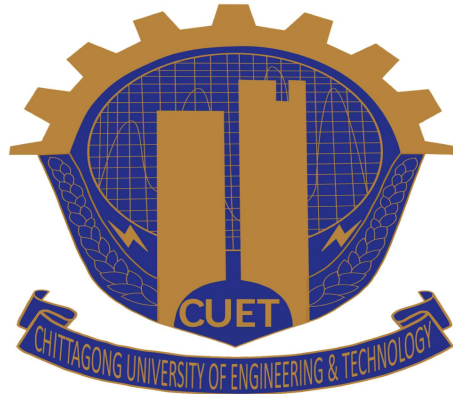


# Chittagong University of Engineering and Technology



## Department of Computer Science and Engineering

Course Code : CSE-354

Course Title : Systems Analysis and Design (Sessional)

### System Analysis and Design on Islami Bank Bangladesh Limited (Jatrabari Branch)

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## **1. Introduction**

A data flow diagram (DFD) is a graphical depiction of the movement of data in any system. It may depict incoming data flow, exiting data flow, and store data. A data flow diagram depicts how data flows through a system. It provides effective graphical communication between the user and the analyst. DFD represents the flow of external entities, processes, and data storage in any system. DFD symbols include a rectangle to represent an external object, a circle to represent a process, and lines with arrows to indicate data flows.

A context diagram depicts the interactions of external elements with an internal software system. Context diagrams are high-level diagrams meaning they don't go into the detailed ins and outs of the system. Instead, they draw out a complete system in a basic, transparent, and easy-to-understand manner. DFDs are divided into two types: physical DFDs and logical DFDs. The physical data flow diagram illustrates how the system will be built. Physical data flow diagrams are often far more dynamic than logical data flow diagrams. Logical data flow diagrams show how the organization operates. The processes represent the activities of the firm.

## **2. System Development Life Cycle (SDLC)**

The system development life cycle is a sequence of steps that includes the design and development of a new system. This life cycle encompasses the whole creative process, from inspiration to development, release, and maintenance. Analysts utilize SDLC to create an information system.

SDLC is used to configure a variety of hardware and software, and it consists of a number of clearly defined and separate phases. SDLC attempts to create high-quality systems that meet or exceed customer expectations, based on customer needs, within specified timeframes, and at fixed costs.

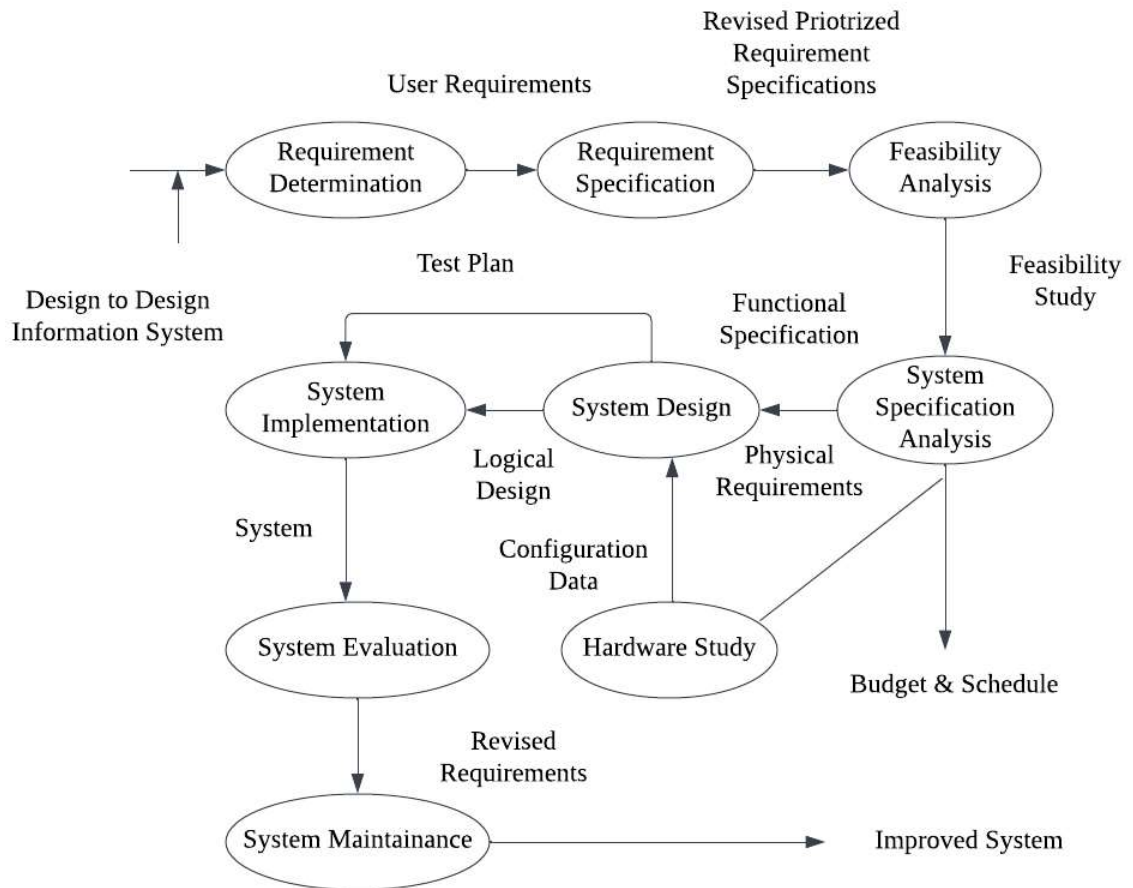


Figure 1: System Development Life Cycle

### 3. Data Flow Diagram

A data flow diagram (DFD) models the process features of an information system by graphically depicting the "flow" of data through it. It can also be used to symbolize how data is changed within a system. DFDs display the data flow between processes, data sources, and external entities. They can be used to model a high-level depiction of the system or a more in-depth one. DFDs can also be used to model system interfaces and identify data and procedures that are essential to a system.

