

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE

DEDICATION

At first, we would like to thank the most gracious, the merciful Almighty God for providing us enough strength and patience that carried through the work and enable us to complete this work. I would like to express my gratitude to all those who gave us helping hand in completing this term paper. Want to thank our Project Supervisor Dr. Dominic Asamoah for helping us whenever we needed it the most. Friends have also supported in this work. Together with my project partner want to thank them all for their help, support, interest and valuable hints.

ABSTRACT

Loan management is crucial and it's instrumental in ensuring the success or failure of any credit institution. Loan portfolio problems have historically been the main explanation for the danger of possible loan losses. the most scope of this project is to supply good interaction and communication between customers and administrator. the present system could be a manual system, that does not maintain details with proper security and can't track details easily and also doesn't contain functionalities of fast retrieval information, like customer details, maintenance of all the loan details and it involves many paperwork. Loan Management System has been designed to automate the rear office activities of bank and non depository financial institution offers any sort of loans. System can make the daily activities efficient and providing the fast response. Includes add, edit, find customer details, maintain and issue new loan, modify loan rate. The scope of this project is to use

loan in a very smart way. The project covers the system analysis and style of getting loan detail process, settling process, and receiving payment process. the present system presents the issues occurring from manual operations. This project is arranged to beat many problems like data redundancy, data incorrectness, time consuming, etc. The new computerized system will reduce errors while providing a stronger control over the method and a stronger management information in timely manner for implementation strategies. The new system had been checked to make sure that there's no error within the programs, and therefore the outputs of the system are met with the target of the export financing system. to boost the effective management of consumers, the system should be further developed to support other bidding loan information. Main objective is to provide good interaction & communication facilities between customers & Administrator. Loan management system has been designed to online the back-office activities of bank and finance company which offers any type of loan, Administrator manage customer information database more efficiently, Loan details, maintain loan type and interest rate information. Admin can use calculator to give exact payable loan amount for the customer & generate all this work information as a report of each customers.

INTRODUCTION

This system is called loan management system. this technique is intended to simply maintain the info of the loan customers specifically. this technique is formed to stay the records about the shoppers who have taken a loan from a bank. Registered user can login into the Loan management system using their username and password. After signing in into this technique to manage the account of old customers and to test their other details etc. Daily many new customers visit the bank, so adding the new customer's details and keeping the records using it is very easy. There are many other options also like, adding new accounts etc. New and unique ids are given to everyone who gets registered over this technique and to the customers who take the loan. There also are the choices to test the customer's loan amount, rate and therefore the unpaid amount. Amount paid by any customer or may be saved thereon and it's easy to calculate daily that the money is collected. Bank staff members sort of a manager, the cashier can the also check the main points of their customers like if any customer has not paid the monthly amount from the last three months then it'll notify itself to the user. It is easy to calculate money and handle account on monthly basis also. this technique also has a choice to use the backup, which means if we are backing up the database it can never be lost. It can even take attendance of the working staff and may also manage their account for salary. A staffer can even have taken the loan from the bank which can even be seen. Overall, this loan management system could be a solution to all or any the issues that we face in a very industry

MOTIVATION OF THE PROJECT

1. Some common problems encountered by the accounting staff of some organization in terms of using their manual system in the calculation of affordability and monthly instalment.
2. Does a Loan management System help the accounting staff in terms of

processing loans, secure customer data by loading them to the database for future references.

4. What is the level of efficiency of the system when evaluated by the user evaluation result of the existing, the prototype system and the proposed system in terms of Correctness, Reliability, Efficiency, Testability and portability?
5. What is the level of efficiency in the system when evaluated by the system testing result?
6. Is there a significant difference between effectiveness of the system when evaluated by the user evaluation result of the present, the proposed system and the prototype system in terms of Correctness, Reliability, Efficiency, testability and Portability?

PROJECT AIMS

Based on the requirements, the **loan management software** is an automated process that regulates the entire loan lifecycle. These loan management programs assist in part or whole as they are directed to. Loan management software supports multiple functions such as processing customer information, creating and suggesting new loans and more. Also, they are competent to provide accurate statements and reports along with managing interest rates and offering tools to automate collected data.

DEFNITION AND EXPLANATION OF TERMS

Database

This refers to an organized collection of data for one or more purposes, it is usually in digital form.

Deduction

This refers to business expenses or losses which are legally permitted to be subtracted from the gross revenue of a firm in computing its taxable income

Employee(customer)

This refers to a person who is hired to provide services to a company on a regular basis in exchange for compensation.

Gross Pay

This refers to total of an employee's regular remuneration including allowances, overtime pay, commissions and bonuses, etc. before any deductions are made.

LAN (Local Area Network)

This refers to supplies networking capability to a group of computers in close proximity to each other such as in an office building, school or home.

Loan

This refers to funds transferred from one party to another as payment for purchased goods or services.

Net Pay

This refers to the remaining amount of an employee's gross pay, after deductions, such as taxes and retirement contributions, are made.

amount paid to employees for services they provided during a certain period of time.

Report

This refers to give an official account or statement of as a treasurer reports the receipts and expenditures.

Spreadsheets

This refers to spreadsheet is a computer application with tools that increase the user's productivity in capturing, analyzing, and sharing tabular data sets.

Affordability

Refers to **the consumer's ability to repay the loan on the agreed time**. This means that the consumer should be able to service all existing obligations, plus the new loan, and still have enough money to sustain him/herself for the rest of the month. This brings us to the issue of over-indebtedness.

