International Journal of Core Engineering & Management

Volume-7, Issue-09, 2024, ISSN No: 2348-9510

SYSTEM ANALYSIS & DESIGN PROJECT FOR FINANCIAL INVESTMENT GROUP

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Abstract

Coleman Financial Investment Group (CFI) uses Financial Management System (FMS), it's an accounting software application. FMS provides accounting functionality powerful enough for the most demanding user and straightforward for inexperienced users. With multi-user capability and a wide array of modules, FMS accounting software helps CFI to grow.

Keywords: Financial Investment Group, System Design, System Analysis

I. Accounting and Financial Management System:

Coleman Financial Investment Group (CFI) uses Financial Management System (FMS), it's an accounting software application. FMS provides accounting functionality powerful enough for the most demanding user and straightforward for inexperienced users. With multi-user capability and a wide array of modules, FMS accounting software helps CFI to grow.

FMS application is a web-based application hosted on cloud. This application is designed using latest Microsoft Technologies like .Net Framework, Kendo UI, Knockout JS, SQL Server, Reporting Services, WCF Services, etc….

Major Modules of FMS Application includes:

- Payroll
- Accounts Payable
- Accounts Receivable
- Bank Reconciliation
- General Ledger
- Job Costing
- Purchase Order
- Sales Order

FMS application is widely used by the Finance Department, HR Department and Higher Management Stakeholders.

Organizations often need a way to keep score when conducting business operations. Accounting usually fits this need because it allows companies to create financial reports that can be compared with other companies or an industry standard. Business owners and managers also use accounting to review the efficiency of operations. This information may help owners and managers make business decisions and improve the company's profitability.

An organization's fiscal management plays a critical role in the financial success of a business. Therefore, an organization should consider fiscal management a key part of the general management of the

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Volume-5, Issue-3, June-2018, ISSN No: 2348-9510

organization. Fiscal management includes the tactical and strategic goals related to the financial resources of the business.

