

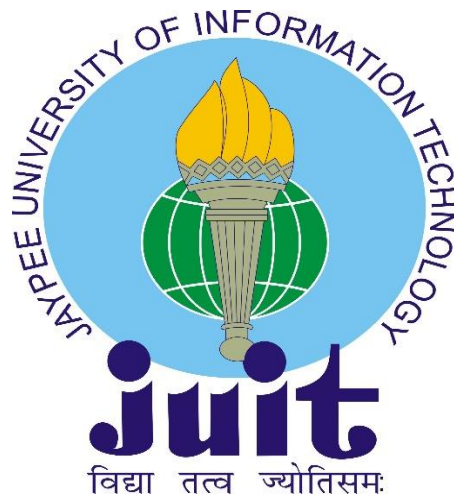
**INTERNSHIP AT
CONGNIZANT TECHNOLOGY SOLUTIONS PVT. LTD.**

Project report submitted in fulfilment of the requirement for the degree of

**BACHELOR OF TECHNOLOGY
IN
COMPUTER SCIENCE AND ENGINEERING**

By
Neha Tyagi (161229)

**UNDER THE GUIDANCE OF
Dr. Amit Kumar**



**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY,
WAKNAGHAT**

May 2020

CANDIDATE'S DECLARATION

I Neha Tyagi, hereby declare that the work completed during the Internship program at Cognizant Technology Solution Pvt. Ltd. in fulfilment of the requirements for the degree of Bachelor of Technology in Computer Science and Engineering/Information Technology, Jaypee University of Information Technology, Waknaghat is an attested record carried over a period from February 2020 to June 2020 under the supervision of coach Praveen Parameswaran .



Neha Tyagi

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This is to certify that the above statement made by the candidate is true to the best of my knowledge.



25/7/2020

Amit Kumar

Assistant Professor (Senior Grade)

Department of CSE

Dated: 5th June 2020

PROJECT UNDERTAKING REPORT

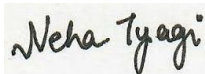
I Ms. Neha Tyagi, Roll No. 161229, Branch Computer Science and Engineering is doing my internship with Cognizant Technology Solutions Pvt. Ltd. from 7th February 2020 to 5th June 2020.

As per procedure I have to submit my project report to the university related to my work that I have done during this internship.

I have compiled my project report. But due to COVID-19 situation my project mentor in the company is not able to sign my project report.

So I hereby declare that the project report is fully designed/developed by me and no part of the work is borrowed or purchased from any agency. And I'll produce a certificate/document of my internship completion with the company to TnP Cell whenever COVID-19 situation gets normal.

Signature



Name NEHA TYAGI

Date 5th June 2020

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ABSTRACT

Salesforce is a software that is based on cloud computing for customer relationship management(CRM). Salesforce was developed in the late 1990s by Marc Benioff. Salesforce is constantly developing new tools and technology for helping companies increase their customer base. Tradition CRM software are not an internet service unlike Salesforce that can be accessed from anywhere with just internet connectivity. Everything is available on cloud, customers can easily access without the installation of traditional software.

Salesforce provides easy App development tools and created dynamic path for their customers. Suggestion Box App enables the users to enter suggestion regarding the products or services. It also enables the users to view status of their suggestions.

For demonstration of the Salesforce functionalities, I created a Suggestion Box Application. It can be created easily with Salesforce point-and-click tools. Process Automation is also included in this application for users ease.

CHAPTER 1

INTRODUCTION

1.1 CLOUD COMPUTING

Cloud computing is the technology of the Era. It requires storing your data on a cloud server, rather than storing everything on your local server. It is an easy to understand technology. The applications are being created and executed on the web server. Just by an internet connection, users can access their data from anywhere. This technology thus reduces the complexity and overheads of the traditional business environment.

The traditional business applications require tiresome steps like installation, execution and updating. Unlike the cloud services, which offers secure and anywhere access to their users. The traditional business applications requires maintenance from time to time as all the parts of the infrastructure should interact together to offer seamless results. Cloud computing on the other hand, provides a low-cost secure accessibility to their users.

Cloud computing allows addition of users instantly and the development of application is rapid. Cloud computing offers speedy delivery and responsiveness as the complex internal systems are removed. The benefits of using cloud architecture includes its low cost, high speed delivery, globally accessible, increased productivity, better performance and high security.

There are different types of cloud available :

1. Public Cloud- The infrastructure is situated with the company offering the service.
2. Private Cloud- The infrastructure is hosted by your Organization and it is not shared with any other Organization. This type of cloud offers highest security.
3. Hybrid Cloud- This uses the both the above types of cloud, private and public. Important applications are stored within the private cloud and rest are secondary applications being stored elsewhere.
4. Community Cloud-The community cloud is shared between the organizations with a united goal.

The types of cloud services available are :

1. Infrastructure-as-a-service (IaaS): This allows renting of the IT infrastructure, services, Virtual Machines from the cloud service provider. This is the most simple type of cloud service provided.
Example- Amazon EC2, Rackspace, etc.
2. Platform-as-a-service(PaaS): this refers to providing environment upon the demand for testing, development, management of software, etc. This enables developers to easily create mobile applications.
Example- AWS Elastic Beanstalk, Windows Azure, etc.
3. Software-as-a -Service(SaaS): this refers to the deployment of services for software over an online connection on a subscription basis. The cloud providers manages the services and security.
Example- Microsoft Office 365, Salesforce.
4. Function-as-a-Service(FaaS): this refers to adding an abstraction layer to PaaS to help developers from handling the tedious task of virtual servers, containers. Developers can easily use functional blocks for triggering an event.

Some advantages of using Cloud Computing are:

- This is a cost efficient technology.
- Provides high speed by distributing services and users can get the required resources with just few clicks.
- Cloud Storage can be backed-up and restored whenever required.
- Cloud Computing provides integration to be done automatically. Therefore no extra manual efforts are needed for integration.
- Cloud storages can be unlimited and we can expand our storage easily with nominal price.

Some disadvantages of using Cloud Computing are:

- Security threat is a major disadvantage for using cloud computing. One must be well aware of the security risks.
- Technical issues can occur, even if the maintenance is provided by best service providers.
- Performance can vary from time to time and location to location.

1.2 WHAT IS SALESFORCE?

Salesforce is a cloud based solution for customer relationship management (CRM).Salesforce company offers software as a service(SaaS).Salesforce allows to provide better services to partners, customers, stakeholders and potential customers. The Salesforce Technology has become very popular in the recent years. Salesforce uses cloud technology to build various solutions for customer problems and help establish better connections with the customer and expand the customer base as well. Salesforce aspects revolve around Marketing, Sales and Services.



Figure 1.1 Customer Management 360

It is based on multi-tenant architecture. Multiple customers are provided with same technology for usage with latest release. Application and infrastructures are updated automatically. This provides an edge for companies to focus more on innovation and management of technology is taken care by Salesforce. Salesforce Customer 360 is a mechanism of providing a single customer ID and connect all the apps to provide a single view of customer. Customer 360 gives an overall view of your customer by combining the unstructured and structured of the customer available to your organization.

1.3 WHAT IS CRM?

Customer Relationship Management is a Customer Success Platform. It allows to keep companies track of their Customer closely, engage and understand requirements of Customers and prospects better. Internal as well as external collaboration is possible for teams. Communication through email, phone and social media is easily possible, also allows to track important criterion for expansion of Customer Base. Salesforce CRM gives a knowledgeable view by showing the linkage of records and related items to get a view of complete picture. Salesforce Mobile App also allows to access principal CRM data and custom applications. The Mobile App also allows formation of easy-ready Apps for deployment from the Mobile itself.

1.4 WHY SALESFORCE?

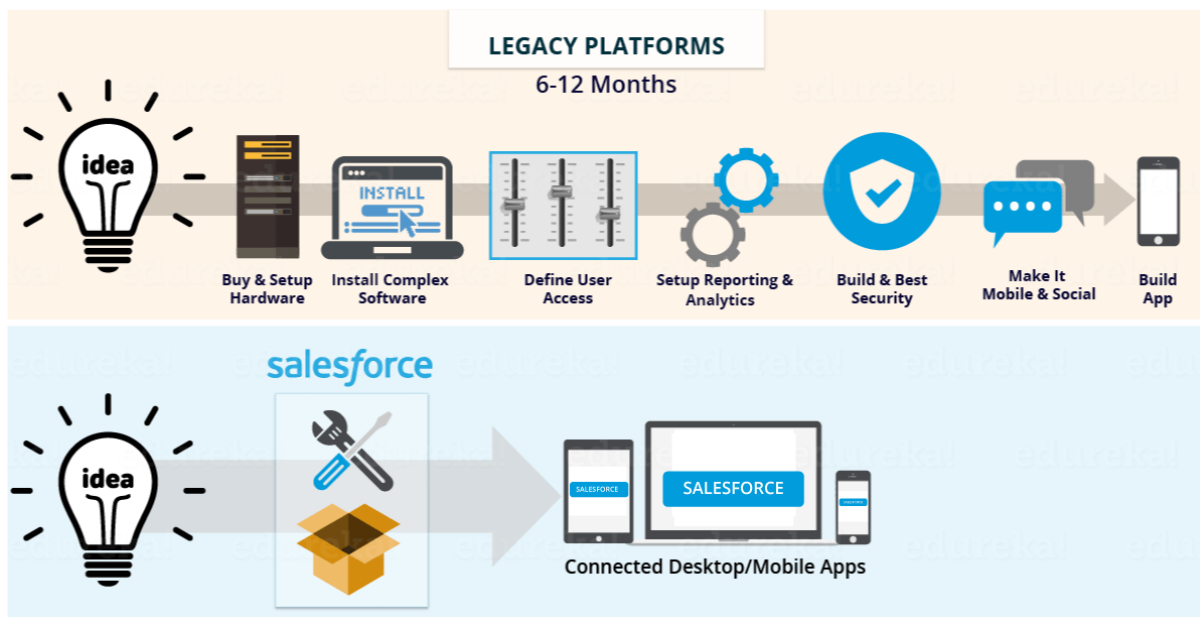


Figure 1.2 Why Salesforce?

As seen in the figure, Salesforce automates everything thus providing the fastest path from Idea to App. Salesforce provides tools and functions that help build the app, rather than building the infrastructure and tools by yourself. Salesforce has 3 major reason for its uniqueness:

- It is a fast working model , as Traditional software takes longer time, Salesforce can deploy within months or even weeks.

- It is easy to use. Salesforce provides Point and Click features for configuration of Apps.
- Salesforce is very effective in usage because of its easy configuration to users all business needs can be completed effectively.

Salesforce helps you to unite your business functions effectively, thus helps companies in achieving customer success. Salesforce community has a rich pool of developer talent that can help and support you. Due to its powerful and documented API, Salesforce allows any integration virtually. Since the release of Salesforce, it's been helping companies achieve perfect customer relationship management and helping companies grow faster.