OBJECTIVES

Loan management systems help automate the entire loan lifecycle. Depending on requirements, these programs can assist in part or whole. The

software can help with processing customer information, create new loans, and more. They can also provide lenders with accurate statements and reports. Moreover, they can manage interest rates and provide the loan applicant with a receipt.

PROJECT SCOPE

The proposed Loan management System will cover many aspects of time keeping and loan process. This includes the capture of information based on the employee's work schedule, daily time worked and daily time rendered. The Loan Management System process encompasses all activities necessary to report loan records. The system will have a file management where it covers the records of employee and system transaction log.

- ❖ The system also covers the loan Processing, Reporting and the calculation of affordability.

LIMITATIONS

The system will consist of some significant modules in order to satisfy the company's needs as well as the customers. The system will provide a product module which will have one level of access by an Administrator. Administrator is full responsible for monitoring and maintaining the application system since they have access on some modules which are hidden on guests and even members such as an inventory of all the products including all products price. The system will only have one (1) administrator who has the authority to view all the available products in the store and search for the specific product and stock and view its information such as price.

The system also offers the Loan module which store all the loans availed by a member. Only administrator also has the authority to view all accounts reports that focus on loans and balances transparent to all type customers and view its corresponding Amortization reports

ACADEMIC AND PRACTICAL RELIVANCE OF THE PROJECT

A loan management system is a digital platform that helps automate every stage of the loan lifecycle, from application to closing. The traditional loan management process is meticulous, time-consuming, and requires collecting and verifying information about applicants, their trustworthiness, and their credibility. Further, the process involves calculating interest rates and supervising payments. A loan servicing software not only automates these procedures but also provides useful analytics and insights for lenders and borrowers

BENEFICIARIES OF THE PROJECT

1. Management
2. Customers

CHAPTER 2

SIMILAR SYSTEM REVIEW

The existing system is manual that doesn't maintain details with proper security and can't track details easily.

It doesn't allow the customer to check their profile in a proper way which leads to customer dis-satisfaction.

Does not provide option to download loan form.

Existing system doesn't contain functionalities of fast retrieval information such as customer details and maintenance of all the loan details so it involves a lot of paperwork.

Doesn't user friendly interface.

Lots of time is required to manage customer info and details so it feels that existing system is not accurate and therefore maintenance becomes very complicate.

Difficulty in generating different reports as per business requirement.

EXISTING SYSTEM REVIEW

Provides good communication for the customer.

The decision process becomes faster and more consistent

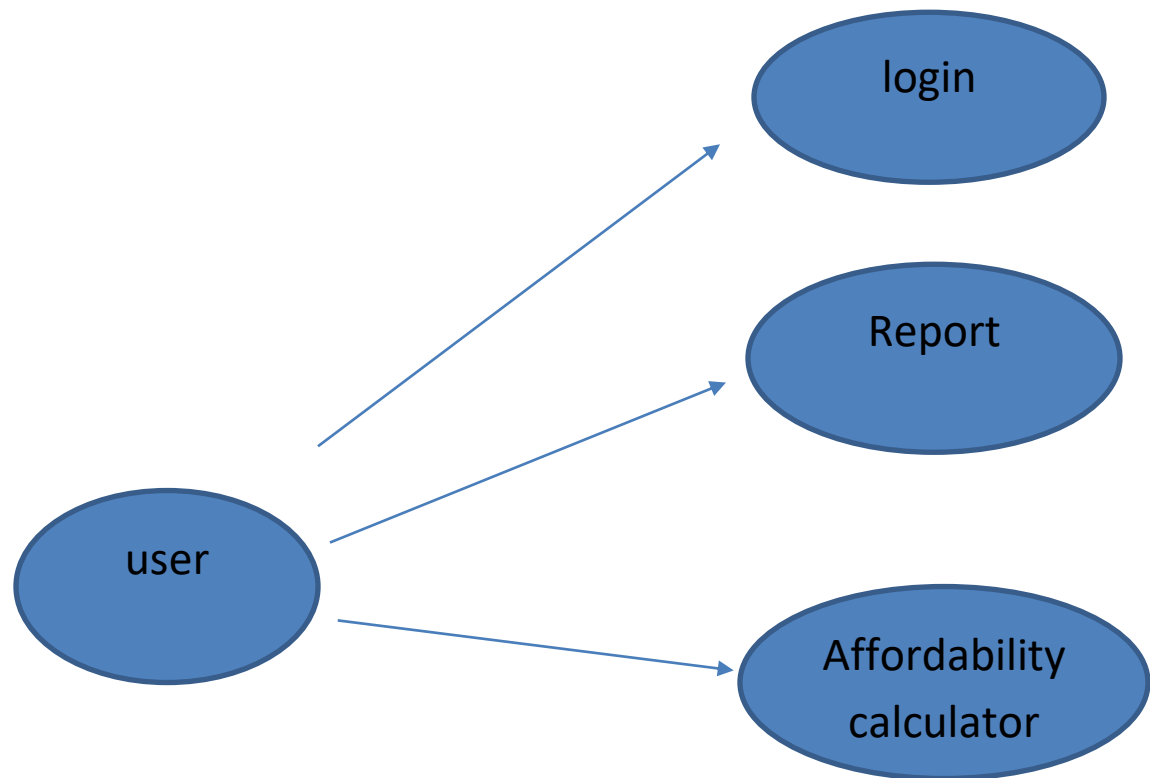
System provides download option to download different type of loan form in MS word document.

After registration and login, customer can use the system easily and also customer can view any query about loan details. So, this system saves time

This system provides details about the customers, their loan details and it rate details.

