

## **Finease: A Cloud Based Solution For Easy Handling of Home Scale Finance Firm**

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### **Abstract**

Home scale Finance has been a popular business area for more than a decade. There are different problems associated with managing the finance records for the owner who owns the finance business. So far manual interventions are more in handling those records and it cannot be retrieved whenever and wherever they want. This problem becomes more challenging when the owner needs to handle a large amount of data of their client's. So in this paper we propose an FinEase application to deal with these financial records over the cloud. This application helps the home scale finance organization to maintain their records efficiently and also the finance organization can retrieve the records whenever and wherever they want.

**Keywords:** GAE, Cloud Computing, ERP, Home Scale, CMS

### **Introduction**

Home scale Finance has been a popular business area for more than a decade. Since no effective finance applications are available over the internet and also the available application is not economic. The owner finds difficulties in managing the buyers records. In web various applications are available to maintain the records but not reliable applications over the cloud. When the user wants to manage an application over the internet they need to maintain those application with their own risk. At the same time as the number of users for a specific application increases the application shows an error page if there is not sufficient servers to run. The user needs to spend lots of time and money to maintain their application. Cloud computing is an efficient technology using nowadays. Cloud Computing is a "Internet-based computing" in which different services like storage, needful servers and applications are delivered to an organization's computers and devices through the Internet. When the users host

their application over the cloud it reduces the cost of maintenance. Applications hosted on Cloud Platform can automatically scale up to handle the most demanding workloads and scale down when traffic subsides. Hence the cloud computing greatly reduces the risk associated with traffic overflow causing server failure. Auto Scalable function helps the application to run efficiently as the demand increases. While moving to the storage, Cloud storage provides the benefits of power full accessibility and reliability, swift deployment, athletic protection for data assistance, factual and fiasco recovery purposes and lower overall storage costs. As a result of not having to purchase, govern and maintain expensive hardware. Handling the data with ERP makes the application to run efficiently. An ERP system is flexible, that means addition of new functionality to the system as the business needs change. This could mean easy management of new processes. As compared with other traditional approaches, an ERP system improve peculiarity of data by improving the underlying processes through which better business decisions can be reached. Controlling data access properly is always a challenge in an organizations. With an ERP system, this challenge can be overcome with the use of advanced user management and access control.

## **Preliminaries**

In this section we will present some preliminaries. We first introduce how the application can be developed. The technologies used to built the FinEase application. How the cloud computing is helpful for FinEase Firm and to maintain efficiency

### **Google App Engine**

Google App Engine provides Platform as a Service offering that lets you build and run applications on Google's infrastructure. App Engine applications are easy to develop, easy to maintain, and easy to auto scale as your traffic and data storage needs a rapid change. With App Engine, there is no need for the users to govern the servers since the GAE takes care for the needed servers to run the application efficiently . The only need is to upload the FinEase application. The app engine SDK are available for all supported programming languages which helps the application to be developed in any desired languages. The distributed datastore is available in GAE which helps to store and retrieve the data over the cloud. An API provides accessibility for transactional storing, these scalable environment is provided with the GAE. When the amount of data entry raises the distributed datastore grows. The GAE data store provides supports data objects popularly define as entities. The datastore is acting as the backend for the application we are building with the help of GAE. These datastore efficiently helps in storing the data with the automatic generating unique id The GAE also provides a server for testing the application . The app engine web servers simulates the java run time environment and all other services includes datastore

### **Spring**

The spring framework provides a comprehensive and configuration model for modern enterprise applications on all the deployment platform. Spring is infrastructural

support for application level. Several API and libraries are available for App engine which helps the application to be developed efficiently. All the services are available on the local computer with the help of sandbox environment

### **Java Run time Environment**

The java environment provides servlets interfaces and support to the GAE scalable datastore and services which includes JDO. The java API needs to be selected while developing the application. The versions of java runtime keep on updating, these help the FinEase application to satisfy the future trends.

