



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

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**FACULTY OF COMPUTING**

**SEMESTER 2**

**2023/2024**

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**SECP2613 - SYSTEM ANALYSIS AND DESIGN (WBL)**

**SECTION 01**

**PROJECT ANALYSIS AND DESIGN P3 - GROUP TECH MANIAC**

**LECTURER : TS. DR. MUHAMMAD IQBAL TARIQ BIN IDRIS**

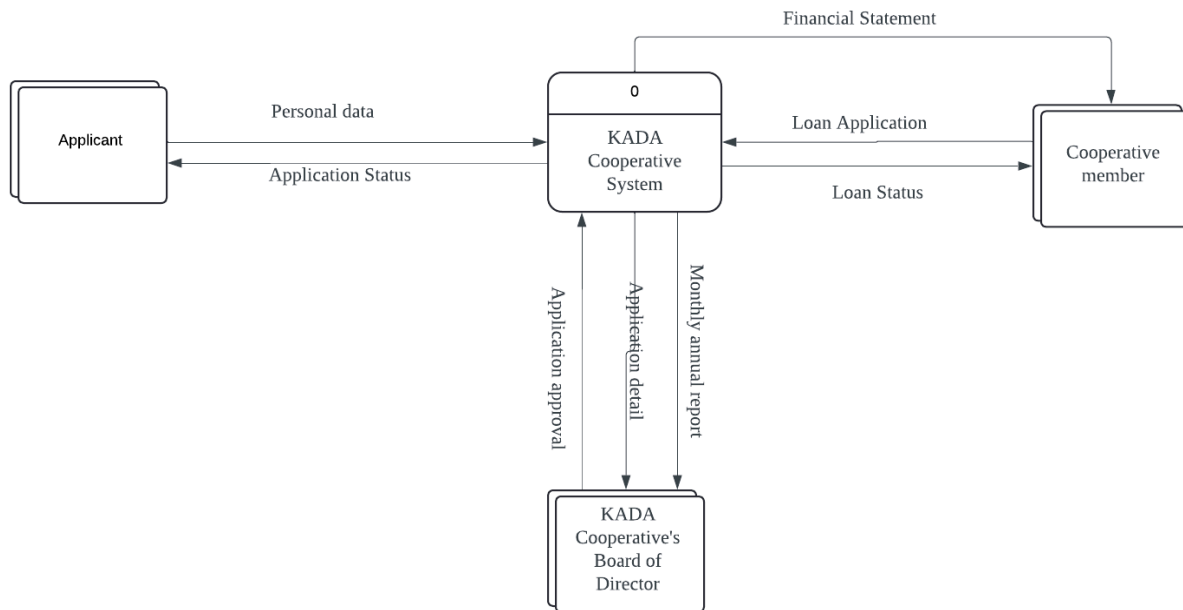
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## **CONTENTS**

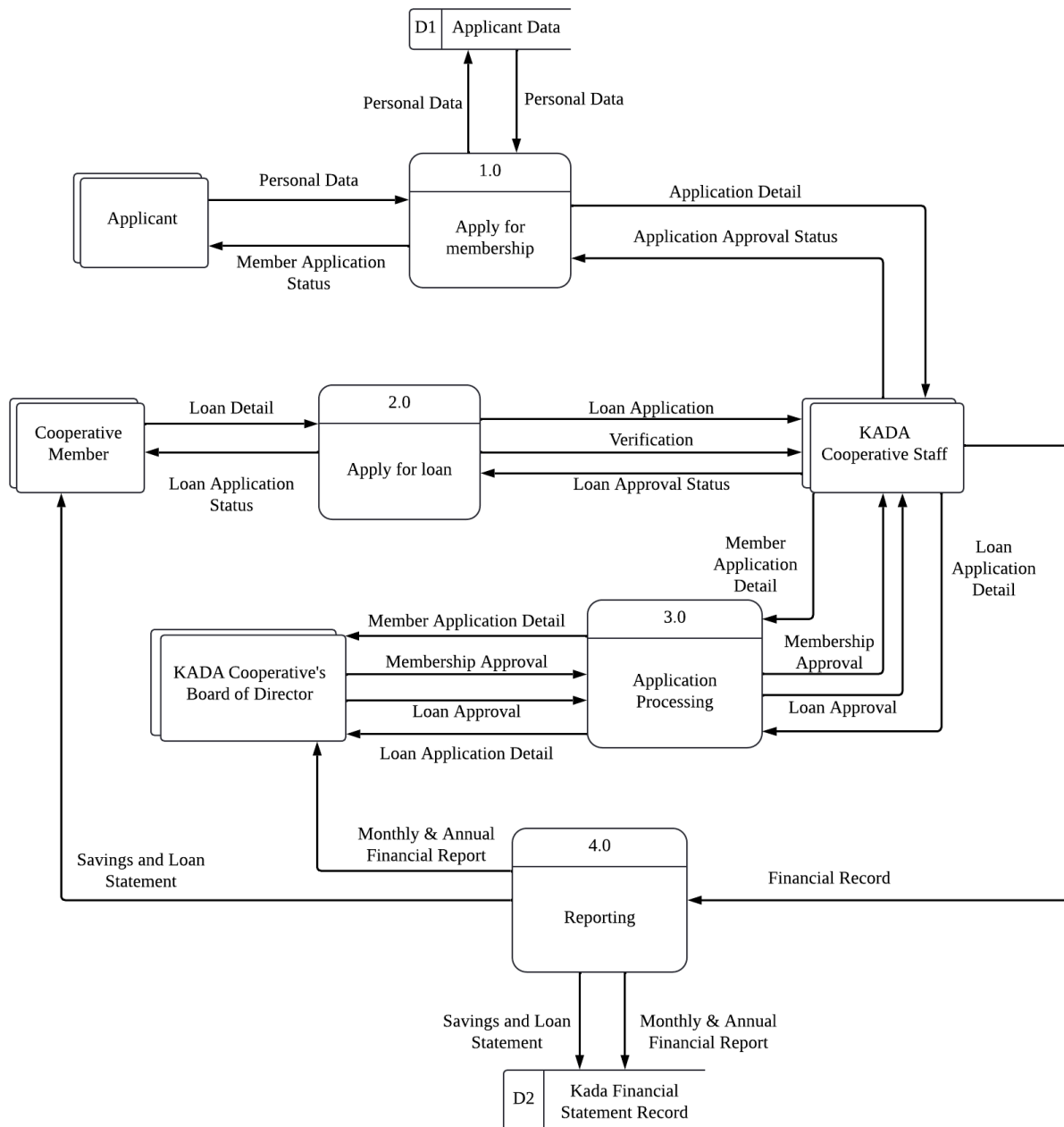
|  |           |
|--|-----------|
| <b>1.0 System Analysis</b>                 | <b>2</b>  |
| 1.1 Logical DFD Context Diagram            | 2         |
| 1.2 Logical DFD Diagram Level 0            | 3         |
| 1.3 Logical DFD Child Diagram Process 1    | 4         |
| 1.4 Logical DFD Child Diagram Process 2    | 4         |
| 1.5 Logical DFD Child Diagram Process 3    | 5         |
| 1.6 Logical DFD Child Diagram Process 4    | 5         |
| <b>2.0 System Specifications</b>           | <b>6</b>  |
| 2.1 Apply For Membership                   | 6         |
| 2.2 Apply For Loan                         | 6         |
| Process Name: Apply For Loan               | 6         |
| 2.4 Financial Data Management              | 7         |
| <b>3.0 System Design</b>                   | <b>8</b>  |
| 3.1 Physical DFD Level 0 Diagram           | 8         |
| 3.2 Physical DFD Child Diagram Process 1.0 | 9         |
| 3.3 Physical DFD Child Diagram Process 2.0 | 9         |
| 3.4 Physical DFD Child Diagram Process 3.0 | 10        |
| 3.5 Physical DFD Child Diagram Process 4.0 | 10        |
| 3.6 Partitioning                           | 11        |
| 3.4 CRUD Matrix                            | 13        |
| 3.5 Event Response Table                   | 14        |
| 3.6 Structure Chart                        | 15        |
| 3.7 System Architecture                    | 16        |
| <b>4.0 System Wireframe</b>                | <b>17</b> |