This system also has Affordability calculator to facilitate payroll or Controller loans.

ARCHITECTURE OF THE SYSTEM



DEVELOPMENT TOOLS AND ENVIRONMENMT

Visual Basic .net

Mysql database (Xampp server)

Windows 10

Intel core i7

SOFTWARE FEATURES

LOGIN FORM

USER NAME

PASSWORD

LOGIN

EXIT

CUSTOMER SEARCH FORM

CUSTOMER ID

SEARCH

	name	ID	DOB	department	loan_Amount	loan_Term	loan_type	loan_date	mont
▶	NANA KWABEN...	12345		0	0	10000			500
	JAMES BAAH	23455		0	0	10000			1000
	YAW	5555		0	20000	0			500
	NANA	44444			40000				1500
		0							

<< Back

Reset

Extra options

username password

admin admin



Show all

Number of rows:

25



Filter rows:

Search this table

Query results operations



Print



Copy to clipboard



Export



Display chart



Create view

Console

Press Ctrl+Enter to execute query

```
>SELECT * FROM `customer`
```

```
>SELECT * FROM `user`
```

AFFORDABILITY AND INSTALLMENT CALCULATOR

Customer Name NANA KWABENA DOMFEH

Staff ID 1234

Instalment Calculator

Loan Amount \$50,000.00
Loan Duration 8
Interest Rate % 4.2
Monthly Payment \$614.13
Total Payment \$58,956.15

Calculate

Reset

Affordability

Gross 5000
Income Tax 250
SSNIT 150
Third-Party Ded. 800
Affordability Amount \$1,490.00

Calculate

Reset

Receipt

Loan Management System

-- NANA KWABENA DOMFEH
 Staff ID 1234
 Loan Amount: \$50,000.00
 Loan Duration (years) 8
 Interest Rate: 4.2
 Monthly Payment: \$614.13
 Total Payment \$58,956.15

-----Thank You-----

Generate Receipt

Reset All

Print Receipt

<< Go Back

Form3

CUSTOMER DETAILS AND LOAN ENTRY FORM

CUSTOMER INFO

CUSTOMER NAME
CUSTOMER ID
DATE OF BIRTH Sunday . September 1
DEPARTMENT

LOAN DETAILS

LOAN AMOUNT
LOAN TERM
LOAN TYPE
LOAN APPLICATION DATE Tuesday . October 18, 2022
MONTHLY INSTALMENT

name	ID	DOB	department	loan_Amount	loan_Term	loan_type	loan_date
NANA KWABENA	12345		0	0	10000		
JAMES BAAH	23455		0	0	10000		
YAW	5555		0	20000	0		
NANA	44444			40000			
	0						
KOFI	12378		GES	3000	48 MONTHS	NEW	
Isamid	89648		LOCAL GOV.	3000	18 MONTHS	TOPUP	
OPOKU	50690		CUSTOMS	4000	60 MONTHS	TOPUP	
KOFI	12345						
kofi BAAH	1234566		LOCAL GOV.	15000	12 MONTHS	NEW	

<<<

SAVE

SEARCH

UPDATE

RESET

BENEFITS OF IMPLEMENTATION OF THE PROPOSED SYSTEM

Loan software can be customized to suit the needs of the organization and then grow alongside the company. Using cloud-based technology means greater efficiency throughout the life of the loan and a customized system will support fully automated processes throughout the loan process. This article takes a look at some of the benefits a loan management system can offer.

Compliance with Regulations

Ensuring that you comply with all the latest regulations can be stressful, complex and take up vast amounts of time if you lack up-to-date technology. Automated lending software means that you are always kept up to speed with latest changes in regulations, avoiding the risk of fines or other action caused by unintentional non-compliance.

The older systems rely on human intervention for checking and managing the documents and ensure compliance. By contrast, modern lending software automates everything and you can be sure the data is accurate and easy to access when needed eliminating the need for review by teams of employees and removing the risk of human error. The net result is your employees are less stressed, more efficient and your company could potentially save thousands of dollars in non-compliance penalties.

Data Security

Loan companies hold a lot of sensitive data and protecting this is an area of concern. Items such as income information, tax identification and other essential client information is at risk if it is compromised. It could lead to identify theft, fraud and a litigation suit for your business.

If you are currently keeping paperwork it is easy to see how this can be lost, destroyed or copied and all of this paper is eliminated with an automated software solution leading to improvement in data storage and less environmental impact.

Documentation can be shared easily when required but the data remains safe from potential harm.

Heightened Customer Experience

A customer will be expecting superior service throughout the entire loan process and will be looking at how well your team responds to requests, how quickly the loan is delivered and a plethora of other aspects of your service. This is all enhanced by using a fully automated lending solution.

As the applicant completes their application and paperwork the automatic system has this all done online using the data inputted by the customer and automatically populating other documents as needed. It saves the customer time and effort which is reflected in a positive attitude to your business. There is no risk that human data entry errors will make a customer submit everything again causing damage to your business reputation.

Customers are always eager for the result of a loan application, by using automation the decision process is streamlined and rapid, reducing the amount of stressful waiting for the applicant. This all works towards giving them a great experience.

Other Benefits

Although all of these benefits are significant there are also others that are not associated with automating the lending process but which are important organizationally. These include:

- Ability to scale the software according to your company's needs.
- Predictive analysis improves fraud detection.
- Delay reductions.

