**Salesforce Admin & Developer**

Top Companies that use Salesforce today

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| **Company Name** | **Industry** |
| Aricent Group | Telcom |
| Aricent Inc | Telcom |
| BlueScope Steel | Manufacturing |
| KONE | Manufacturing |
| Cisco Systems Inc | Computers and Electronics |
| Motorola Inc | Telcom |
| Yamaha Corporation | Wholesale and Distribution |
| Allianz AG | Financial Services |
| Spherion Corporation | Business Services |
| P&H Mining Equipment | Manufacturing |
| Thomson Reuters Corporation | Financial Services |
| VTB Capital plc | Financial Services |
| Swiss Re Corporation | Financial Services |
| BNP Paribas Limited | Banking |

May 23, 2023

* Day 0 activities
* Trailhead setup
* Training product setup
* User Management

Focus on

* Salesforce Sales Cloud (CRM)

Other sample products:

* Salesforce Marketing Cloud – Blast email
* Salesforce Social Cloud

**Salesforce IT team Roles**

**Admin**

* Will focus only on configuration and no coding
* No code or low code
* Creating users to access the application
* Configure security etc

**Development**

* Anything that an admin cannot do and requires code customization
* E.g : Integrate salesforce with GDrive or flight APIs to bring flight information for booking

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| --- | --- |
| CEO, CFO, Sales Team, Marketing Team, Finance Team | Business Users |
| Salesforce Admin, Low code Developers, Lightning Components Developers | Salesforce IT Team |

**Information to be stored in Salesforce**

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| --- | --- | --- |
| Object | Standard or Custom | Purpose |
| Account | Std. | Placeholder to manage customer details    TH: To manager partner hotel information |
| Room type | Custom Obj | Manage all room types available in a hotel |
| Contact | Std. | Typically, we use it to store customer contacts    In our Travel hut scenario, repurpose contact obj to store Travellers data |

**Terminologies**:

1. **Standard**
2. Anything that comes out of the box
3. **Custom**
4. Anything that Salesforce admin or a developer creates
5. **Account** is used to refer placeholder that can be used for managing customer information
6. **Playground Org**
7. **Org** is equivalent to environment
8. **Playground org** refers to training / learning environment
9. **Profile**
10. A way to group users
11. Helps you to configure “**WHAT USERS CAN DO** IN THE SYETEM”
12. Object
13. A placeholder to store data
14. Or Table with fields (Rows & Columns)
15. Page Layout
16. Helps admins to configure fields on the screen
17. Field Name or API name
18. Unique identifier tagged to any std or custom components

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| --- | --- |
| Name | Title |
| Suchitra | CEO of Travel Hut |
| Anudeep | Sales Manager |
| Penniya | Sales Manager |
| Sukant | Hotel Partner Operations Manager |
| Yogesh | Hotel Partner Operations Team |

Use Case 1:

CEO would like to onboard a new Sales team member

* Enable access to salesforce Org
* Assign Anudeep with a **Sales profile**

Issues:

* UI looks different

Use Case 2:

Anudeep has received email for login and after successful login, he noticed that UI is not the same as other users

As a admin, how do you solve this?

Solution:

* Profile

Tip:

1. Any access issue reported by the users should be checked at profile level

Best Practice

* Always enable lightning UI for users

Use Case 3:

CEO has suggested Salesforce Admin to change the UI apps for Sales Team so that only relevant apps are shown:

* Show Sales app alone
* Ensure Sales app has navigation links lead, account, contact, reports and opportunities

As a admin, how do you solve this?

**Solution:**

* New Profile for Sales Team
* **Option 1:** Using App manager create a New app for Sales team
* Option 2: Modify Std. Sales app
* Configure Navigation links for Sales Team

Tip:

1. Any access issue reported by the users should be checked at profile level

Best Practice

* Always create a new profile by cloning std. Profile and use it in the system
* Always try to stay away from modifying std. App and std. options

Use Case 4:

Anudeep would like to have “Task” option added in his Sales Insights app. This will help him to track all his day-to-day activities

As a admin, how do you solve this?