## 1.0 System Analysis

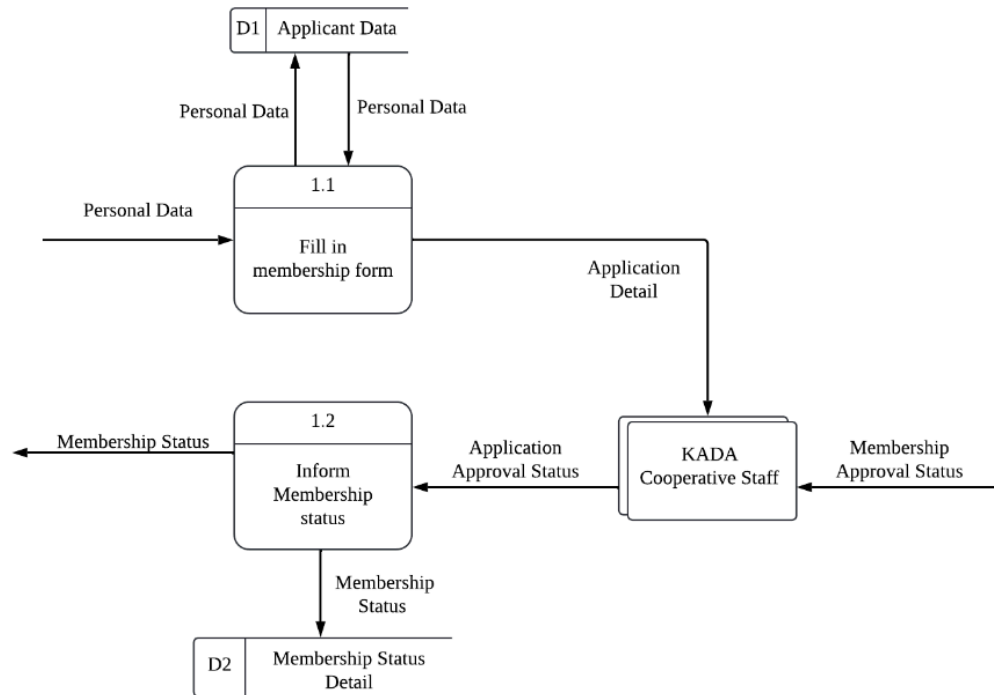
### 1.1 Logical DFD Context Diagram



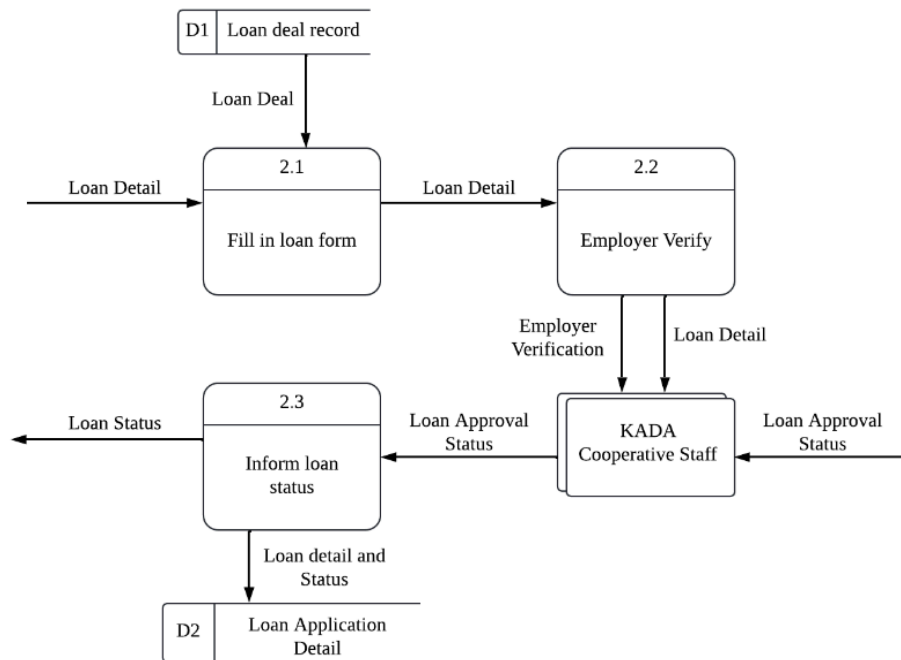
## 1.2 Logical DFD Diagram Level 0



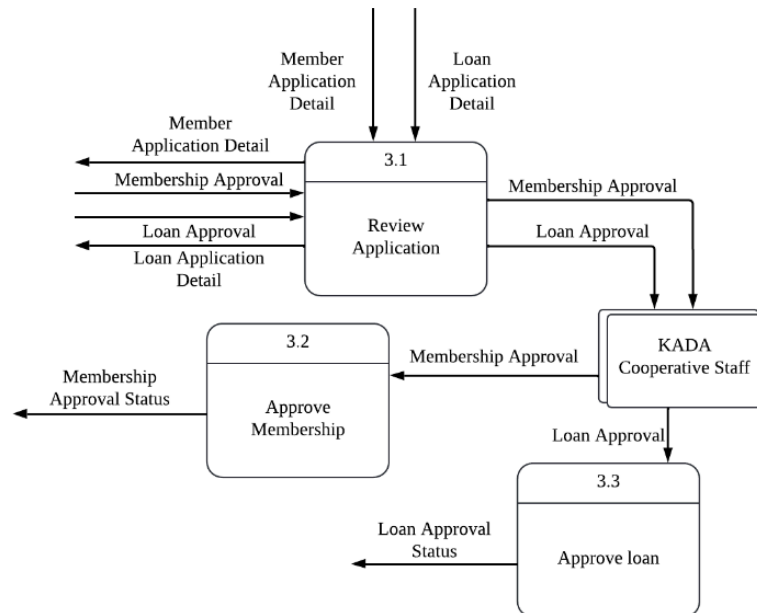
### 1.3 Logical DFD Child Diagram Process 1



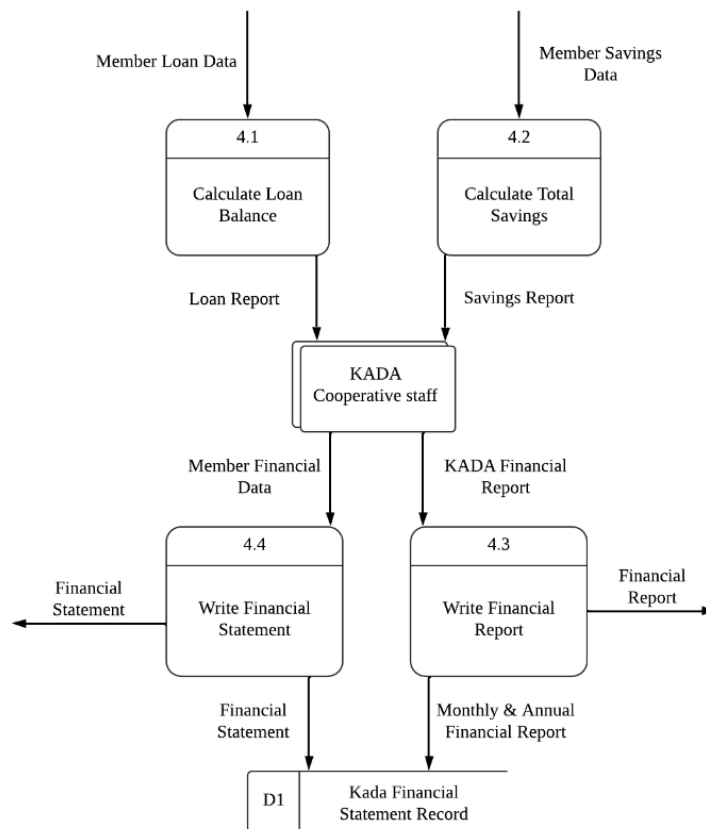
### 1.4 Logical DFD Child Diagram Process 2



### 1.5 Logical DFD Child Diagram Process 3



### 1.6 Logical DFD Child Diagram Process 4



## **2.0 System Specifications**

### **2.1 Apply For Membership**

**Process Name:** Apply For Membership

**Process Name:** 1.0

BEGIN

RECEIVE personal details (name, address, contact information) from the applicant.

VALIDATE the format and completeness of the input data.

IF the data is valid THEN

STORE the validated data in the database.

SEND validated data.

GO TO PROCESS 3.0

ELSE

PROMPT the applicant to correct the invalid data.

ENDIF

END

### **2.2 Apply For Loan**

**Process Name:** Apply For Loan

**Process Number:** 2.0

BEGIN

RECEIVE loan application details (personal information, loan amount, purpose, etc.) from the applicant.

VALIDATE the format and completeness of the input data.

IF the data is valid THEN

STORE the validated data in the database.

ELSE

PROMPT the applicant to correct the invalid data.

ENDIF

END

### **2.3 Application Processing**

**Process Name:** Application Processing

**Process Number:** 3.0

```

BEGIN
    RECEIVE validated personal details from the previous process.
    VERIFY eligibility.
    IF eligible
        CONFIRM status application
        IF membership application
            ASSIGN a unique Member ID to the applicant.
            ENCRYPT the personal details and the Member ID.
            STORE the encrypted data in the system's database.
            SEND a membership confirmation email to the applicant.
        ELSE
            ENCRYPT the personal details and the Member ID.
            STORE the encrypted data in the system's database.
            SEND a loan confirmation email to the applicant.
        ENDIF
    ELSE
        SEND a rejection email to the applicant.
    ENDIF
END