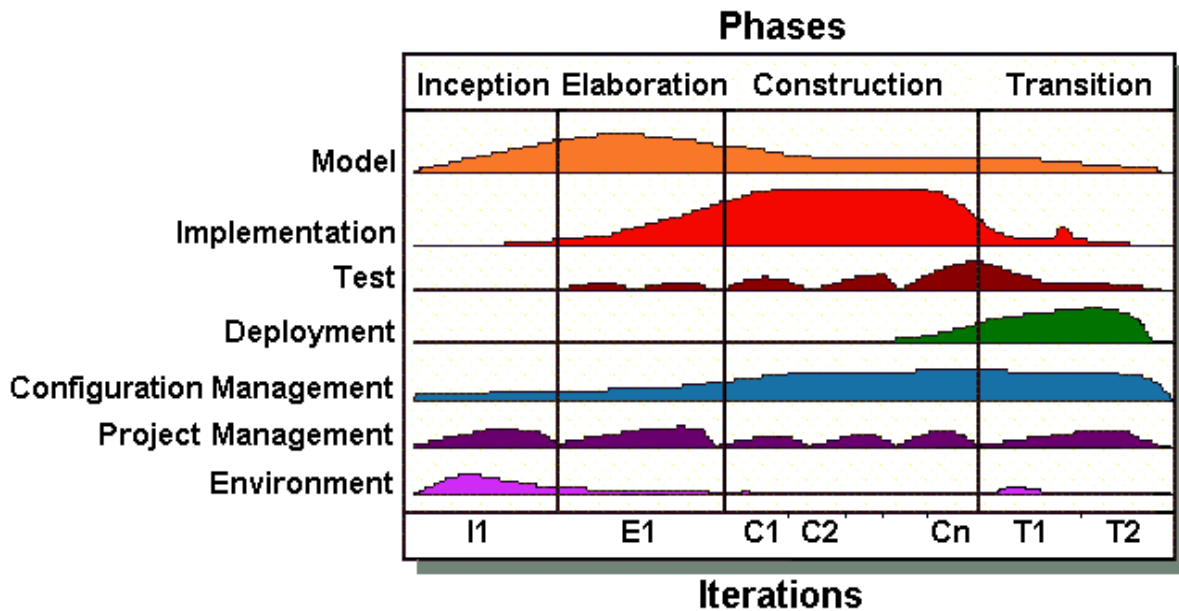
SUMMARY/GATHERING PROCESS

1. Agile Unified Process

AUP or Agile Unified Process is a simplified version of the Rational Unified Process (RUP). It describes a simple, easy to understand approach to developing business application software using agile techniques and concepts yet still remaining true to the RUP. I've tried to keep the Agile UP as simple as possible, both in its approach and in its description. The descriptions are simple and to the point, with links to details (on the web) if you want them. The approach applies agile techniques include test driven development (TDD), Agile Model Driven Development (AMDD), agile change management, and database refactoring to improve your productivity.

The Agile Unified Process (AUP) lifecycle.

Figure shows depict the lifecycle of the AUP. The first thing that you'll notice is



that the disciplines have changed. First, the Model discipline encompasses the RUP's Business Modeling, Requirements, and Analysis & Design disciplines. Model is an important part of the AUP, as you can see, but it doesn't dominate the process you want to stay agile by creating models and documents which are just barely good enough. Second, the Configuration and Change Management discipline is now the Configuration Management discipline. In agile development your change management activities are typically part of your requirements management efforts, which is part of the Model discipline.

Serial in the Large

The serial nature of Agile UP is captured in its four phases

1. **Inception.** The goal is to identify the initial scope of the project, a potential architecture for your system, and to obtain initial project funding and stakeholder acceptance.
2. **Elaboration.** The goal is to prove the architecture of the system.
3. **Construction.** The goal is to build working software on a regular, incremental basis which meets the highest-priority needs of your project stakeholders.
4. **Transition.** The goal is to validate and deploy your system into your production environment.

Iterative in the Small

Disciplines are performed in an iterative manner, defining the activities which development team members perform to build, validate, and deliver working software which meets the needs of their stakeholders. The disciplines are:

- ❖ **Model:** The goal of this discipline is to understand the business of the organization, the problem domain being addressed by the project, and to identify a viable solution to address the problem domain.
- ❖ **Implementation:** The goal of this discipline is to transform your model(s) into executable code and to perform a basic level of testing, in particular unit testing.

- ❖ **Test:** The goal of this discipline is to perform an objective evaluation to ensure quality. This includes finding defects, validating that the system works as designed, and verifying that the requirements are met.
- ❖ **Deployment:** The goal of this discipline is to plan for the delivery of the system and to execute the plan to make the system available to end users.
- ❖ **Configuration Management:** The goal of this discipline is to manage access to your project artifacts. This includes not only tracking artifact versions over time but also controlling and managing changes to them.
- ❖ **Project Management:** The goal of this discipline is to direct the activities that takes place on the project. This includes managing risks, directing people (assigning tasks, tracking progress), and coordinating with people and systems outside the scope of the project to be sure that it is delivered on time and within budget.
- ❖ **Environment:** The goal of this discipline is to support the rest of the effort by ensuring that the proper process, guidance (standards and guidelines), and tools (hardware, software) are available for the team as needed.

Agile Processing in the system development

Agile process in Payroll Systems team of payroll development professionals combine decades of industry experience to build an application and business model

that is an efficient and precise process for operating your business. Reducing your risk and servicing your clients are at the heart of the agile mission

Agile Payroll Systems provides comprehensive service bureau software and services for those businesses dedicated to an integrated process for payroll and payroll tax processing.