1.5 HISTORY OF SALESFORCE

The founder of Salesforce is Marc Benioff, Sales Executive at Oracle, 1999. Salesforce was started in a San Francisco. The idea of the software was to build a platform that is available to large groups of people over a cloud infrastructure for creating business software applications. Salesforce is a billion dollar company now. Initially Salesforce started with few 1000 attendees at its first DreamForce, an annual Salesforce convention. Later the DreamForce convention became a huge event with public speaking and various learning opportunities. After 5 years, Salesforce launches Initial Public Offering(IPO) of raised an amount of \$110 million. Further in 2005, Salesforce AppExchange was Launched. The AppExchange provides an online market for various Salesforce applications, components and services. AppExchange became a revenue source for Salesforce. In 2009, Salesforce became a billion dollar company. Also, in the DreamForce 2009 convention, Chatter was introduced. Salesforce Chatter is an enterprise social network that allows collaboration of employees, customers, stakeholders for file sharing, data and expertise in a real time environment. Salesforce Lightning Experience was introduced in 2015. Also the Trailhead "A New way to Learn" was being released in the same year. By the end of 2017, Salesforce was announced as the "Most Innovative Company" by Forbes. Salesforce has been rapidly increasing with annual revenue of \$3.28 Billion with a constant increase of 26% every year.

1.6 ATTRIBUTES OF SALESFORCE

The various attributes of Salesforce are listed below:

- It is a subscription based platform, does not require upfront fees.
- Salesforce has 4 major editions- Group Edition(GE), Professional Edition(PE), Enterprise Edition(EE), Unlimited/Performance Edition(PXE).
- Salesforce can easily scale with your business.
- Salesforce automates its updates, 3 times a year.
- Salesforce is a multi-tenant architecture.



Figure 1.3 Logo of Salesforce

CHAPTER 2

LITERATURE SURVEY

2.1 SALESFORCE CLASSIC VS SALESFROCE LIGHTNING

The major difference between the Salesforce Classic and Salesforce Lightning is the User Interface. Salesforce Lightning provides a more friendly User Interface with easy drag-and-drop features provided to its users. Salesforce Classic is the originally created Salesforce interface which is upgrades now by Salesforce Lightning with advanced features being added to the user interface. Salesforce Lightning has additional Einstein Wave Analytics access to its user. Salesforce Classic uses standard reporting types for creation of charts, graphs and lists. Salesforce Lightning features are simplified and are designed to obtain an optimized speed.

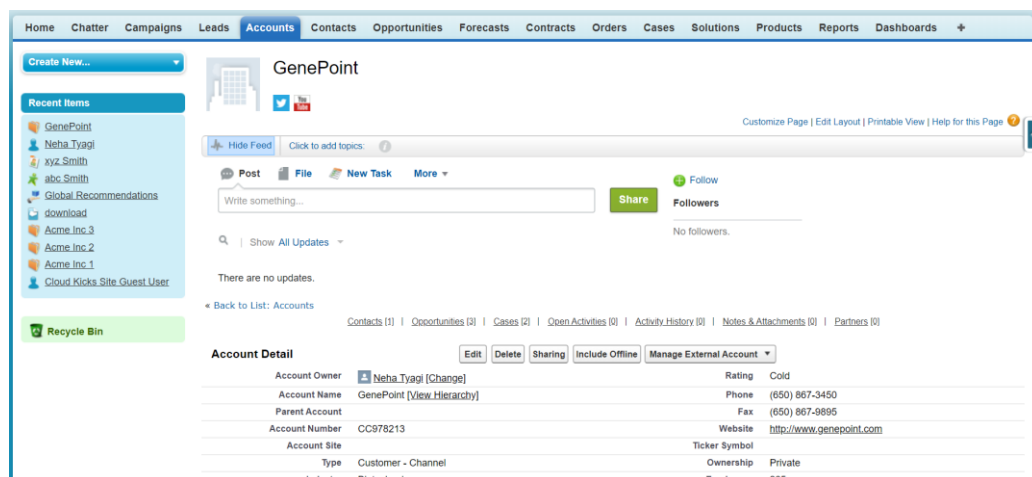


Figure 2.1 Salesforce Classic Interface

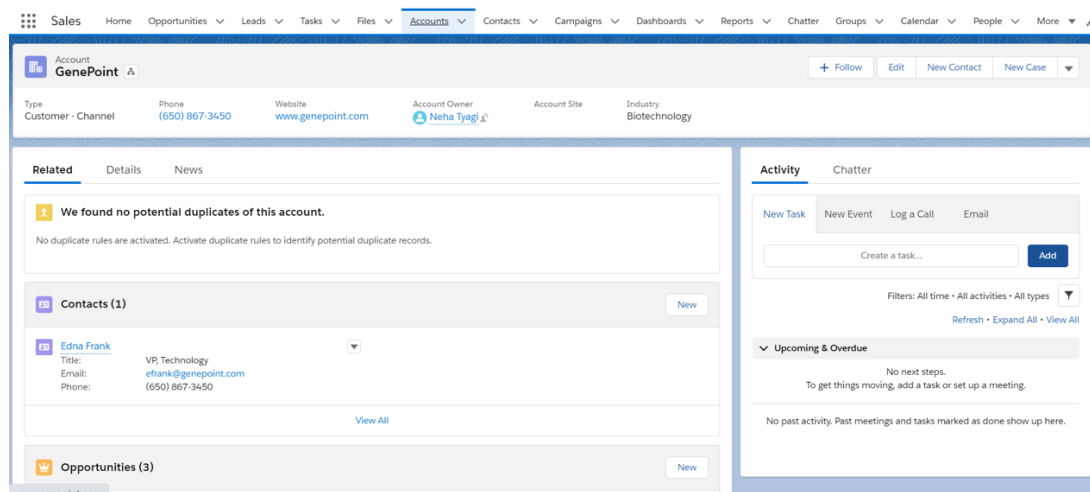


Figure 2.2 Salesforce Lightning Interface

The below tables compares some of the features of Salesforce Lightning and Salesforce Classic:

FEATURES	SALESFORCE LIGHTNING	SALESFORCE CLASSIC
Performance Chart	Yes	No
Assistant	Yes	No
News	Yes	No
Key Deals	Yes	No
Integrated email and templates	Yes	Yes
Notes	Yes	No
Person Accounts	Yes	Yes
Account Hierarchy	Yes	Yes
Campaign Member Status Chart	Yes	No
Activity Time Line(for Leads and Opportunities)	Yes	No
Path(for Leads and opportunities)	Yes	No
Einstein Bot Builder	Yes	No
Related Lists	Yes	Yes
Feed and Publisher	Yes	Yes

Table 2.1

2.2 SALESFORCE OBJECTS

In Salesforce, Database is considered as an Object(Columns as fields and Rows as Records).These objects are very important as they give a structure for storage of data and are integrated into the interface for user interaction. There are various types of Objects in Salesforce, some of them are :

- Standard Objects : These objects are predefined with your Salesforce Org like Accounts, Leads, Opportunities, etc.
- Custom Objects: These objects are defined by the user as per their Business needs.
- External Objects: These objects rely on external data source definition and are mapped to data that is stored outside the Salesforce Org.
- BigObjects: These objects store large amount of data onto your Salesforce platform. Standard APIs are used for accessing these objects.

Some core standard Objects are: -

OBJECT	DESCRIPTION
Accounts	They are the Companies, individual you do your business with. Example - Edge Communications Pvt. Ltd.
Contacts	The people working within the Companies. Example - Jean Paul
Leads	They are your potential Customers who are interested in your products. They haven't decided the product they need or are not ready to buy yet.
Opportunities	When a Lead is qualified, it is converted. The Lead is then associated with an Account, Contact and an Opportunity.

Table 2.2

To create custom Objects, one must navigate to Setup and select the Object Manager. Click 'Create Custom Object' and give a unique label name ex:- "*Property*". Check the checkbox – "Launch New Custom Tab Wizard after saving this custom object". You can leave the defaults as they are and save your newly created object.

After saving your Object, select the Tab Style you wish for your object from the look up option and click next. Leave the defaults as they are and save your tab style.

2.3 SALESFORCE OBJECT RELATIONSHIPS

Typically, there are 4 types of Object Relationships:

- Master-Detail Relationship : In this, the Detail object is highly dependent on the Master. We cannot create a Detail object without a Master object. The Detail objects has all the rules inherited from its Master, mainly the Sharing rules. The number of Master Detail Relationship per objects are finite i.e. 2. Also the profile level permission for Detail Objects cannot be created.
- Look-Up Relationship : In this, referencing is being done to the commonly shared data. These relationship are created to link 2 objects. It is a many-to-many relationship.
- External Loop up Relationship: In this, an external parent object is referenced(linked) by a standard/custom/external object in Salesforce.
- Indirect Loop up Relationship: In this, there is an external child object that references a standard/custom parent object. To create an Indirect Look Up relation, we select custom ID from an external data source.
- Hierarchal Relationship: It is kind of Look-Up relationship with the user object. This relationship lets the user object form referencing relation to other objects.
- Self-Relationship: When an object created a look-up relationship with itself, it is referred as self-relationship. For example- we have a field on Account which is Parent Account that permits us to pick any other field for being a parent record of a current one.

2.4 FIELDS

Fields are like Database columns in Salesforce, providing storage for data. Salesforces provides Standard fields such as Type, Created By, Status, etc. Custom fields can also be created. They can be used for customizing fields according to business requirements and can also set control security on your custom field. To create custom fields - Navigate to the Setup Menu-Select the desired Object-Click Fields and relationships-Click New-Select the desired Datatype of the custom field-Click Next-Give a unique Name-Adjust the functionality accordingly as per business requirements.

Different types of fields are :-

Field Type	Description	Example
Identity	This is a case-sensitive field that uses 15-character entry and generates records automatically.	Account Id: - 0000123400Gfty1
System	This is a read-only field which provides record related information.	LastModifiedBy, CloseDate
Name	Records need name to identify them uniquely. They can be auto-generated number or text fields.	Contact Name: - Bill Wilton Case Name: - DA-1204
Custom	These fields are created on standard/ custom objects.	Custom Contact Field for storing Birthday information of a Contact.

Table 2.3

2.5 TABS AND RECORDS

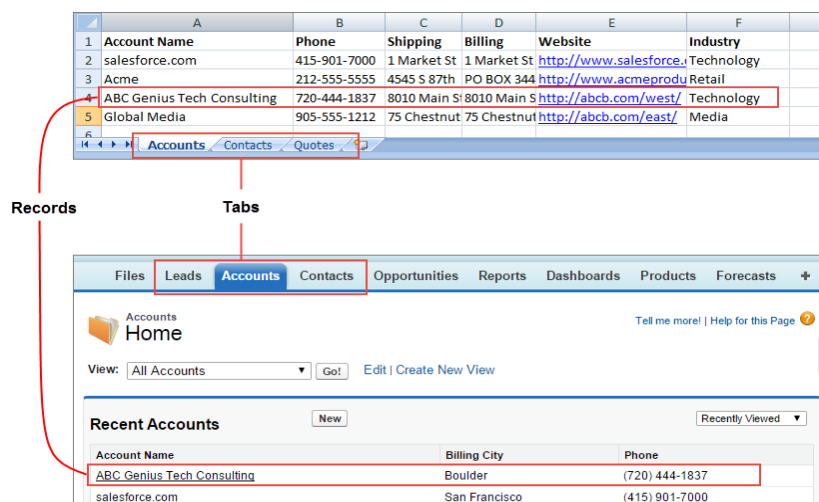


Figure 2.3 Tabs and Records

Tabs in Salesforce exposes an Object and related data to the Users via a Web Interface.

