ENRICHED COACHING CENTER

A PROJECT REPORT Submitted partial fulfilment of the Requirements for the Degree of

MASTER OF COMPUTER APPLICATION

by

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to the

Department of Computer Applications

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JULY, 2021

CERTIFICATE

Certified that Niharika Maheshwari (1900290149066) has carried out the project

work presented in this project report entitled "Coaching Center" for the award of

Master of Computer Application from Dr. A.P.J. Abdul Kalam Technical University,

Lucknow under my supervision. The report embodies result of original work, and

studies are carried out by the student himself and the contents of the report do not

form the basis for the award of any other degree to the candidate or to anybody else

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ii

ENRICHED COACHING CENTER ABSTRACT

Coaching centres offer **classes** as per subjects and help students to prepare well. **Coaching centres** offering specialized **classes** for Joint and Management entrances are already very popular. In the last few years many students have cracked entrance exams successfully after studying at these **coaching centres**.

Coaching is the skill of providing ongoing and specific feedback in a supportive manner for employee learning, development and improvement. A process aimed at exerting a positive influence to improve the behavior or performance of a person.

Coaching classes are always played a role in proper guidance. If you want to stay in the competition then you need a regular and routine life without having any stress. Don't force your children to attend the classes. Make them understand that these types of classes have Actually attended a coaching class has lots of benefits which will teach you more and make you update more as this type of classes is full with fresh flocks of students and their ideas and curiosity.

ACKNOWLEDGEMENT

Success in life is never attained single handedly. My deepest gratitude goes to my thesis supervisor, **Ms. Neelam** for his guidance, help and encouragement throughout my research work. Their enlightening ideas, comments, and suggestions.

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Niharika Maheshwari

TABLE OF CONTENTS

Certificate	ii
Abstract	iii
Acknowledgements	iv
Table of Contents	v-vi
List of Tables	vii
List of Figures	viii
CHAPTER 1: INTRODUCTION	9-17
1.1 Project Description	9-10
1.2 Project Scope	10
1.3 Hardware/Software used in Project	11
1.3.1 Technology Description	12-17
CHAPTER 2: LITERATURE REVIEW	18-23
2.1 Proposed System	20
2.2 Technical Feasibility	21
2.3 Operational Feasibility	22
2.4 Economic Feasibility	22
2.5 Behavioural Feasibility	23
CHAPTER 3: DATABASE MANAGEMENT	24-26
3.1 Schema Builder	25

26
27-41
27-41
42-46
42-46
47-53
51
52
52
53
54

LIST OF TABLES

Table No. Name of Table		Page
1.1	Hardware	11
1.2	Software	11

LIST OF FIGURES

Figure No.	Page No.	
Fig 3.1	Schema Builder	25
Fig 3.2.1	Zero level DFD	26
Fig 3.2.2	One level DFD	26
Fig 4.1	Contact Object	27
Fig 4.1.1	Adding New Contact	28
Fig 4.1.2	Contact Detail	29
Fig 4.2	Report and Dashboard Object	30
Fig 4.2.1	Create New Report	31
Fig 4.3	Select Coaching Questionnaire Record Type	32
Fig 4.4	Process Builder	33
Fig 4.5.1	Classic Email Templates	34-36
Fig 4.5.2	Classic Email Templates	37-38
Fig 4.6.1	Classic Letterheads	39-40
Fig 4.6.2	Classic Letterheads	40-41
Fig 5.1	App Setup	43
Fig 5.2	App Setup	44
Fig 5.3	App Setup	45
Fig 5.4	App Setup	46

CHAPTER 1

INTRODUCTION

1.1. Project Description

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. Data are store on cloud where all the information will be stored safely and access anywhere, anytime by authorize person.

1.2. Project Scope

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

1.3. Hardware / Software used in the Project

Table 1.1 Hardware

Hardware	Configuration
Processor	Intel® Core™ i3-7100U CPU @2.4GHz
RAM	4GB
Monitor	HP
Modem	Internet Connectivity

Table 1.2 Software

Software	Configuration
Operating System	Windows XP /7/8/10
Software	Chrome, Microsoft Edge

1.3.1. Technology Description

SALESFORCE

Salesforce.com, Inc. is an American cloud-based software company headquartered in San Francisco, California. It provides customer-relationship management (CRM) service and also sells a complementary suite of enterprise applications focused on customer service, marketing automation, analytics, and application development.

Salesforce is the primary enterprise offering within the Salesforce platform. It provides companies with an interface for case management and task management, and a system for automatically routing and escalating important events. The Salesforce customer portal provides customers the ability to track their own cases, includes a social networking <u>plug-in</u> that enables the user to join the conversation about their company on <u>social networking Web sites</u>, provides analytical tools and other services including email alert, Google search, and access to customers' entitlement and contracts

Service Nature of Salesforce:

- 1. Salesforce as SaaS (Software as a Service): There is no need for installation, setup or downloads but you just have to log in and start using the software apps across the cloud. Isn't it more convenient and amazing? The answer is a big "YES" when using Salesforce CRM for your business.
- 2. Salesforce as PaaS (Platform as a service): Here, there is no need for a separate platform, but you can use code created by other developers to deploy apps. Obviously, you have to customize it as per your business needs, but it saves a lot of time and money as demanded by businesses today.

