Co-operative Society And Loan Management System

by

Examination Roll: 222149

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Supervisor: Dr. M Shamim Kaiser, Professor

Institute of Information Technology
Jahangirnagar University
Savar, Dhaka-1342
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DECLARATION

I hereby declare that this thesis is based on the results found by ourselves. Materials of work found by other researcher are mentioned by reference. This thesis, neither in whole nor in part, has been previously submitted for any degree.

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Roll:222149

CERTIFICATE

The project titled "Co-operative Society And Loan Management System" submitted by Md. Hasibuzzaman, ID: 222149, Session: Summer-2022, has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Professional Masters in Information Technology on the 3rd of January 2023.

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Dr. M. Shamim Kaiser
Supervisor

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ABSTRACT

The Co-operative Society Management And Loan System is a comprehensive software solution created to streamline and automate the functions of Co-operative societies under the Bangladesh Rural Development Co-operative Division authority. This summary offers insights into its main features and advantages.

Co-operative societies are pivotal in sectors like agriculture, finance, and housing, fostering collaboration among members and fostering economic development. Yet, the management of administrative tasks and financial transactions within these societies can be intricate and time-intensive. The Co-operative Society Management System seeks to simplify these processes by providing an efficient and user-friendly platform.

Keywords: Coop, Co-operative Society Management System, Socity Management System, cooperative and loan Management System and Samity Management System, planning and control system, coherence, efficiency, cooperative sector, cooperative associations.

LIST OF ABBREVIATIONS

IIT   Institute of Information Technology
JU   Jahangirnagar University
IIT   Institute of Information Technology
IIT   Institute of Information Technology
QoS   Quality of Service

LIST OF NOTATIONS

α	Define alpha
max	maximum
$\cos\theta$	maximum
x	maximum

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CHAPTER I

Introduction

1.1 Overview

The introduction of a Co-operative Society Management System marks a significant leap in the efficient and organized management of Co-operative societies. Co-operative societies play a vital role in various sectors, including agriculture, finance, and housing, by fostering collaboration among members and promoting economic development. However, managing the diverse functions and operations of these societies can be complex and demanding. This introduction provides an overview of the purpose, features, and benefits of such a system.

1.1.1 Purpose

The Co-operative Society Management System is designed to address the unique needs and challenges faced by Co-operative societies. Its primary purpose is to streamline and automate the administrative, financial, and member-related processes within a Cooperative society, ultimately enhancing its efficiency, transparency, and overall performance.

1.2 Background

The concept of Co-operative societies has a deep-rooted history in Bangladesh, dating back to the pre-independence period and gaining significant momentum in the post-independence era. Here's a brief background on Co-operative societies in Bangladesh:

Pre-independence Period: Co-operative societies in what is now Bangladesh can trace their origins to the British colonial period. During this time, Co-operative movements began to take shape, primarily in rural areas. These early Co-operatives aimed

to address the economic challenges faced by farmers and rural communities. However, the concept remained somewhat limited in scope. Post-independence Era: After gaining independence from Pakistan in 1971, Bangladesh faced numerous socio-economic challenges. Co-operatives were seen as a means to empower rural communities, alleviate poverty, and promote economic development. The government of Bangladesh began to actively promote and support Co-operative initiatives as part of its socioeconomic development strategy.

Co-operative societies in Bangladesh have a diverse history and have played a significant role in addressing rural and urban development challenges. With ongoing efforts to overcome challenges and promote transparency, Co-operatives continue to be a valuable instrument for socio-economic development and poverty reduction in the country.

1.3   AIM

The aims of Co-operative societies in Bangladesh are multifaceted and are aligned with socioeconomic development, poverty reduction, and the empowerment of various segments of society. Here are the primary aims of Co-operative societies in Bangladesh:

a. Poverty Alleviation

b. Rural Development

c. Agricultural Advancement

b. Financial Inclusion

c. Empowerment of Women

d. Housing and Urban Development

e. Entrepreneurship Development

f. Social Welfare

g. Community Building

h. Good Governance

Co-operative societies in Bangladesh have a broad spectrum of aims, all of which are geared towards socio-economic development, poverty reduction, and the empowerment of individuals and communities. They play a crucial role in addressing the diverse needs of their members and contribute to the overall development of the country

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1.4   Motivation

The motivation behind developing a Co-operative Society Management System stems from the recognition of several pressing needs and challenges within Co-operative societies. Here are the primary motivations:

1. Efficiency Enhancement: Traditional methods of managing Co-operative societies often involve manual paperwork, which can be time-consuming and error-prone. The motivation is to streamline operations and reduce administrative burdens by automating various tasks, ultimately improving efficiency.