### 3.1 Context Diagram

The complete system is depicted as a single process in the context diagram. It displays how a system interacts with the external things with whom it is intended to interface. However, it simply presents a general overview of the system and doesn't explain how the system's functions or other activities are actually carried out. Additionally called top-level DFD.

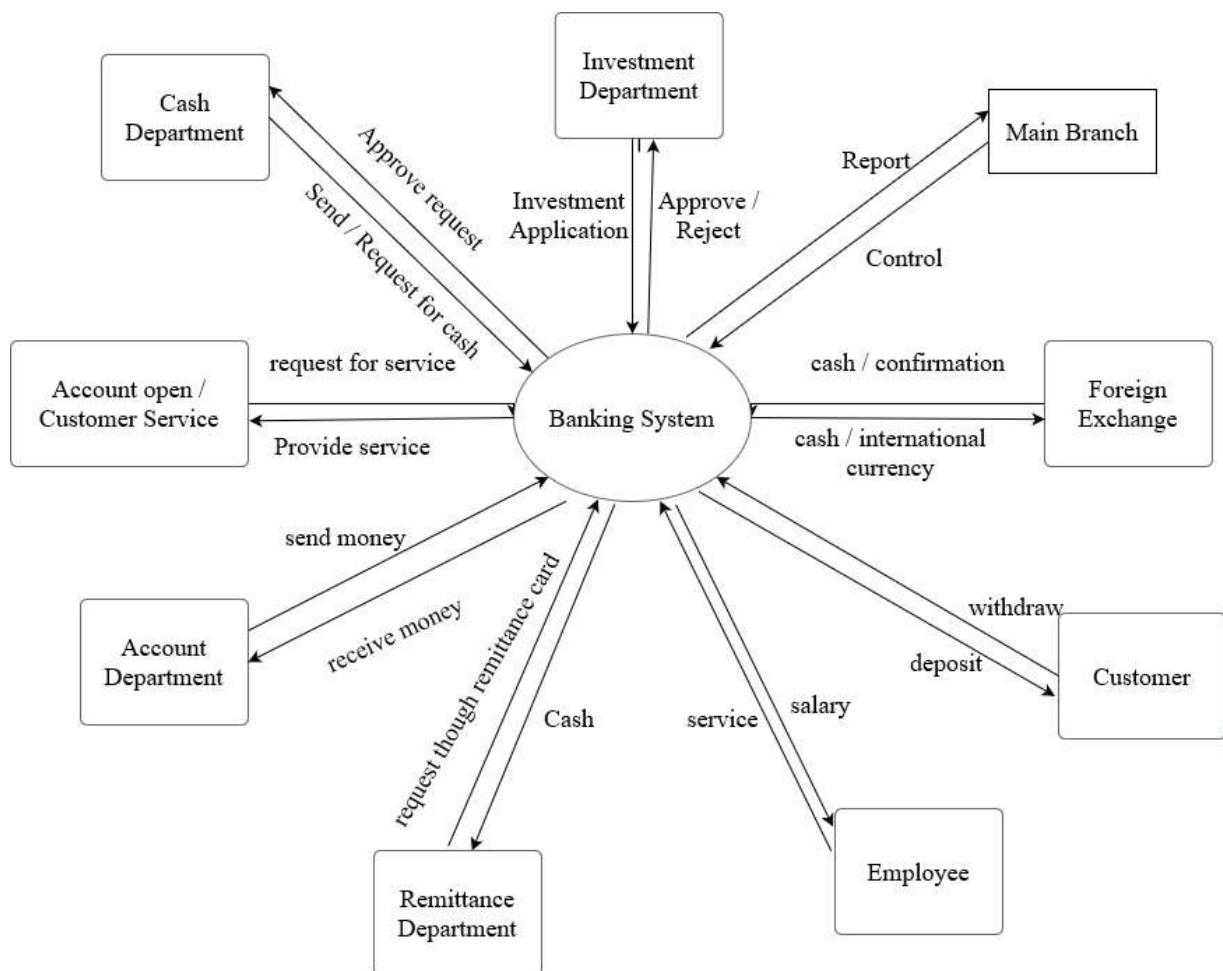


Figure 2: Context Diagram

## 4. Logical DFD

### 4.1 Account Opening/ Customer Service

In this section, the customer provides the completed application and required documents to open a bank account. The application and documents are checked and then forwarded for approval. After getting approval, an account is assigned and an account number is provided to the customer. Finally, the account database is updated and the application is stored. Here customers can ask for any information they need or queries they have.