Custom tabs can be of the following types: -

- Custom Object Tabs- They are used to display Custom Object data. They function same as standard tabs.
- Web Tabs- They are used to display web applications. Web tabs can be customized to display sidebar/span window across the page.
- Visualforce Tabs- They display data from a Visualforce page. They function same as Standard Tabs.
- Lightning Component Tabs- They make the components available for mobile Applications and Lightning Experience.

Records are data entries(tuples) in Salesforce. Records can be created in the following ways: -

- Creating Records from Object Homepage- Select the desired Object. Click New and enter the relevant details. Save the changes you have made.
- Creating Records from Feed- Select the quick Action corresponding to the required object from the Publisher. Enter the relevant values. Make sure to fill all the required fields. After finishing, Click Create.
- Creating Records Using Quick Create- Click the type of record to be created. Enter the relevant details. Make sure to fill all the required fields. Click Save. Validation Rules are not applied on creating records Using Quick Create.
- Creating records in the Lightning Experience- To create records from any page, choose the desired item from the navigation menu, select new in the list view. Fill the fields values. Click create.

2.6 PROFILES

Profiles are a combination of permissions and settings are used to determine user visibility and jobs they do in Salesforce.

Settings are “What Users See” like Applications, Tabs, Record Types, Page Layouts and Fields.

Permissions are “What Users do” like Administrative (Customizing Applications), General User (Run Reports), etc.

The various types of Profiles in Salesforce are: -

- I. Standard Profiles- These profiles are created with force.com by default and they cannot be renamed/deleted.
 - System Administrator- System Admin can customize each and every application in Salesforce. They are considered as super Users in Salesforce.
 - Standard User-Standard users can perform operations on their own records, like delete, View, Manage/Edit.
 - Read Only- Read Only Profiles can just view record.
 - Solution Manager- Solution Managers change published solutions and Standard user permissions.
 - Marketing User-Marketing User have all the Standard User permissions and they can all import Leads.
 - Contract Manager- Contract Manager have all permissions as Standard Users and they can also customize Contracts i.e., edit, approve activate and delete.
- II. Custom Profiles- These profiles are created by user according to the business needs. They can be edited/deleted. To access profiles within Salesforce, navigate to Administrator->Manage Users->Profiles.

Note: A Profile can be assigned to many Users but a User can only have one Profile assigned to it.

The screenshot displays the 'System Administrator' profile configuration in Salesforce. At the top, there's a 'Profile' header with a 'System Administrator' title. Below this, a list of permissions is shown, including 'Login IP Ranges', 'Enabled Apex Class Access', 'Enabled Visualforce Page Access', 'Enabled External Data Source Access', 'Enabled Named Credential Access', 'Enabled Custom Metadata Type Access', 'Enabled Custom Setting Definitions Access', 'Enabled Flow Access', 'Enabled Service Presence Status Access', 'Enabled Custom Permissions', and 'Category Group Visibility Settings'. The 'Profile Detail' section includes fields for Name, User License, Created By (Neha Tyagi), and Modified By (Neha Tyagi). The 'Console Settings' section shows the 'Console Layout' as '[Edit]'. The 'Page Layouts' section is divided into 'Standard Object Layouts' and 'Custom Object Layouts', with a table listing layouts for various objects like Global, Email Application, Home Page Layout, Access, Account, Goal, Goal Link, Idea, Individual, and Job Tracker.

Standard Object Layouts	Global	Goal
Global	Global Layout [View Assignment]	Goal
Email Application	Not Assigned [View Assignment]	Goal Link
Home Page Layout	DE Default [View Assignment]	Idea
Access	Access Layout [View Assignment]	Individual
Account	Account Layout	Job Tracker

Figure 2.4 System Administrator Profile

2.7 SCHEMA BUILDER

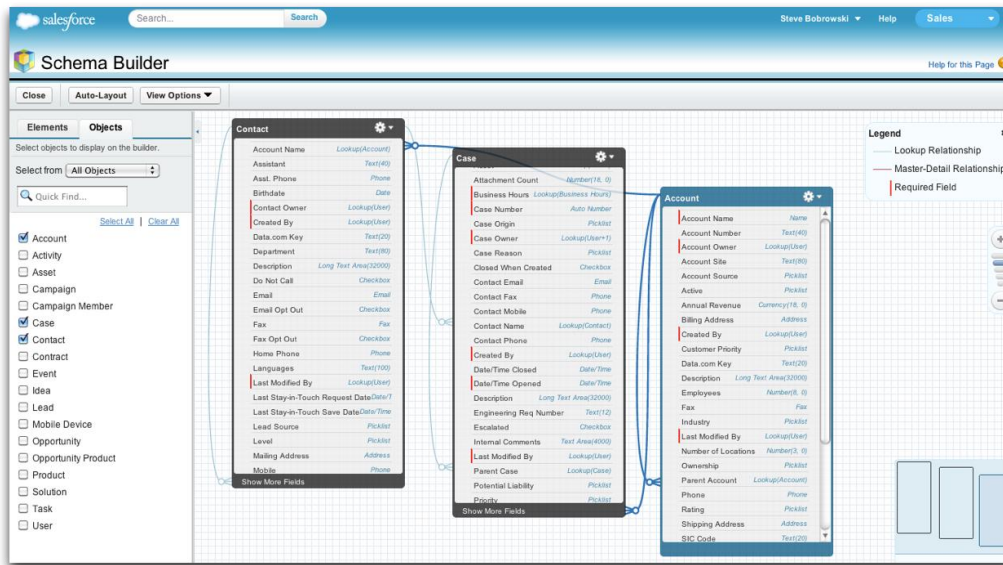


Figure 2.5 Schema Builder

Schema Builder helps the user to feature custom objects, fields and relationship in an active environment. It eliminates the tedious task of clicking page to page for establishing relationships, creating fields to objects. Schema builder has various features. It provides easy view for manipulation and addition of data to your Org. It helps add the following attributes:

- Object Relationships- Look-Up/Master Detail
- Custom fields
- Custom Objects
- Standard Objects

2.8 WHO SEES WHAT?

Salesforce provides sharing of data at various layers. To specify the Objects and Fields visible to Users, use Permission sets or Profiles. Permission Sets, Profiles determines what a user can do within the Application. Profiles are mainly Job functions of users, example- Standard User, System Administrator or a Sales Reps. Also, in some scenarios users want access to the object but not to fields in that object. This can be done through setting up field-level security/field permissions which controls the edit/delete/manage settings in the fields. This allows the protection of sensitive fields without hiding the complete object form users.

To give access to individual records, use Organization-Wide Sharing Setting, User Roles or Sharing Rules.

1. **Organization-Wide-Defaults:** This is the first level of record security that a System Administrator can provide. This specifies the default access a user has to records. There can be 2 types of ownership on the records i.e., Users and Queues. The privileges provided to them are:
 - **Public Full Access:** Users have access to those record they do not own and can View, Edit and Transfer them.
 - **Public Read Only:** Users can only view the records which they do not own.
 - **Private:** Only the Record owner has access to the record and the Users above in the Role Hierarchy.
 - **Public Read/Write:** Users can only view or edit the record they do not own.

2. **Role Hierarchy:** After setting your Organization-wide-Defaults, you can use Role hierarchy to give a wider level of access to the users. Using role hierarchy, we can establish the visibility of data according to the roles assigned to the users/groups. With the help of Role Hierarchy, Salesforce ensures that the higher Roles in the hierarchy has visibility over the same data as the people/groups having lower hierarchal role. To Establish Role hierarchy within the Salesforce Org, navigate to Setup and search for Roles in the Quick Find Box. Setup the Roles according to the business requirements.

3. **Sharing Rules:** These rules make an automatic exception to the Organization-wide-Defaults by granting the record access to particular Users who do not own/have access to those records. They are similar to Role Hierarchy i.e., giving additional access to Users.

4. **Manual Sharing:** The record owner can give read/edit permissions to particular users who do not own/have access to those records. This type of sharing is not automated, it gives additional flexibility to users for sharing of records.

2.9 FORMULA FIELDS

Formula fields are read only fields defined by users to calculate value through a formula. They can be defined on standard/custom object. Changes to the formula will be reflected in the value of the field.

The return type of formula fields can be one of the following:

- Number
- Time
- Date
- Date/Time
- Text
- Currency
- Percent
- Checkbox

Example: - Suppose we want to display the text – “Target Met”, “Target Not Met” or “Above Target” based upon the Opportunity Amount Field.

The field data type is Formula field. The field Label can be Score and the return type would be selected as text

Formula:-

IF (Amount < 9999, “Target Not Met”, IF (Amount < 129999,” Target Met”,” Above Target”))

The screenshot shows the Salesforce configuration page for a custom field named "Score" on the Opportunity object. The field is of type "Formula". The formula is: IF(Amount<9999,"Target Not Met",IF(Amount<129999,"Target Met","Above Target"))

Field Information	
Field Label	Score
Field Name	Score
API Name	Score__c
Description	
Help Text	
Data Owner	
Field Usage	
Data Sensitivity Level	
Compliance Categorization	
Created By	Neha Tyagi, 5/21/2020, 11:53 AM
Modified By	Neha Tyagi, 5/21/2020, 11:53 AM

Formula Options	
Data Type	Formula
Formula	IF(Amount<9999,"Target Not Met",IF(Amount<129999,"Target Met","Above Target"))

Figure 2.6 Formula Field Example

Also, cross object formula fields can be created. When object relationship exists, the formula field references a field of another object using cross object formula field. We can reference fields from objects that are up to 10 references away.

2.10 VALIDATION RULE

Validation Rules are used to filter and improve data quality. They are rules specifying the users standard needs. If data does not comply with the validation rules, they are not saved into the Org. To put it simply, validation rules are formulas with a True or False Outcome. When the outcome of a validation rule is True, the data is incorrect and cannot be saved. When the outcome of the validation rule is false, the data is correct and can be saved. Error message is to be included when creating a validation rule. The error message can be displayed at 2 positions- top of the page / beside the field. With the text added in the validation rule, it is easy for customers to detect if any errors were made.

The 2 types of validation rules are:-

I. Standard/ System Validation Rules-

- Field Data Type
- Required Field
- Unique Field

II. Custom Validation Rules- Allow users to formulate complex conditions, including various fields specified according to business requirements.

Example:- The validation rule must display an error message if the custom Lead Var field is not blank or does not have zero length or does not contain three/four [A-Z] capital letters.