1. **User Interface:**

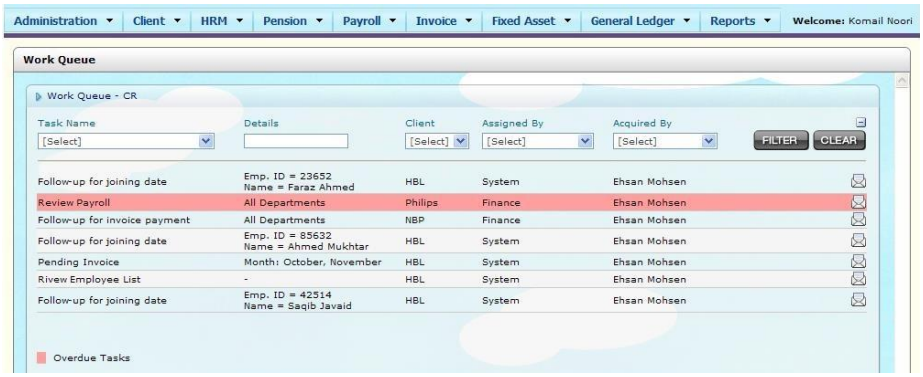

Figure 1

2. **Data Flow Diagram:**

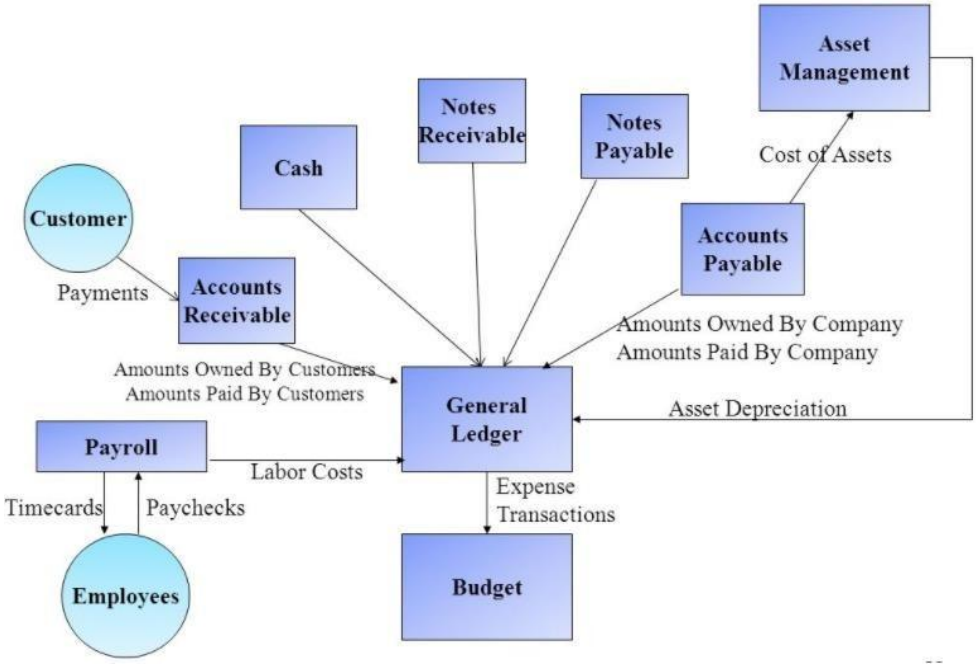

Figure 2

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3. General Ledger Report Format:

General Ledger

Chart of Accounts	Fiscal Year	Journals	Display Account	Filter By Periods		Entries Sorted By	Target Moves
				Start Period	End Period		
Your Company	Fiscal Year 2011	TSAJ, TSCNJ, TEXJ, TECNJ, TBNK, TCHK, TCSH, TMIS, TOEJ, STJ, SAJ, EXJ, SCNJ, ECNJ, MISC, BNK1, as	With movements	10/2011	10/2011	Date	All Posted Entries

Date	Period	JRNL	Partner	Ref	Move	Entry Label	Counterpart	Debit	Credit	Balance	Currency
241000 Voitures								**57000.00**	**0.00**		
					*	Initial Balance		0.00	0.00	0.00 €	
10/03/2011	10/2011	EXJ	Mediapole SPRL	112.2011	EXJ/2011/0001	Car	411059,440000	17000.00	0.00	17000.00 €	
10/16/2011	10/2011	EXJ	Distrib PC	Mercedes	EXJ/2011/0002	Car SFW 614	411059,440000	15000.00	0.00	32000.00 €	
10/17/2011	10/2011	EXJ	Elec Import	154	EXJ/2011/0004	My New Car	411059,440000	25000.00	0.00	57000.00 €	
241900 Amortissements sur matériel automobile								**0.00**	**512.88**		
					*	Initial Balance		0.00	0.00	0.00 €	
10/14/2011	10/2011	as	Mediapole SPRL	5/1	Car	Car	630100	0.00	512.88	-512.88 €	
400000 Clients								**4589.00**	**0.00**		
					*	Initial Balance		1089.00	0.00	1089.00 €	
10/17/2011	10/2011	SAJ	Ecole de Commerce...	SAJ20110001	SAJ/2011/0001	/	701000	2000.00	0.00	3089.00 €	
10/17/2011	10/2011	SAJ	Ecole de Commerce...	SAJ20110002	SAJ/2011/0002	/	700000	1500.00	0.00	4589.00 €	
411059 T.V.A Déductible								**12138.00**	**0.00**		
					*	Initial Balance		168.00	0.00	168.00 €	
10/03/2011	10/2011	EXJ	Mediapole SPRL	112.2011	EXJ/2011/0001	VAT-IN-V83-21-C1 - ...	241000,440000	3570.00	0.00	3738.00 €	
10/16/2011	10/2011	EXJ	Distrib PC	Mercedes	EXJ/2011/0002	VAT-IN-V83-21-C1 - ...	241000,440000	3150.00	0.00	6888.00 €	
10/17/2011	10/2011	EXJ	Elec Import	154	EXJ/2011/0004	VAT-IN-V83-21-C1 - ...	241000,440000	5250.00	0.00	12138.00 €	