1. Integrated Payroll and Payroll Tax Processing Application;
2. Software as a Service Models; and
3. Hosted Solutions

FUNCTIONAL REQUIREMENTS

- The proposed system has affordability and installment calculator.
- Has digital entry of customer information to the database.
- It has a centralized data storage
- **User data should be fed into the system:** this system is doing that properly in the user entity.
- Admin can verify the user and can help them register on the loan management system.
- **The user can add the customers:** users are able to add customers, which are taking a loan from the bank.

NONFUNCTIONAL REQUIREMENT

Non-functional necessities measure the other demand than practical necessities. These square measures the necessities that specify criteria which will be needed to choose the operation of a system, instead of specific behaviors. Non-functional necessities square measure within the style of “system shall be “, associate degree overall property of the system as a full or of a specific facet and not a particular operation.

The system’s overall properties remarkably mark the distinction between whether or not the event project has succeeded or unsuccessful.

Here we need to take care of few more things before heading towards the system. The most important feature of the application world is the application’s ease of usage .application will easy to use if made while keeping in mind that the user need not think twice about searching any feature.

Everything should be made distinctive by using the color combination such that everything needed most frequently highlighted with focus colors. We can use simple layouts like the card and grid layout etc. By varying color and other UI combinations, many good intuitive interfaces can be made. Which ultimately makes the interface easy to use for a long time.

Unlike ancient style wherever the goal is to form the thing or application physically enticing, the goal of interface style is to form the user’s interaction expertise as straightforward and intuitive as attainable – what’s typically known as user-centered style. Where smart graphic/industrial style is daring and eye-catching, smart interface style is commonly delicate and invisible.

Keep things simple and consistent:

Simple and Harmonic way making UI is very intuitive and needs to followed.

Make good use of typography:

The typography is taken care very strictly as the need of the system.

Use colour and contrast properly:

Color combo of lite and dark is a good way to emphasis and do well in this system

Consider feedback messages:

The feedback form is a very good way taking feedback of forms and improving the system.

Simplified forms:

The form is made simple to fill with the clean user interface.

UML DIAGRAMS

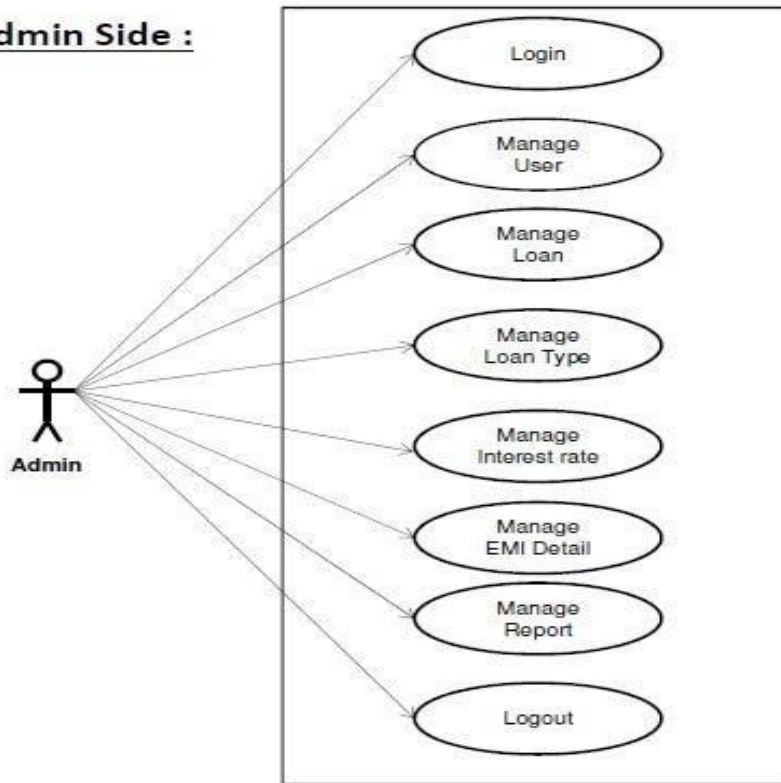
Admin

- View customer records
- Add new Loan
- Generate installment
- Prints receipt

customer (Use-case diagram)

USE CASE DIAGRAM

Admin Side :



USERS OF PROPOSED SYSTEMS

- **Credit providers**

an organization or small business operator, if a substantial part of its business is the supply of credit (for example, a building society, finance company or a credit union) a retailer that issues a credit card for the sale of goods or services.

- **Lending organizations**

Organizational setup for loans for giving loans.

- **Banks**

Dealing in Money.

Individual/Firm/Company.

Acceptance of Deposit.

Giving Advances.

Payment and Withdrawal.

Agency and Utility Services.

Profit and Service Orientation.

Ever-increasing.

Loans

- **Microfinance**

Microfinance is a banking service provided to unemployed or low-income individuals or groups who otherwise would have no other access to financial services. Microfinance allows people to take on reasonable small business loans safely, and in a manner that is consistent with ethical lending practices.