Rule-

```
NOT (OR( LEN( Lead_Var__c)=0, REGEX( Lead_Var__c, "[A-Z]{3}")),  
REGEX (Lead_Var__C, "[A-Z]{4}"))
```

The screenshot displays a Salesforce record for 'Ms. Bertha Boxer'. The 'Lead Identifier' field contains 'GX6Z' and is highlighted with a red box. A yellow tooltip message reads: 'Lead Identifier can be Blank or 3 or 4 Upper Case chars. Ex: AXY or QMJG'. A red callout box says 'Review the following fields' with 'Lead Identifier' listed. An inset window titled 'Lead Validation Rule' shows the configuration for the rule 'Data_Standard_Ex_Custom_Lead_Identifier'. The 'Error Condition Formula' is:

```
NOT(  
OR(  
LEN ( Lead_Identifier__c ) = 0,  
REGEX(Lead_Identifier__c, '[A-Z]{3}'),  
REGEX(Lead_Identifier__c, '[A-Z]{4}')  
)  
)
```

 The 'Error Message' is 'Lead Identifier can be Blank or 3 or 4 Upper Case chars. Ex: AXY or QMJG' and the 'Error Location' is 'Lead Identifier'.

Figure 2.7 Validation Rule Example

2.11 TEAMS

The main focus of creating teams in a Salesforce Org is to collaborate people on Accounts, Opportunities and Cases.

- I. Account Teams: - Account teams allow effective collaboration on accounts by assigning each team member specific roles and giving record-level security. This feature is available both in Salesforce Lightning and Salesforce Classic. Account teams can also be accessed through the Salesforce Mobile Application.

Steps for formation of Account Teams are: -

- Enable account teams in your Org (System Administrator)

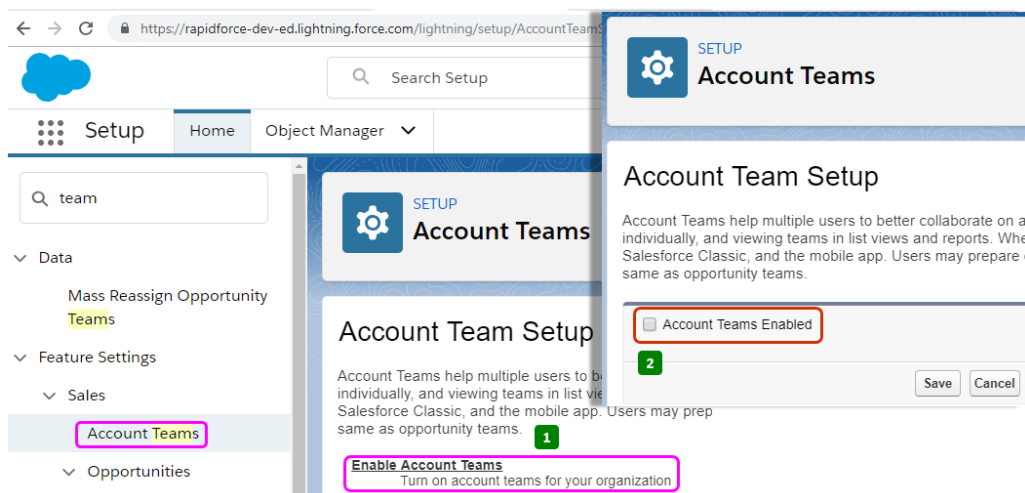


Figure 2.8 Enable Account Teams

- Add the team related list to the page layout (System Administrator)

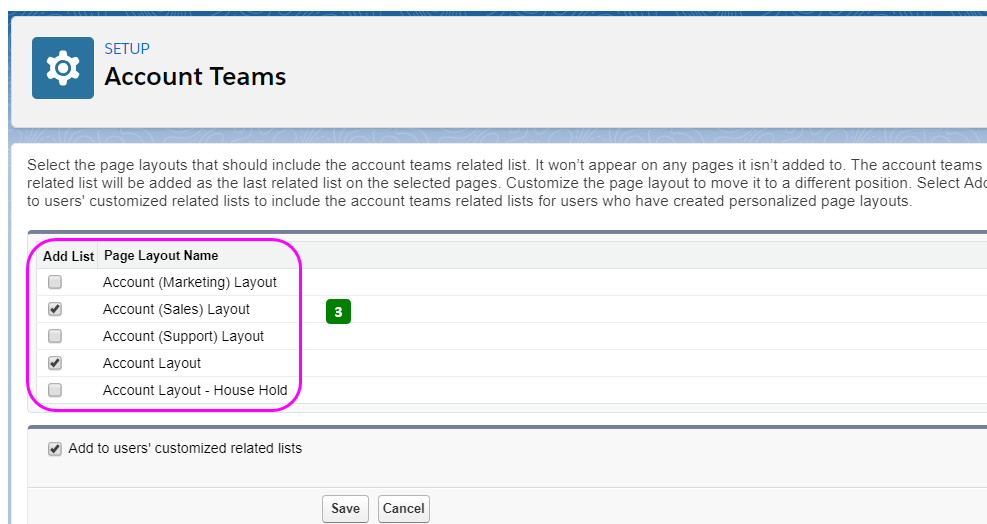


Figure 2.9 Account Page Layout

- Define team roles (System Administrator defines the role for account teams and opportunity teams)

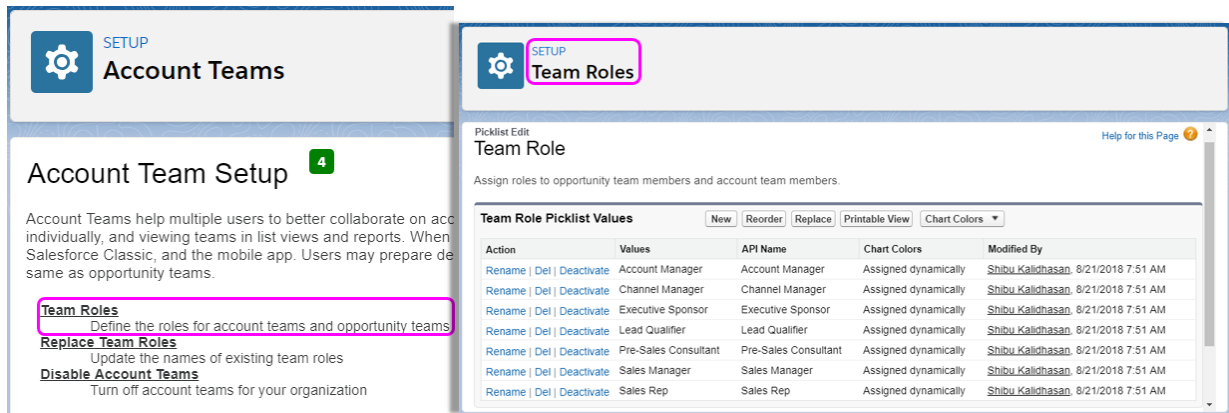


Figure 2.10 Team Roles

- Add the Default team for your Org (This could be done through the Advanced User Settings by the user).
- Add teams form Records(user)

Account teams share Roles with the opportunity teams. Upon removal of an account team role, that role will not be associated with the opportunity team role.

II. Opportunity Teams: -The group of people working together upon an opportunity are listed within the opportunity teams. Team selling is preferred by companies when a deal which is to be closed is complex or is stuck or the company is trying to close a big deal but the sales rep is not an expert in the required field. The steps for formation of Opportunity teams are:-

- Enable team selling for your Org (System Administrator)
- Select the page Layout to display the opportunity team related list (System Administrator)
- Customize the Opportunity Team Roles (System Administrator)
- Default opportunity teams (User-Advanced user settings)

III. Case Teams: - The group of people working together upon a case are listed as case teams. Case team members can include Support Manager, Product Manager or Support Representative, etc. The roles within case teams determines the level of access every team member has within a case.

The steps for formation of case teams are: -

- Setup the roles within case teams (System Administrator)
- Predefine the case teams (System Administrator)
- Add the case related list to case page layout (System Administrator)
- Add the required members to the case teams (Users can do this from the case related list)

2.12 QUEUES

In salesforce, queues are used for management of leads, cases, service contracts, or custom objects. If a record is inserted(either manually or by lead assignment rule) , they remain in the queue until a user or queue is assigned to them. Hierarchal rules apply to queues also, i.e., members above in the hierarchy can take ownership of the records.

1. Lead Queues: Used for management of the distribution of leads. For example, you have 2 queues, one for sales team and the other for support team. We can assign lead in different queues, in a automated way or a manual way depending upon the availability and the criteria for the assignment. Queue members can be added to different queues.
2. Case Queues: Used for management of the distribution of cases. Cases are prioritized and can be assigned either manually or automatically to the queues.
3. Custom Object Queues: Used for management of Custom Object records. Manually assign the custom object to the desired queue and add queue member so that they can take the ownership of the object.

2.13 CHATTER

Chatter is a cloud-based corporate collaboration tool that can be used as intranet for companies or as a directory for employees. Chatter allows users to talk, share information and collaborate easily in real time. It connects users from various locations of company regardless of their roles, motivates and engages them through a single platform.

Within the chatter, you can add your personal information like your profile picture, skills, department, whom you report to, contact information, etc.

Groups can also be created within chatter. The following groups are allowed: -

- Public Groups- They are visible and open to everyone within the organization. Anyone can post, comment or share content in pubic groups.

- Private Groups- They are open only to group members and they can share, post or comment within the group. To join a private group, you must send a request. Non-members can only view the description about this group but cannot view group feeds.
- Unlisted Groups- They are invitation-only groups which do not appear upon search. This group is a hidden group and is only viewed to the members the groups.
- Groups with customers- They are private/unlisted groups that allow customers/external users to become a member. Only the owner or manager of the group can invite them.
- Broadcast only- They permit only the manager/group owner to share posts. The members of the groups are allowed to comment.

2.14 COMMUNITIES

Communities provide collaboration between employees, stakeholders and customers as they can connect within this space. This can be known as a support site or portal for help as it allows collaboration between people. To create a branding community, salesforce makes it easy with point-and-click tools, templates and Visualforce. Communities can be used for various purposes like driving company sales, providing services to customers and the management of customer listening, context, engaging employees/stakeholders on a single platform. Communities can be made within salesforce through pre-defined templates and can be used to share data within you Salesforce Org. Communities in Salesforce Lightning can be accessed through the App Launcher and within Salesforce Classic through the Global Header.

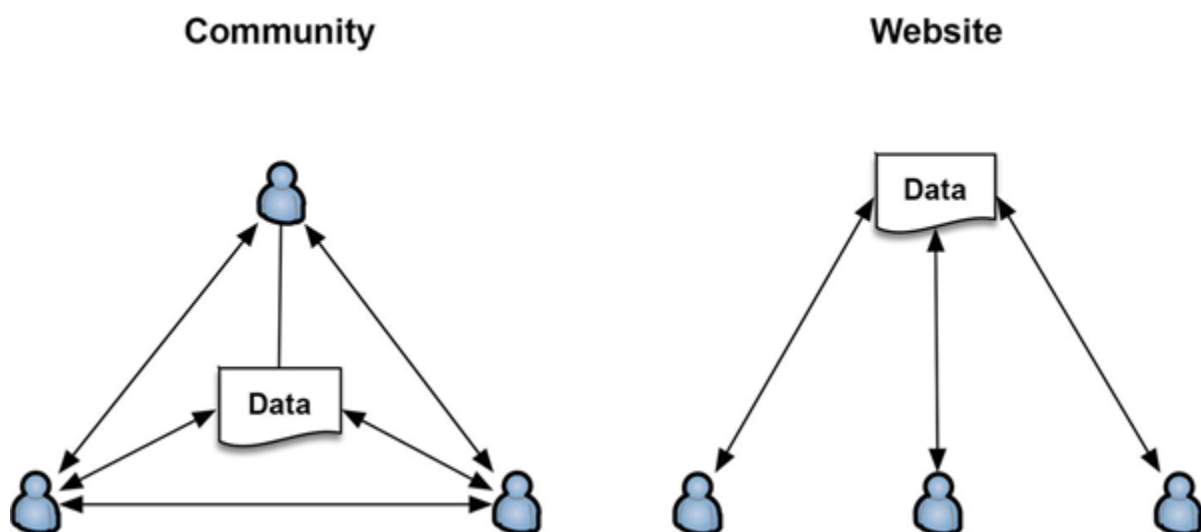


Fig2.11 Communities Vs Website

As seen in the above figure, community users and the data are interconnected while this is not in the case of a normal website. Communities are not just a platform for providing data, but they also produce valuable results for your Salesforce Org.