Figure 3

4. Class Diagram:

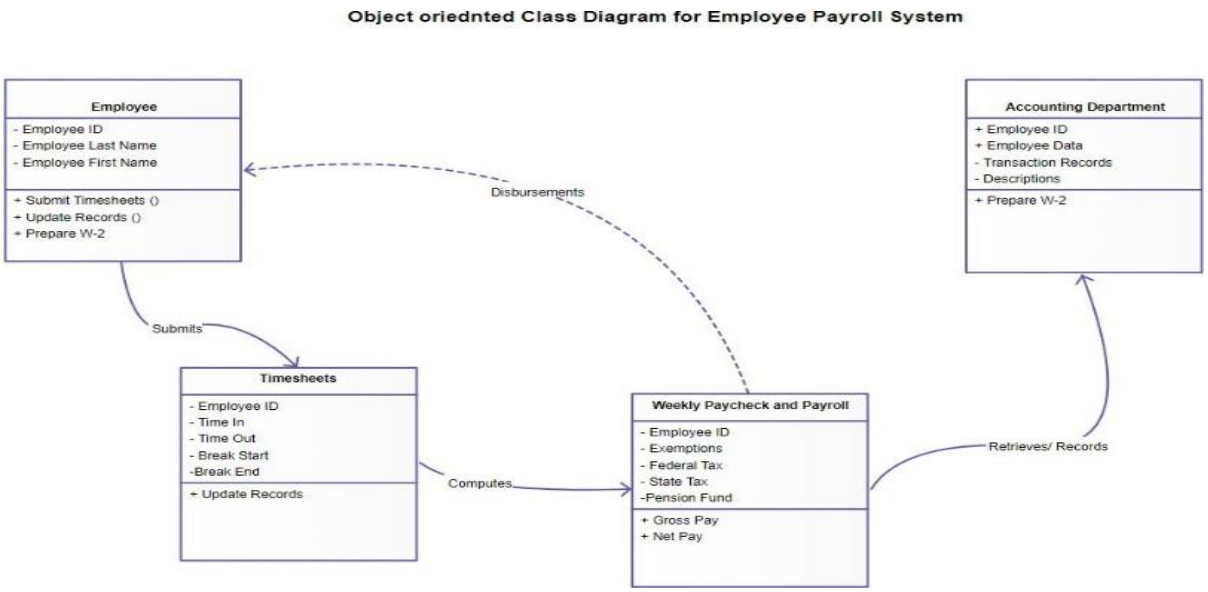

Figure 5

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II. Customer Relationship Management System:

Customer relationship management System (CRM) is an approach to managing a company's interaction and relationships with current and potential customers (Smith, 2019). The goal is simple: Improve business relationships. A CRM system uses data analysis about customers' history with a company and helps companies stay connected to customers, streamline processes, and improve profitability.

Benefits of a Customer Relationship Management System:

a) Increase knowledge of target audience. CRM systems help businesses learn more about their target customers and how to meet their needs effectively.
b) Increase referrals from existing customers. By better catering to your existing customers, you increase customer retention & loyalty which then leads to them telling a friend. Hence, an increase in customer referrals.
c) Improve products and services. With all the knowledge from the data gathered, you now have a better idea of your customers' feelings about your organization. Hence you can spot problems early, find gaps and improve the products and services you offer accordingly, thereby increasing efficiency and effectiveness.
d) Improve your numbers. With a better understanding of your target audience, more customers through referrals and increased efficiency and effectiveness, you will see direct correlation to the revenue of the company.