3. **Salesforce as IaaS** (**Infrastructure as a service**): Here, there is no need for installing any hardware or software program, but data and apps are stored securely on the cloud. Even you don't have to take the backup, but the cloud will take care of it automatically.

1.3.1.1 APEX

Apex is a proprietary programming language provided by the Force.com platform to developers similar to <u>Java</u> and <u>C#</u>. It is a strongly typed, object-oriented, case-insensitive programming language, following a dot-notation and curly-brackets syntax. Apex can be used to execute programmed functions during most processes on the Force.com platform including custom buttons and links, event handlers on record insertion, update, or deletion, via scheduling, or via the custom controllers of Visualforce pages.

Due to the multitenant nature of the platform, the language has strictly imposed governor limitations to guard against any code monopolizing shared resources. Salesforce provides a series of <u>asynchronous processing</u> methods for Apex to allow developers to produce longer-running and more complex Apex code.

1.3.1.2 LIGHTNING

Salesforce made public the front end of its platform, called Lightning. This component-based framework is what the Salesforce mobile app is built on. Salesforce built on this framework in 2015 by releasing the Lightning Design System, an HTML style framework with default CSS styling built in. This framework allows customers to build their own components to either use in their internal instances or sell on the AppExchange.

The Salesforce Lightning App Builder is a tool for rapid application development of responsive web interfaces. This interface allows for different screens to be put together based on Lightning components. This can be used as layouts for records or specific applications.

Lightning Experience, released in 2016, is the new redesigned interface in Salesforce for processes enhancement. Since then all the apps available on AppExchange need to be Lightning and those built on Classic have to migrate to Lightning as Classic is not to be updated any more by Salesforce. The platform offers an option for developers to employ migration techniques to enable the new user interface and switch to Lightning.

1.3.1.3 JavaScript

JavaScript (often shortened to **JS**) is a lightweight, interpreted, object-oriented language with first-class functions, and is best known as the scripting language for Web pages, but it's used in many non-browser environments as well. It is a prototype-based, multi-paradigm scripting language that is dynamic, and supports object-oriented, imperative, and functional programming styles.

JavaScript runs on the client side of the web, which can be used to design / program how the web pages behave on the occurrence of an event. JavaScript is an easy to learn and also powerful scripting language, widely used for controlling web page behavior.

Contrary to popular misconception, **JavaScript is** *not* "**Interpreted Java**". In a nutshell, JavaScript is a dynamic scripting language supporting prototype based object construction. The basic syntax is intentionally similar to both Java and C++ to reduce the number of new concepts required to learn the language. Language constructs, such as if statements, for and while loops, and switch and try ... catch blocks function the same as in these languages (or nearly so).

JavaScript can function as both a procedural and an object oriented language. Objects are created programmatically in JavaScript, by attaching methods and properties to otherwise empty objects **at run time**, as opposed to the syntactic class definitions common in compiled languages like C++ and Java. Once an object has been constructed it can be used as a blueprint (or prototype) for creating similar objects.

JavaScript's dynamic capabilities include runtime object construction, variable parameter lists, function variables, dynamic script creation (via eval), object introspection (via for ... in), and source code recovery (JavaScript programs can decompile function bodies back into their source text).

1.3.1.4. SOQL

SOQL is Salesforce Object Query Language that is highly similar to SQL (Structured Query Language). With the help of SOQL, you can always search the organizational data wisely. It can be combined with APEX, Visualforce, or Force.com IDE too. While writing a query using SOQL, you should use SELECT command and a lot of other conditions too.

The SOQL can be used when you have the basic idea of objects and related data. It can be used to retrieve data from one or multiple objects that are connected together based on requirements. It helps in getting the total count and sort queries as well. Further, it can be combined with SOSL (Salesforce Object Search Language) to search the organizational data when they are not sure about objects.

SOSL is programmed in such a way to work on the basis of the search index. To improve the performance of searching, you should combine SOQL and SOSL together because searching work is done better by SOSL as compared to the SOQL.

CHAPTER 2

LITERATURE REVIEW

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).

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.

2.1. 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.

Feasibility study is made to see if the project on completion will serve the purpose of the organization for the amount of work, effort and the time that spend on it. Feasibility study lets the developer foresee the future of the project and the usefulness. A feasibility study of a system proposal is according to its workability, which is the impact on the organization, ability to meet their user needs and effective use of resources. Thus, when a new application is proposed it normally goes through a feasibility study before it is approved for development.

The document provides the feasibility of the project that is being designed and lists various areas that were considered very carefully during the feasibility study of this project such as Technical, Economic and Operational feasibilities.

2.2. Technical Feasibility

The system must be evaluated from the technical point of view first. The assessment of this feasibility must be based on an outline design of the system requirement in the terms of input, output, programs and procedures. Having identified an outline system, the investigation must go on to suggest the type of equipment, required method developing the system, of running the system once it has been designed.

Technical issues raised during the investigation are:

Does the existing technology sufficient for the suggested one?

Can the system expand if developed?

The project should be developed such that the necessary functions and performance are achieved within the constraints. The project is developed within latest technology. Through the technology may become obsolete after some period of time, due to the fact that never version of same software supports older versions, the system may still be used. So, there are minimal constraints involved with this project. The system has been developed using Java the project is technically feasible for development.