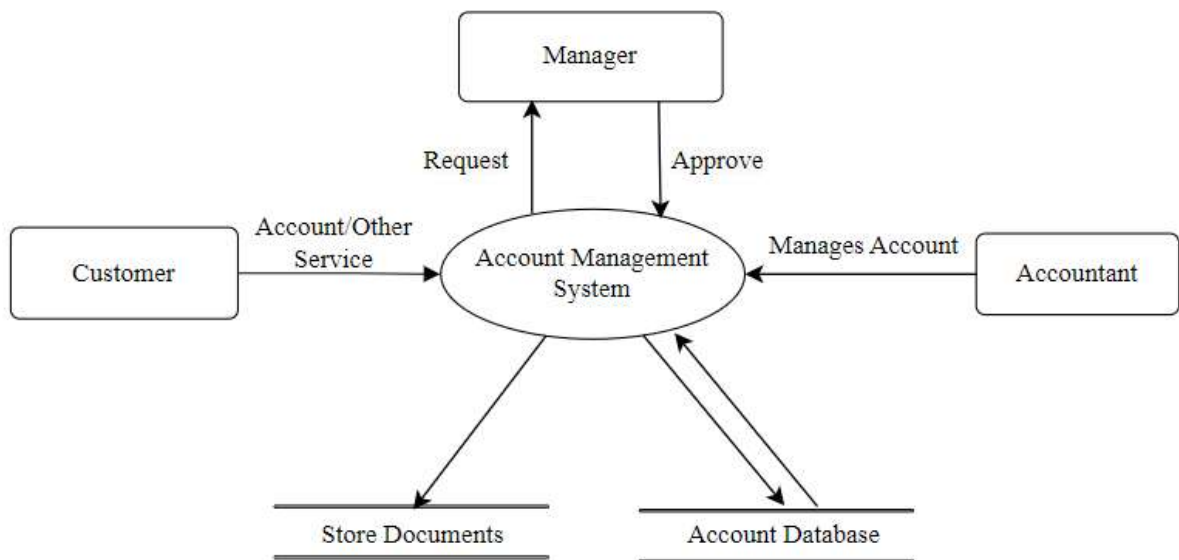


Figure 3: Logical DFD of Account Opening/ Customer Service

### 4.2 Account Section

In the account section, a person (a customer of the bank) sends money to another person (not necessarily a customer of the same bank). Customer requests transactions, and after account verification and checking the balance from the account database transaction request is approved and money is sent to the receiver. The sender receives a confirmation message.

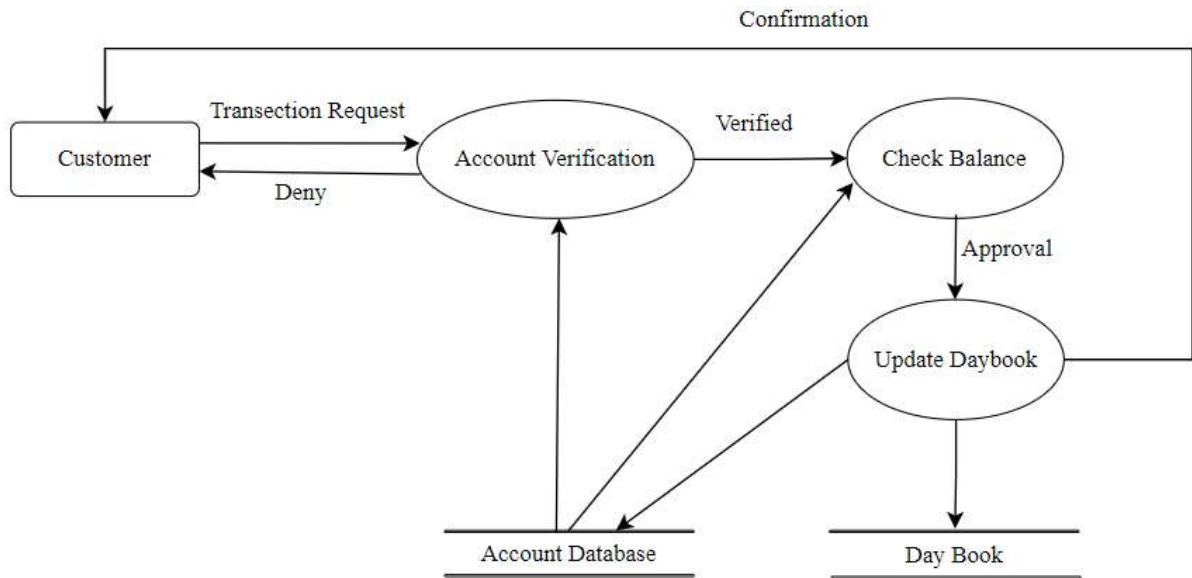


Figure 4: Logical DFD of Account Section

### 4.3 Cash Section

Customers deposit or withdraw money through this section. Customers give cheques or cash for withdrawal or deposit. After the account verification deposit is completed by updating the daybook and account database. For withdrawal checking the balance is required with account verification. If the requested withdrawal money is less than the account balance then it is approved. The customer receives cash money and the account database and daybook are updated.

