A new way of developing applications in cloud environment using force.com (salesforce.com)

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ABSTRACT

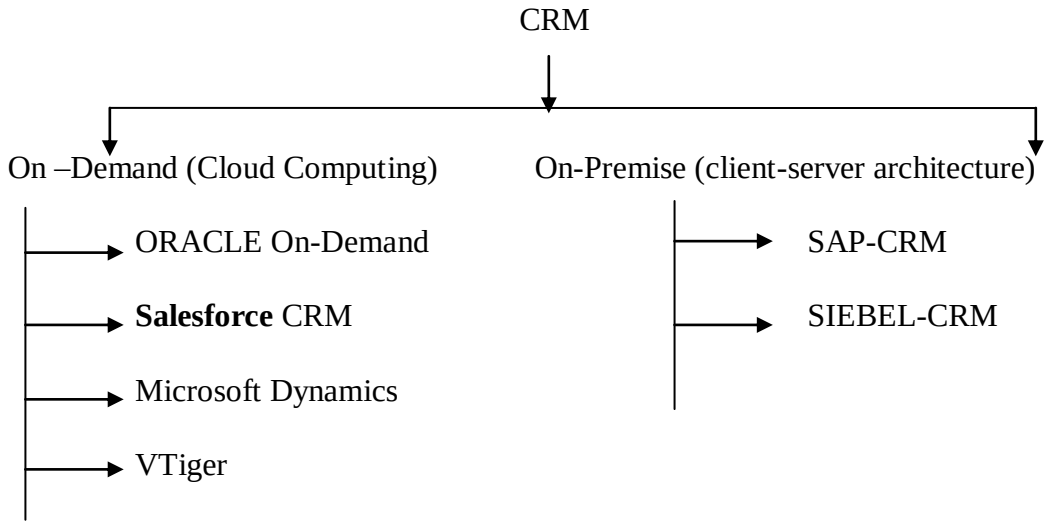
The new way of building and running applications are enabled by the world of cloud computing, where we can access applications, over the Internet as utilities, rather than as pieces of software running on your desktop or in the server room. This model is already quite common for consumer apps like email and photo sharing, and for certain business applications, like customer relationship management (CRM). The Force.com platform is the world's first Platform as a Service (PaaS), enabling developers to create and deliver any kind of business application in the cloud, entirely on-demand and without software. It's a breakthrough new concept that is making companies radically more successful by letting them translate their ideas into deployed applications in record time. Building, sharing, and running business applications have never been so easy. Building and running business applications with traditional software has always been too complex, slow, and expensive. A new model, called cloud computing, has emerged over the last decade to address this problem. Applications that run in the cloud are delivered as a service so companies no longer have to buy and maintain hardware and software to run them. Salesforce.com pioneered this model with applications business over the last decade. More recently, Force.com have opened up the infrastructure and made it available for anyone building any business application and running it on the servers using the Force Platform. The Force Platform allows you to store structured data, implement business logic with workflow rules, approval processes and custom code, support Web browsers, integrate with other applications, do reporting and analytics and scale up or down—all with sub second response time, high availability, and security you need to run your mission critical business apps.

Keywords: - cloud computing, CRM, force platform, PaaS, salesforce.com, apps.

INTRODUCTION

CRM(Customer Relationship Management): CRM is an information industry term for methodologies, software, and usually internet capabilities that help an "enterprise manage customer relationships" in an organized way. Helping an enterprise to enable its marketing department to identify and target their best customers, manage marketing campaigns and generate quality leads for the sale team.CRM technology is offered on-premise and on-demand or through software as a service. Customer relationship management (CRM) is all about managing the relationships you have with your customers. CRM combines business processes, people, and technology to achieve this single goal: getting and keeping customers. It's an overall strategy to help you learn more about their behavior so you can develop stronger, lasting relationships that will benefit both of you. It's very hard to run a successful business without a strong focus on CRM, as well as adding elements of social media and making the transition to a social enterprise to connect with customers in new ways. Successful CRM involves many different areas of your company, starting with sales and extending to other customer-facing areas like marketing and customer service. Salesforce.com offers a technology solution for all those areas… and more. With Salesforce

and our Force.com cloud computing platform, you can mind your customers and your budget at the same time. Get up and running in 30 days with the world's most proven CRM solution.