2.15 PROCESS BUILDER

This a point and click tool which easily automates the business processes and represents a pictorial image for user understanding. The various components of process builder are: -

I. Trigger (used to identify when a process should start)- The 2 types of trigger can be:

- Only when a record is created
- Anytime a record is created/edited

II. Criteria (used to determine whether to execute action or not)- upon getting the trigger, the process can be defined with many criteria. The process evaluates them to execute the associated actions. The following can be defined for each criteria:

- Filter Conditions
- Custom Formula, like validation rules
- Opt out of criteria and can make the action required.

III. Action (used to determine what the process should do)- The two types of actions can be:

- Immediate Actions (executed as soon as the criteria is evaluated to true)
- Scheduled Actions (executed according to the specified time, like 2 days after the opportunity close date)

Regardless of the execution time of the action, the process builder can :

- Create new records
- Update a record
- Submit record for approval
- Update related records
- Send email
- Post on Chatter

The image below displays the various components of process builder:

1. Button bar- manage the process/ view list of the available processes.
2. Canvas- workspace of the process builder
3. Trigger
4. Criteria Node(s)
5. Action

6. Group Action

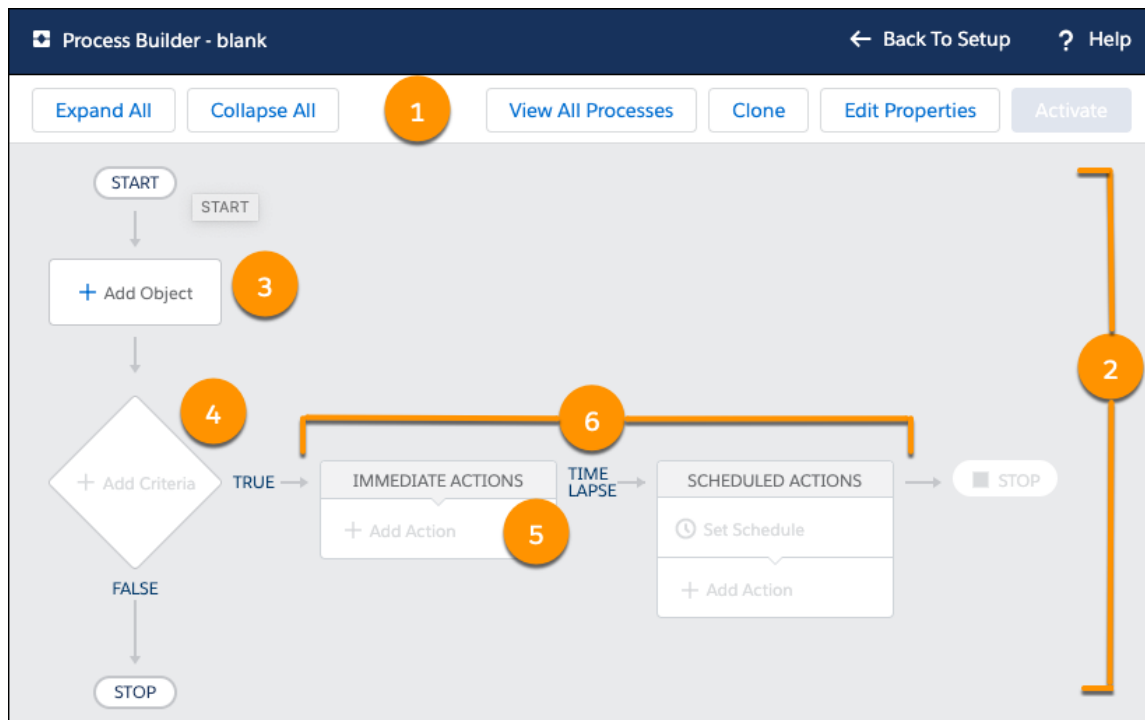


Fig2.12 Components of process builder

To build a process:

- From Setup, enter process builder in quick find box and click new.
- Give a unique name to the process.
- Select the configuration to start a process from the drop-down menu.
- Click save.

Add a Trigger:

- Click Add Object
- Select the desired object.
- Select the configuration to start a process.
- Click save.

Add a Criteria:

- Click add criteria.
- Enter a unique criteria name.
- Enter the conditions as per business requirement.
- Click Save.

Add Actions:

- Under immediate actions, click action.

- Selection the action type.
- Give a unique name to action.
- Select the required field names and click save.

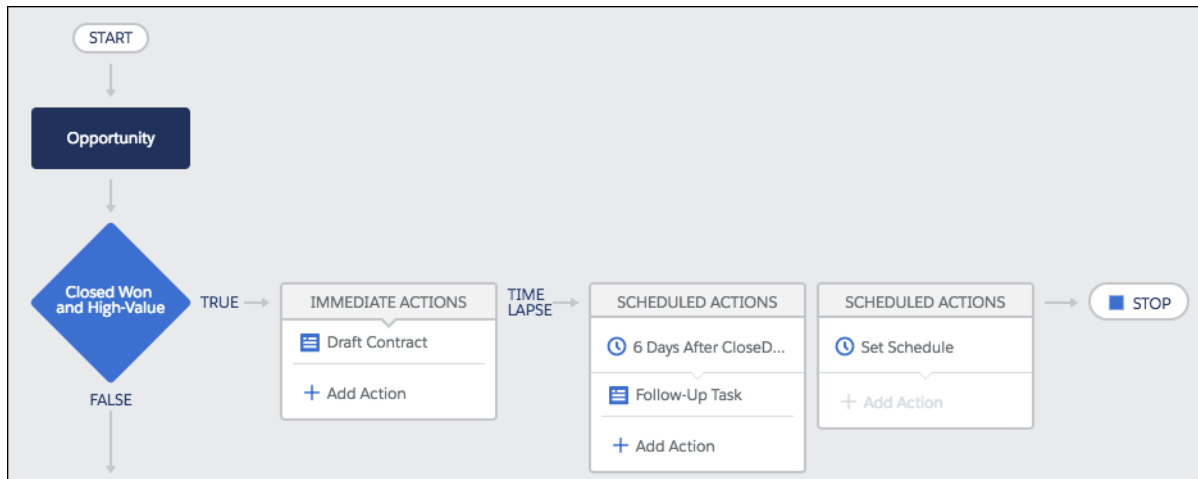


Fig 2.13 Process Builder Example

2.16 WORKFLOW RULES

Work flow rules can also be used to automate business processes. Rule creation can be done easily and Salesforce can perform a number of tasks based on the criteria we set. Task performed can be email, update a field or create a record. For creating a workflow rule, we need 2 things-

1. Criteria which causes the rule to execute (ex: - Lead Source equals Web)
2. The action to be executed when criteria evaluates to true.

To create a workflow rule, Click Setup -> AppSetup- > Create -> Workflow and Approval -> Workflow Rules

Select “New Workflow Rule”, then selected the object to associate the new flow rule with. Give a unique name to the workflow rule and add a description if you like. Next, decide your evaluation criteria. The evaluation criteria can be one of the following: -

- Created (This will ignore the field update to existing object)
- Created, every time it’s edited (If criteria met, rule is executed every time)
- Created, and every time it’s edited to subsequently meet criteria (If new record created meets criteria or an existing record updated to meet criteria)

After the selection of criteria, you need to setup workflow actions to associate them with your workflow rules. On the detail page of the workflow rule created, click ‘Workflow Actions’- click edit and add your required action. Workflow rule can provide the following actions: -

- creating a new task
- sending an email alert
- field update
- new outbound message (allows to send SOAP message)
- Select existing action

The example below shows setting up a workflow rule for sending an email alert whenever the value of ‘Act-On Lead Source’ reaches a certain number.

Edit Rule Act-On Lead Score Email Alert

[Help for this Page](#) 

Enter the name, description, and criteria to trigger your workflow rule. In the next step, associate workflow actions with this workflow rule.

Edit Rule = Required Information

Object: Lead

Rule Name: Act-On Lead Score Err

Description:

Evaluation Criteria

Evaluate the rule when a record is:

created
 created, and every time it's edited
 created, and any time it's edited to subsequently meet criteria i

How do I choose?

Rule Criteria

Run this rule if the following criteria are met ↓ :

Field	Operator	Value	
Lead: Act-On Lead Score ↓	greater or equal ↓	<input style="width: 100%;" type="text" value="50"/>	AND
--None-- ↓	--None-- ↓	<input style="width: 100%;" type="text"/>	AND
--None-- ↓	--None-- ↓	<input style="width: 100%;" type="text"/>	AND
--None-- ↓	--None-- ↓	<input style="width: 100%;" type="text"/>	AND
--None-- ↓	--None-- ↓	<input style="width: 100%;" type="text"/>	

[Add Filter Logic...](#)

Fig2.14 Workflow Rule Example

2.17 APPROVAL PROCESSES

Approvals work on step ahead of the workflow rules as we can specify the sequence of the steps in which order they should be executed. They are used to automate the approval of records in your organization. The approval processes are used to specify everything, starting from who requests the approval and what is to be done at each step. The approval process can be created using the following steps:

1. Open Setup and search for Approval processes in the quick find box.
2. Select 'New Approval Process' button and for selection of wizard, select 'Use standard Setup wizard'.
3. Enter a unique name for the approval process and add a description.
4. To create a criteria based approval process, select 'criteria are met' from the drop-down menu.
5. Specify the criteria according to the requirements, ex- 'Lead Source equals Web', you can also create formula for selection of records for the approval process.
6. Define the steps for initial submission, ex- updating a field, email, etc.
7. Define the final steps for approval, ex- field update, task, etc.
8. Define the actions for rejection.

2.18 FLOWS

This is a point-and-click tool used to perform automation for business processes. Flows are user-triggered, unlike workflow rules which are event-triggered. Flows uses the flow builder user interface which comprises of a toolbox for selection of elements and resources. Flows can be used to perform various logic , collection of data or interaction with Salesforce database. The building blocks of flows are: -

- Elements (1): represent an action like deleting information, performing an assignment, creating records, etc.
- Connector (2): used to connect the elements of a flow in a directed order.
- Resource (3): containers referring to a specific value like variable, formula, field value, etc.