Option 1: Educate Anudeep how he can customize navigation link all by himself

**Option 2:** Use App manager and edit existing Sales Insights app

Use Case 5:

Anudeep & CEO decided to onboard one more Sales Manager to manage customer in NA

* Onboard ‘Penniya’ new Sales Manager
* Ensure she has same access as ‘Anudeep’

As a admin, how do you solve this?

Solution:

* Create a new user for ‘Penniya’
* Ensure ‘TH - Custom : Sales Profile’

Issues:

* Unable to see salesforce license
* Unable to see custom Sales profile

Workaround:

* Check on licenses and as a work around revoke license from other user and create a new user record for Penniya

Use Case 6:

As a system admin, I need proxy login access so that I can login as any user in the system without giving uname and password

* It helps to trouble shoot issues
* It helps to check user experience and access to features in the org

Solution:

* Enable Login policies
* And, provide proxy login access for sys. Admin
* And, uncheck Force relogin after Login-As-User

Use Case 7:

CEO is concerned about proxy login access even though it helps sys. Admin to quickly solve issues.

CEO would like to enable a check on the activites that a sys. Admin performs inthe system which in no way sys. Admin should tamper with

Solution:

* View audit trail (Read only)

Use Case 8:

CEO would like to expland the team and onboard couple of operation role members

* Sukant (Operations Manager)
* Yogesh (Operation Team Member)

Solution:

