step 1: Create Member and Contribution Tables

Table 1: Members

- MemberID (Primary Key)
- FirstName
- LastName
- MobileNumber
- Residence
- DateOfBirth
- Gender
- EmailAddress
- Status

Table 2: Contributions

- ContributionID (Primary Key)
- MemberID (Foreign Key, references Members' MemberID)
- ContributionType (e.g., Tithes, Offerings, Other Givings)
- Amount

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Remove Transitive Dependencies

Table 1: Members

- MemberID (Primary Key)

- MemberNameID (Foreign Key, references MemberNames' MemberNameID)
- MobileNumber
- Residence
- DateOfBirth
- Gender
- EmailAddress

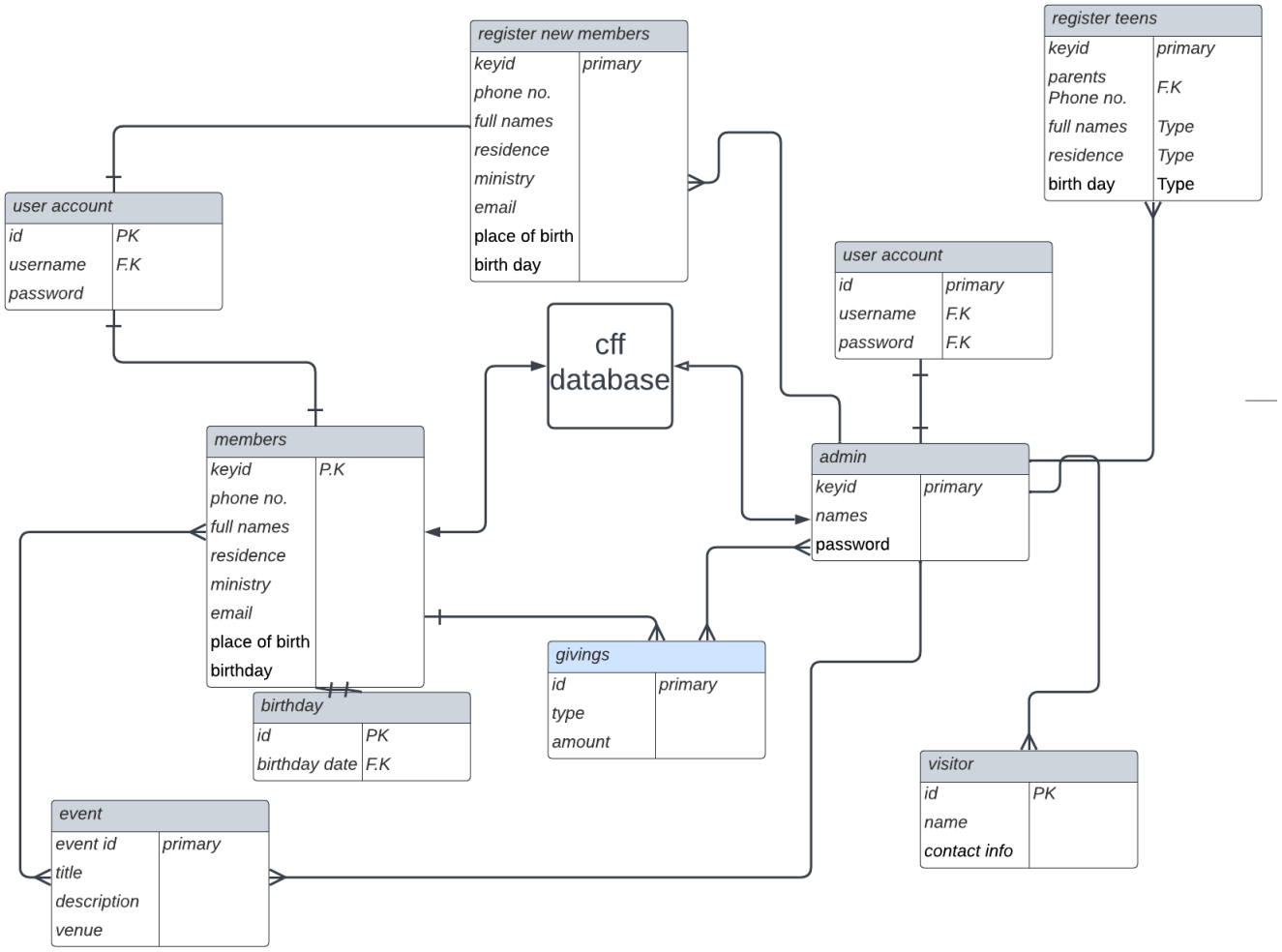
Table 2: MemberNames

- MemberNameID (Primary Key)
- FirstName
- LastName

Table 3: Contributions

- ContributionID (Primary Key)
- MemberID (Foreign Key, references Members' MemberID)
- ContributionType
- Amount

3.3. ERD DIAGRAM



3.4. Data dictionary

Table: Members

ID (Primary Key): A unique identifier for each member.

First Name: The first name of the member.

Last Name: The last name of the member.

Username: The username of the member for login.

Mobile Number: The mobile number of the member.

Residence: The residential address of the member.

Place of Birth: The place of birth of the member.

Ministry: The ministry or group the member is associated with.

Date of Birth: The date of birth of the member.

Gender: The gender of the member (e.g., Male, Female).

Email Address: The email address of the member.

Table: Events

Event ID (Primary Key): A unique identifier for each event.