SECURITY CONCEPTS

- **Scalability** - For any business to develop and scale, they ought to be outfitted with instruments that permit them to do as such. The ideal loan management software ought to permit moneylenders to not just fill as far as tasks and excellent help conveyance yet additionally permit them to expand their item contributions. This lets moneylenders increment their net revenues as well as enter new business sectors, offer superior arrangements and right away acquire new items into account for the new requirements of developing business sectors. Versatility of the item additionally assists business with a small beginning according to their necessities and when they hit the development arc, an adaptable structure assists to meet the changed requirement.
- **Easy Deployment** - Most new companies and shared banks in this space probably won't have devoted IT support. To carry out, match up to, and investigate issues emerging from such a high-level tech arrangement mostly related to collection of information, 24x7 assistance from an IT support team is the least requirement. The beneficial thing about loan management software specialist organizations is that they give speedy execution as well as give standard service to upkeep administrations, including bug-fixes, regular updates, and IT support when required.
- **Incorporated arrangement** - There are various aspects in the loaning industry, right from on boarding, credit appraisal, advance beginning, endorsing, disbursal, and reimbursement. Having this large number of modules incorporated into one consistent programming assists loan management software companies by saving time, producing credit demands, and making an overall charming experience for their clients by decreasing turnaround time and being more effective. In this manner, when searching for the ideal advance administration programming, search for one that permits you to assemble adjustable modules into one, consistent, incorporated framework. The framework ought to likewise uphold outsider reconciliations to enhance borrower information. Backing to incorporate with CRM, ERP and bookkeeping programming assists the business with having a brought together view and save time on re-working.
- **Integrated access** - The loan management software arrangements permit loan specialists to store all client related information all through the client lifecycle at a concentrated area. They get rid of the container neck of capacity and recovery of borrower information from various frameworks.

This additionally assists the loaning association with getting a 360-degree perspective on the client's profile, the loaning stage they are at, their credit score and all connected data initially, from anyplace on the planet.

- **Credit analysis** - The better and more precise the credit evaluation, the better are the possibilities that banks settle on financing costs and advance reimbursement terms that limit their danger and expand incomes. This is just conceivable when banks have a comprehensive perspective on the financial soundness of their borrowers. Given the way that most new businesses and distributed moneylenders are hoping to investigate developing business sectors where planned clients don't have any record, they will require admittance to programming that give elective FICO assessment techniques and information base, for example, web-based media conduct, service charges instalment conduct, charge information or bank articulation examination to bring down their danger and settle on informed choices on issues, for example, financing costs and reimbursement terms.
- **Clarity in the process** - Clarity has never been a solid trait for banks and moneylenders for the most extensive length of time of all time. Amateur moneylenders desire to change that by adding more transparency to their cycles, so all partners, including customers, have a superior view and more confidence in the loaning system. Having an automated dashboard that tells clients, constantly, regarding the current status of their advance interaction and assists them with appreciating preferred client experience over what they have at any point finished with conventional banks.
- **Responsive dashboard** - A mobile friendly app is not a term held uniquely for sites and applications any longer. Tech organizations building confounded, significant burden programming are likewise looking to make them dynamic to expand utilization and arrive at new business sectors. This is particularly significant for trendy loan specialists taking a gander at developing business sectors where clients probably won't approach PCs and workstations however unquestionably own a cell phone or a financial plan agreeable tablet. Consequently, giving a tech-savvy borrower or field staff dashboard is as of now not an extra component, however, a business-basic element that you must search in your loan management software.
- **Investigative reports and updates** - The best cloud-based **loan management software** in the business furnishes moneylenders with gold as significant information. By gathering, agitating, and handling information from an assortment of sources and applying business knowledge to this information pool, advanced administration programming can assist loan specialists with master experiences on market patterns. Also, it helps in evaluating and setting up KPIs to further develop client security. The

effective loan management software recognizes and eliminates bottlenecks and to enhance overall efficiency.

- **Consistent yet secure** - The improved loan management software enables loaning associations to extend and develop a set up for concentrated information collection that can be accessed by all the partners with the essential consents from anyplace on the planet. It diminishes reliance on physical work, diminishes human blunders, and speeds up processes in this manner in order to support income. While conveying the best of everything, the best loan management software additionally guarantees that they follow best security practices to ensure client satisfaction and are dedicated to work towards setting up information security and protection principles.

PROJECT METHODOLOGY

Proposed System needs customer login details, before applying for a type of loan, such as education loan, business loan, home loan, after different details provided for loan application different customer details view for user and generate receipt after approval. Agent registration need for details after login customer query view and loan type view suggestion provider and status applied changed to approved or rejected. Agent view for customer. Manager registration need for details after login loan.

VARIOUS SOFTWARE PROCESSES

MODELS

- Waterfall model.
- V model.
- Incremental model.
- RAD model.
- Agile model.
- Iterative model.
- Spiral model.
- Prototype model.