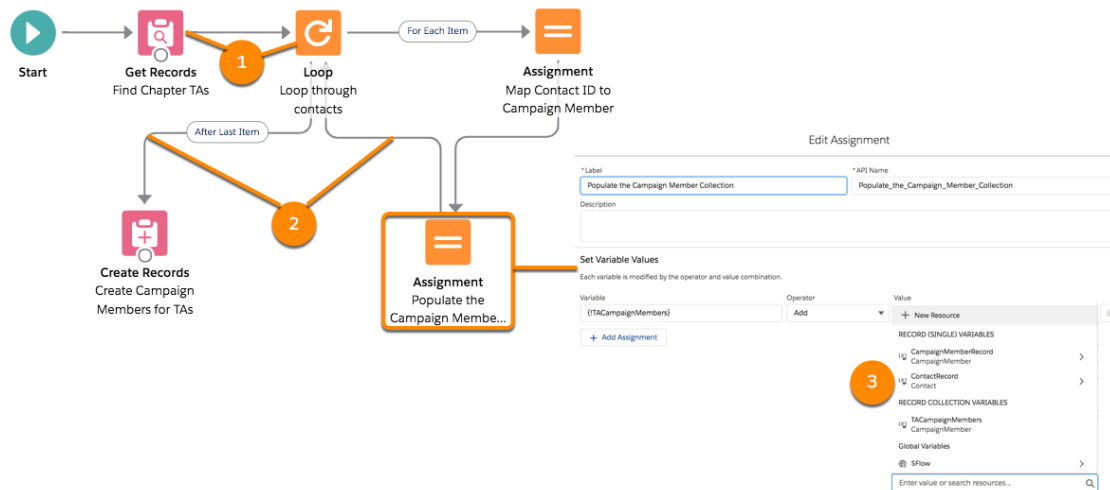


Fig2.15 Building Blocks of Flows

Before creation of flows, ensure that 'Enable Lightning runtime of flows' is selected within the Process Automation Settings. Process Automation settings is found in setup.

To build a flow, one must navigate to Setup and search for Flows within the quick find box. Select New Flow and then select the type of flow you want as per business requirements. From the tool box, select the desired elements and drag them onto the canvas. To create new recourses, navigate to the Manager tab within the tool box. To connect the flow elements together, drag the node at the bottom of the element onto the next element in the sequence.

Finally, to activate the flow, select the Activate button. You can also distribute the flow within your Org by adding the Flow to your home page (using Lightning App builder).

Finding the right automation tool as per your business requirements:

	Process Builder	Workflow	Flow	Approvals
Complexity	Multiple if-then statements	Single if-then statements	Complex	Single if-then statements
Starts when	Change in a record or called by another process or an event message received	Change in record.	Button or link is clicked by user or Lightning page, community page, etc are accessed by the user. Accessing the utility bar or a process starts.	Button or link is clicked by user or a process is called that includes Approvals or Apex is called.
Support time-based Actions	Yes	Yes	Yes	No
Support User interactions	No	No	Yes	no
Call Apex Code	Yes	Only for Tasks	Yes	Only for Tasks
Invoke Processes	Yes	No	No	No
Delete Records	No	No	Yes	No
Launch a flow	Yes	Yes	Yes	No
Post to Chatter	Yes	Yes	No	No
Submit for approvals	Yes	No	Yes	No

Table 2.4

2.19 WHAT IS A REPORT?

Reports are summarized documents that meet the given criteria. Salesforce provides various features to work with reports like filters, grouped, add chart, etc. Reports within Salesforce are stored in folders. Folders can be private, public or shared. Permission like read-only or read/write can be set on folders.

Reports can be created from the Salesforce report builder. There are 4types of report that can be created: -

Type	Description
Tabular	Display simple list view of data. They are not used for creation of groups of data and charts.
Summary	Groups data to display summarized reports. They can be used to create graphs and charts.
Matrix	Groups data using both rows and columns. They are time-consuming and can be used for creation of charts and graphs.
Joined	Allow to combine more than one report type. They can be used for creating charts and graphs.

Table 2.5

To create reports, navigate to the Reports Tab, select New Report and then select the desired object the reports is to be created upon. Upon saving the report, give a unique name to it and select the folder in which the report is to be stored.

Report types are templates given by the salesforce platform to the user with predefined fields and records. They are built on the relation between a primary object and its related objects. Between Accounts and Contacts, 'Contacts' is the primary object and 'Accounts' is the related object. Standard report types are in build within salesforce and given to users. Users can also create custom report types as per the business requirements.

2.20 WHAT IS DASHBOARD?

Dashboards are component constituted from various reports showing the overall performances in a pictorial/graphical manner. Dashboard components can be moved and resized easily. It is important to refresh the dashboard for viewing updated information. There are various properties available for the dashboard components. The can be horizontal graphs, vertical graphs, gauge, donut charts, lightning table, etc. User can add title and subtitle to the dashboard components. 20 components can be created within a single dashboard. They are also saved with a folder which can be private, public or shared.

Dashboards can be created by selecting the Dashboards tab from the navigation bar. Select New dashboard button and give a unique name to your dashboard and click create. Use the +Component button and select the report to add the component. Now adjust the component properties as required.

CHAPTER 3

SYSTEM DEVELOPMENT

3.1 INTRODUCTION

This project teaches to build an application in Salesforce from beginning to end just by point-and click features of Salesforce. This is a fun and easy platform to build your application: - efficiently in no time. This motivation for this application is to insert suggestions and view their status by the following steps: -

1. Creation of the data model used within the application and defining the app. This application would require only on single custom object.
2. Use 'Compact Layouts', 'Page Layout' and 'Global Actions' for modifying the interface on browser and the Salesforce Mobile Application.
3. Automate your app using 'Formulas', 'Validation Rules' and 'Process Builder'.
4. Create reports, dashboards and add charts for better visualization.

3.2 DESIGN

To begin with, start by logging into your Salesforce Org and navigate to Setup.

Create the 'Suggestion' Custom Object

1. Select the Object Manager Tab and click Custom Object.
2. For the custom Object, fill the following details:
 - Enter label as *Suggestion*
 - Enter plural label as *Suggestions*
 - Enter record name as *Suggestion Name*
 - Select the datatype as Text.
 - Select **Allow Reports**.
 - Click Save.
3. Create a custom tab for your new object.
 - Select Tabs, by searching them in the quick find.
 - For new custom tab, click New.
 - Select the Suggestion Object.

- Select any icon for Tab Style.
 - Leave all the defaults as they are and save your tab.
4. For creating the App, navigate to App manager by searching in the quick find box.
 5. Select 'New Lightning App'. Enter the name *Suggestion Box* for App name and choose next button .
 6. Leave all defaults as they are and navigate to Available items list. For objects to be displayed in your App, select Suggestion, Reports and Dashboards.
 7. For Profiles, select the System Administrator.
 8. Click Save->Finish.

The image below displays the newly created App.

1. This is the App Launcher which help navigation between the various app.
2. This is the name of your Application- *Suggestion Box*.
3. The available object within your application.

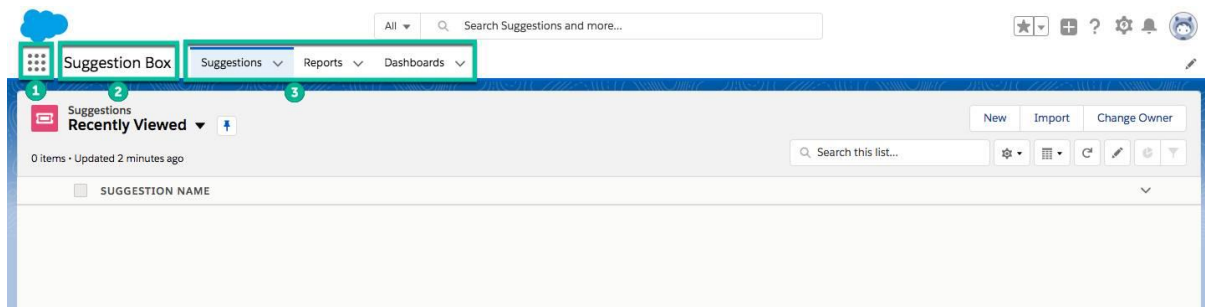


Figure 3.1 App front page

Now we add custom fields to the Suggestion Object to store information about the suggestion.

Custom Filed 1- Description Field

1. Navigate to setup and search for the suggestion object within the object manager
2. Select 'Fields and Relationships'
3. Select the datatype as 'Text Area(Long)'
4. Fill the details regarding the field.
 - Enter the field label as 'Suggestion Description'
 - Enter the length equals 32,768
 - Enter visible lines equals 10
 - Enter the field name as 'Suggestion_Description'

- Enter the help text as ‘Please enter as much detail around this suggestion so we clearly understand your idea.’
5. Leave the defaults as they are and Save the field.

Custom Field 2- Category Field

1. Navigate to setup and search for the suggestion object within the object manager
2. Select ‘Fields and Relationships’
3. Select the datatype as ‘Picklist’
4. Fill the details regarding the field.
 - Enter the field label as ‘Suggestion Category’
 - Enter the field name as ‘Suggestion_Category’
 - Select ‘Enter values, with each value separated by a new line.’
 - Enter the values(separated by new line)- ‘Customer Service’, ‘Employee Services’, ‘Facilities/IT’, ‘Kitchen Snacks’, ‘Other’.
5. Deselect ‘Restrict picklist to the values defined in the value set.’
6. Leave the defaults as they are and Save the field.

Now we use Schema Builder to build the remaining two custom fields.

Custom Field 3- Status Field

1. Navigate to setup and search for the Schema Builder in the quick find box
2. Select the ‘Clear All’ checkbox
3. Select the ‘Suggestion’ and ‘User’ object(Use Auto-Layout and arrange the objects accordingly)
4. From the Elements tab, drag the ‘Picklist’ datatype and drop it upon the ‘Suggestion’ object
5. Fill the details regarding the field
 - Enter the field label as ‘Status’
 - Enter the field name as ‘Status’
 - Enter the values(separated by new line)- ‘New’, ‘Under Construction’, ‘In Progress’, ‘Implemented’
6. Choose the checkbox- ‘Select the first value as default value.’
7. Save your custom field.
8. Now to select privacy by right-clicking the newly created Status field and choose ‘Manage Field Permissions’

9. Choose the 'Read-Only' checkbox for all the users in the Org(except 'System Administrator').
10. Click Save.

Custom Field 4- Date Field

1. Navigate to setup and search for the Schema Builder in the quick find box.
2. Select the 'Clear All' checkbox.
3. Select the 'Suggestion' and 'User' object(Use Auto-Layout and arrange the objects accordingly).
4. From the Elements tab, drag the 'Date' datatype and drop it upon the 'Suggestion' object.
5. Fill the details regarding the field
 - Enter the field label as 'Implemented Date'
 - Enter the field name as 'Implemented_Date'
 - Leave the defaults as they are and Save the field.
 - Save your custom field.
6. Now to select privacy by right-clicking the newly created Status field and choose 'Manage Field Permissions'
7. Choose the 'Read-Only' checkbox for all the users in the Org(except 'System Administrator').
8. Click Save.