### **ERP**

The FinEase application includes lots of contacts and transactions to be maintained. When it comes with a single database it's quite difficult in handling those databases. If one part of the databases gets crashed it's hard to get back the data. So we decided to maintain our records with the help of ERP model. We are using separate databases for each and every module and we will integrate them together. This helps the application to modify the particular part of the databases. The Contact Management System is the module which is used to maintain all the contacts in the FinEase application. All the contacts are scattered with the help of ERP model and integrated all together to provide efficiency.

### **Problem Definition**

Home scale finance is a popular business area. The owner of the finance organization needs to maintain their buyers' records and needs to update those records manually about the transactions happening between the lender and buyer. So far, home scale finance organizations are maintaining their records in hand-written notebooks or with the help of local databases. If the owner migrates from one place to another, they need to carry those records for their reference; if the data is lost, the finance organization cannot retrieve that back. They are in need to maintain their records at their own risk, which involves lots of manual actions. There are applications which are available in the web but that is not economic and efficient for these kinds of home scale finance.

### **Architectural Flow**

The figure 1 explains the framework of the FinEase application. The application is created with the help of Google App Engine, which provides platform as a service, with the help of GAE the application can be deployed over the cloud. The home scale finance organization needs to create an account in the FinEase application, thereby they can maintain all their buyers' records.

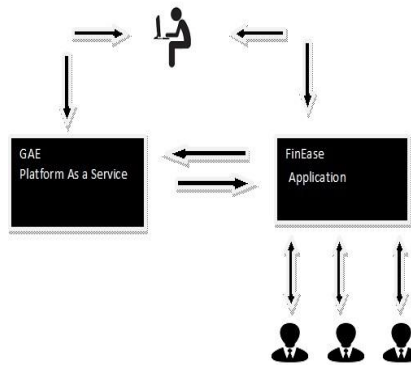


Figure 1: Development flow using Google App Engine

The employees of the finance organization will record the transaction based on the skills provided to them. In this FinEase application Finance organization, their employees, and buyers will use the same application to see the status of the transaction based on the skills provided to them. For example if the employee of the finance organization login to the application they can only view the buyers records not full records only the amount payable will be visible to them to record the transaction. If the buyers login to the application they can view only their status regarding their own transaction..The skills plays the major role in Finance application. To provide a fluid experience to the user the FinEase application is designed as a single page application, it does not transfer the control to another page.

### FinEase Application

The FinEase application is designed for a home scale finance firm to maintain their records and to retrieve it whenever and wherever they required. To provide efficiency to the cloud based application it is designed as a single page application. The single page application provides more fluid access for the users. The single application reduces the server round trip to locate the corresponding page.

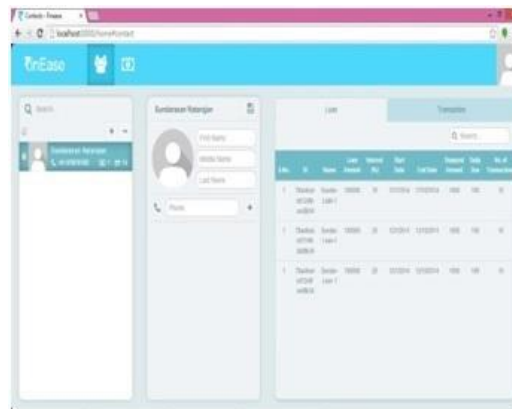
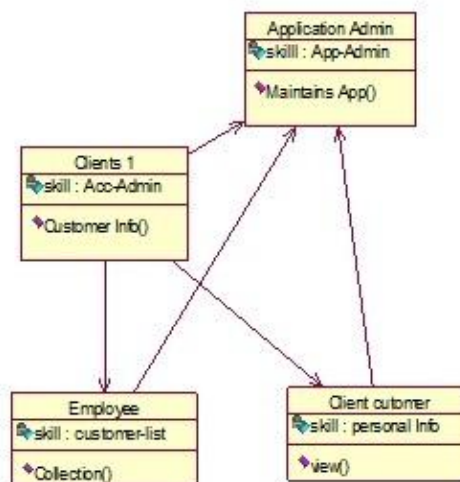