Being a small financial institution with a customer-centric business culture, our CRM is both Strategic and Analytical. Which means we analyze customer data collected through multiple sources to make more informed decisions. But at the end of the day customer satisfaction is the driving force.
Our CRM system consist of two main categories:

1 Non - Digital

As the name suggest, this includes all the forms of information gathering which are looked at as old school as listed below:

- Word of Mouth feedback
- Feedback forms/ surveys
- Faxes
- Letters
- Complaints

2 Digital

This is where we use technology to gather our information using various sources.

- Website
- Email
- Social Media
- Blogs
- Telephone

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All information gathered is categorized as either Customer Satisfaction (C-Sat) or Customer Dissatisfaction (D-Sat). The information is then analysed and gave to the different departments where it is useful in making business decisions.

III. Data Flow Diagram:

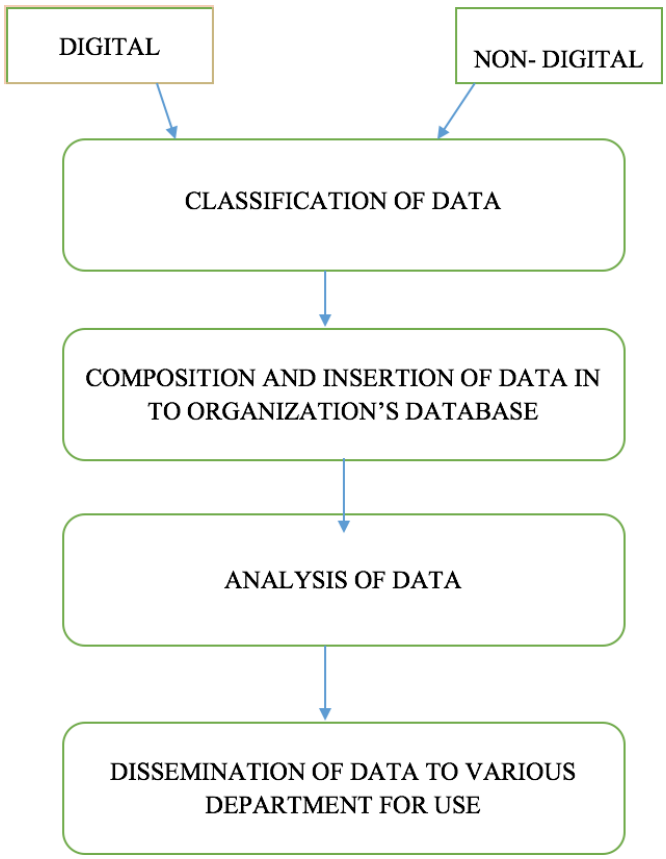

Figure 5

IV. BUSINESS INTELLIGENCE SYSTEM

The financial services industry is rapidly changing. Factors such as globalization, deregulation, mergers and acquisitions, competition from non-financial institutions, and technological innovation, have forced companies to rethink their business. Many large companies have been using Business Intelligence (BI) computer software for some years to help them gain competitive advantage. With the introduction of cheaper and more generalized products to the marketplace BI is now in the reach of smaller and medium-sized companies. Business Intelligence is also known as knowledge management, management information systems (MIS).

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For business users, the right reporting software is simply the solution that lets them work with information the way they want to. It means accessing relevant information is fast and easy. You are confident that the numbers you see are the same throughout the organization. The reports you receive are presented in context so you can make informed decisions rather than waste time debating what action to take. The right reporting software for businesspeople removes the limits to fact-based, better business decisions

V. GOALS OF DATA WAREHOUSE:

One of the most important assets of any organization is its information. The users of an operational system turn the wheels of the organization. They take orders, sign up new customers, and log complaints. Users of an operational system almost always deal with one record at a time. They repeatedly perform the same operational tasks over and over. The users of a data warehouse, on the other hand, watch the wheels of the organization turn. They count the new orders and compare them with last week's orders and ask why the new customers signed up and what the customers complained about.