2. Transparency and Trust: Co-operative societies rely on the trust and cooperation of their members. By implementing a management system, societies aim to enhance transparency in financial transactions, member interactions, and decision-making processes. This increased transparency fosters trust among members and stakeholders.

3. Compliance and Reporting: Many Co-operative societies are subject to regulatory requirements and reporting standards. A management system simplifies compliance by generating accurate financial reports and statements, making it easier to adhere to legal obligations.

4. Member Empowerment: Co-operative societies exist for the benefit of their members. By providing an online platform for members to access their account statements, apply for loans, and engage in discussions, the system empowers members and improves their overall experience.

5. Data Security: Data security and privacy are paramount. With the rise in cyber threats, a motivation for implementing a management system is to ensure that sensitive member and financial data is securely stored, reducing the risk of data breaches.

6. Scalability: As Co-operative societies grow, the need for efficient management becomes more critical. The system allows for scalability, enabling societies to accommodate a larger membership base and increasing volumes of financial transactions.

7. Cost Reduction: While there may be an initial investment in implementing the system, the long-term motivation is cost reduction. By automating tasks and reducing the need for extensive manual labor, Co-operative societies can save both time and money. The motivation for a Co-operative Society Management System lies in its ability to address the unique challenges faced by Co-operative societies, improve operational efficiency, enhance transparency, ensure accurate financial management, empower members, and ultimately contribute to the long-term sustainability and
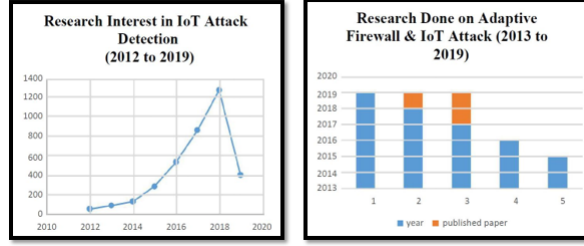
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Figure 1.1: Research Interest in Field of IoT

success of these Co-operative organizations.

In figure 1.1 shows the existing research interest in IoT Attack Detection which is increasing day by day for last few years whereas for detecting attack concept of Adaptive Firewall is not so common and used term in this field. This drives us motivated to design adaptive firewall for attack detection and to block illegitimate traffic on IoT Network Model.

1.5 Objective

IoT network model and devices are vulnerable to different kind of attacks. These attacks may vary to different category, so have different approach to detect and block them. The goal of this research is to study and identify potential IoT security attacks, detect and mitigate them by using Adaptive firewall concept. Additionally, machine learning should be considered for classifying attacks and identifying attacks [?]. Specific goals of this thesis that should be mentioned:

- Analyze network traffic to detect the malicious ones that tries to hamper the network.

- Find the characteristics of perception layer's attack to identify specific attacks.

- Extract features from the generated traffic datasets to train machine learning classifiers and apply them to recognize attacks.Propose a centralized attack detection model.

- Design a rule based and ANN based FIS to help SDN controller to evaluate specific attack probability and block the suspicious ones.

- Maintaining the performance of the network.

This proposed model also answers the following questions:

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1. What are the major challenges that have guided security in IoT?

2. What is the best attack detection way for IoT network model?

3. Is there any generalized approach for detecting different layer attack?

4. What is the best way to detect a single layer attack?

1.6 Assumptions & Limitations

Though a centralized and efficient model has been proposed to detect attacks on IoT network, it has limitations on which further studies should be done:

- No approach has been mentioned for network and application layer security.

- No real time data has been used for the traffic analysis.

- Here feature Extraction and Selection method has been analyzed but no implementation has been shown.