On-premise: Customers purchase the licenses and run the application on their own servers.

On-demand: Customers subscribe to the software service on a per user per month basis.

Introduction to Salesforce.com (SFDC): **Salesforce.com** (NYSE:CRM) is a global enterprise software company headquartered in San Francisco, California, United States. Best known for its Customer Relationship Management (CRM) product, through acquisitions Salesforce has expanded into the "social enterprise arena." It was ranked number 27 in Fortune's 100 Best Companies to Work For in 2012. The Company was founded in March 1999 by former Oracle executive Marc Benioff, Parker Harris, Dave Moellenhoff, and Frank Dominguez as a company specializing in software as a service (SaaS).Harris, Moellenhoff and Dominguez, three software developers previously at Clarify, wrote the initial sales automation software. In June 2004, the company went public on the New York Stock Exchange under the stock symbol CRM, raising US$110 million. Marc Benioff and Magdalena Yesil were the initial basic connection investors and board members. Other early investors include Larry Ellison, Halsey Minor, Mark Iscaro, and Igor Sill of Geneva Venture Partners. Salesforce.com has its services translated into 16 different languages and currently has 82,400 customers and over 2,100,000 subscribers.

Architecture of Salesforce.com: Multi-tenant architecture is contains some Common propeties and exclusive properties.Common properties are same for everyone but the Exclusive properties may vary depending on client requirements and their needs.These exclusive proeprties will develop by using force.com as per the client requirements.Common properties like callcentre application,CRM application bydefault salesforce is providing everyone for free.So these CRM application is common property for everyone.

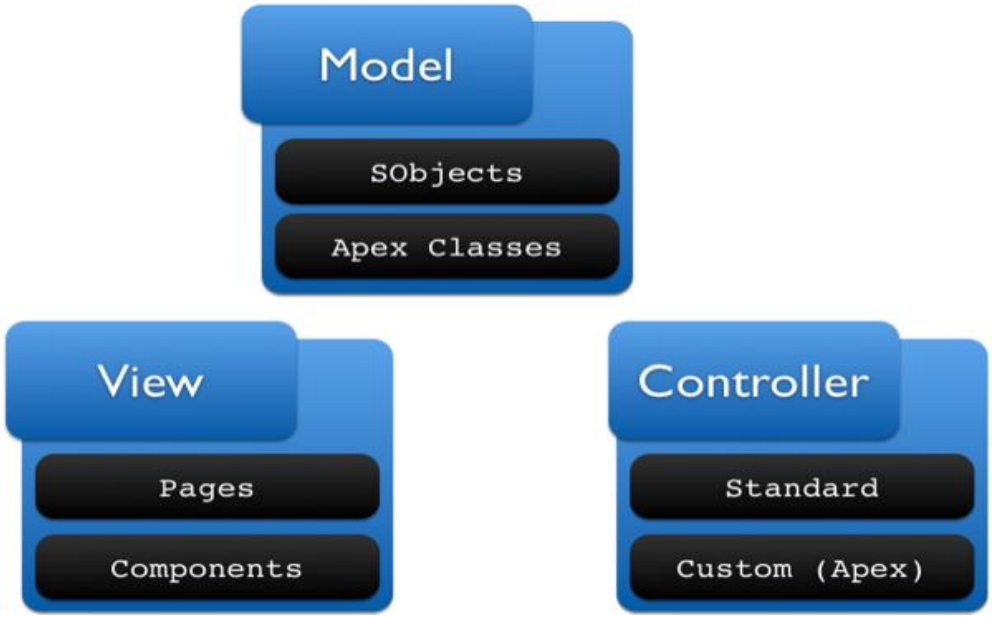


Fig 1: Salesforce.com Architecture

WHY SALESFORCE.COM (SFDC): By default Salesforce.com comes with CRM.