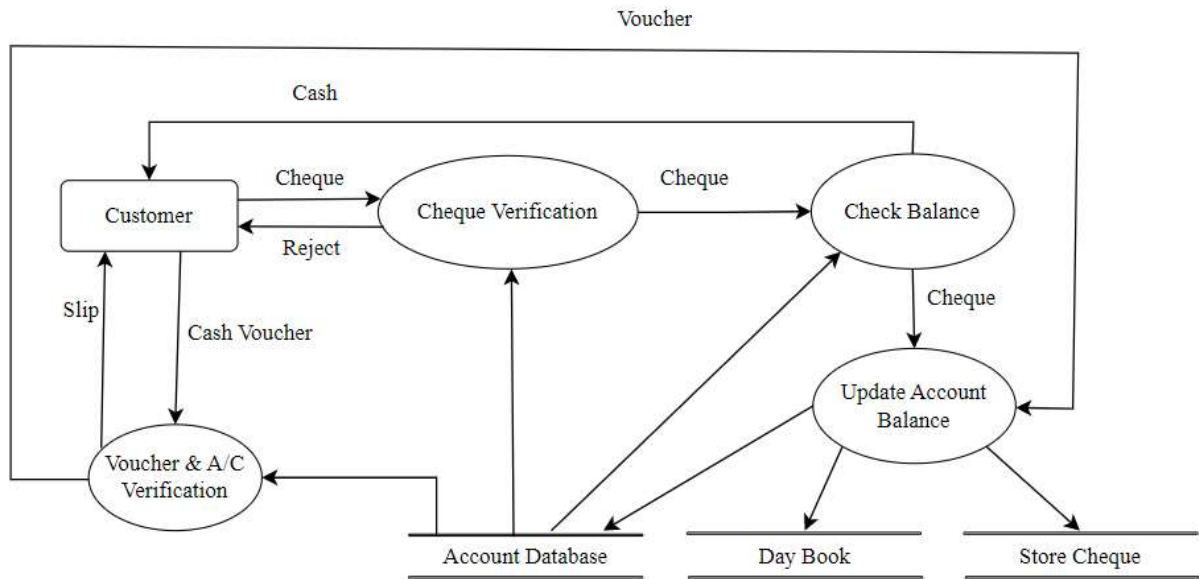


Figure 5: Logical DFD of Cash Section

#### 4.4 Remittance Section

Remittance from abroad is sent through this section. Here customers can use two options. They can send it through a remittance card or any branch of the bank where it's available. If remittance is sent through any branch it is received by the receiver through money exchange. While sending through a remittance card it is required to check the balance of the remittance card and directly receive it from the receiver in a short period of time.



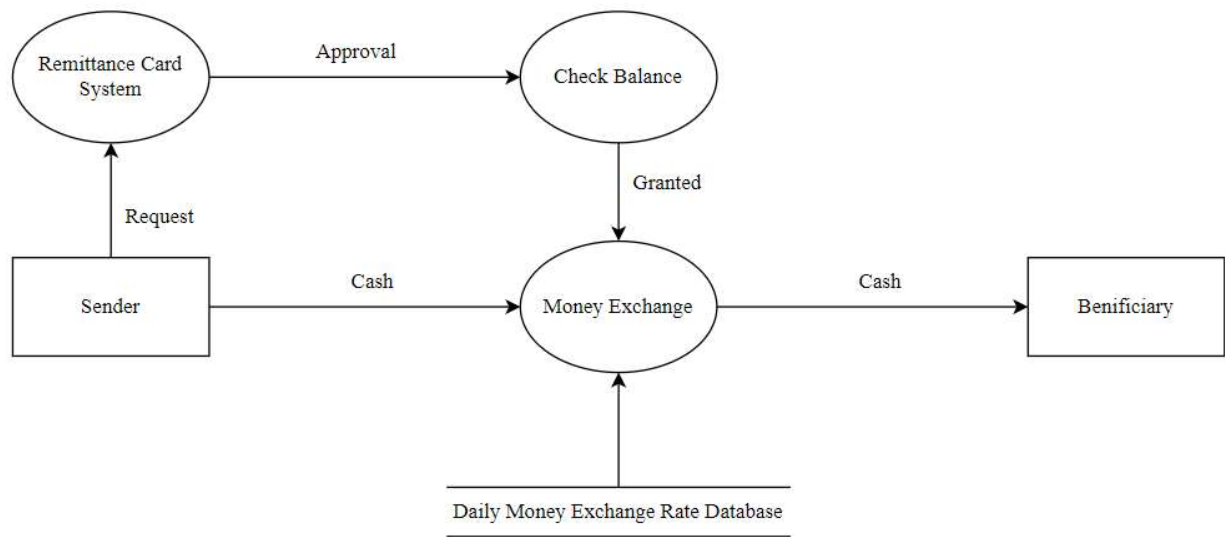


Figure 6: Logical DFD of Remittance Section

## 4.5 Investment Section

Customers apply for investment through the completed application with the required papers. Checking the provided papers it is forwarded to the head of the branch. If the application satisfies some requirements it is approved. Here the central branch set the investment policy.