Users of a data warehouse almost never deal with one row at a time. Rather, their questions often require that hundreds or thousands of rows be searched and compressed into an answer set. To further complicate matters, users of a data warehouse continuously change the kinds of questions they ask. Thus, goals of Data Warehouse are listed as follow:

- The data warehouse must make an organization's information easily accessible.
- The data warehouse must present the organization's information consistently.
- The data warehouse must serve as the foundation for improved decision making.
- The data warehouse must be adaptive and resilient to change.

VI. SOFTWARE REQUIREMENT SPECIFICATION:

1. Project Scope:

The project aims to create a Decision Support System (DSS) which will provide a solution to banking and finance so they can find various trends of their product. To achieve the above aim, the following must be done:

- Analyse data on hand
- Supply adequate information to users of the system so that they can take a proper decision.

The proposed system will be web-based which will consider the existing data and help the banking and finance organizations take decisions to enhance services provided by them.

During this stage, the objectives of penetration testing and the limits of such tests are identified. To address the issue, several actions must be taken to make the test legal and ethical: gathering information on the target system, identifying potential entry points, and outlining rules for penetration [6].

2. User Classes and Characteristics:

There are various kinds of Users using this Product. Each user is privileged, and they will have limited access to reports. Users can divide into three categories like Developer, Admin and Users. Each user will have access assigned to their groups.

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3. Operating Environment

The Product will be implemented using PHP. It should therefore run on any platform. We will use designs and code that are not specific to any platform, but we will primarily use Windows as the operating system.

4. Design and Implementation Limitations

The Product will be developed using PHP and the backend database for this is MySQL.

- The product is carried out with login facility so that specific function is available to specific User.
- The Product Architecture should be resilient to changes in the future as demanded by Users.
- The GUI should appear consistent throughout the product and all functionalities should be easily locatable.

5. Assumptions and Dependencies

The product needs the following third-party product.

- PHP as frontend
- MySQL as backend.

We are going to assume that Financial Database is already imported at our end.

VII. Data Flow Diagram (DFD)

A data flow diagram (DFD) visually represents how data moves through an information system. It illustrates the data

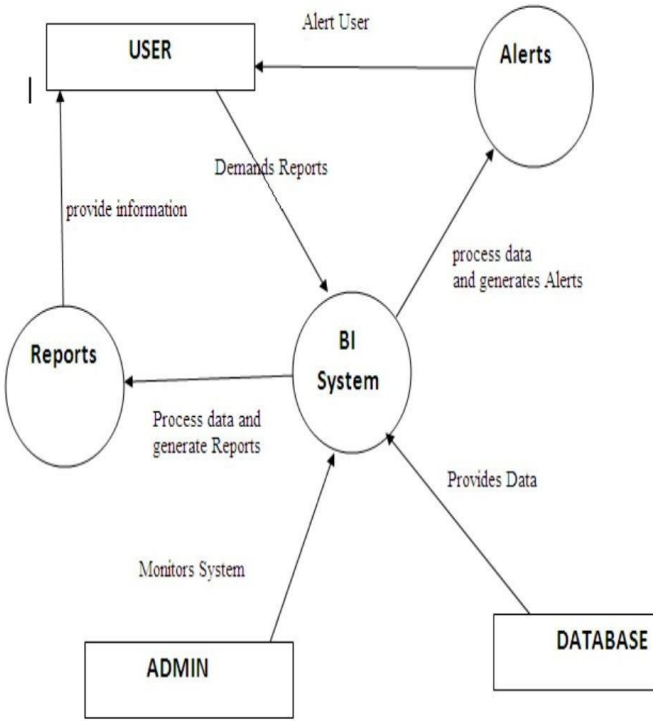

Figure 6: Data Flow Diagram processing and flow within the system.

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1. Class Diagram

A class diagram illustrates the relationships between various entities, such as people, objects, and data, highlighting the system's static structure. It depicts the logical classes that are commonly discussed by business professionals within the organization.