```

## 2.4 Financial Data Management

**Process Name:** Financial Data Management.

**Process Number:** 4.0

```

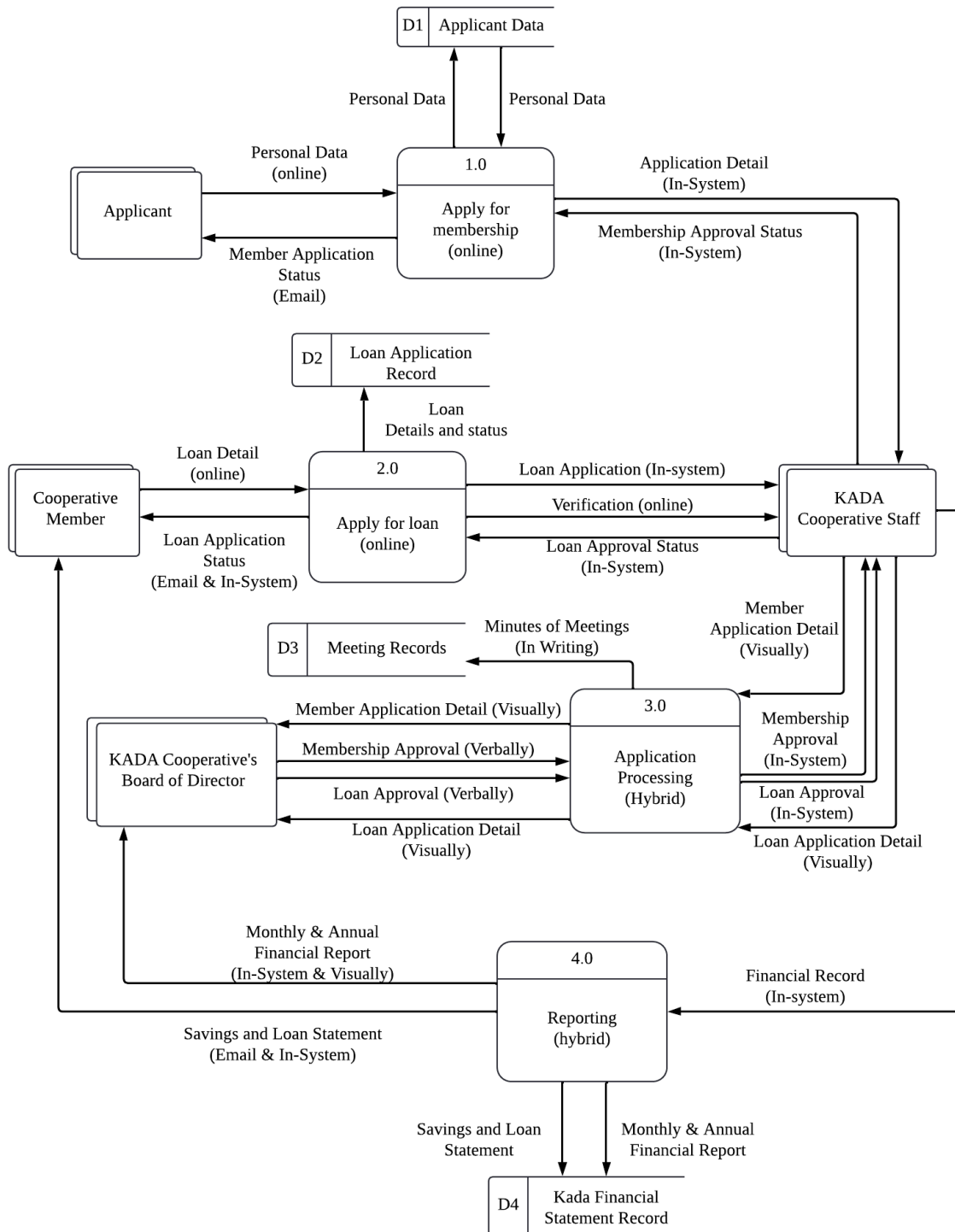
BEGIN
    RECEIVE Member Loan Data and Member Savings Data.
    CALCULATE loan balances and total savings.
    GENERATE financial reports and statements.
    STORE financial reports and statements in the system.
    SEND financial reports to stakeholders and financial statements to members.
END