* User > User setup

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| Use Case 9:    Sukant & Yogesh would like to show only relevant fields for the Sales team when a customer (Hotel Partner) is created     * Remove or hide std. Fields * Introduce new fields * A flag to indicate that customer is a partner hotel * Have fields to store hotel location * Have fields to indicate hotel category (2 star , 3 star, 5 star, 7 star)     Solution:      Option 1: Page Layout    How do I see which layout is currently being shown?        Issues:     1. Why is my highlights panel showing account site and industry? |
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| Use case 10:    While testing changes made by sys admin the following observations were found:       1. Partner Operations team is not able to see sales insights app   Option 1: Give permission to the profile (page level security / app manager) - FIXED     1. Sales Team is still having old page layout. Not showing newly customized layout with hotel partner related fields  - FIXED 2. Not all hotel partner relevant fields appearing on the screen for Sales Team - FIXED 3. Difference in the nav. Links between Sales team and Partner Operation Team –This is NOT AN ISSUE . IT WORKS AS PER USER LICENSE |
| Use Case 11:    Partner Operation Team is looking to find   * a way to capture additional details (amenities, room types etc) about hotels   And, should have an easy way for Sales team to create and manage all amenities right from customer / account page    Solution:     * Custom Object -> Custom Tab -> Enable Security using profile level -> Add custom tab to an app * How do we relate Hotel and Amenities? * How do we relate Hotel and Room type?     Data Relationships:    Tip: Given 2 objects , how would you find which is child and which is parent obj.   * The object in which Master-Detail or lookup relationship is created is called ‘Child’ object       Master-Detail   * Closely coupled * Hotel  (Parent) & Room Types (Child) * When a hotel record is removed from the system, all the child room types associated with it will also get removed   Lookup     -  Loosely Coupled   * Hotel  (Parent) & User (Child) (Sales Manager Primary POC) * When a hotel record is removed from the system no impact on child records     Hierarchical Relationship   * Relate self-records on the object       Many to Many |
| Use case 12:    CEO’s request for report on user adoption, features used, pages visited, user access location etc.    Solution:     * App exchange product |
| Use case 13:      CEO and Partner Operations team wanted to create a new view (editable) to show the list of partner hotels    Solution:   * List View |
| Use case 14:    Penniya & Anudeep reported an issue: When Room type is associated with an account, the system is showing all accounts or customer that are not partner hotels type    Solution:   * Apply filter on relationship field |
| Use case 15:    Partner Operations team wanted to ensure   * relationship manager entered on the screen should map with one of the users in salesforce org * Room type related list to show more information like capacity, type etc       Solution:     * Lookup relationship between Account and User * Page layout > Related list > Add additional fields to show |
| General Info:     1. Programming language: APEX 2. Salesforce Release  * 1st quarter | Spring * 2nd quarter | Summer * 4th quarter | Winter * Keep urself updated with new features that SF releases every quarter   <https://help.salesforce.com/s/articleView?id=release-notes.rn_sales.htm&release=244&type=5>  <https://www.salesforceben.com/salesforce-summer-23-release-date-preview-information/>  <https://automationchampion.com/2023/04/29/salesforce-summer23-release-quick-summary-2/> |
| Mass data load:    Use case 16:    Sales Managers (Anudeep & Penniya) have worked really hard and managed to bring new partner hotels that are fine to show their deals on our website    There are 15 new hotels agreed to partner with Travel hut so that Travel hut’s online platform can show relevant deals about each hotel    Sales Managers have maintained the details in an excel. Instead of creating each hotel at a time from UI, the team is looking to load all hotels in one go via back end    Solution:    For data load via backend,    Option 1: Data Import Wizard   * Supports all custom objects * But only few std. Objects * Does not help with deleting data * Does not help with data export * Supports max. 50K records   Option 2: Data loader   * Separate app to be installed * Mitigates all the limitations that currently Data Import Wizard has * Support max. 50 million records |
| Use case 17:    Suchitra (CEO) decided to onboard a compliance head to the org    Bhavani – Compliance head    Bhavani wants to see all the travellers data to review and audit with. So that she can propose data stds & compliance requirements further    Solution:    Option 1: Data loader   * Does support custom path (GDrive, sharepoint) configuration. Use Data Loader CLI commands   Option 2: Data Export Wizard   * Does not support custom path configuration |
| Use case 18:    Penniya (Sales Manager) is having a conversion with one of the leading 5 start hotel chains in India.  Name: The Great Grand Hotels & Resorts    She is looking to have all information & activities & discussions with the hotel captured in the org. Just like Great Grand Hotel, she is having lot of such prospects to store in the system      Solution:     * Lead Management * Lead option is available only for Salesforce License users     Leads are nothing but potential customers that show interest to do business with      Lead > Qualification > Conversion (Customer) |