2.3. Operational Feasibility

Proposed projects are beneficial only if they can be turned out into information system. That will meet the organization's operating requirements. Operational feasibility aspects of the project are to be taken as an important part of the project implementation. Some of the important issues raised are to test the operational feasibility of a project includes the following:

- ¬ Is there sufficient support for the management from the users?
- ¬Will the system be used and work properly if it is being developed and implemented?
- ¬Will there be any resistance from the user that will undermine the possible application benefits?

This system is targeted to be in accordance with the above-mentioned issues. Beforehand, the management issues and user requirements have been taken into consideration. So, there is no question of resistance from the users that can undermine the possible application benefits.

2.4. Economic Feasibility

The developing system must be justified by cost and benefit. Criteria to ensure that effort is concentrated on project, which will give best, return at the earliest. One of the factors, which affect the development of a new system, is the cost it would require.

The following are some of the important financial questions asked during preliminary investigation:

The costs conduct a full system investigation.

The cost of the hardware and software.

The benefits in the form of reduced costs or fewer costly errors.

Since the system is developed as part of project work, there is no manual cost to spend for the proposed system. Also, all the resources are already available, it gives an indication of the system is economically possible for development.

2.5. Behavioral Feasibility

An estimate should be made of how strong a reaction the user staff is likely to have towards the development of a computerized system. It is common knowledge that computer installation have something to do with Turnover, Transfers and changes in employee Job Status. Normal human psychology of human beings indicate that people are resistant to change and computers are known to facilitate change. Any project formulations should consider this factor also. Before the development of the Project titled "Delhi Metro", the need to study the feasibility of the successful execution of the project was felt and thus the following factors are considered for a Feasibility Study.

- 1. Need Analysis.
- 2. Provide the users information pertaining to the preceding requirement.

CHAPTER 3

DATABASE MANAGEMENT

A Database in Salesforce is defined as the organized collection of objects where each object contains some information. Data is stored in the form of database tables for people, things, contacts, etc that are important for any project in the future. Each database has a set of certain rows and columns where information is stored in the form of fields and records. It helps produce database systems

- 1. That meet the requirements of the users
- 2. Have high performance.

One such important concept in Oracle is the Salesforce database class. Database classes can specify either you want to continue the execution or not if some error is encountered. You can also add one Boolean parameter to the Salesforce database class to make it more functional. The same task can be completed using DML statements but you are not free to keep a check on query execution.

Another important concept is the Salesforce database architecture. It has the multi-tenancy architecture where clouds are used to share resources reliably and securely. The multitenant Salesforce database architecture has a huge impact on application delivery and the infrastructure. In simple words, we can say that Salesforce database architecture is highly similar to the architecture of relational database systems.

3.1 Schema Builder

Fig 3.1 Shows the relationship between Custom Objects.

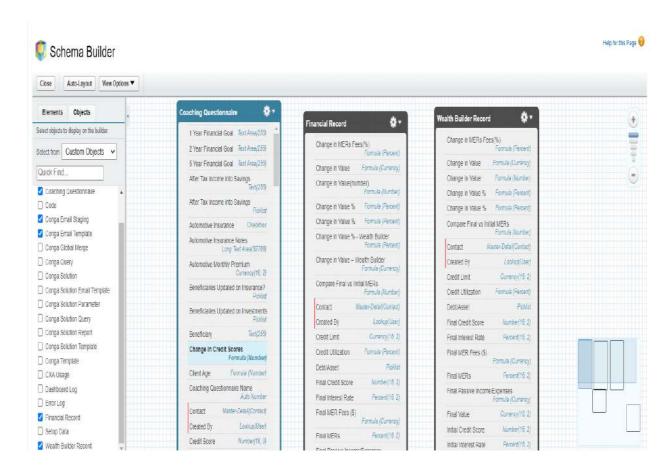


Fig. 3.1 Schema Builder

3.2. Flow Graphs

3.2.1 Zero Level DFD



Fig. 3.2.1 Zero Level DFD

3.2.2 One Level DFD

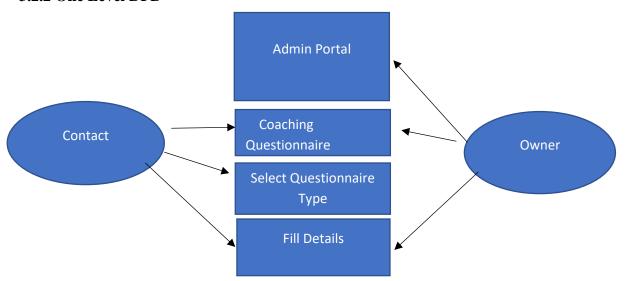


Fig. 3.2.2 One Level DFD

CHAPTER 4

OBJECT INTERFACES

4.1. Contact Object

Fig. 4.1 It show all the recent contacts which can be added with this Coaching center.