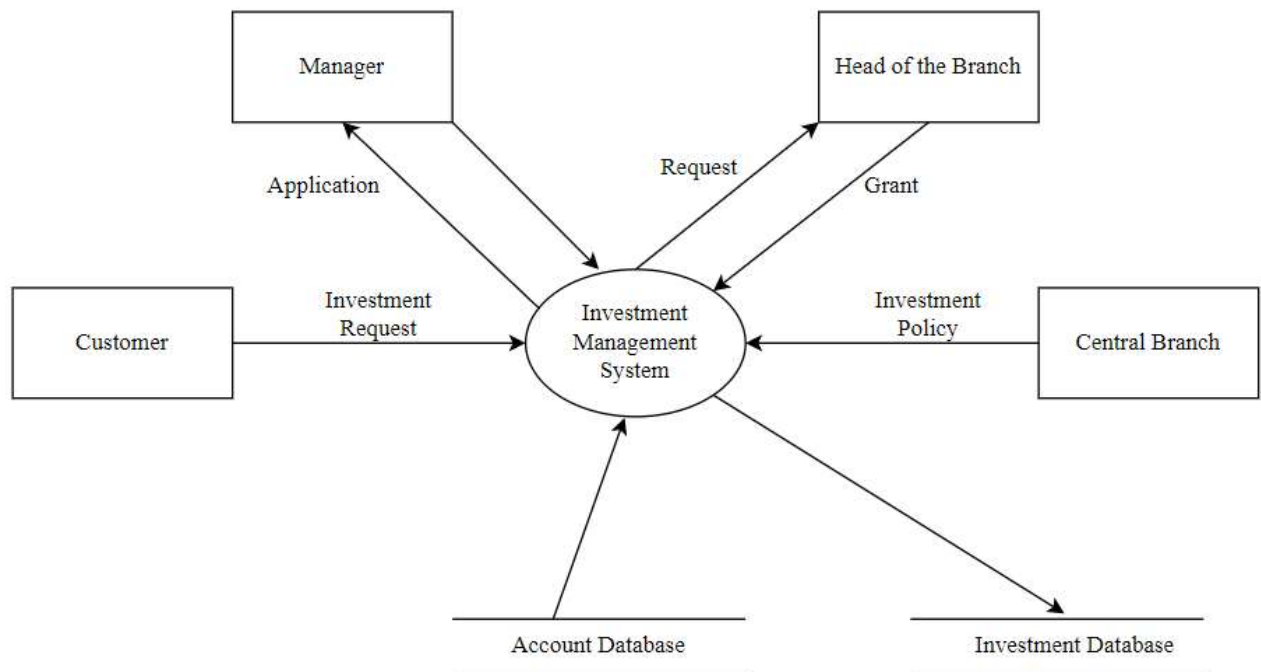


Figure 7: Logical DFD of Investment Section

#### 4.6 Export Import Section

Buyers apply for opening a letter of credit (L/C) providing an Import Registration Certificate (IRC). Verifying IRC and L/C authorization from the central bank database the branch approves the L/C and sends a message along with the documents to the advising bank to advise the seller. The advising bank informs the seller and asks to submit seller documents. Through the verification of the Export Registration Certificate (ERC) from the central bank of the seller's country, the seller gets the buyer's documents.

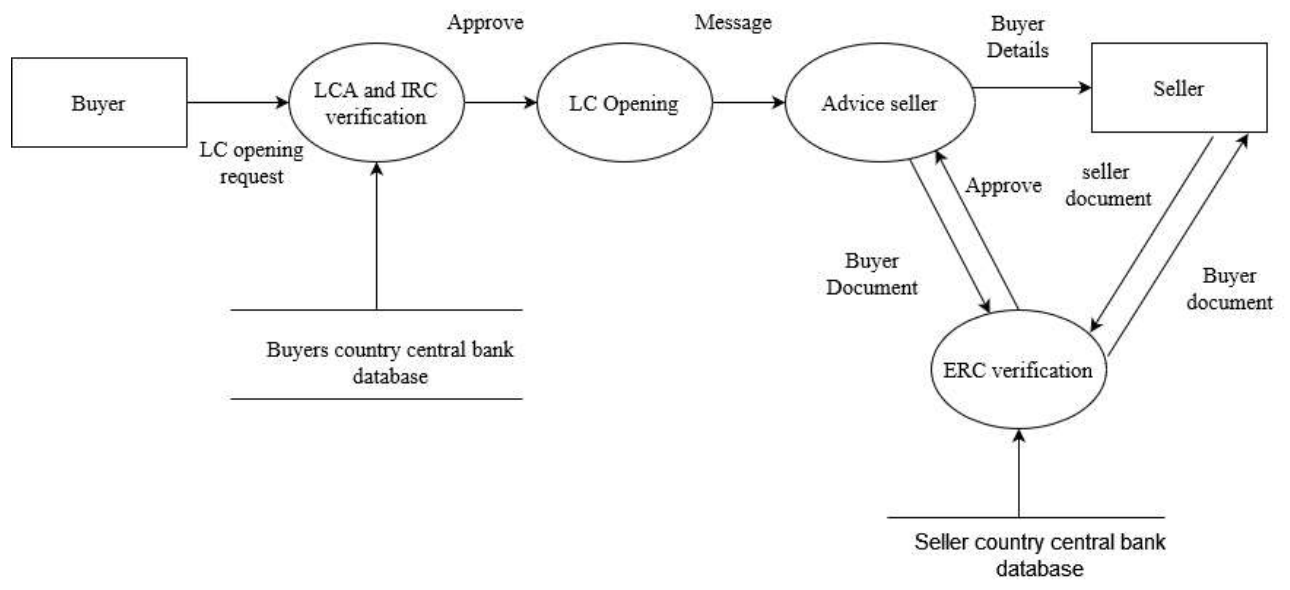


Figure 8: Logical DFD of Export Import Section

## 5. Physical DFD

### 5.1 Account Opening/ Customer Service

The customer provides the completed application and required documents to open a bank account. The application and documents are checked by a clerk and then forwarded to the manager. After getting approval from the manager, an account is assigned and an account number is provided to the customer. Finally, the account database is updated and the application and documents are stored. Here customers can also ask for any information they need or queries they have.