```

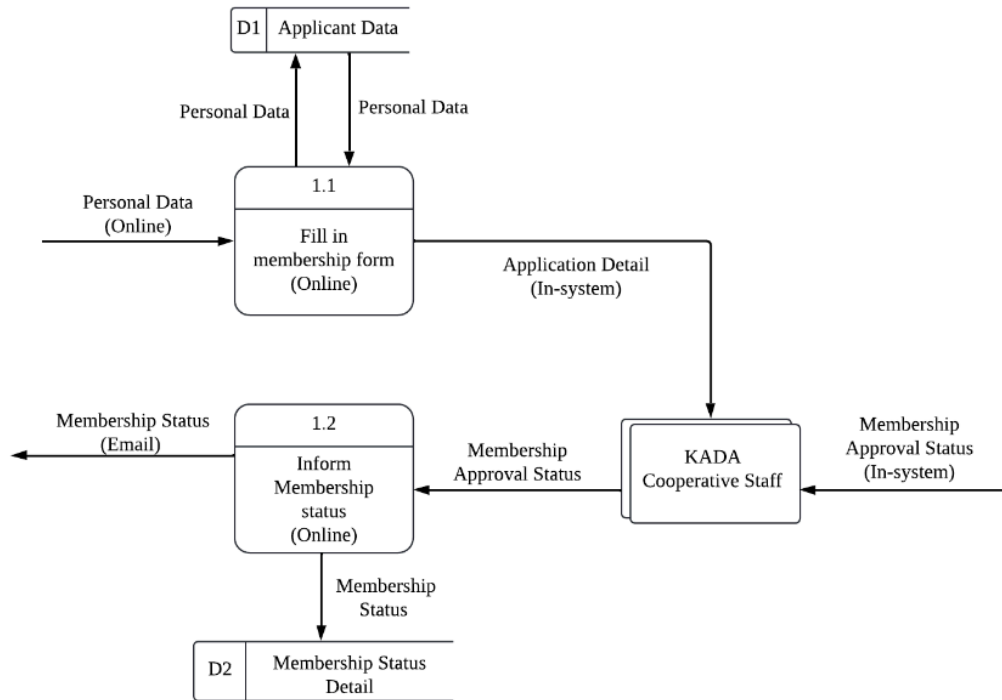


### 3.0 System Design

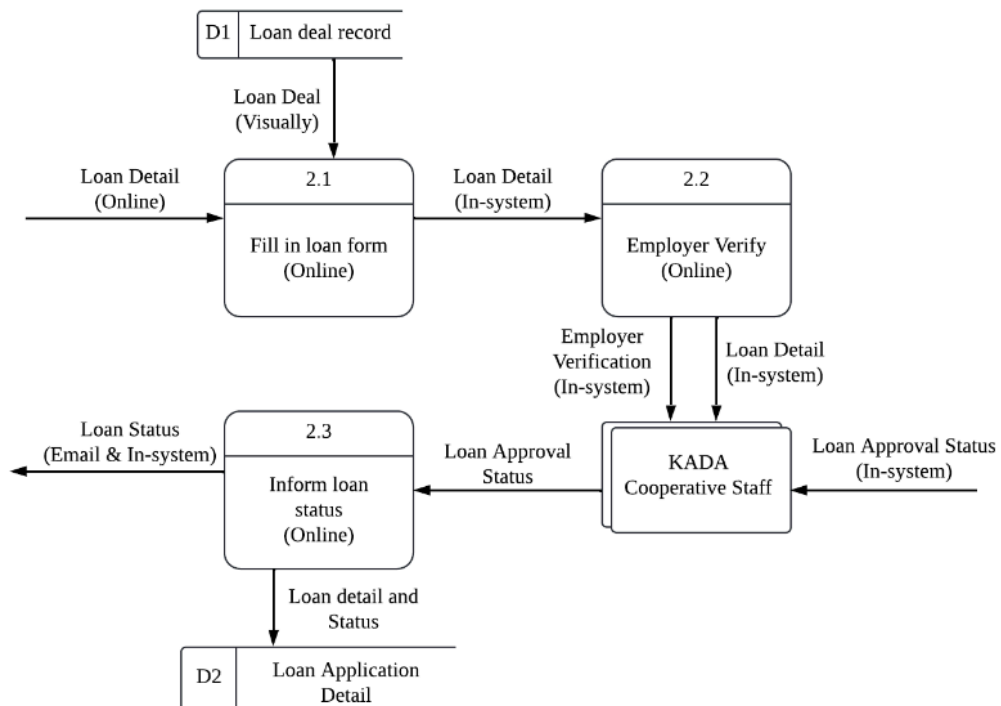
#### 3.1 Physical DFD Level 0 Diagram



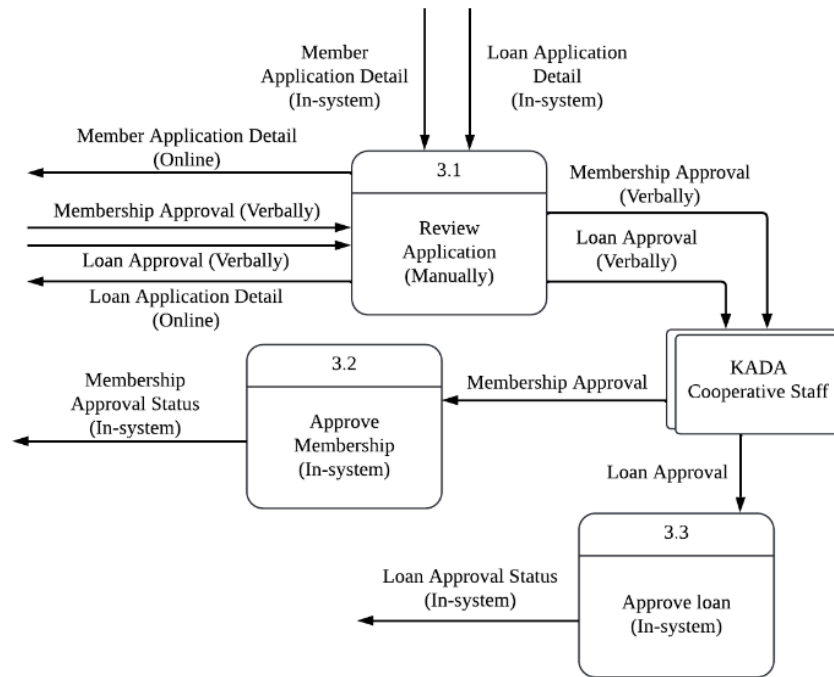
### 3.2 Physical DFD Child Diagram Process 1.0



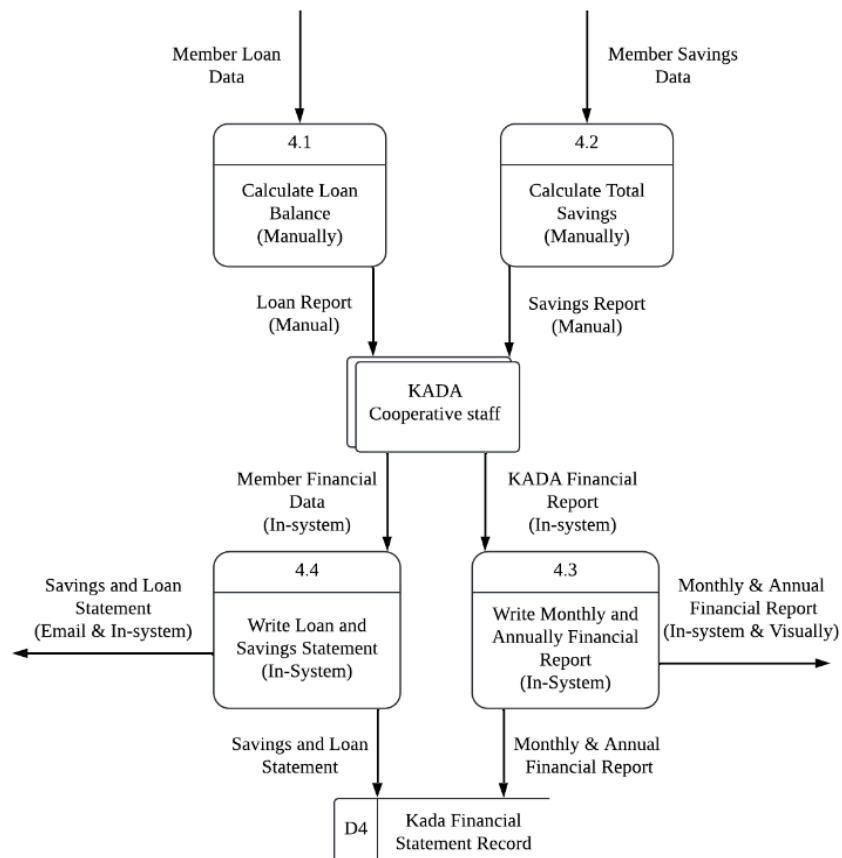
### 3.3 Physical DFD Child Diagram Process 2.0