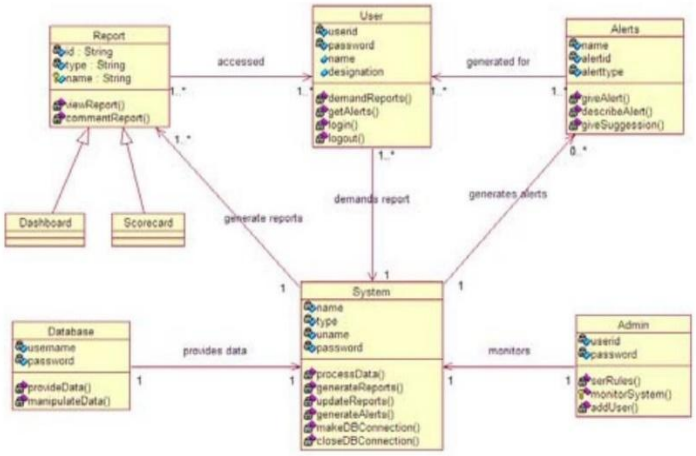

Figure 7: Class Diagram

2. SYSTEM DESIGN AND IMPLEMENTATION

A. System Architecture:

The System will be a web-based application that can be accessed via any web browser over a network. It is a 3- tier solution in which the user meets, the business logic and the database are developed and kept as independent modules.

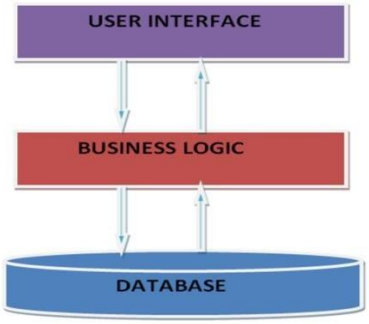

Figure 8: Three Tier Architecture

B. User Interface:

At the top layer of the application, the interface main function is to display information received from other tiers in a user-friendly format. The processed form of data, i.e., information is presented to the end user in a more intuitive form which helps to take quick decisions.

C. Business Logic:

This layer serves as the heart of the application, managing interactions between the user interface and the database. It handles data processing, makes logical decisions, and performs necessary calculations.

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D. Data Management:
The foundational layer involves the database server, which securely stores all system data. It ensures that data remains separate from the application servers and business logic.