- No comparison among different IDS model has been analyzed so can't be declared it as the optimal way.

- No performance measure of used Classifier is evaluated here.

1.7 Research Outline

Rest of the report is structured as follows: In **Chapter II** a literature study on related work is given including explanations for the most important terms used in this thesis-basic concept and architecture of IoT Network Model, Attacks on IoT, Concept and architecture of SDN, different model of IDS, Concept of Firewall has been discussed through this chapter. **Chapter III** introduces system model including system architecture, algorithm and flowchart of working procedure of entire system model. **Chapter IV** explains the details of traffic analysis techniques, Feature Extraction and Selection mechanism and tools for this mechanism and reasoning how these mechanisms work for our model. **Chapter V** discusses about the simulation and model performance, to analysis result of the model it describes the basic mechanism of attack detection like Fuzzification, NSL KDD dataset, FIS, Defuzzification,Simulation and confusion matrix. Lastly in **Chapter VI** future work and conclusion is mentioned.

1.8 Limitation

Bla bla bla

CHAPTER II

Literature Review

2.1 Definition of Co-operative society:

- A Co-operative society is an autonomous association of persons who voluntarily cooperate for their common economic interest.

- Cooperatives are made out of cooperative and based on the values of self-help, self-responsibility, democracy and equality, equity and solidarity.

2.2 Seven Co-operative features:

- **Voluntary and Open Membership:** The cooperative is open to all individuals who are willing to accept the responsibilities of membership.

- **Democratic Member Control:** The members actively participate in making decisions, and the organization is controlled democratically.

- **Economic Participation by Members:** Members contribute equitably to, and democratically control, the capital of the cooperative.

- **Autonomy and Independence:** The cooperative is an autonomous, self-help organization controlled by its members.

- **Education, Training, and Information:** The cooperative provides education and training to its members to help them contribute effectively to the development of the cooperative.

- **Cooperation Among Cooperatives:** Cooperatives work together for mutual benefit and the sustainable development of their communities.

- **Concern for Community:** Cooperatives strive for the sustainable development of their communities through policies approved by their members.

2.3   History of Cooperative Movements

- **Shore Porters' Society:** Established in Aberdeen in 1498, the Shore Porters' Society claims to be one of the earliest cooperative societies globally [1].

- **Lennoxtown Friendly Victualling Society:** Founded in 1812, the Lennoxtown Friendly Victualling Society is one of the cooperative formations that emerged in the following decades [2].

- **P.C. Plockboy's Proposal (1659):** In 1659, P.C. Plockboy published a pamphlet outlining a scheme for the formation of economic associations [3].

- **Frnwick Weaver's Society (1761):** Possibly the first evidential cooperative, Frnwick Weaver's Society, was established on March 14, 1761, in a cottage in Fenwick, East Ayrshire. Local weavers initiated the cooperative by selling discounted oatmeal from John Walker's front room [4].

- **Cooperative Movement in Europe:** The cooperative movement in Europe is believed to have started in the 19th century, primarily in England and France.

- **Robert Owen's Contribution:** Robert Owen, a social worker and reformer, is considered a pioneer of the cooperative movement [5].

- **Rochdale Principles (1844):** In 1844, the Rochdale Society of Equitable Pioneers established the 'Rochdale Principles,' which became the foundation for their cooperative's operation, development, and the growth of the modern cooperative movement [6].

2.4   Cooperative Movement in India

- **Derrick Nicholson's Initiative (1892):** In 1892, Derrick Nicholson explored ways to establish institutions supporting the agricultural sector. In response to a severe famine in 1899, he proposed the establishment of cooperative societies to aid in agricultural development [7].

- **Co-operative Societies Act (1904):** The Co-operative Societies Act was enacted in 1904, officially recognizing the cooperative movement in India. Subsequently expanded under the 1912 Act, its objective was to assist rural farmers and artisans by providing both short-term and long-term loans [8].

- **Models for Credit Societies:** Credit societies were organized based on two models: one for rural areas and another for urban areas, each with distinct features. The initial model was the Reinfusion Model, later evolving into the Schulze Delitzsch Bank Model. Despite the growth of cooperative societies in rural areas, they faced challenges and could not operate effectively for various reasons [9].