| Use case 19:    CEO would like to see a total room type offered right on partner hotels page    Solution:     * Check on the relationship (Account & Room Type) * If master-detail relationship exist, go with roll-up summary custom field * Else lookup relationship, go with custom solution (code or automation process) |
| Use Case 20:    Sales Team would like to firm up the lead conversion process. Like, when a lead is converted fields like Partner Hotel flag, Lat and Long values should also be copied from Lead    Solution:     - Create new custom field(s) on lead to capture data   * Use lead field mapping and map fields between lead and Account or lead & contact or lead & opportunity |
| Use Case 21    CEO would like to see a report that should show how many leads or prospects have been converted as business customers in the last week    Solution:     * Use Reports * Either canned or std. reports or create your own report * Have the report stored as a private report or public report or separate folder * Use Converted Flag to find converted leads |
| Use Case 22    CEO would like to ensure all leads having country as United states and United Kingdom to be owned by Penniya.    It has to happen automatically where we create a lead via UI or Data load etc    Solution :     - Use Lead Assignment Rule and dynamically assign lead owner |
| Use Case 23    CEO is concerned that there are lot of leads that go unnoticed because of data incompleteness. Especially , lead country is not entered when leads are added in to the system    CEO does not want to change the field to require at field level    Solution:     * Validation Rule   <https://blog.bessereau.eu/assets/pdfs/salesforce_useful_validation_formulas.pdf> |
| Use case 24:    Sales Team wanted to ensure postal code is following US zip code format if the counttry is United States or US, or USA    Solution:     * Validation Rule |
| Use case 25:    Sales Team has raised a concern that they are seeing both business contacts and Travellers under same hotel account    They are looking for a better way to manage distinct information being stored for business vs travellers contact    Solution:    Option 1: Record Types  Option 2: Dynamic Forms      Business Contact:  Field to display:   * Business Email * Business Phone Number * Best Time to Call     Traveller Contact  Field to display:   * Contact Email (Std. Field) * Contact Phone Number (Std. Field) * Contact Preference (Email, Call, Whatsapp) * Contact Credit Card Info |
| Use case 26:    Yogesh and Sukant would like to setup list of products that Travel hut is selling to the partner hotels    This setup will help Sales Team to sell right products and also systematically track the deal or invoice amount.      Solution:     * Products * Price Book * Orders * Opportunites |
| Use case 27:    CEO is looking to enable support for multi currency in Salesforce    Sales team can create business opportunities / deals in local currency and report on local currency (USD, GBP, EUR, AED) and/or corporate currency (INR)    Solution:   * Enable Multi currency feature * It is an irreversible change * Configure Corporate currency * Configure local currency at record level / user level * Configure exchange rate to convert local currency into corporate currency * Whenever there is a currency field in an object, the system will show automatically record currency drop down     Step 1: Enable Multi currency  Step 2: Create multiple price books  Step 3: Create same product with multiple versions for each currency  Step 4: Associate each product to a price book. Always to Std. Price book first then associate product to custom price book created in step 2 |
| Use Case 28:    Penniya has been in discussion with a US based customer to sell either a 3 month subscription plan or 12 months subscription plan.    Enable multi-currency so that opportunity products / deal value can be entered in USD      Solution:     * Enable Multi currency * Enable Price book to hold Products’ price in USD * Account > Opportunity > Associate Products |
| Use case 29:    CEO has decided to provide discount for Partner Hotels to attract more business.    Based on Partner hotel category ‘Gold, Silver, Bronze’ discount % should vary.    When business deal is created, system should use discount % defined at account level and calculate revised opportunity amt    Solution:  ~~Option 1: Validation Rule~~  Option 2: Formula (cross object Formula)  ~~Option 3: Dynamic Forms~~ |
| Use Case 30:    CEO has recently onboarded Marketing head who will help enhancing brand awareness of Travel hut company    Marketing is looking to find a way to capture all marketing related activities in Salesforce    Solution:   * Create User * Assign Salesforce License to gain         Campaign Std. Object access   * Use Campaign object to track all marketing related activities * Create a custom app for marketing and add Campaign nav. Link to it                   - Running ads on You tube channel                  - Send mass email with discounts on hotel stay, vacation planning                  - Conducting Conferences, Road shows etc                  - Paid ads on facebook, Linkedin                  - SEO optimization on Google |