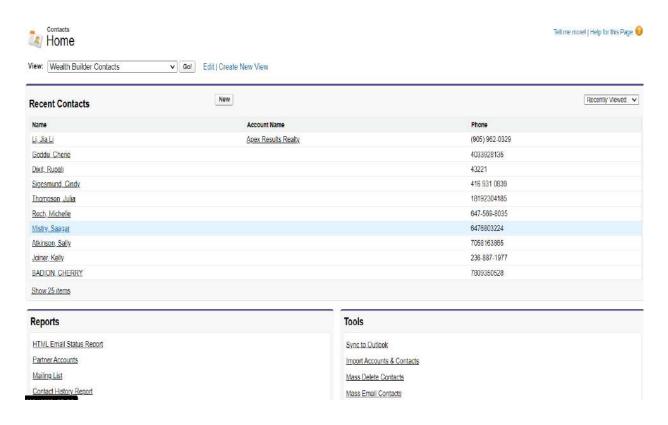


Fig. 4.1 Contact Object Shows Recent Contacts

Fig. 4.1.1. In this snapshot we can see to add Contact and along with coaching program details and other information.

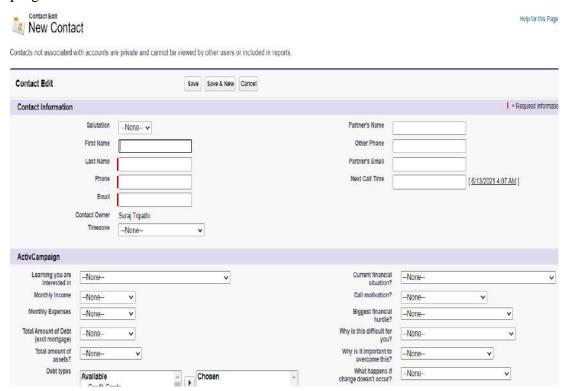


Figure 4.1.1. Adding New Contact

Fig. 4.1.2. This shows the financial records detail like type,initial value,final value,change in value etc. and show wealth builder records as well as coaching questionaires which contain questionnaire type like incoming and outgoing type.

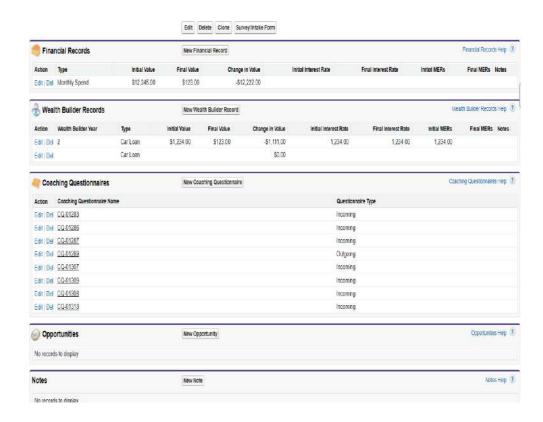


Fig. 4.1.2 Contact Detail

Fig 4.2. Report and Dashboard object

It shows all the reports and dashboards which are available in this coaching center which includes several folders which have been created.

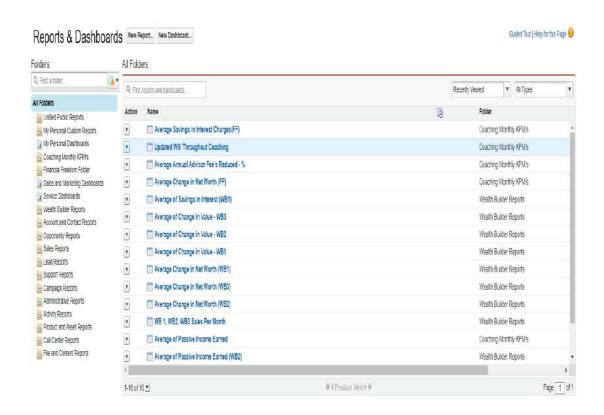


Fig. 4.2. Reports and Dashboard

Fig 4.2.1. In this figure how we create new reports by selecting the report type like accounts and contacts, leads, opportunity, quotes etc and then select create option.

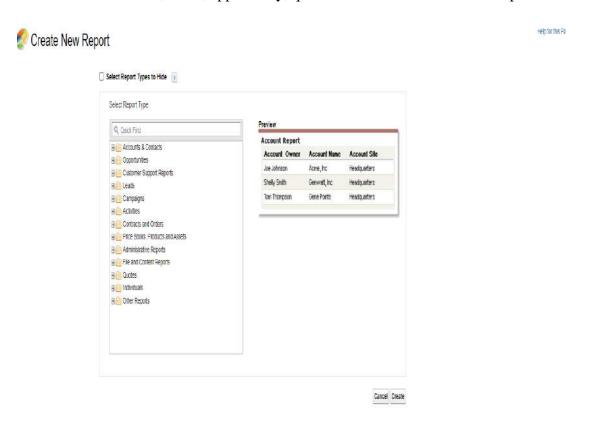


Fig. 4.2.1 Create New Report

Fig. 4.3 SELECT COACHING QUESTIONNAIRE RECORD TYPE

This object shows when a person selecting the coaching questionnaire it should be select which record type it fill the details like incoming and outgoing type and fill the details according to it.

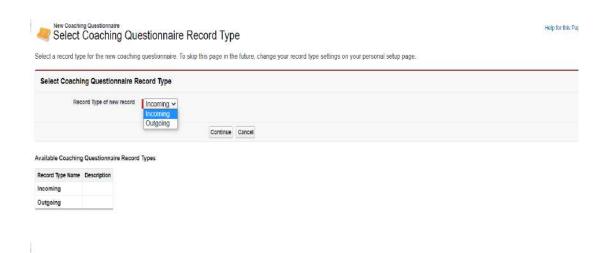


Fig. 4.3 Select Coaching Questionnaire Record Type

Fig. 4.4 PROCESS BUILDER

Process builder is used to automate more complex business **process** just by a few point and click actions. It provides a user – friendly representation for building a **process** in **Salesforce**.