VIII. UML Diagrams

a) User Login

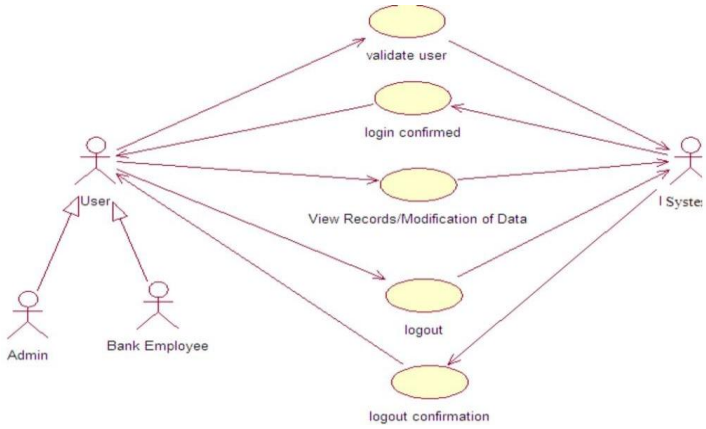

Figure 9: User Login- Use Case

b) System Behaviour

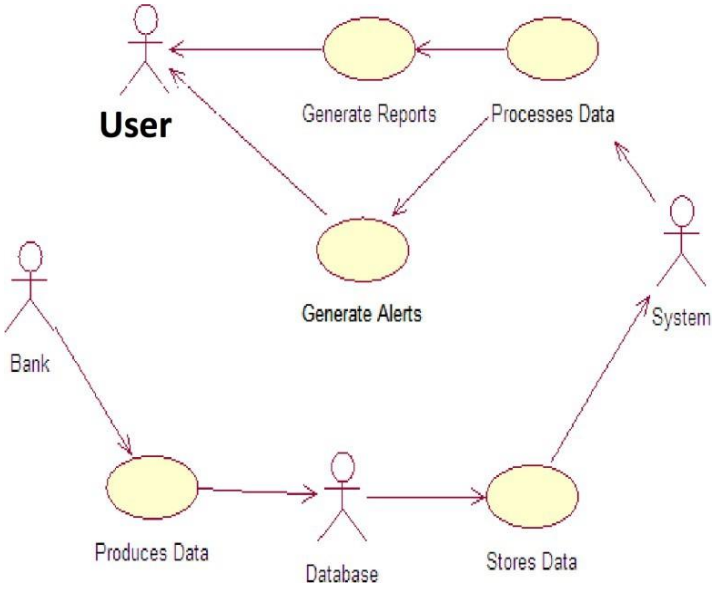

Figure 10: System Behaviour- Use Case

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c) **Sequence Diagram**

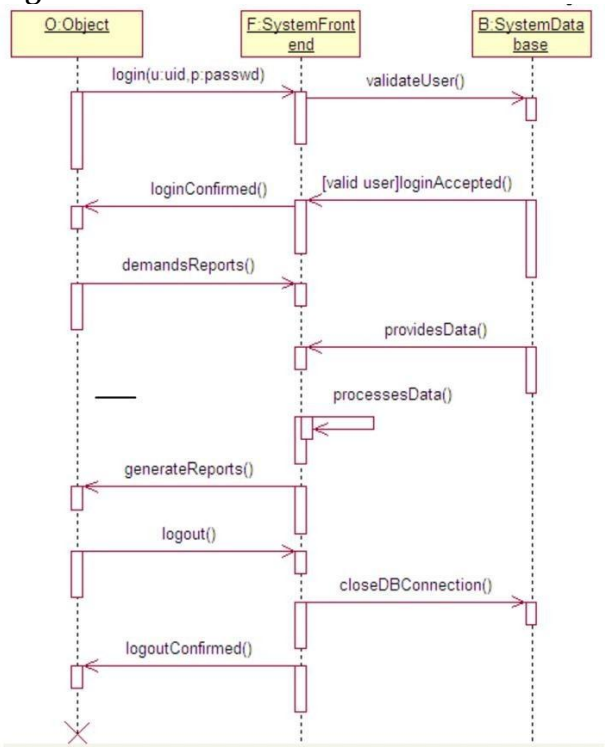

Figure 11: Sequence Diagram

d) Deployment Diagram

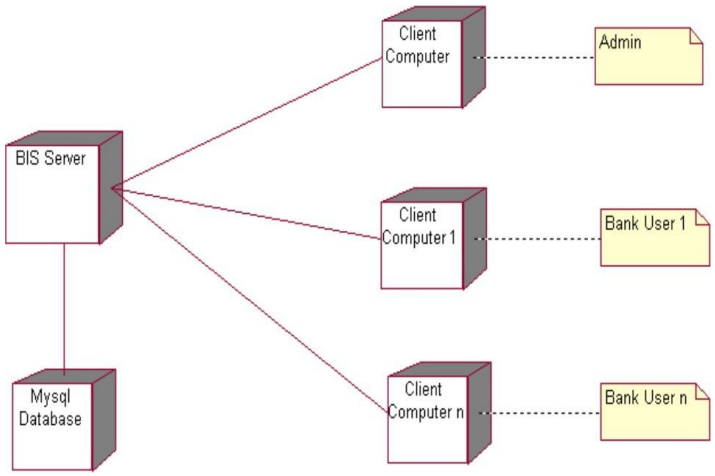

Figure 12: Deployment Diagram

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IX. FUTURE SCOPE

Business Intelligence System is general purpose system. It can be designed for any organization (e.g., Computer firm, accountancy firm, etc.). This project is designed for single state, which covers 5 States. In future, it can be changed to accommodate multiple states and can even work for entire organizations throughout the Nation.

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