### 3.4 Physical DFD Child Diagram Process 3.0



### 3.5 Physical DFD Child Diagram Process 4.0

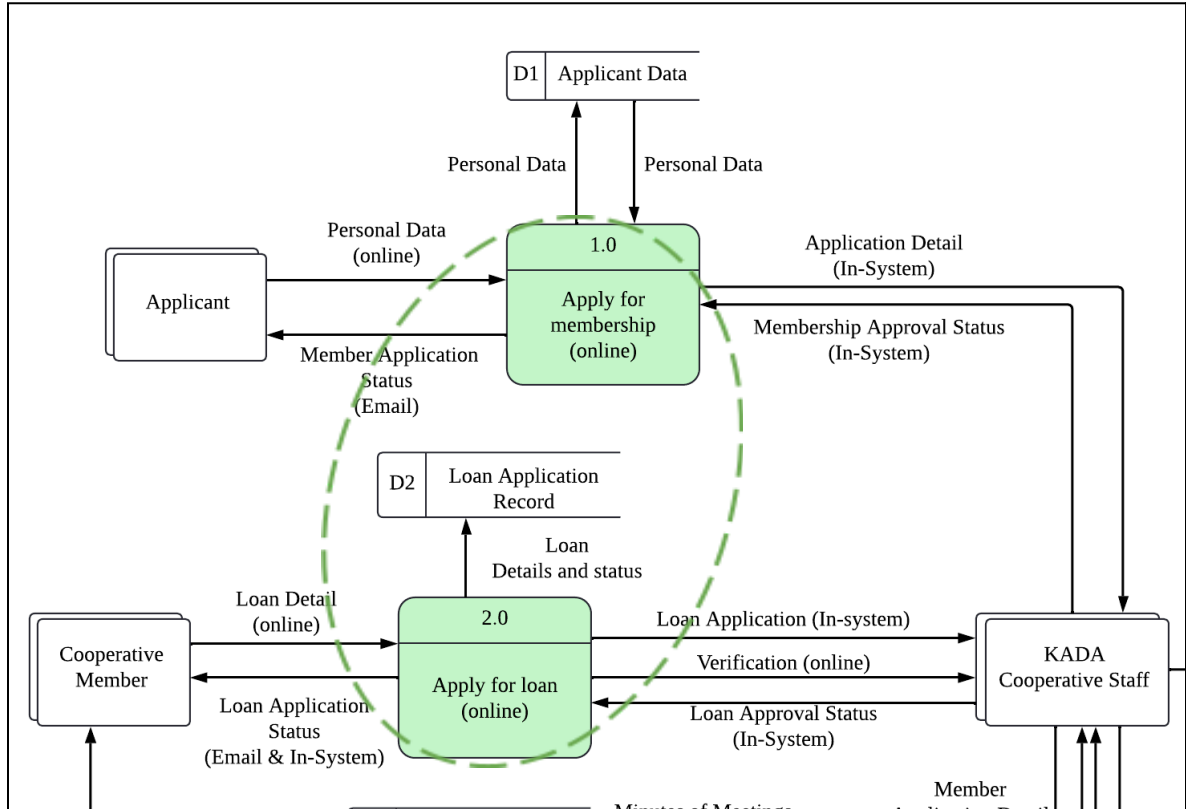


### 3.6 Partitioning

- Group 1 :

Process 1.0 and Process 2.0 : Similar Task

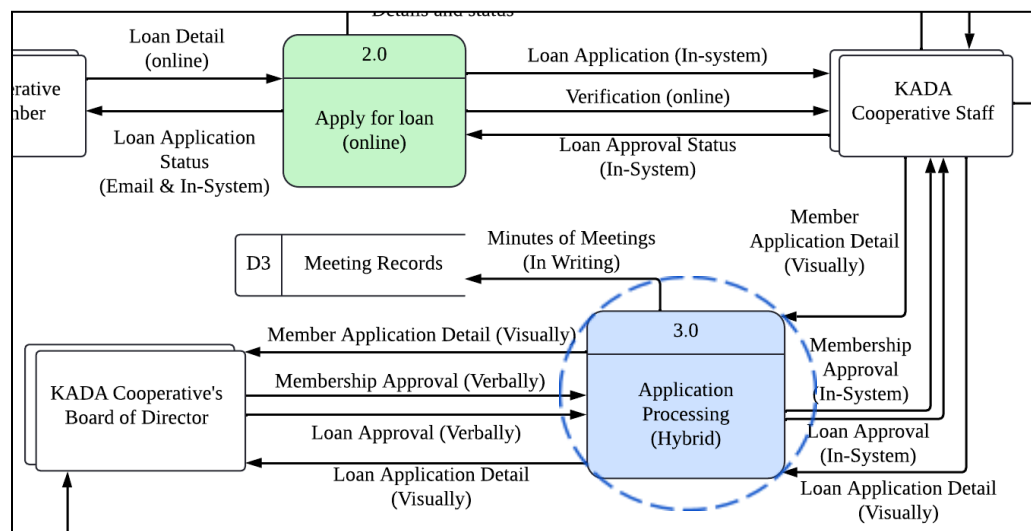
Indicates processes that collect user information and update the application status.