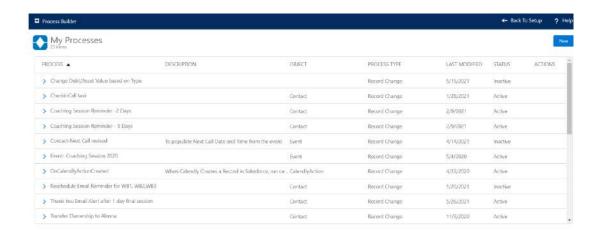
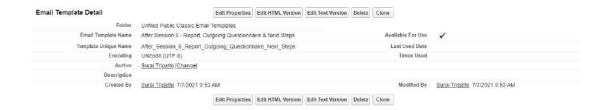


Fig. 4.4 Process Builder

Fig. 4.5 CLASSIC EMAIL TEMPLATES

In Salesforce, you can create four different types of email templates: text, **HTML** with Classic Letterhead, custom, and Visualforce. All of these email templates can include text, merge fields, and attached files.



Congratulations! You should be so proud of yourself. Isn't it amazing how much your finances can change in such a short period of time? And this is just the beginning. What you've learned over the last 6 months is something that you can carry with you forever.

Although today marks the end of your first session with our coaching program, I want you to continue using the valuable tools that we have provided you. By actively using these tools, you'll be successful in managing your personal finances moving forward, and will be able to make your money work more efficiently.

Next Steps:

- If you haven't had a chance to fill out our coaching survey yet, please use this
 link to do so now. Your name will be entered into an annual draw for a prize valued
 at \$250.
- Did you know that we have a referral program? For every referral who signs up and
 completes all of the Financial Freedom coaching sessions, we will provide YOU and
 YOUR referral with \$125. Please share this link with your network so they can sign
 up for a FREE 45-minute financial strategy call.
- You have unlimited access to our <u>online portal</u> where all of our online curriculum is stored along with blank worksheets that we used in our coaching program.
- You have {{{Recipient.Bootcamp_Tickets_Remaining_c}}} tickets available to use
 for an upcoming live event. Keep an eye out for an email that has our upcoming live
 events and how you can register.

momentum that we've built with your finances? I've attached some information about our <u>Wealth Builder</u> program. Our Wealth Builder clients have seen the following results over the 1 year program.

- o Increase in Net Worth by \$161,653.79
- o Increase in Passive Income by \$46,648.46
- o Decrease in Consumer Loans by \$6,158.78
- o Decrease in Interest Charges from Consumer Loans by \$5,084.90
 - When you're finished going through the brochure, and you're ready to sign up, you can do so <u>HERE</u>. Once we receive your confirmation, I'll reach out and we can book in our 1st Wealth Builder Session. This program will take your finances to the next level.

Thanks again for being so great during your coaching. It was a pleasure working with you and I hope that you continue to work with us in the future.

```
{!Contact.OwnerFullName}
{!Contact.OwnerTitle}
e: {!Contact.OwnerEmail}
```

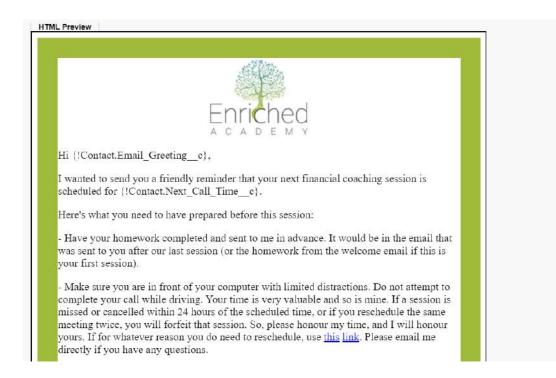
NOTE: This material has been prepared for informational and educational purposes only. It should not be relied on for tax, legal, investment or accounting advice. You should consult your own tax, legal, investment, and accounting advisors before engaging in any transaction.