| Use case 30:    CEO has given additional responsibility to the Marketing team to bring more leads to the organization.    These leads from Marketing team will be reviewed and then handed over to Sales Team to further discuss and see possibilities to convert lead into a customer business    Marketing Manager to generate more leads planned to run an event campaign.    Event Name: Hotelier Regroup – 2023 at Mumbai      Solution:     * Campaign * Use Campaign Members to track leads |
| Use case 31:    Sales Team has raised a concern that all potential leads created by Marketing team is visible which makes it difficult to categorize leads created directly by Sales efforts    Team is looking to enable record ownership so only leads created by Marketing team should not be visible for Sales team members    Solution:     * Data security     TIP:  WHEN A RECORD IS CREATED, THE USER THAT CREATED THE RECORD BECOMES THE “**OWNER”** OF THE RECORD     * OWD should be set to private (only the owners of the record can see and edit) |
| Use case 32:    Anudeep managing APAC customers  Penniya managing North America customers    In the default record ownership, all customers are visible to all the sales team members    Request is to ensure NA accounts alone visible for Penniya. Likewise, for Anudeep, only APAC accounts are visible    Solution:     * Data Security      * Use OWD and it to private * Enable Sharing rules and add criteria based on billing country and open access to NA Sales Team public group |
| Use case 33:    CEO (Suchitra) has raised a concern that all the sudden she is unable to see any accounts (hotel Partners) in the system.    Solution:     * Implement Role Hierarchy |
| Use case 34:    Penniya would like to take help from one of the operation team members (Yogesh).    She would like to ensure Yogesh get a read only access to the account “Lake side Lodge” so that Yogesh can run a legal check against this customer with company auditing team.    Solution:     * Enable Manual sharing in the system * Ensure Manual sharing quick action is added on page layout (this option will be visible only if the user is owner of the record) * Train users, in this case Penniya to share record to Yogesh |
| Use case 35:    CEO is concerned that the discount % is being manipulated by Sales Team during deal cycle    #1: Sales Team should not modify Discount %  #2: Only Partner Operations Team should be able to be edit Discount %  #3: It should only be Sukant in Partner Operations Team to edit Discount %    Solution:     * Use FLS and set read-only for Discount % for both the profiles * Permission Sets (Special privilege to assign user or a group of users in the same profile)     TODO: Permission set groups |
| Use case 36:    CEO would like to ensure    #1: Sales Team should refrain from deleting Hotel Reviews  #2: Hotel Partner Operations team should be given delete hotel review option    Solution:   * Profiles   ~~Permission sets (Use it when you have manageable users + when you wanted to elevate certain users access that share same profile)~~  ~~OWD~~  ~~Sharing rules~~  ~~Role hierarchy~~ |
| Use case: 37    Sales Team is little worried as some of the customer hotels really demand 12% or 15% discount on the subscription plan.    Sales Team , on a case by case basis would love to work with Sukant and increase discount % to win the deal with the customer.    Sales team is looking for a better way to communicate and collaborate with Sukant and partner operations team on changing discount %    Solution:     * Use Chatter for Internal collaboration |
| Process Automation:     * Approval process * Flow     Salesforce Id or Record ID:            SOQL – Salesforce Object Query Lang:     * Helps us to get data from Database * Ways to deal with DB data * Dev Console > Query * Workbench (https://workbench.developerforce.com/query.php) * VS Code > SOQL Query editor |
| Use case 38:    CEO would like to see an option right on the home page to quickly create an account (Partner Hotel) with minimal information like Name, Billing Country & Primary contact    Ensure that this “Quick Account Create” options is available only for CEO    Solution:     * Screen Flow     Step 1: A screen is needed  Step 2: 3 input fields should be added in the screen  Step 3:  1 button  Step 4: On click of button, create account         * CEO alone should see the flow * Use component Visibility & ensure run flow is enable for the user at profile level or use permission set to enable run flow * Show a success message and have user given an option to navigate to the new account * Use create record data element API name as a link     Additional requirement:    Showing more information abt the newly created account on the screen     1. Use newly created record id from “Create Records Data Element” 2. Use “Get Records Data element ” and retrieve information from DB 3. Display info on a screen gather in step 2     Another use case for fault path:  <https://www.youtube.com/watch?v=tCwLDfqNs_g&list=PLQFXjdhnRRn9BDb-jS2w7JHusVa33hV9J&index=13>        **Play lists:**    <https://www.youtube.com/watch?v=ZdFSSapVheg&list=PLQFXjdhnRRn9BDb-jS2w7JHusVa33hV9J> |
| Use case 39:    Automate discount %    CEO is looking to automate discount % allocation to hotel partners based on category (Gold - 10, Bronze - 5, Silver - 8) when a new hotel is created.    Do not change discount % when account is edited      Solution:     * Record Triggered Flow |