Event Name: The name of the event.

Event Date: The date when the event is scheduled.

Event Description: A description of the event.

Event Location: The location or venue of the event.

Table: Birthdays

Birthday ID (Primary Key): A unique identifier for each birthday record.

Member's ID (Foreign Key): A reference to the member associated with the birthday.

Birthdate: The date of the member's birthday.

Table: User Accounts

User ID (Primary Key): A unique identifier for each user account.

Username: The username of the administrator.

Password: The password for the administrator's account.

Table: Contributions

Contribution ID (Primary Key): A unique identifier for each contribution.

Member's ID (Foreign Key): A reference to the member who made the contribution.

Contribution Type: The type of contribution (e.g., Tithes, Offerings, Other Givings).

Amount: The amount of the contribution.

Contribution Date: The date when the contribution was made.

3.5. flow chart

3.5.1 Symbals used

Rectangle: The rectangle is used to represent a process or activity.

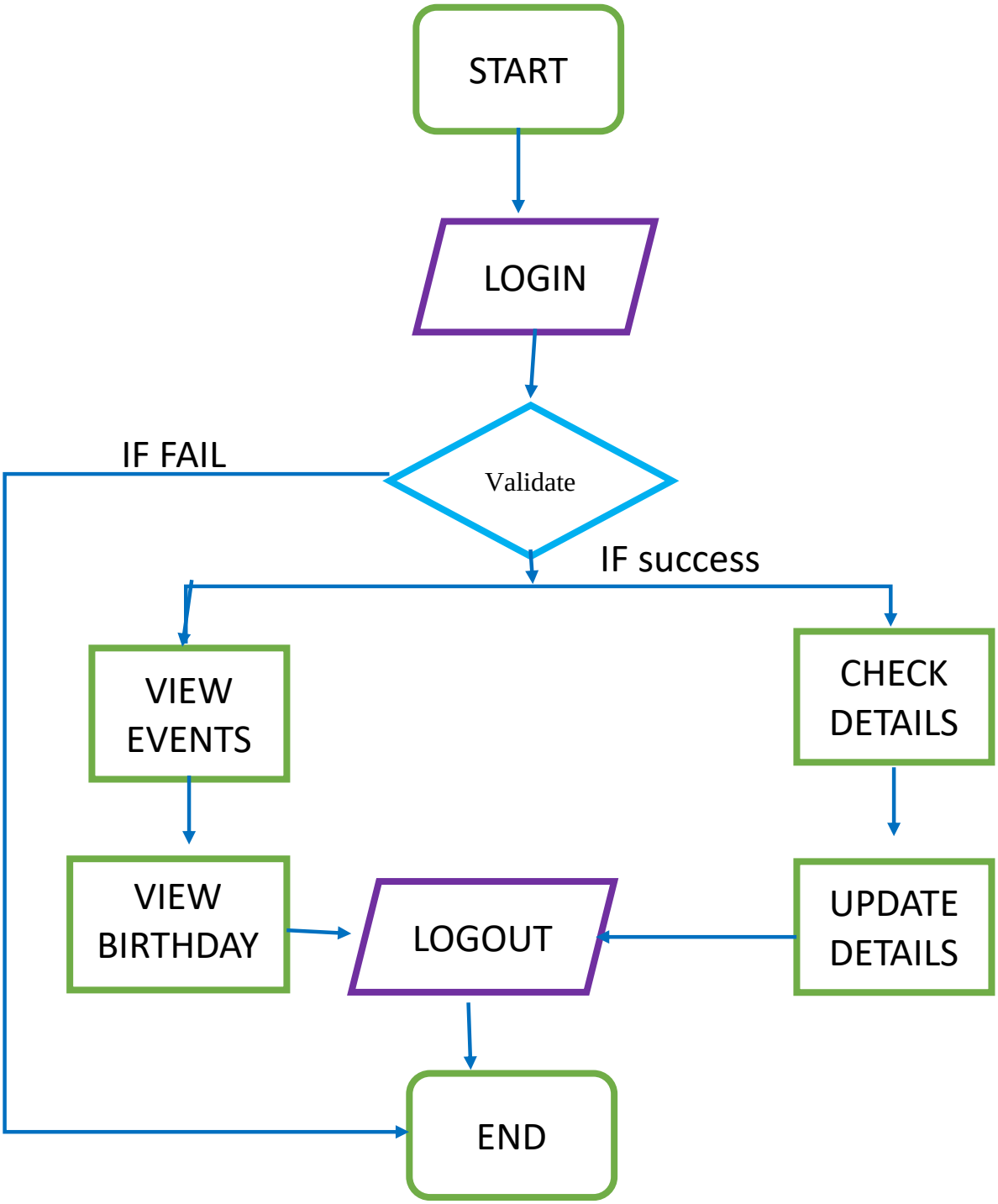
Arrow: Arrows or flowlines indicate the flow of control or data between processes. They illustrate the sequence in which activities occur.

Diamond: Diamonds represent decision points.

Oval: Ovals are used to denote the start or end of a process. The beginning of a process is represented by an oval labeled "Start," and the end is represented by an oval labeled "End."

Parallelogram: Parallelograms are used to represent input or output.

3.5.2. chart


START
LOGIN
Validate
IF FAIL
IF success
VIEW EVENTS
CHECK DETAILS
VIEW BIRTHDAY
LOGOUT
UPDATE DETAILS
END