Fig. 4.5.1 Classic Email Templates









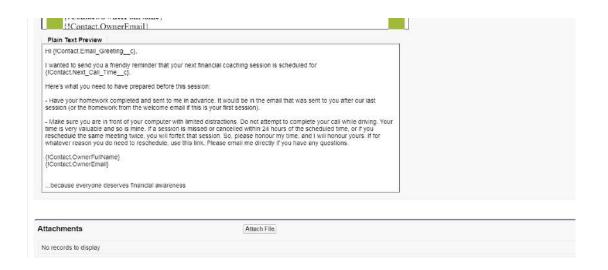


Fig. 4.5.2 Classic Email Templates

Fig. 4.6 CLASSIC LETTERHEADS



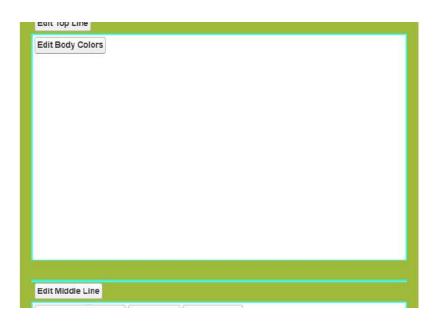




Fig. 4.6.1 Classic Letterheads





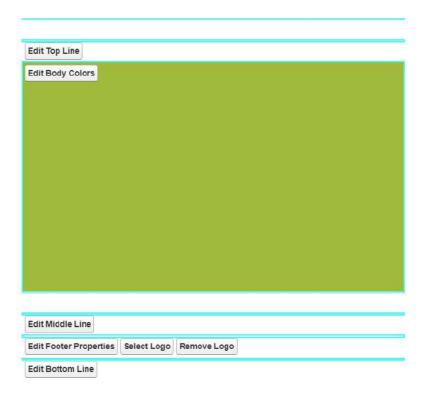


Fig. 4.6.2 Standard Letterheads

CHAPTER 5

Extend Salesforce with Clicks, Not Code

Ready to go beyond the basics of Salesforce administration? Want to customize your org, push its boundaries, and enhance its functionality? You can do that and so much more without writing a single line of code. All you need is your mouse and a sense of adventure. Enhance your objects, data, and fields, customize your org's look and feel, augment your business processes, create websites, and even create apps—all using point-and-click tools.

The Force.com platform provides an enormous amount of functionality and flexibility, all of which is driven by underlying metadata. Force.com metadata is a collection of attributes that describe most components of data and applications that operate on the platform. Metadata describes the data structures in your environment, the declarative functionality implemented on the platform—even the applications you build on the platform.

To understand the power and reach of metadata, simply access a data record held in Force.com. When you access the record in your Force.com environment, the platform uses metadata to understand the structure of the record, the user interfaces defined for the record, the applications that use the user interface, even the security on that data and application.

5.1 App Setup Menu

The App Setup menu is where you will spend the most time as a developer. These menus provide access to pages that let you create and configure Force.com components and services.

Once you create a custom object, you can edit the definition of the object via the Custom Object page.

The Custom Object page provides links for adding custom fields, validations to enforce data integrity rules, database triggers, and custom buttons or links to the object's page layouts. You can also modify the attributes of standard fields, buttons, links or layouts for both the page and search dialogs, as well as add new page layouts or assign record types.

As an example, when you add a new field to a custom object, a wizard walks you through a number of steps, including:

- Selecting a field type.
- Giving the field a label, name, help text, a default value, and potentially other attributes, such as the length of the field or whether a value is required.
- Assigning security settings to the field.
- Adding the field to existing page layouts.
- Depending on the type of field in focus, the wizard may include other pages for other relevant metadata attributes.

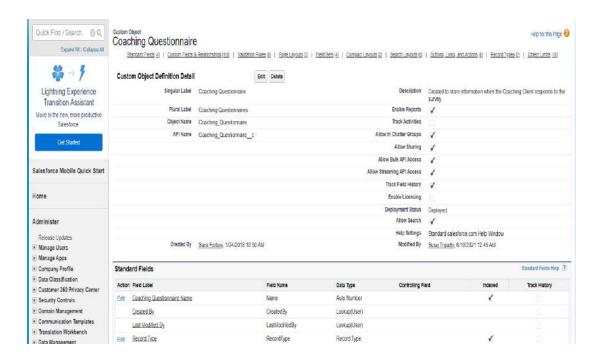


Fig 5.1

Custom Fields & Relationships		New Field Dependencies Set History Tracking			Custom Fields & Relabo	inships Help 17
Action	Field Label	API Name	Data Type	Indexed Controlling Field	Modified By	Track Histor
Edt Del	1 Year Financial Goal	X1_Year_Financial_Goalc	Text Area(255)		Suraj Tripathi, 12/7/2020 12:58 AM	
Edit De	2 Year Financial Goal	X2_Year_Financial_Goalc	Text Area(255)		Suray Tripathi, 12/7/2020 12:58 AM	
Edt Del	5 Year Financial Goal	X5_Year_Financial_Goalc	Text Area(255)		<u>Suraj Tripathi</u> , 12/10/2020 12:58 AM	
Edit Del	After Tax Income into Savings	After_Tax_Income_into_Savingsc	Text(255)		<u>Suraj Tripathi</u> , 7/4/2019 7:48 AM	
Edit Del Replace	After Tax Income into Savings	After_Tax_Income_into_Savings1c	Picklist		Suray Tripathi, 8/22/2019 9:10 AV	
Edt Del	Automotive Insurance	Automotive_c	Checkbox		Suraj Tripathi, 8/22/2019 3:20 AM	
Edt Del	Automotive Insurance Notes	Automobile_Insurancec	Long Text Area (32768)		Alanna Abramsky, 7/11/2018 8:07 PM	
Edit Del	Automotive Monthly Premium	Automotive_Monthly_Premium_c	Currency(16, 2)		<u>Alanna Abramsky</u> , 2/5/2018 10:50 AM	
Edit Del Replace	Beneficianes Updated on Insurance?	Beneficianes_Updated_on_Insurancec	Picklist		Suray Tripathi, 4/29/2020 8:36 AM	
Edit Del Replace	Beneficiaries Updated on Investments?	Beneficiaries_Updated_on_Investmentsc	Picklist		Suraj Tripathi, 4/29/2020 8:35 AM	
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Edit Del	Change in Credit Scores	Change_In_Credit_Scoresc	Formula (Number)		<u>Suraj Tripathi</u> , 4/29/2020 3 47 AM	
Edit Del	Client Age	Client_Agec	Formula (Number)		Sara Forbes, 7/16/2018 3:54 PM	
Edit Del	Contact	Contact_c	Master-Detail(Contact)	1	<u>Suraj Tripathi</u> , 11/25/2020 8:49 AM	
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Edit Del	Date of Birth	Date_of_Birthc	Date		Sara Forbes, 1/26/2018 10:18 AM	
Edit Del	Disability	Disability_c	Checkbox		Sara Forbes, 1/26/2018 10:18 AM	
Edit Del	Disability Insurance	Disability_Insurancec	Checkbox		<u>Suraj Tripathi</u> , 8/22/2019 3:17 AM	
Edit Del	Disability Monthly Premium	Disability_Monthly_Premium_c	Currency(16, 2)		Sara Forbes, 1/26/2018 10:18 AM	
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Edit Dal Danlana	Pin Van Llaus a Einannial Arkenn?	Dr. Van Llaus a Einannial Advisor o	Direction		Cara Enrice 1/20/2010 1-12 DM	