Figure 2: Designed Single page FinEase application

This is the sample single page FinEase output page. As stated previously the application is designed as single page application to provide efficient user accessibility. The application is designed with the help of bootstrap, it is an open source frame work. The FinEase application can also open with the help of mobile phones and design of the application wont scatter the perfect design for the mobile will appears. The reason behind this is the application is developed with the help of bootstrap, it is mobile front end framework which helps in designing the qualified website

**Skill Representation**

The figure 3 explains how the application will work based on the skills provided. The FinEase application will be efficient and economic for the home scale finance organization. The lenders need no to maintain their records manually. The organization can view their buyers record whenever and wherever they want.



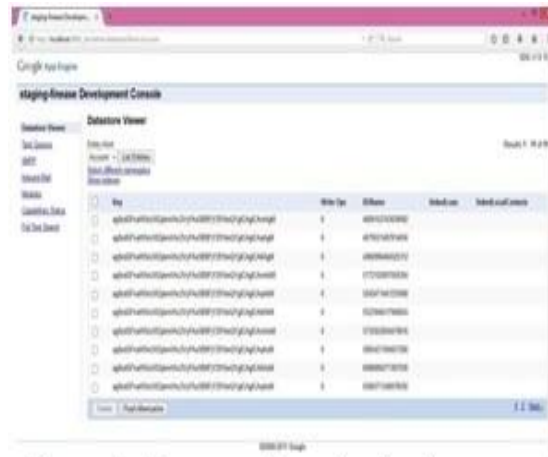
**Figure 3: Application Flow based on the skills**

These skills provide efficient access to the finance organization, their employees and the buyers. The skills are like providing constraint to the application. The Finance firm, their customers and their employees can login in to the same page, but the skills to access the details will vary. For an example if the buyers want to access the application, only the details related to the particular buyers and the related transaction will be visible to them

**Experimental Results**

The FinEase experiments have been conducted on a computer with 2.50GHz Intel core i5, CPU and 4GB main memory. The application is checked running on the operating system Windows 8 and Mac Os. The application are implemented in eclipse IDE along with GAE to deploy the application over the cloud. We designed our

application with the help Enterprise Resource Planning. The application are designed in way that the desktop users as well as the mobile users will get the same service. The experimental output is displayed in figure 5. The storing of the buyers records in a datastore is showed in figure. The key which generated in datastore will helps in secure retrieving of data while splitting the contacts in ERP.



Key	Write By	Status	Metadata	Metadata Content
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		
spk0fwhk0t0pwn0chuh00f0r0e0g0l0g0k0g0		Success		

**Figure 4: Datastore Over the cloud**

The primary key for a datastore entity, a Key instance uniquely identifies an entity across the application, and includes all information necessary to fetch the entity from the datastore along with the unique key generated over the datastore .



**Figure 5: Consuming Application**

The finance organization will provide login for the buyers which shows in fig 5. The login module helps the finance organization to provide access to the buyers to see

their own transaction based on the skills provided. Likewise the finance organization will also provide access to their employees those who handle the buyers transaction. The employees of Finance firm only can view the status of the buyers and the interest they are paying. Those transaction will get updated in the FinEase application which is deployed over the cloud. The skills plays an important role in these cloud solution

## **Conclusion**

In this paper we have proposed a new finance application, which not only for storing and retrieving the data. It is an single page application designed in a way that all the internet users can make use of it. In this application not only finance owner can view the details of their buyers at the same time the employees of that finance organization and the buyers can also view the application based on the skills provided to them. When the employee collects the money from buyers the updated data will be visible to the organization. This is how the application is designed. It reduces the manual intervention . The FinEase application is economic and it is affordable for all the home scale finance users. The FinEase application provides auto scalability since the application is deployed over the cloud.

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