We modify the page layout of the suggestion box app to provide users with a better experience. We try to rearrange the fields in a usable order for the users. We modify the page layout using 'Compact Layout', 'Page Layout' and 'Global Actions'.

Page Layout: -

1. Navigate to setup and search for the suggestion object within the object manager
2. Select 'Page Layout'
3. Select Edit
4. Under the 'Suggestion Detail' we add fields to the 'Information Section'
 - Drag 'Status' field and bring it under 'Information Section'
 - Drag 'Implemented Date' and bring it under 'Status'
 - Use Quick Save to save the changes made.
5. We add a new 'Description Section' to the page layout.

- Drag 'Section' above the 'System Information Section'
- In the property box, enter section name as 'Description'
- Select '1-Column' for layout
- Save the changes made.

6. Save your page layout.

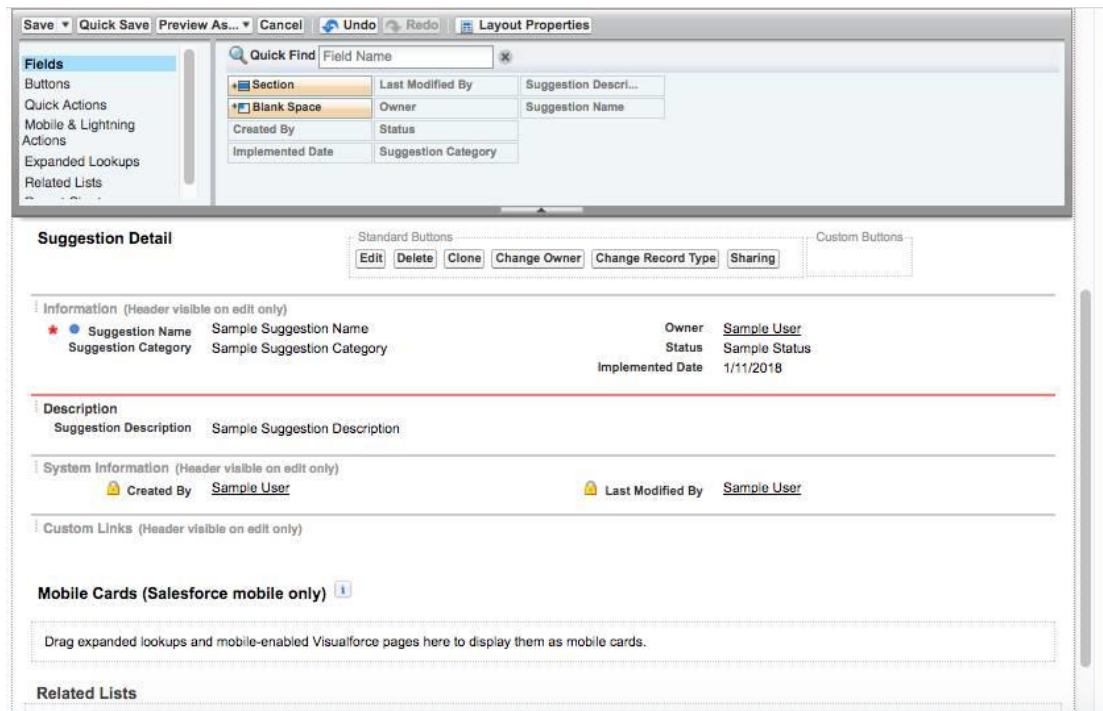


Fig 3.2 Page Layout

Compact Layout: -

1. Navigate to setup and search for the suggestion object within the object manager
2. Select 'Compact Layout'
3. Enter the relevant details regarding the layout
 - Enter the Label as 'Suggestion'
 - Enter the Name as 'Suggestion'
 - For 'Selected fields' choose 'Suggestion Name', 'Suggestion Category' and 'Status' from the Available fields.
 - Save the changes made.
4. For the 'Compact Layout Assignment', select 'Suggestion' object as the 'Primary Compact Layout'
5. Save your assignment.

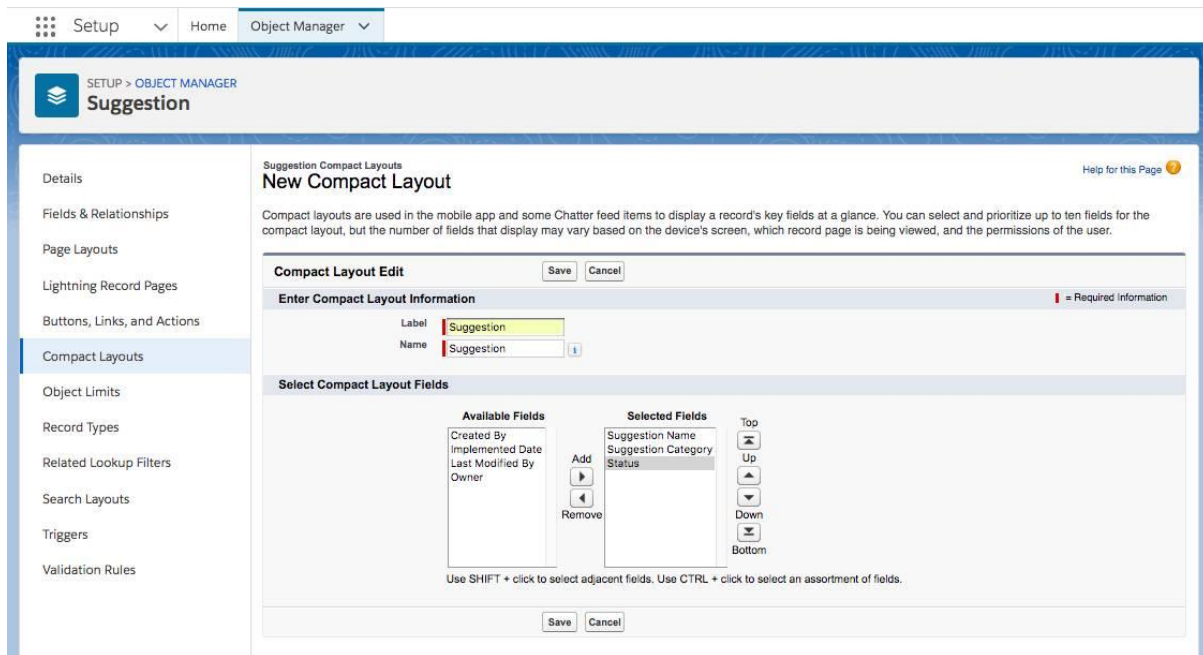


Fig 3.3 Compact Layout

Global Actions : -

1. Navigate to setup and search for the 'Global Actions' in the quick find box.
2. Create a New Action
3. Enter the relevant details regarding the global action
 - Enter the Action Type as 'Create a Record'
 - Enter the Target Object as 'Suggestion'
 - Enter the Standard Object Type as 'New[Record]'
 - Enter the Name as 'New_Suggestion'
4. Save your action.
5. Drag 'Suggestion Category' and 'Suggestion Description' on the Suggestion layout for users to enter their values and Save the changes made.
6. For the 'Predefined Field Values', select New.
7. Enter the following details:
 - Enter field name as 'Status'
 - Enter specific value as 'New'
8. Click Save.

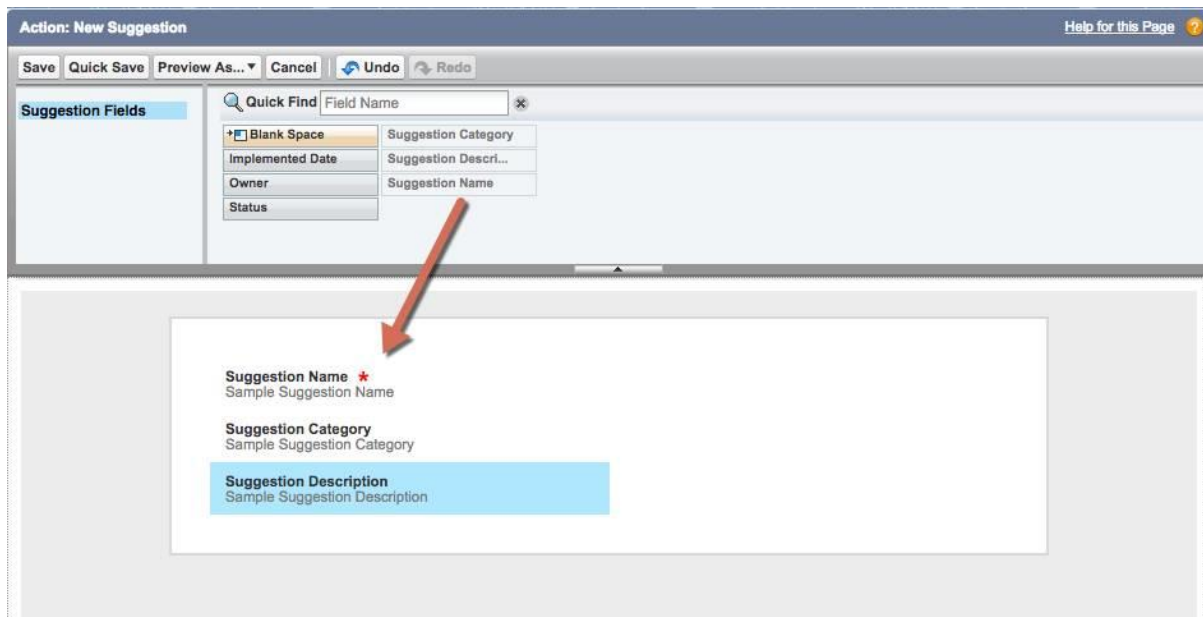


Fig 3.4 Global Action

For users to view the newly created Global Action, we have to add it using the Publisher Layout. The steps are given below: -

1. Navigate to setup and search for 'Publisher Layout' in the quick find box.
2. Click Edit.
3. Select 'Override the predefined actions' from the 'Salesforce Mobile & Lightning Actions'.
4. Drag the 'New Suggestion' action onto the 'Salesforce Mobile and Lightning Actions' palette.
5. Click Save.

Now we automate the application by using formulas, validation rules and process builder.

Formula Field: - The given formula calculates the number of days between the suggestion creation and implementation.

1. Navigate to setup and search for the suggestion object within the object manager
2. Select 'Fields and Relationships'
3. Select the datatype as 'Formula'
4. Enter the following details:
 - Enter the field label as 'Number of Days Open'
 - Enter the field name as 'Number_of_Days_Open'
 - Select the return type as 'Number'

- Choose decimal places as '0'
5. Select the 'Advanced Formula' tab
 6. Enter the following formula:

IF(BLANK(Implemented_Date__c), TODAY()-DATEVALUE(CreatedDate), Implemented_Date__c- DATEVALUE(CreatedDate))

7. Check the syntax of the formula.
8. Save the changes made.

Validation Rule: - This validation rule prevents the employees from entering those implementation date that haven't occurred.

1. Navigate to setup and search for the suggestion object within the object manager
2. Select 'Validation Rule'
3. Enter the following details:
 - Enter the rule name as 'Date_in_Range'
 - Within the formula editor write the formula as ' Implemented_Date__c > TODAY()'
 - Within the Error message box, write 'The implemented date must be today or in the past, not in the future.'
 - Choose the error location as 'Field: Implemented date'
4. Click Save.