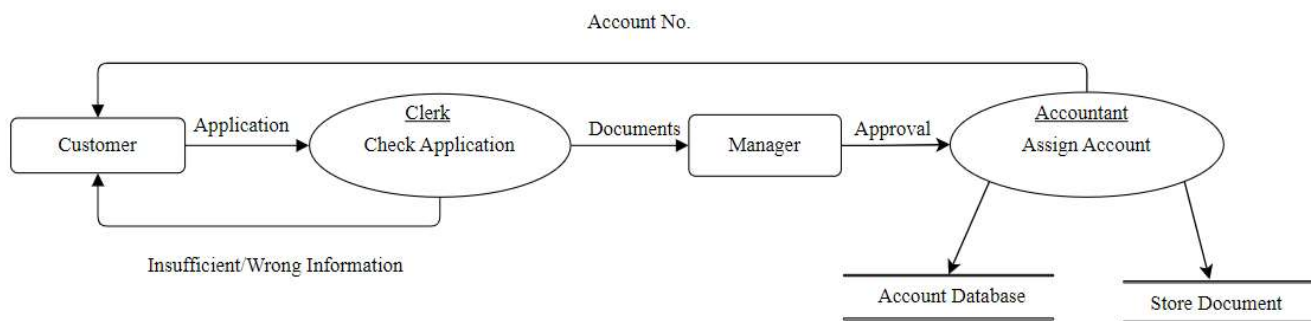


Figure 9: Physical DFD of Account Opening/Customer Service

## 5.2 Account Section

In the account section, a person (a customer of the bank) sends money to another person (not necessarily a customer of the same bank). Customers request transactions providing vouchers/tokens. An accountant verifies the account and checks the balance from the account database and approves transactions and updates the daybook and account database. Money is sent to the receiver. The sender receives a confirmation message.

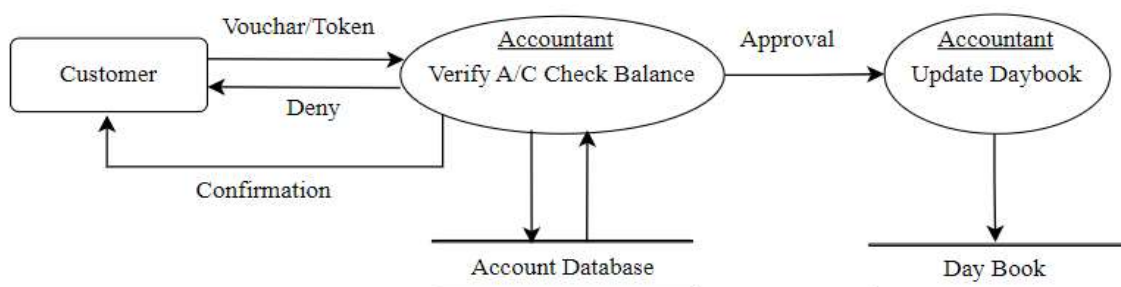


Figure 10: Physical DFD of Account Section

### 5.3 Cash Section

Customers give cheques or cash and vouchers for withdrawal or deposit. After account verification by the cashier, the deposit is completed by updating the daybook and account database. The customer receives a slip. For withdrawal checking the balance is required with account and signature verification. A cashier performs the task. If the requested withdrawal money is less than the account balance then it is approved. Customers receive cash money and the account database and daybook are updated by the cashier.