- Salesforce will charge from the customer based on user base and duration base.
- **Integration:** Ability to change one application to another by using Data Loader. It will convert different type of platform code into Apex code.
- Salesforce.com is a cloud computing platform where we have in built or predefined applications.
- Salesforce.com's CRM products and cloud computing model (SAAS) provide many benefits to enterprises, requiring only moderate operating expense and offering a "pay-as-you-go", elastic model that can scale with your changing needs Salesforce CRM solutions offer the fastest path to customer success in the cloud.
- Cost cutting 250$ per user per month.
- Salesforce.com is driven through 6 clouds

What is Force.com: Force.com is a platform for creating and deploying applications for the social enterprise. Because there are no servers or software to buy or manage, you can focus solely on building apps that include built-in social and mobile functionality, business processes, reporting, and search. Your apps run on a secure, proven service that scales, tunes, and backs up data automatically.

Why Force.Com :

- 220,000+ apps have been deployed, with 99.9% availability.
- It's the fastest way to build and deploy social enterprise apps.
- All apps include built-in enterprise collaboration.
- Apps can be easily males Foodified to run on any mobile device.
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Salesforce Past – Present - Future:

	2010 Q1	2010 Q2	2010 Q3	2010 Q4	2011 Q1	2011 Q2	2011 Q3
Revenue	$376,813	$394,372	$429,087	$456,867	$504,364	$546,002	$584,260
Revenue Cost	$71,581	$77,790	$82,131	$92,311	$103,066	$120,910	$128,565
Operating Cost	$272,182	$286,900	$311,800	$364,947	$404,101	$440,840	$465,852
Subscribers	2,319,000	2,554,400	2,790,400	3,000,000	3,321,800	3,640,000	3,895,067
Customers	77,300	82,400	87,200	92,300	97,700	104,000	111,288
Revenue Per Subscriber	$162	$154	$154	$152	$152	$150	$150
Revenue PUPM	$54	$51	$51	$51	$51	$50	$50
Revenue Growth ($) yoy	$71,889	$78,311	$98,538	$102,818	$127,551	$151,630	$155,173
Revenue Growth (%) yoy	24%	25%	30%	29%	34%	38%	36%

Table 1: Salesforce Past – Present - Future

OBJECTIVE

This is an application project for understanding and demonstrating cloud computing capabilities using Force.com. I use Sales Force features to achieve the goal. The objective of this application is to develop and deploy an application in the sales force environment. This application project must satisfy all type of users and should enable all cloud computing capabilities. It is assumed that this application will be developed in the following environment:

- Force.com environment
- Visualforce as the developing language

SOFTWARE DESCRIPTION

Visualforce is a framework that allows developers to build sophisticated, custom user interfaces that can be hosted natively on the Force.com platform. The Visualforce framework includes a tag-based mark up language, similar to HTML. In the Visualforce mark up language, each Visualforce tag corresponds to a coarse or fine-grained user interface component, such as a section of a page, a related list, or a field. The behaviour of Visualforce components can either be controlled by the same logic that is used in standard salesforce.com pages, or developers can associate their own logic with a controller class written in Apex.

Developers can use Visualforce to create a Visualforce page definition. A page definition consists of two primary elements:

• Visualforce mark up

• A Visualforce controller

Visualforce Markup: Visualforce markup consists of Visualforce tags, HTML, JavaScript, or any other Web-enabled code embedded within a single <apex:page> tag. The markup defines the user interface components that should be included on the page, and the way they should appear.