Fig 5.2

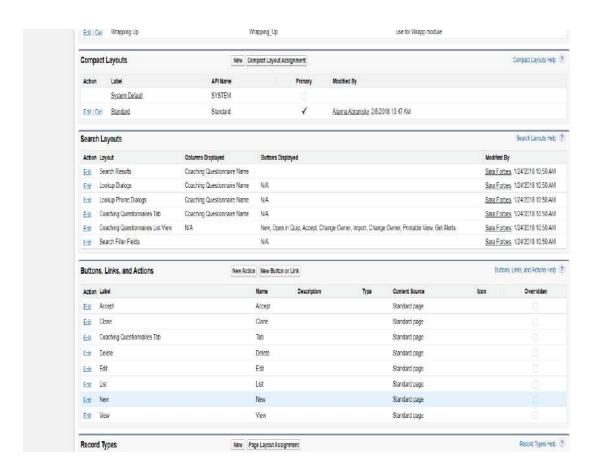


Fig 5.3

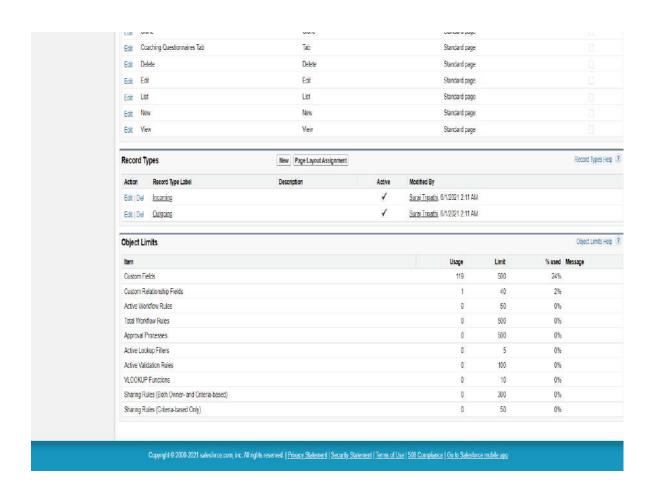


Fig 5.4

CHAPTER 6

TESTING

SalesForce testing requires the use of complex **test** methodologies as most of the features in **SalesForce** are built-in features that are customizable. When an issue is observed, the tester needs to make sure that he is **testing** the code that has been customized rather than **testing** the built-in **salesforce** functionality

SalesForce is built on a platform development language named as APEX. The language provides built-in unit test cases for developers to test their own code. The standard rule of SalesForce requires a developer to achieve 75% of code coverage with unit test cases.

From a tester's perspective, we should always aim for 100% code coverage within each test cycle.

Salesforce Testing Process

The salesforce testing process would be the same as that of testing a normal web-based application. However, a tester needs to have a clear perspective of the customizable features that are being built so that during the testing process, a tester can focus on those features alone rather than the built-in Salesforce features.

Testing of Salesforce applications requires a production like an environment called **SandBox.** Developers and testers need to use the Sandbox environment for each of their purposes.

Once the code is deployed in a Sandbox environment and approved to be ready for release, the code would be moved into production from the Sandbox environment. It is assumed that the tester has the basic knowledge of all the terms used in Salesforce before proceeding with testing.

Salesforce Testing Tips

Salesforce testing must include the following features:

- Testing must include UI testing, functional testing, regression testing, integration testing, system testing and system integration testing.
- Automation testing can also be enforced on SalesForce using tools like HP
 Unified Functional Testing (UFT) and Selenium.
- A tester needs to be cautious during UI testing as most of the web pages on the Salesforce platform are Visual Force pages. The dynamic nature of visual force pages need to be paid special attention as all the elements of a webpage may not be loaded at one go.
- Testers need to create functional flows including positive and negative flows to cover the entire functionality of an application.
- Workflows using various user roles must be constructed and tested.
- Test cases need to be documented using a test management tool like HP ALM.
- Test Data needs to be prepared for validating the reports functionality.