CHOSEN MODEL AND JUSTIFICATION

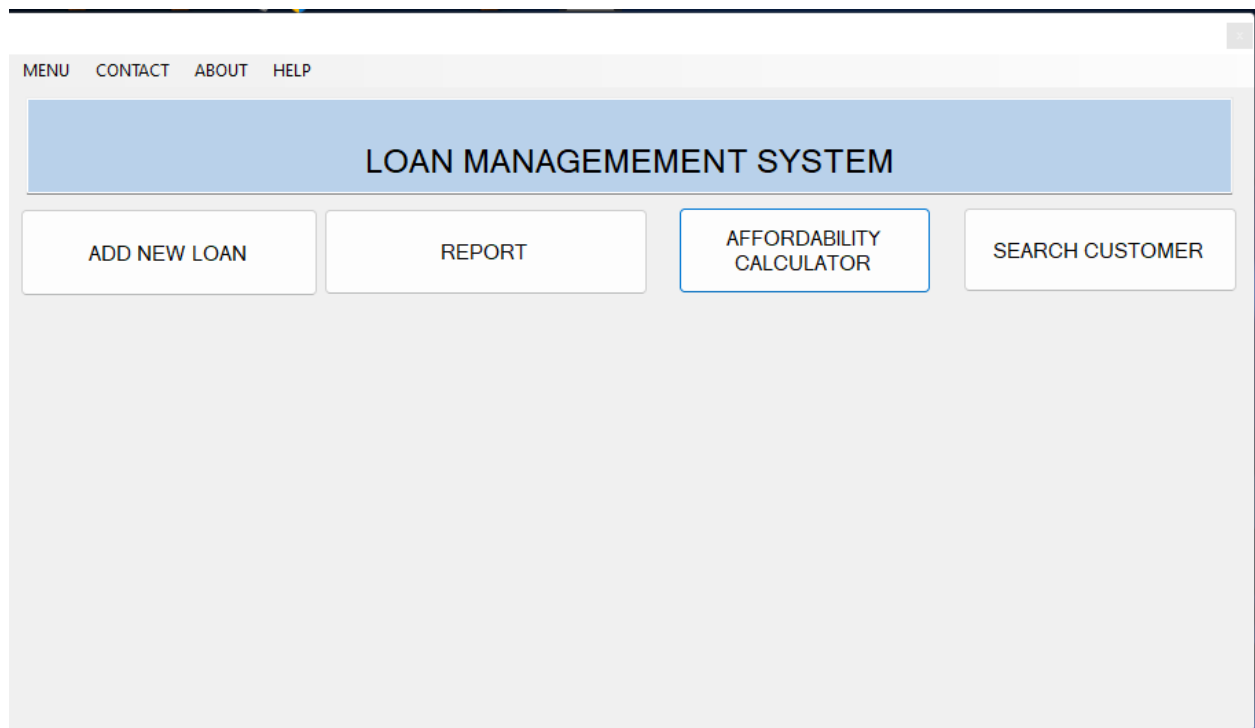
Waterfall Model: Definition: The waterfall model is a classical model used in system development life cycle to create a system with a linear and sequential approach. It is termed as waterfall because the model develops systematically from one phase to another in a downward fashion. This model is divided into different phases and the output of one phase is used as the input of the next phase. Every phase has to be completed before the next phase starts and there is no overlapping of the phases.

Description: The sequential phases described in the Waterfall model are:


1. Requirement Gathering- All possible requirements are captured in product requirement documents.
2. Analysis Read - the requirement and based on analysis define the schemas, models and business rules.
3. System Design -- Based on analysis design the software architecture.

4. Implementation Development of the software in the small units with functional testing.
5. Integration and Testing Integrating of each unit developed in previous phase and post integration test the entire system for any faults.
6. Deployment of system - Make the product live on production environment after all functional and nonfunctional testing completed.
7. Maintenance Fixing issues and release new version with the issue patches as required.

UI DESIGN



LOGIN FORM



USER NAME

PASSWORD

DATABASE DESIGN

database customer	
name	varchar(50)
ID	varchar(20)
DOB	date
department	varchar(10)
loan_Amount	varchar(10)
loan_Term	varchar(10)
loan_type	varchar(10)
loan_date	date
monthly_instalment	varchar(10)

database user	
username	varchar(10)
password	varchar(10)

Chapter 4

IMPLEMENTATION AND TESTING

summary

The project is a loan application called Loan Management System which offers review and data sharing service and also digitalize all loan processes. Loan management systems help automate the entire loan lifecycle. Depending on requirements, these programs can assist in part or whole. The software can help with processing customer information, create new loans, and more. They can also provide lenders with accurate statements and reports. Moreover, they can manage interest rates and provide the tools for collection automation.

MAPPING LOGICAL DESIGN ONTO PHYSICAL PLATFORM

- For compute, you might select a specific server platform (the proposed system uses Xampp server)
- For storage, you might choose a particular technology (like duplication or tiering)

TEST PLAN

Generally, we test the system by failing it, we tested it in line with user requirements (system testing) and the system was secure and further met other expected requirements like consistence in accessibility.

- **Test Strategy:** This is one of the most important sections that can explain the strategy that will be used while testing.
- **Test Coverage:** This is essentially required and it will do conformance mapping of the business needs and the test cases so that one can ensure if the entire software has been tested or not.
- **Test Cycles and Durations:** This can become very critical depending upon the rounds of development and their time for completing each round.
- **Pass/Fail Criteria:** It is very much required one in which the pass and fail criteria are defined. A few times this will also be defined by the clients.
- **Business and Technical Requirements:** Need to have the software and the purposes they serve will be clearly defined along with the low-level explanations.

VERIFICATION

AFFORDABILITY AND INSTALLMENT CALCULATOR

Customer Name
NANA KWABENA DOMFEH

Staff ID
12345

Instalment Calculator

Loan Amount	\$20,000.00
Loan Duration	8
Interest Rate %	3.57
Monthly Payment	\$239.81
Total Payment	\$23,021.30

Calculate
Reset

Affordability

Gross	5000
Income Tax	250
SSNIT	150
Third-Party Ded.	800
Affordability Amount	\$1,490.00

Calculate
Reset

Receipt

Loan Management System

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NANA KWABENA DOMFEH
Staff ID 12345

Loan Amount: \$20,000.00
Loan Duration (years) 8
Interest Rate: 3.57
Monthly Payment: \$239.81
Total Payment \$23,021.30

-----Thank You-----

Generate Receipt
Reset All
Print Receipt
<< Go Back

VALIDATION

Here, the aim is to determine whether the system exactly meets what it was designed for. The Loan Scheme Management system has been interacted with some few students and administrators who have reviewed whether it fulfills all their requirements and perform the activities to their expectations.