Visualforce Controllers: A Visualforce controller is a set of instructions that specify what happens when a user interacts with the components specified in associated Visualforce markup, such as when a user clicks a button or link. Controllers also provide access to the data that should be displayed in a page, and can modify component behaviour. A developer can either use a standard controller provided by the Force.com platform, or add custom controller logic with a class written in Apex:

Apex: Use Apex if you want to

• Create Web services

• Create email services

• Perform complex validation over multiple objects

• Create complex business processes that are not supported by workflow

• Create custom transactional logic (logic that occurs over the entire transaction, not just with a single record or object)

• Attach custom logic to another operation, such as saving a record, so that it occurs whenever the operation is executed, regardless of whether it originates in the user interface, a Visualforce page, or from the Web Services API

SYSTEM ANALYSIS

Existing system: As users of the Internet, we're all familiar with the fascinating, innovative, creative, and sometimes silly ways in which it has changed how we work and play. From social networking sites to wikis to blogs, and more, it's exciting to watch the innovations taking place that are changing the ways we communicate and collaborate. While these changes have certainly impacted how we work with content, a similar set of Internet-driven ideas and technologies is changing how we build and work with business applications. While yesterday's business applications required thousands, if not millions, of dollars and sometimes years of professional services help to set up and customize, the technologies offered by the Internet today make it much easier to create, configure, and use business applications of all kinds. Indeed, the power of the Internet has given us the ability to solve new kinds of business problems that, because of complexity or cost, had previously remained out of reach. Just as the changes that moved publishing technology from paper to bits made it possible for us to have information about anything in the whole world right at our fingertips,

the changes in application technology make it similarly possible to imagine a robust, enterprise-class application for almost any business need. Sound pretty good? Then you're probably wondering: "What's the magic that makes this possible?" These new ways of building and running applications are enabled by the world of *cloud computing*, where you access applications, or *apps*, over the Internet as utilities, rather than as pieces of software running on your desktop or in the server room. This model is already quite common for consumer apps like email and photo sharing, and for certain business applications, like customer relationship management (CRM).

Drawbacks of Existing System: By using the existing system we have to maintain a high configuration system to run some huge software's which is used to develop the applications. This may need huge cost to buy and maintain. We have to buy the each and every software's which are used for developing the applications. Also we have to update the software's for latest version. This needs maintenance risks such as economical risk and technical risk. The main disadvantage of the existing system over cloud environment is lack of portability. Even though we are having high configured systems and updated software's we have to take the system with us when we are moving from one place to other place. This will create risk to the users. The main disadvantage of the existing system is lack of disaster recovery. That means in the case of any disaster occurs all the data available in the system cannot be recovered. Thus it may leads to the loss of data. The existing system also needs high initial out lay to set up the system.

Proposed System: Since there are lot of problems available with the existing system a new technology is used in this project called as **cloud computing.** The proposed system in this project is to develop an application in the cloud computing environment and have to deploy it and to launch the application in cloud. The cloud environment used in this project is called as **salesforce environment.** A simple application is developed in the cloud environment and deployed in the same environment using the tools provided there itself. The application is launched as a site inside the cloud. The security provided by the platform provider (salesforce) is used in this application.

PROJECT DESCRIPTION

Problem Definition: The Force.com platform is the world's first Platform as a Service (PaaS), enabling developers to create and deliver any kind of business application in the cloud, entirely on-demand and without software. It's a breakthrough new concept that is making companies radically more successful by letting them translate their ideas into deployed applications in record time. A building, sharing, and running business application has never been so easy. This is an application project for understanding and demonstrating cloud computing capabilities using Force.com. We use Sales Force features to achieve the goal.

The scope of this project is limited based on the application developed in force.com.

- To develop an application for sales forecast details.
- Provide the Sales forecast details of a company product.
- Ease of access and use
- Secured analysis(confidentiality)
- Views about current status

Overview of the project: This project deals with the concept of cloud computing. This cloud computing capabilities will be achieved by using the salesforce environment. The main theme of this project is to develop an application in sales force environment. The entire set up will be provided by the salesforce. The application will be developed in the languages called Visualforce and apex. The two languages will be particularly used in sales force to develop the web based applications. Initially the user has to register with the salesforce and have to get his ID. This user ID will be used to enter into the salesforce application development environment. The environment will be furtherly used to develop the applications. The pages setup inside this application will be used to customize the application. There are lots of tabs and links can be created here. The developer needs to register with the salesforce environment. The application needs to develop in this environment itself. The application will be completed and launched as a site. This site will work as an application.