- Group 2 :

Process 3.0 : Different Users

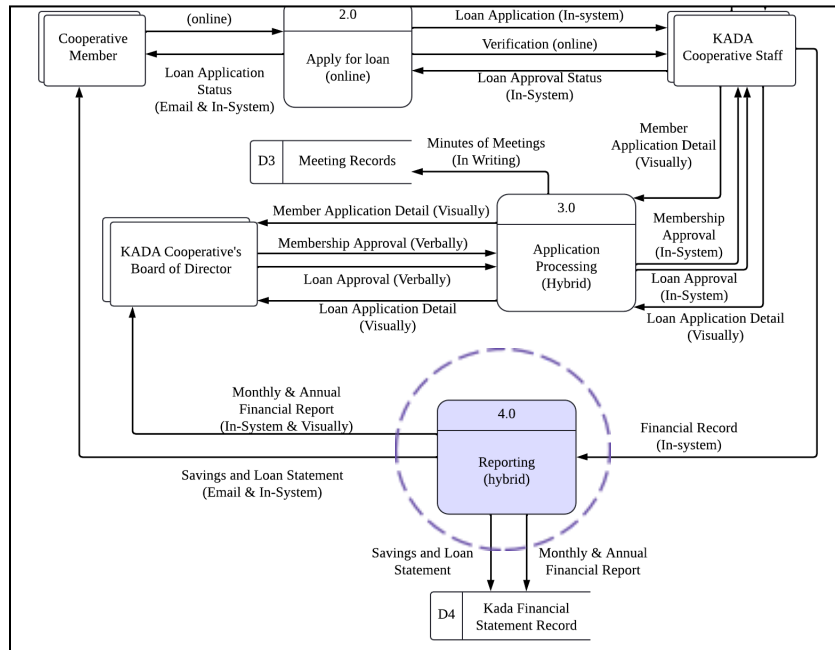
Indicates processes that verifying member application and loan applications through a meeting discussion between board of directors and system admin.



- Group 3 :

Process 4.0 : Batch Process

Indicates process reporting financial statements and reports from the KADA system to Cooperative Member and KADA board of directors.



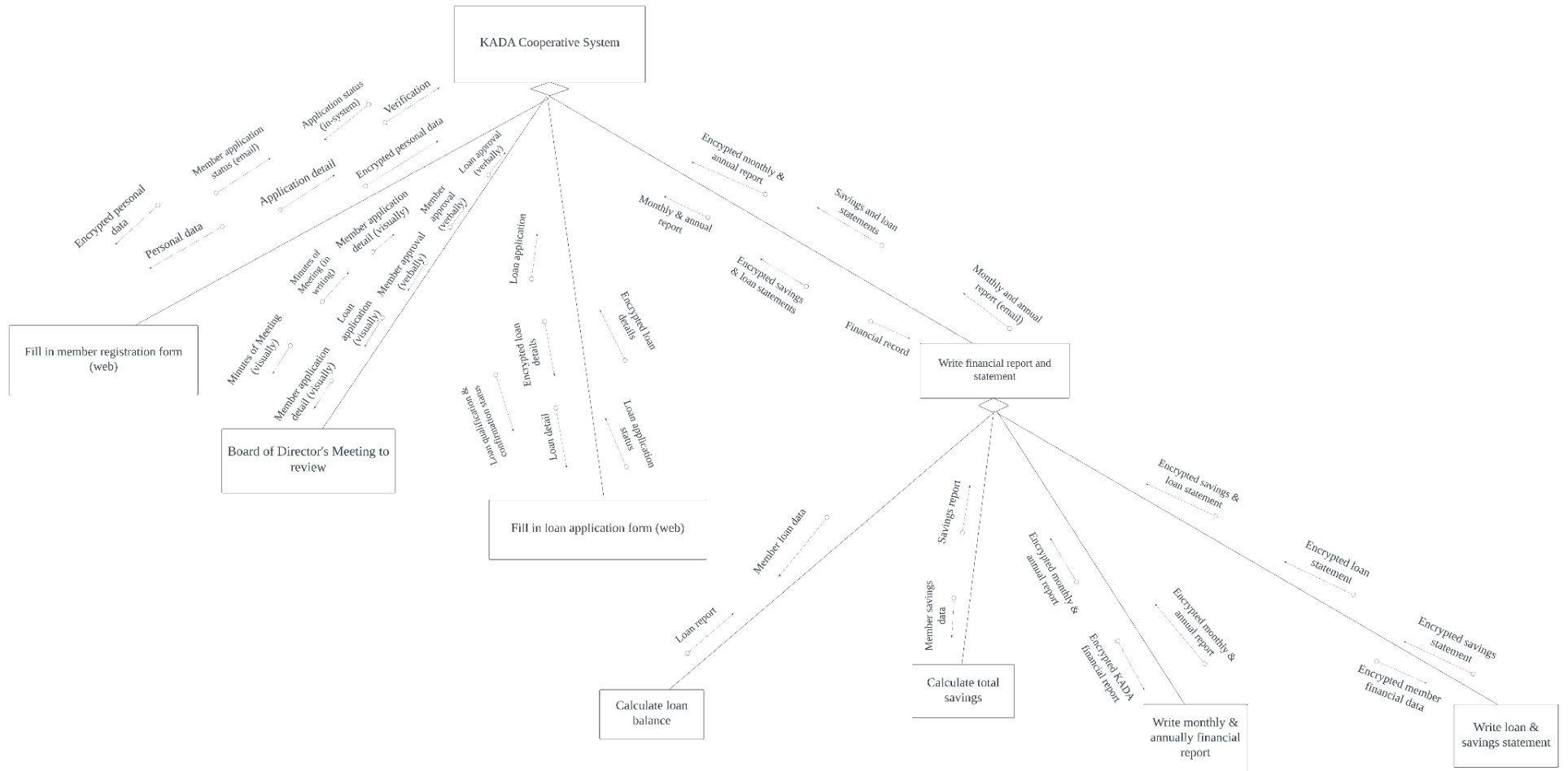
### 3.4 CRUD Matrix

| Activity                                    | Applicant Data | Meeting Record | Membership Status Detail | Loan Deal Record | Loan Application Detail | KADA Financial Statement Record |
|---|----------------|----------------|--------------------------|------------------|-------------------------|---------------------------------|
| Fill in membership form                     | CR             |                |                          |                  |                         |                                 |
| Inform membership status                    | R              |                | CU                       |                  |                         |                                 |
| Review application                          |                | RU             |                          |                  |                         |                                 |
| Approve membership                          | R              | U              | R                        |                  |                         |                                 |
| Fill in loan application form               |                | R              |                          | R                | CR                      |                                 |
| Inform loan status                          |                |                |                          |                  | U                       |                                 |
| Approve loan                                | R              | U              |                          |                  | R                       |                                 |
| Calculate loan balance                      |                |                |                          | R                |                         | RU                              |
| Calculate total savings                     |                |                |                          |                  |                         | RU                              |
| Write loan and savings statement            |                |                |                          |                  |                         | CU                              |
| Write monthly and annually financial report |                |                |                          |                  |                         | CU                              |