SYSTEM SECURITY

- secure workstations, servers and storage space
- encryption protocols
- specific security policies
- confidentiality clauses to establish best practices for data protection
- The admin only has access to the database.

RECOMMENDATIONS

Testers recommended other researchers who might want to take up further development of the same system to include transaction modules between the scheme and other institutions such as banks, universities, Microfinances, Lending organizations among others. The researcher further recommends all students on the scheme to make use of this system but first understand its major aims.


RESPONDS

- ☐ Security is ensured by doing security testing.
- ☐ GUI testing completed to ensure the User Friendliness of the application
- ☐ Field level and functional level testing done on the registration and privileged modules
- ☐ Tested the Data flow based on the privileges given by super admin
- ☐ Tested branches / users can be created and maintained under single company.
- ☐ Tested Credit bureau enquiry and reporting in getting whether the accurate debt and obligation details of the customer and hence the customer's financial status is clear before providing the loan.

☐ Tested whether the Application can be used on all kind of devices and browsers as it is developed using the responsive design technology.

USER INTERFACE DESIGN

LOGIN FORM



USER NAME

PASSWORD

LOGIN

EXIT

MENU CONTACT ABOUT HELP

LOAN MANAGEMEMENT SYSTEM

ADD NEW LOAN

REPORT

AFFORDABILITY
CALCULATOR

SEARCH CUSTOMER

Chapter 5

SUMMARY

There are resources wasted in in terms of time, paper, money among others in the secretarial section of the loan scheme most so in the disbursement and record keeping processes. This is because the section hasn't yet incorporated technology sufficiently. In the pursuit to lower the costs and facilitate efficient communication, technology was the only way to go, hence the development of the loan management system that is to center all operations between the students workers and the administrators in the secretarial section.

INTRODUCTION

This chapter gives an overview of the loan management system aspects built, the proposes and future prospects raised.

CHALLENGES

1. Under or Overpayments

Loan mistakes made during manual loan processing don't only impact the employee's pay, but also any deductions and benefits that they might have. These mistakes can affect taxes, accruals, pensions, garnishments, and more.

In order to avoid employee distress, Loan errors should be fixed as soon as possible by a payroll expert. The consequences of missed deadlines and filing errors can be time-consuming and result in penalties and fees.

2. Misclassification

The classification of an employee or worker can be difficult, as the process includes various types of classifications: part-time and full-time staff members, temporary staff, as well as seasonal and independent contractors. Within the changing landscape, it is important to also take into consideration remote working and changes.

Tax authorities tend to take employee misclassifications seriously.

3. Confidentiality and Privacy

In this era of technology, privacy and data protection concerns are higher than ever. It is imperative that payroll records are maintained and handled in confidentiality, all while being stored in a secure environment. Be sure not to disclose any personal employee information without securing the employee's permission beforehand, unless the disclosure is for the purpose of complying with a court order or government mandate.

In the case of an absence of privacy legislation, employers are encouraged to follow best practices to minimize the risk of privacy breaches by putting in place a detailed privacy policy. This privacy policy should outline and define privacy exceptions (e.g. an employer's right to monitor websites visited by employees or use of company email) and ensure that the policy is applied consistently.

4. Keeping Up-to-Date with employment law and legislation

Keeping up-to-date with employment laws, as well as legislative and regulatory changes can be a challenge for payroll professionals. If your company does not meet the standards of various acts and legislation, there may be serious repercussions.

Understanding employment and tax law are necessary in order to accurately report your company's operations. Incorrect filing or employee misclassifications can lead to fines, penalties, or even lawsuits. Ensuring that your compliance with the correct laws and regulations is essential for helping your business operate in a sound matter.

5. Inadequate Backup

Whether you admit it or not, technology has done a superb job in automating many tasks. However, as you are aware, technology can fail. For this reason, it is essential for your company to have a reliable and accessible backup of your payroll data.

Backups should be part of your disaster recovery plan. Alternatively, a type of backup is a payroll person. Having a payroll backup in the event that your regular payroll person is unavailable, is crucial to ensuring that your staff are paid and remittances are made.

LESSON LEARNT

Providing a loan should be a simple process. One should check the client's eligibility to get the loan and then approve or deny the loan. Once approved, the customer should receive the funds.

However, in traditional lending systems, particularly in larger organizations, this process is often chaotic—and for valid reasons. As the customer base increases, servicing loans become complex. Every customer has different terms and payment dates. It is cumbersome to keep everything in order.

That is why lenders use loan management software to streamline their process.

A loan management system helps to sort out the repayments that are coming in. But it can do more. There are modular, scalable, and customizable components that organizations can use for complete automation.

Top-of-the-line products can even use machine learning algorithms to reduce risks. Small business loans kept increasing and reached **28 billion USD in 2019**. So, getting a digital platform in this competitive market is crucial for survival.

FUTURE WORKS

- I will make online EMI payment to companies.
- I will also make live chat with the client.
- I will also make live chat with the newsletter mailing system for user.
- I will also add news subscription field.
- Add online transaction.
- Add email facility.

- Add SMS facility.
- Adding biometric verification to improve system security.

REFERENCE

Websites

www.javatpoint.com

www.sun.java.com

www.javaworld.com

www.stackoverflow.com

Books

Code Notes for J2EE

: Robert McGovern Java for the Web with Servlet & JSP

: Budi Kurniawan Professional Java Server Programming

: Cedric Beust et Sams Teach Yourself J2EE

: Martin Bond Java Server Programming Black Book

: Kogent Learning S