Springboard Competency Development Centre: Springboard provides competency related services to two vital segments of IT community, namely:

- Fresh engineering graduates, who want to become highly employable through Springboard Competency Development Program (CDP)
- IT organizations that want to recruit high-quality, project-ready engineers. And, they want to reduce time and budget allocated for training

Our partner organizations can now outsource their Fresher Induction Program to us. We will put them through either our standard CDP or through a custom-CDP developed exclusively for our partners.

Learning Model: Springboard uses a unique learning model called Knowledge-Immerse-Measure (KIM) that helps the participants to reach higher competency standards in a short span of time. This model ensures the participant gets adequate level of knowledge, skills and attitude so as to help him / her to get into the world of professional assignments at ease.

Module Description: This project includes the launching of a simple application developed in salesforce environment using Visualforce and apex. This application will consists of different modules such as,

- Login
- Document
- Products and Data Entries
- Searching Products and sales details

Login: Salesforce development environment needs the login page since the application is going to be launched as a web application. It needs proper authentication to enter into the development mode. The application can be accessed by entering into the site. The security will be enabled in this page by providing system authentication. For example if the user is entering from a new system that is unknown to the force.com environment using the entered ID, Then we have to authenticate the system by clicking the link sent to our mail ID in that system.

The following figure shows the login page of the salesforce developer environment.

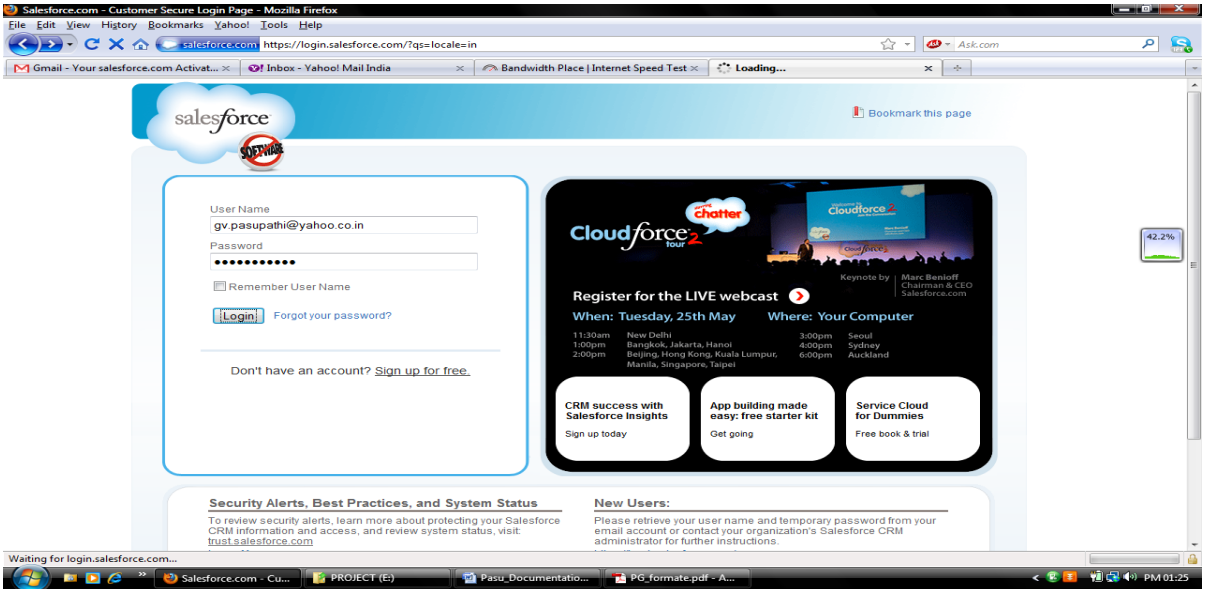


Fig 2: Login page

Documentation: This is considered as the database section of the application. The required data can be stored here by specifying the details such as name type and size. The database in salesforce environment will be also provided in this way. This documentation details can be editable during the process. The various documents used for the development of applications are stored here and their links were used in the application.