- **Defects Leading to Ineffectiveness:**

  - Lack of provision for establishing Noncredit Cooperative Societies in rural areas.

  - Absence of a dedicated central agency for financing and supervising the activities of these societies.

  - The division of Credit Cooperative Societies into rural and urban types posed a barrier, as no specific arrangements could be made due to the overlapping nature of such classification.

2.5   Cooperatives in Bangladesh

- **Historical Evolution:** Cooperatives in Bangladesh have traversed a century, initially focusing on agriculture and subsequently expanding into economic spheres. Recognized constitutionally as a vital sector in the post-independent Bangladesh economy, the Cooperative Society has evolved into a significant social institution. Dr. Akther Hamid Khan has played a pivotal role in its establishment (Scribd).

- **National Cooperative Day:** Every year on November 6, Bangladesh observes National Cooperative Day throughout the country. During the 39th National Cooperative Day at the Bangabandhu International Conference Centre in Dhaka, Prime Minister Sheikh Hasina (2010) emphasized the urgency of finalizing a national cooperative policy to invigorate cooperative activities. The government is committed to expanding the cooperative movement for socio-economic and cultural emancipation (Sheikh Hasina, 2010).

- **Annual Report 2011 Highlights (Scribd):** According to the annual report in 2011, there has been continuous growth in the number of registered primary cooperatives over the last five years. In the fiscal year 2010-11, the number of primary cooperatives increased to 1,75,839 (4.56% growth), cooperative members reached 89,54,237 (2.23% growth), share capital rose to T 512.95 crore (9% growth), and loan disbursement and collection increased to TK 1638.92 crore and TK 1476.98 crore, respectively.

- **Revised Rules and Regulations (google.com.bd):**

  1. Citation

  2. Application for registration

  3. Annual return

  4. Information in annual return

  5. Other returns

  6. Fee

- **Survey Findings:** A survey of 41 cooperatives revealed:

out of 41	Provide information	Reasons
20	100%	We found the responsible person and they were okay
12	40%	We couldn't find the management/who knows all t
9	10%	They were actually scared/ignorant

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CHAPTER III

System Model

3.1   Proposed Architecture

CHAPTER IV

Algorithm Analysis

4.1   Traffic Analysis

CHAPTER V

Performance Analysis

5.1 Fuzzification

CHAPTER VI

Discussion and Conclusion

6.1 Limitations of Co-operative Society Management Systems

Co-operative society management systems, like any other systems, have their limitations. Here are some common limitations associated with Co-operative society management systems:

1. **Limited Resources**

2. **Technical Expertise**

3. **Data Security Concerns**

4. **Integration Challenges**

5. **Limited Access to Technology**

6. **Resistance to Change**

7. **Maintenance and Upkeep**

8. **Customization Needs**

9. **Dependency on Vendors**

10. **Legal and Regulatory Compliance**

Addressing these limitations requires careful planning, adequate resources, and a willingness to adapt to new technologies and processes. Co-operative societies need to assess their unique needs and challenges to select and implement a management system that aligns with their objectives and resources.

6.2 Future-Oriented Plan for Co-operative Society Management

Creating a robust Co-operative society management system requires careful planning and consideration of various aspects. Here's a future-oriented plan to enhance the efficiency and effectiveness of a Co-operative society management system:

1. **Digital Transformation**

2. **Data Security and Privacy**

3. **Member Engagement**

4. **Financial Management**

5. **Governance and Compliance**

6. **Community Building**

7. **Analytics and Reporting**

8. **Continuous Improvement**

9. **Disaster Preparedness**

10. **Environmental Sustainability**

By integrating these strategies, a Co-operative society can not only streamline its operations but also enhance member satisfaction, foster community engagement, and ensure long-term sustainability in an ever-changing future landscape.

6.3 Conclusion

The implementation of a Co-operative Society Management System can have several positive outcomes for both the society and its members.

In conclusion, a Co-operative Society Management System not only modernizes the functioning of the society but also enhances member satisfaction, financial stability, and community development. It is a strategic investment that can pave the way for the sustainable growth of Cooperative societies in the future.

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