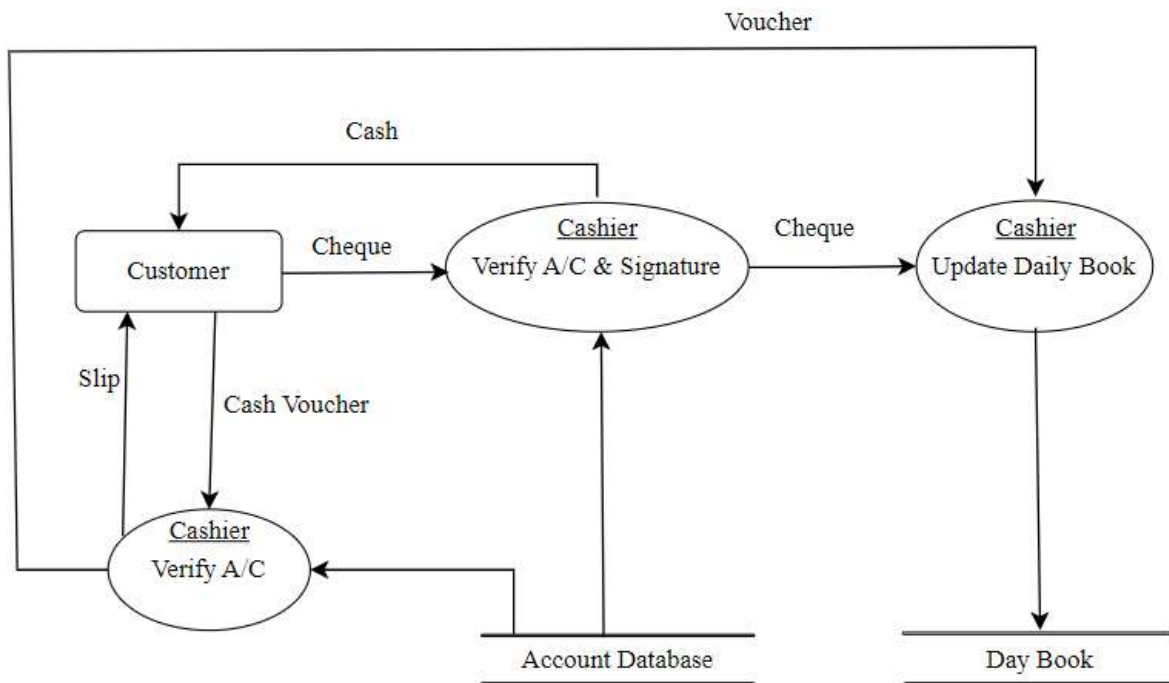


Figure 11: Physical DFD of Cash Section

## 5.4 Remittance Section

Remittance from abroad is sent through this section. Here customers can use two options. They can send it through a remittance card or any branch of the bank where it's available. If remittance is sent through any branch cash money is received by the receiver through money exchange. Here an officer checks the daily money exchange rate from the database. While sending through a remittance card it is required to check the balance of the remittance card and cash money directly received by the receiver in a short period of time.

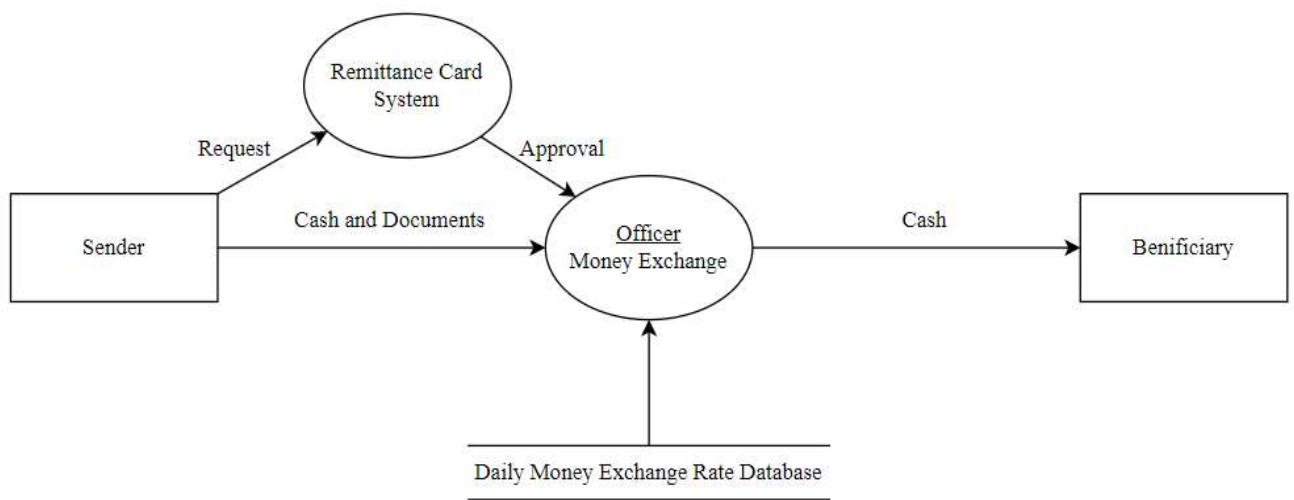


Figure 12: Physical DFD of Remittance Section

## 5.5 Investment Section

Customers apply for investment through the completed application with the required papers. Checking the provided papers by the manager is forwarded to the head of the branch. If the application satisfies some requirements it is approved by the head of the branch. Here central branch set the investment policy. After granting the investment the customer can sanction investment from the manager.