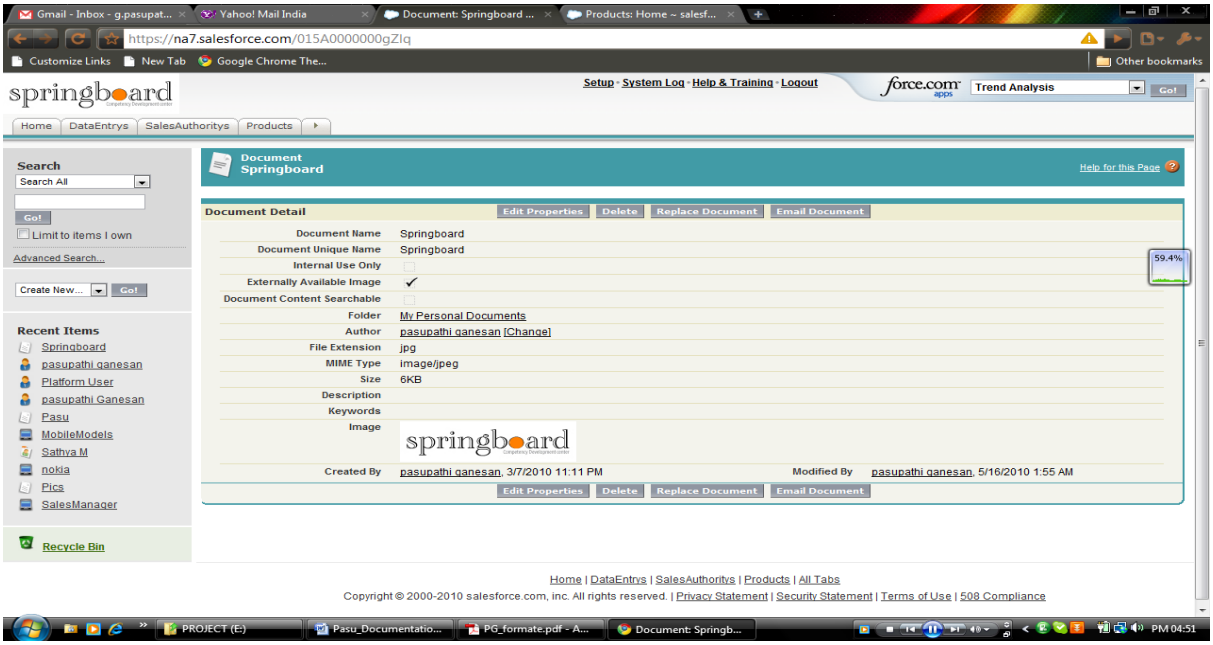


Fig 3: Documents storage

Data Entry and Products:

This module is developed to enter the details of the product s that are recently launched in the market by a company. The new products details and specifications can be Entered here. This will provide the options of searching in catigories of price , types , etc,. The key word is enough to find the products.