### 3.5 Event Response Table

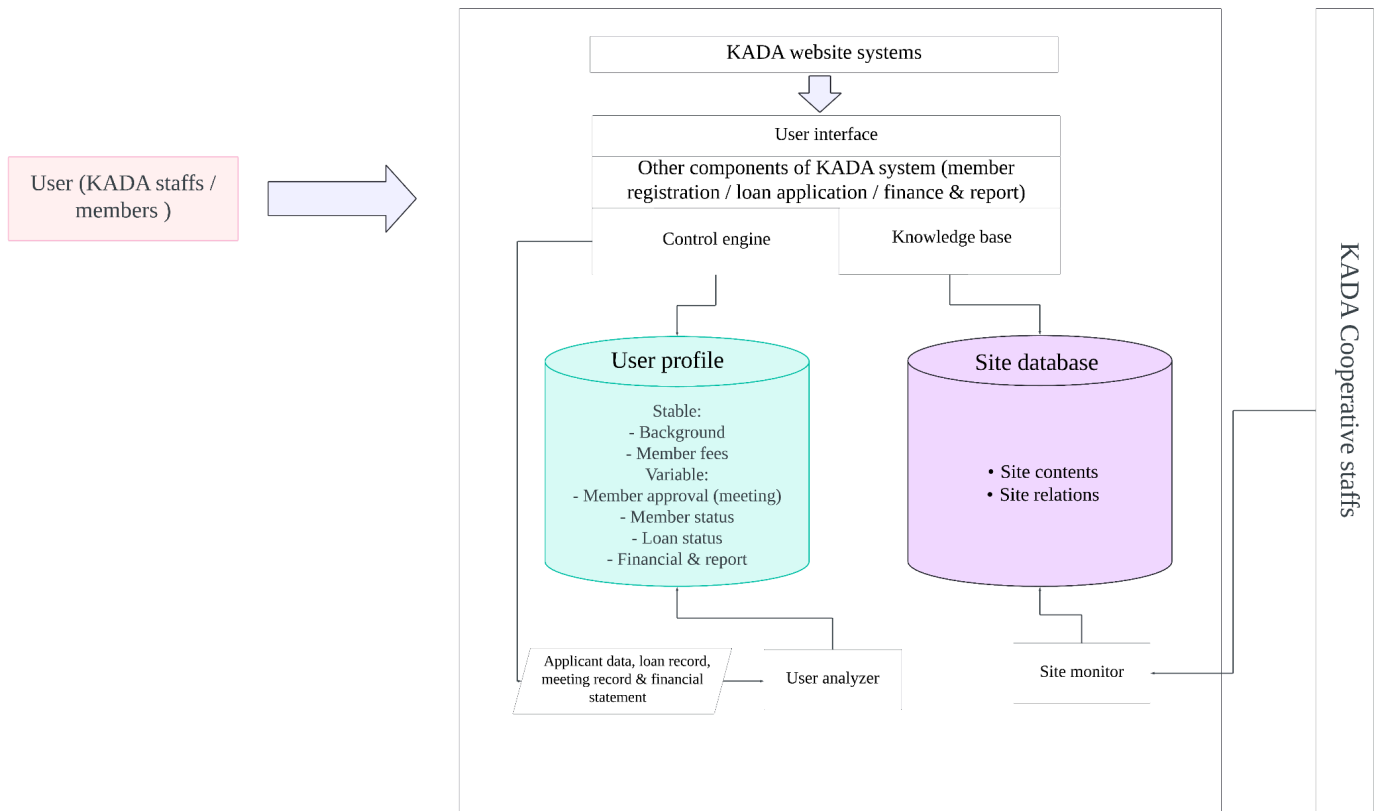
| Event   | Source                               | Trigger             | Activity   | Response                   | Destination                          |
|---|--------------------------------------|---------------------|--|----------------------------|--------------------------------------|
| Register to be a member of KADA                             | Applicant                            | Personal data       | Applicants need to fill their personal information into the application form to be a member of KADA and system admin will announce their status                        | Member application status  | Applicant                            |
| Apply for loan  | Cooperative member                   | Loan detail         | Member should fill in their loan detail and wait for the status approval by KADA cooperative staffs  | Loan application status    | Cooperative member                   |
| Obtain application status                                   | KADA Cooperative Staff               | Application status  | KADA Cooperative Staff will get approval of member applications and loan applications via board of director meeting. Notify the applicants through the system.         | Application detail         | KADA Cooperative Staff               |
| Review member application detail                            | KADA Cooperative's Board of Director | Membership approval | KADA Cooperative's Board of Director will approve the applications that qualify to be a cooperative member of KADA through the meeting session.                        | Member application detail  | KADA Cooperative's Board of Director |
| Approve the loan application                                | KADA Cooperative's Board of Director | Loan approval       | KADA Cooperative's Board of Director supposed to announce the qualified loan application through the meetings for KADA Cooperative Staff to announce it in the system. | Loan application detail    | KADA Cooperative's Board of Director |
| Insert the financial report                                 | KADA Cooperative Staff               | Financial record    | KADA Cooperative Staff required to summary the financial reports monthly and annually for the KADA Cooperative's Board of Director to review.                          | Monthly and Annual report  | KADA Cooperative's Board of Director |
| Savings and loan statement for cooperative member to review | KADA Cooperative Staff               | Financial record    | KADA Cooperative Staff will update the cooperative members savings and loan statement in the system to let the cooperative member update with their financial record.  | Savings and loan statement | Cooperative member                   |

### 3.6 Structure Chart





### 3.7 System Architecture



## 4.0 System Wireframe

The wireframe

<https://www.figma.com/design/fmOM73PkW43IRRtUIv2Ky9/KADA-SYSTEM?node-id=0-1&t=X55UV1pICo5lsTLx-1>

The Flow of System Prototype for user, administrator and board of director

<https://www.figma.com/proto/fmOM73PkW43IRRtUIv2Ky9/SAD---KADA-SYSTEM?node-id=13-266&t=yKmZWa72YqFNJgYv-1&scaling=contain&content-scaling=fixed&page-id=0%3A1&starting-point-node-id=13%3A266>