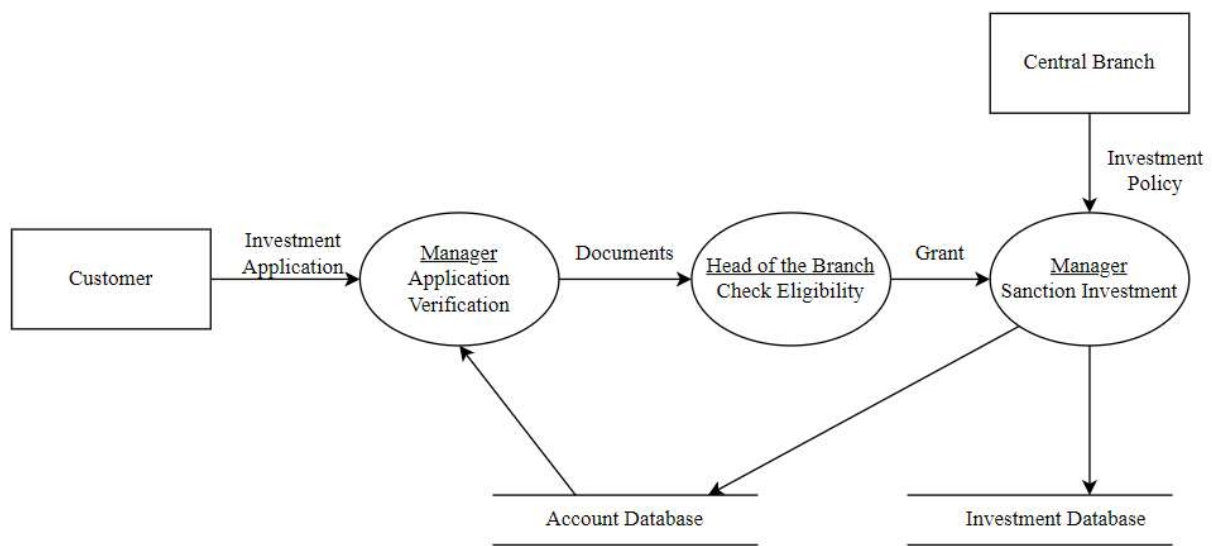


Figure 13: Physical DFD of Investment Section

## 5.6 Export Import Section

Buyers apply for an opening letter of credit (L/C) providing Import Registration Certificate (IRC). An officer verifies IRC and L/C authorization from the central bank database. The branch approves the L/C and sends a message along with the buyer documents to the advising bank to advise the seller. The advising bank informs the seller and asks to submit seller documents. Through the verification of the Export Registration Certificate (ERC) from the central bank of the seller's country by an officer, the seller gets the buyer's documents. And the buyer receives the shipment from the seller.

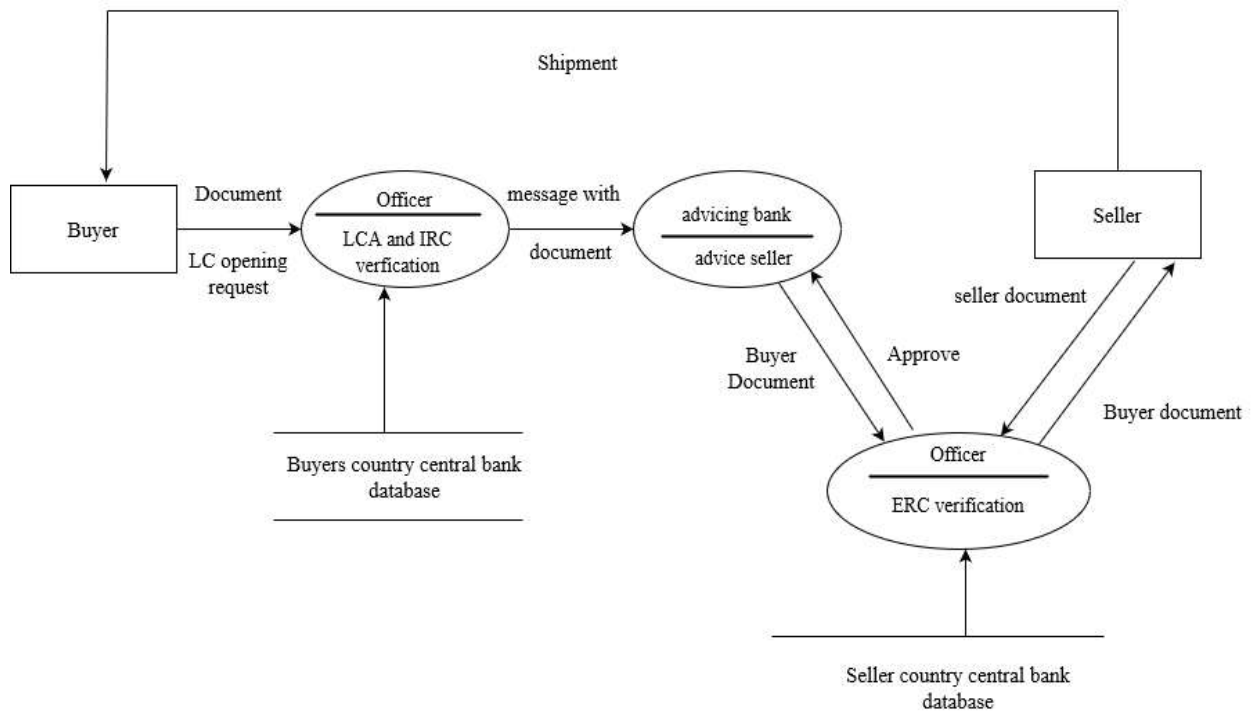


Figure 14: Physical DFD of Export Import Section

## 6. Validating the Data Flow Diagrams:

### 6.1 Rules of DFD

Data can flow from:

- External entity to process
- Process to external entity
- Process to store and back
- Process to process

Data cannot flow from:

- External entity to external entity
- External entity to store
- Store to external entity
- Store to store



Illegal Constructs in DFD:

- No loops are allowed in DFD
- A single data flow should not be divided into many flows with various labels
- No data flow allowed between data stores
- A process cannot be a pure decision

## **7. Conclusion**

In this study, the idea of a DFD (data flow diagram) is discussed in relation to a banking system. It explains how data flows between different entities and how this movement supports the accomplishment of key banking sector tasks. The study also goes through the procedures and guidelines for developing a DFD and the stages of the system's life cycle. Through these processes, we came to know that the data processing system of Islami Bank Bangladesh Limited, Jatrabari Branch.