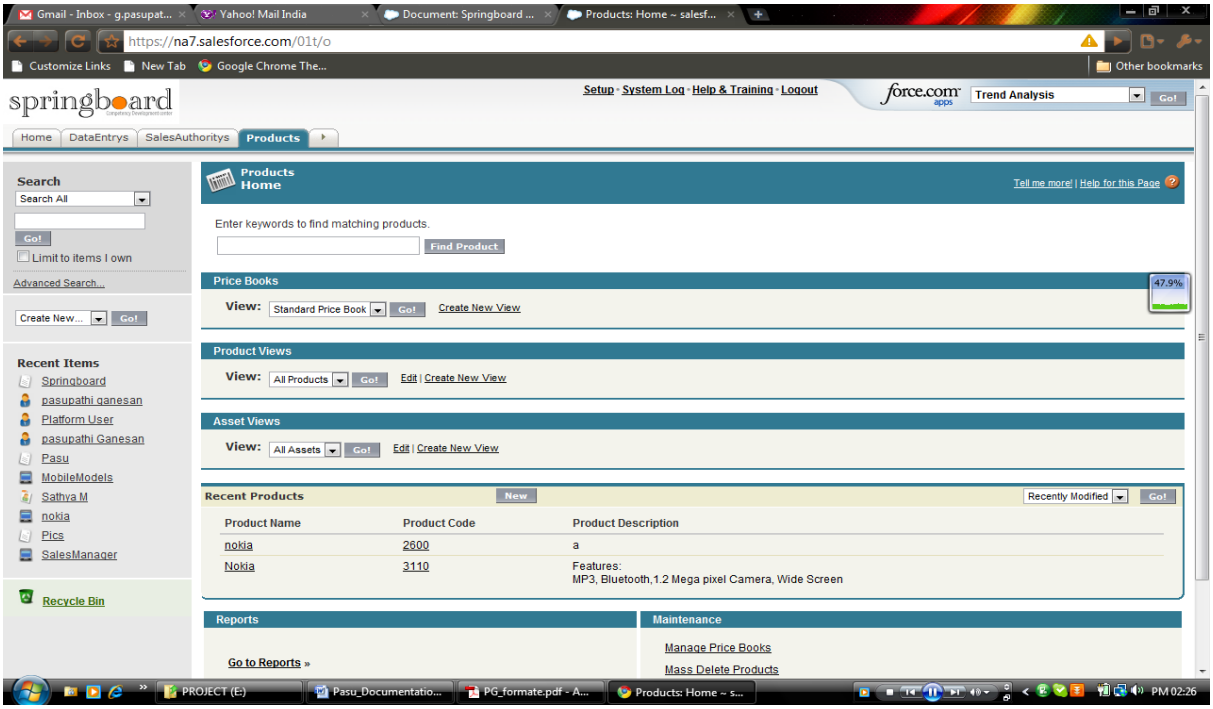


Fig 4: Product Details Entry

Searching products and sales details:

This module is used to see the sales details of the products in market. The search options can be enabled in both productwise and price list. The salesmanager can assign works to the others by sending mails and can verify the trend of sales of the particular product.