Process Builder: - The process will allow to update the status field automatically whenever a user enters an implementation date.

1. Navigate to setup and search for the Process builder in the quick find box
2. Create a new process by selecting the New button.
3. Enter the following details regarding the process:
 - Enter the process name as 'Update Status'
 - Enter the API name as 'Update_Status'
 - Enter the description as 'Update Status to Implemented when Implemented Date field is populated'
 - Select 'A record changes' for starting a process
 - Click Save.
4. Click 'Add Object'

5. Select the 'Suggestion' object and select 'when a record is created or edited' for starting the process.
6. Click Save.
7. Click 'Add Criteria'
8. Enter the criteria name as 'Implemented?'
9. Select 'Formula evaluates to true'
10. In the formula editor type the following formula:


```
NOT( ISBLANK(Suggestion__c].Implementes_Date__c))
```
11. Click Save
12. Click 'Add Action'
13. Enter the following details regarding the action
 - Enter the action type as 'Update Records'
 - Enter the action name as 'Update Status to Implemented'
 - Select the record type as 'Select the Suggestion__c record that started your process.'
14. Click 'Choose'
15. Select 'No Criteria-just update the records!'
16. Enter the following field values: -
 - Select 'Status' field
 - Choose datatype as 'Picklist'
 - Enter the Value 'Implemented'
17. Click Save
18. Activate the process and click confirm.

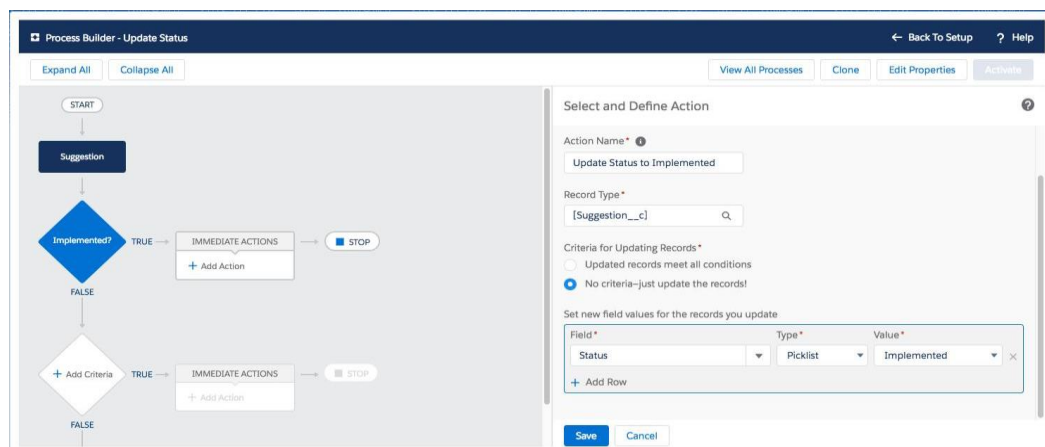


Fig 3.5 Process builder

We add reports and dashboards to our new app. Firstly, we create a tabular report to represent the total number of received suggestions and their status.

1. Use the App Launcher to navigate to the Suggestion Box app.
2. Select the Report tab and click 'New Report'
3. Search 'Suggestion' report type.
4. Click Continue.
5. Add 'Status' and 'Number of Days Open' column by searching them in the 'Add Column' space.
6. Add a filter by navigating to the 'Filters' tab creating the following filter:
 - Field: 'Status'
 - Operator: 'not equal to'
 - Value: 'Implemented'
7. Click Apply.
8. Save your report under the name 'Suggestions: Status of Open Suggestions'
9. Select the 'Public Report' folder.
10. Save and run your report.

To understand better, we copy the above report and create it as a summary report with charts to provide better visualization to the users.

1. Edit the 'Suggestions: Status of Open Suggestions' by saving the report again with a different name i.e., 'Suggestion: By Status'.
2. Select the 'Public Folder'
3. Add a group by searching 'Status' in the Add group space.
4. Click the 'Add Chart' button and select the Donut Chart.
5. For chart title, enter 'Suggestion: Status'
6. Save your report.

We create a Dashboard for displaying the important information to the users. They can be used to represent reports in the form of charts, tables, metrics and gauges.

1. Navigate to the dashboard tab and select the 'New Dashboard' button.
2. Enter the dashboard name as 'Suggestion: Dashboard' and select the 'Private Folder'.
3. Click Create.
4. Click the '+ Component' button.
5. Select the 'Suggestion: By Status' report.

6. Choose the donut chart and select 'Record Count' for value.
7. Change the component title to 'Suggestion By Status'
8. Click Add
9. Save your Dashboard and click 'Done'

The screenshot shows the Salesforce Reports interface. The report title is 'Suggestions: By Status'. The report is displayed as a table with the following data:

Status	Suggestion: Suggestion Name	Number of Days Open
New (1)	Almond Milk	2
Subtotal		2
Under Consideration (1)	Locker Rooms	4
Subtotal		4
In Progress (1)	Soy Milk	11
Subtotal		11
Total (3)		17

The interface also shows a 'Fields' sidebar on the left with sections for 'Groups', 'GROUP ROWS', 'GROUP COLUMNS', and 'Columns'. The 'Status' field is highlighted in red in the 'GROUP ROWS' section.

Fig 3.6 Summary Report

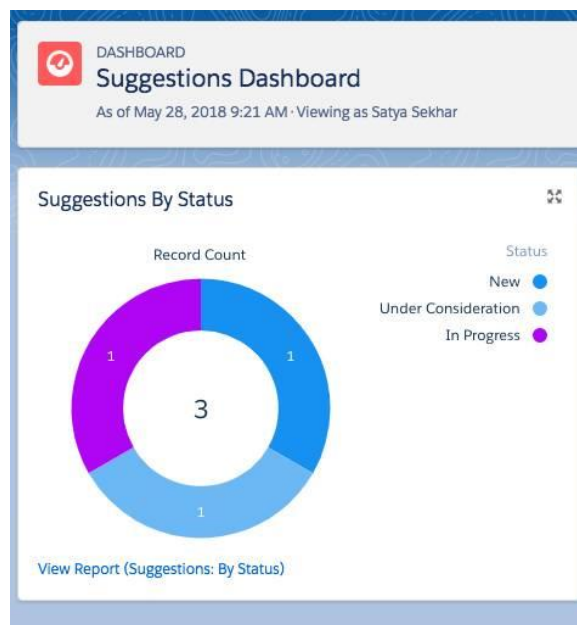


Fig 3.7 Dashboard

CHAPTER 4

PERFORMANCE ANYALYSIS

4.1 TESTING THE APPLICATION

The application build has the can be tested from the Salesforce platform or the Salesforce Mobile Application.

To test the application as a mobile version, we can use the Chrome Developer tools.

1. Open the chrome browser and navigate to the Developer tools by selecting View ->Developer->Developer Tools.
2. Click 'Toggle Device Mode'



Fig 4.1 Google Developer Tools

3. Copy and paste the URL for the Salesforce app by removing the URL after –
'lightning.force.com/lightning'



Fig 4.2 URL

4. Create New Suggestion easily.

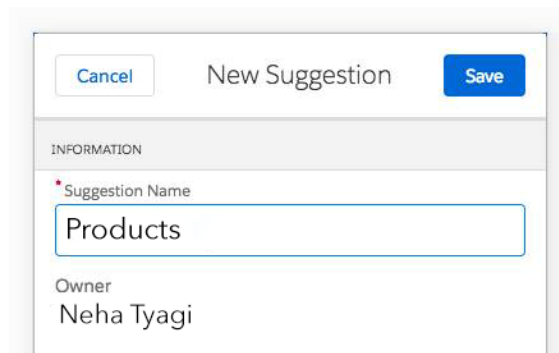


Fig 4.3 Suggestion Record

To check the working of the process builder and the validation rule, we navigate to a suggestion record and we try inputting a future date for the 'Implanted Date' field. We receive a notification regarding this error. Also, upon entering a valid date, the 'Status' field changes to 'Implemented'. Thus depicting that the application is working correctly.

The screenshot displays a web application interface for managing suggestions. At the top, there is a navigation bar with a search box and menu items: 'Suggestion Box', 'Suggestions', 'Reports', and 'Dashboards'. Below this, the main content area shows a suggestion record for 'Locker Rooms'. The form includes fields for 'Suggestion Name' (Locker Rooms), 'Suggestion Category' (None), 'Number of Days Open' (0), 'Owner' (Satya Sekhar), and 'Status' (New). The 'Implemented Date' field is highlighted in yellow and contains the date '5/2/2036'. A red error message box is overlaid on the form, stating 'Review the following fields' and listing 'Implemented Date' as the field with an error. Below the error message, there are 'Cancel' and 'Save' buttons. The 'Description' section is collapsed, and the 'Created By' and 'Modified By' fields show the user 'Satya Sekhar' and the timestamp '5/20/2018 12:51 PM'.

Fig 4.4 Testing Validation Rule

CHAPTER 5

CONCLUSION

5.1 CONCLUSION

Salesforce allows application building very easy and efficient for developers. With just point-and-click tools of Salesforce developers can build app that increases the makes customer management quick and efficient. Salesforce creates dynamic path for their customer by providing robust and comprehensive platform. Salesforce provides access to many built-in tools like lead management, reports, dashboards, etc. Moreover Salesforce provide high security for handling sensitive data with help of security protocols. It automatically upgrades the products and services, with three main updates every year. Salesforce provides opportunities and help in development of long term relationships with customers.

5.2 FUTURE SCOPE

Salesforce provides its Einstein view for better application development. The previous applications can be easily upgraded with new salesforce technology and tool. Einstein development helps prediction of outcomes to ensure customer confidence. Recommendations and analytics can be easily done by this tool.

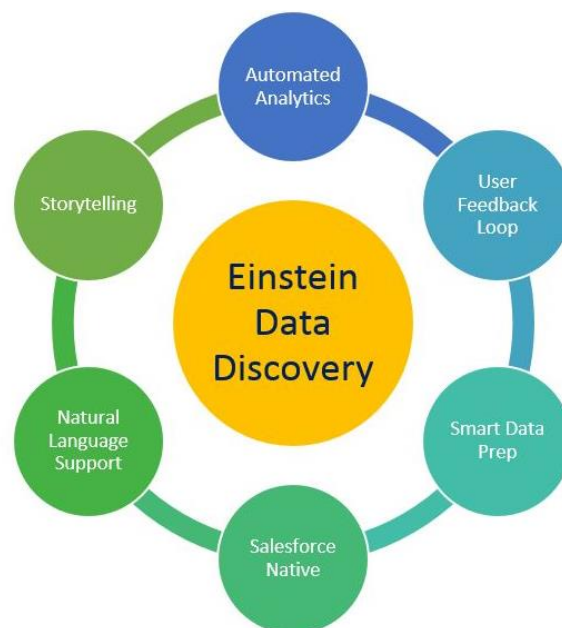


Fig 5.1 Einstein Data Discovery

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