Roles and Responsibilities of a Salesforce Tester

Testers involved in SalesForce are often referred to as 'Quality Engineers' as opposed to 'Quality Assurance' people as SalesForce testing requires the testers to build complex test frameworks, understanding the functionality of an application in depth and the ability to work with the developers and project stakeholders.

Please note that some of the default functionalities provided by SalesForce cannot be removed, although your organization may not use them. Testers need to ignore the default functionality and focus on the customized functionality built by the organization.

Given below are some of the major roles and responsibilities of a Salesforce tester.

- A tester needs to have <u>clear communication</u> with the development team, to understand the customizable features that are being built into SalesForce.
- The tester needs to coordinate with the business whenever required as the requirement document for Salesforce is usually complex to understand and requires a lot of effort to be understandable by the testers.
- The tester needs to make sure that the code coverage does not go below 75% as per the standard Salesforce rule.
- The tester needs to conduct role-based testing to ensure the consistency of data with various user roles.
- The tester needs to perform compatibility testing of the third-party applications integrated with SalesForce if any.
- A tester needs to be familiar with load testing tools such as JMeter to validate the complex flows that produce inconsistent results in Salesforce.
- A tester needs to be familiar with multiple application flows.

6.1 SalesForce Exploratory Testing

Exploratory Testing in Salesforce would involve the following best practices:

- Testing should involve validating the consistency of data across multiple screens.
- UI Testing must involve documented test cases as per the requirement document.
- Testing should involve negative test flows, such as deleting the default data generated and validating the behaviour of an application.
- Testing should involve user input validation on the form fields.
- <u>Cross browser compatibility testing</u> needs to be performed to ensure if the rendering of data is correct across multiple browsers.
- Testing must include Maximum length validation for each of the editable input fields along with the invalid data validation.
- Testing must also include error message validation when invalid data is passed onto the applications.
- Amount field validation on banking applications using Boundary Value
 Analysis technique needs to be performed with proper diligence.
- Reports and dashboard testing need to be paid special attention to various test data parameters.
- Testing should include the entire application flow, along with individual functional flows.
- Multiple permutations and combinations of functional flows can be tested for positive and negative testing.
- API testing for integrated third-party applications needs to be performed.
- Identify the default Salesforce functionalities that come in the way of customized features and coordinate with the developers.

6.2 SalesForce Test Automation

Automated functional testing of SalesForce is a challenging one as most of the web pages are dynamic in nature on the SalesForce platform. Hence, SalesForce demands automation testers to build robust automation framework to sustain in the future. Also, there can be frequent updates to the applications as they are on cloud applications.

Test Automation on Salesforce can be achieved using any of the following tools:

- Selenium web driver
- HP Unified Functional Testing (UFT)
- Test Frameworks, such as Cucumber
- Provar

6.3 Salesforce Load Testing

Load testing involves testing the behavior of an application under varying loads. SalesForce.com is a highly scalable platform built for handling a large number of users. Salesforce.com is tested by the platform developers themselves for performance bottlenecks.

However, load testing becomes essential when a newly introduced piece of code yields performance bottlenecks that have to be addressed. Load Testing on Salesforce platform can be performed using performance testing tools such as HP LoadRunner and Apache JMeter.

6.4 Salesforce Security Testing

Security testing on the Salesforce platform is usually done by SalesForce development team. Before placing a request for a security test, it is best to review the 'Application and Network Vulnerability Assessment Summaries' provided by Salesforce.

After reviewing the summary, if a security test is still required, then a Security Assessment Test can be scheduled with the Salesforce team.

CHAPTER 7

REFERENCES

The following references have been used by me, during all the phases of the project:

- 1. Krutarth Soni (2017), "Roadmap to salesforce security governance & salesforce access management"
- 2. Radhika Gupta (2018), "Custom Application Development in Cloud Environment: Using Salesforce"
- 3. Aneta Poniszewska-Maranda (2017), "Use of Salesforce Platform for Building Real-Time Service Systems in Cloud"
- 4. L.N. Goslin (1997), "New product development: salesforce and cycle time"
- 5. Steve Fisher (2007), "The Architecture of the Apex Platform, salesforce.com's Platform for Building On-Demand Applications"
- 6. Jigar Patel (2016), "An approach to introduce basics of Salesforce.com: A cloud service provider"
- 7. Amitabh Saxena (2013), "Detecting SOQL-injection vulnerabilities in SalesForce applications"
- 8. Jigar Patel (2017), "An integration of salesforce.com with Twitter: A case of AppExchange"
- 9. Kush R. Varshney (2013), "Dose-response signal estimation and optimization for salesforce management"
- 10. S. Fisher (2006), "Service Computing: The AppExchange Platform"
- 11. Alexandre Chaves Da Silva (2015), "A Case Study Using Testing Technique for Software as a Service (SaaS)"
- 12. Anuradha S. Kanade (2013), "Choosing right database system: Row or column-store"
- 13. Ming-Chien Shan (2010), "Let's Walk Out of the Cloud"
- 14. Sohan Singh Yadav (2010) "CLOUD: A computing infrastructure on demand"
- 15. Kasiviswanadhan, S (1998), "A practical approach to library automation", Automation in Libraries and Information Retrieval Units: RILISAR Bulietin, vol.4, no.3