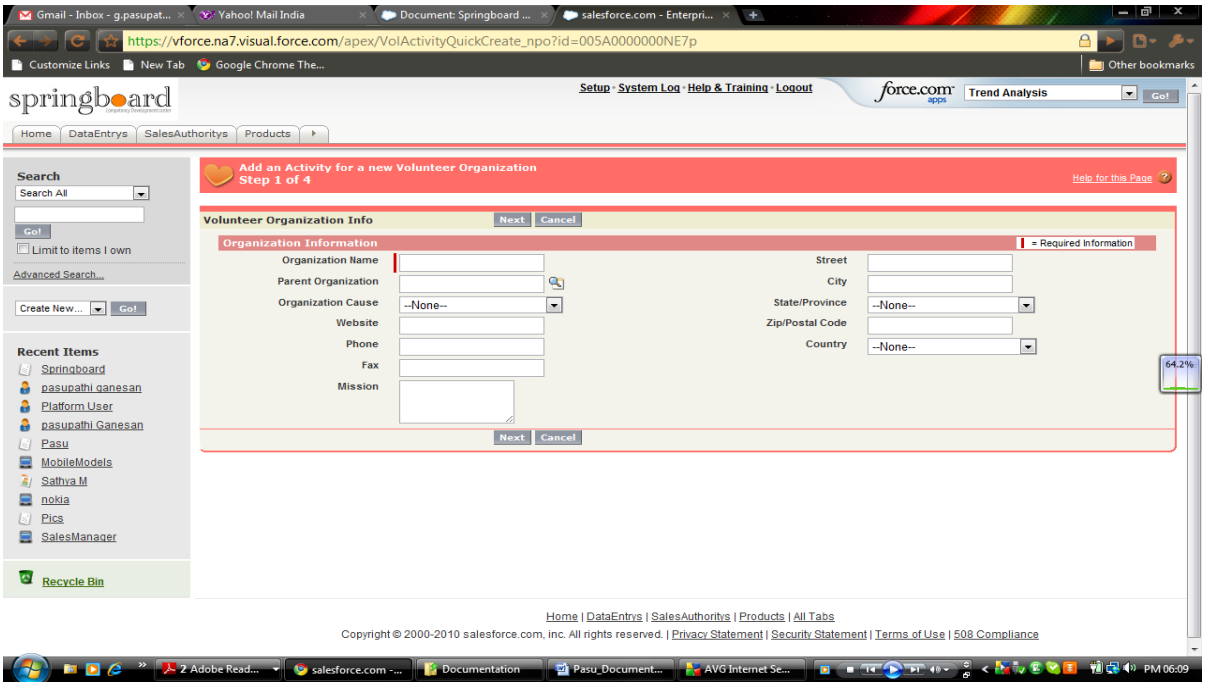
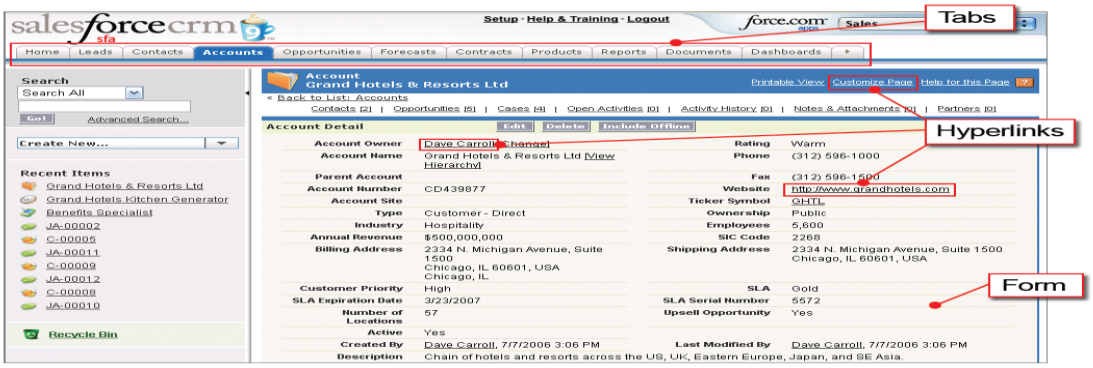


Fig 5: Searching products and sales details

The basics of an app:



CONCLUSION

First the Amazon was introduced cloud technology but Salesforce.com (SFDC) is the one which capitalized the market. Apex is the world's first on demand Programming Language which is based on OOPS concepts. Salesforce has built by modifying the java as APEX. By using APEX code we can build any kind of application on Force.com Platform. One more important thing is Java script page modified as Visual force. This is very useful to develop any kind of web applications.There is most important part in SFDC is APP EXCHANGE, we can store all kind of developed application and download it for free from appexchange its same as like Apple store. Salesforce.com is powerful CRM software. Day by day most of the companies are using SFDC because of flexibility and less cost. SFDC is the leader in the present market and for more 6 years by its annual results. Force.com sites enables you to create public websites and applications that are directly integrated with your Salesforce.com organization—without requiring users to log in with a username and password. You can publicly expose any information stored in your organization through pages that match the look and feel of your company's brand. Use sites to create public community sites to gather customer feedback, branded login and registration pages for your portals, Web forms for capturing leads, and so on. Because sites are hosted on Force.com servers, there are no data integration issues. And because sites are built on native Visualforce pages, data validation on collected information is performed automatically. You can allow users to access your site through your unique Force.com domain and URL, or you can register your own branded domain or sub domain to redirect to your site. This all will enable us to develop and use an application in reliable and comfortable way.

Future Enhancements:

Enhancing the application development with all the available languages such as java, .Net, PHP...Etc, since the application is currently developed using apex and Visualforce only.

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