| Use case 40:    Sales / Service Console – Command Center    CEO has raised a concern that the navigation in the system is not user friendly. Looking for an alternate option so max. Information can be accessed with minimal clicks and navigation.    More like a command center that's typically used in service team      Solution:     * Option 1: Split view * Option 2: Enable Console Navigation by creating a new app and assign it to appropriate profiles |
| Use case:41    CEO has decided to give additional responsibility to Partner Operations Team. Whenever Traveller credit card information is given in the system, partner operation team will work with an external payment verification vendor and check on credit card information .    If invalid, flag it and notify account owner via email    If valid, update a flag on contact object stating card is valid and good to use    Solution:     Record Triggered Flow    Step 1: Check if credit card number is given  Step 2: If no, do not do anything  Step 3: if yes, check credit card status pick list value  Step 3.1 : If “invalid”, then proceed. Else, do not do anything  Step 4: Use Flow actions and send an email to the contact or account owner  Step 5: Use Flow actions and post a note on the chatter and log that account / contact owner has been notified abt invalid payment card |
| Use case: 42    CEO would like the system to catch duplicate hotel partners if at all sales team creates same hotel partner again in the system.    Solution:     * Duplicate Rules   Step 1: Create a matching rule  Step 2: Create duplicate rule and attach match rule    Things to remember:   * Works only on 3 Std. Objects and all custom objects * Not able to control fuzzy match % * Overcome limitations, by going to app exchange product |
| Use case : 43    CEO from Travel Hut company wants to update the opportunity status to "Closed Won" when the associated contract is signed (Activated)    Solution:   * Record Triggered Flow on <contract> object      * Object(s) used: * Contracts * Opportunity * Understand how data is stored in the backend . Get to know the fields and relationship * Start with Flow |
| FLOW Further reading:    <https://automationchampion.com/learning-flow/>  <https://salesforce-flowsome.com/>    Channel link:  <https://www.youtube.com/watch?v=ZdFSSapVheg&list=PLQFXjdhnRRn9BDb-jS2w7JHusVa33hV9J&pp=iAQB&pbjreload=102> |
| Use case #44    System admin needs to prepare a report via back end. Report to show list of closed opportunities and associated account names and account billing country    Solution:    Reading account data from opportunity = Accessing parent data from child   * DOT NOTATION     Relationship exists between Std. Objects    Tip: Use Relationship Field Name as is    SELECT  Id, AccountId, Name,Account.Name,Account.BillingCountry,StageName, Description  FROM Opportunity      Relationship exists between Std. Objects and custom obj(s)    Tip: Use Relationship Field Name with \_\_r suffix    SELECT Id, Name, Description\_\_c, Room\_Type\_Name\_\_c, Room\_Capacity\_\_c, Account\_\_c, Account\_\_r.Name FROM Room\_Type\_\_c    SELECT Id, Name, Description\_\_c, Room\_Type\_Name\_\_c, Room\_Capacity\_\_c, Account\_\_c, Account\_\_r.Name, Account\_\_r.Industry, Account\_\_r.Is\_Partner\_Hotel\_\_c FROM Room\_Type\_\_c WHERE Account\_\_r.Is\_Partner\_Hotel\_\_c = true    Writing queries using VS code extension:    Pre-requisites:   1. SFDX 2. Salesforce Extension Pack in VS code   **Step 1:** Create a SFDX project to manage Salesforce code , queries, configuration files  **Step 2:** Connect VS code and Salesforce Org  **Step 3:** Query editor to write queries    Step 4: Get config. Files from one org and move the same to another org |
| Use case #45:    Sys admin is looking to create a query that shows list of hotels and travellers that stayed in the hotel    Solution:    Accessing Child data from Parent   * SUB QUERIES     **Tip:** Use Child relationship Name in the query to refer child objects    Relationship exists between Std. Objects  SELECT Id, Name,(SELECT ID, Name FROM Contacts) FROM Account WHERE Is\_Partner\_hotel\_\_c = true      Relationship exists between Std. Object(s) and custom obj(s)    SELECT Id, Name, (SELECT Id, Name FROM Room\_Types\_\_r) FROM Account WHERE Is\_Partner\_hotel\_\_c = true |
| Queries |
| Sample Queries      SOSL Queries: |
| APEX Programming |
| * Follows JAVA syntax * Strongly typed programming language * If..else, swtich case.. For loops, Classes etc * // Draft area to write your code * // Caution: Once this popup is closed , code will be gone * // Debug statements * System.debug('First debug statement....I get logged in system logs.... '); * // APEX & Queries * String topicname = 'APEX'; // strongly typed * System.debug('Topic being discussed is ' + topicname); * // sObjects * Account accRecord = [SELECT ID, Name, BillingCountry, BillingState FROM Account WHERE Is\_Partner\_Hotel\_\_c = true LIMIT 1]; * System.debug('Current account record ::' + accRecord); |
| APEX Class |
| * Data Types * Collections * APEX & SOQL * APEX LOOP Single / Nested |
| Use case 46:    As a developer write an APEX code that retrieves partner hotels and associated room types from DB and display the same in system log    Solution:     * Use VS code or Dev Console * Use Nested For loop |
| **Code / Config deploy**  Source: Local SFDX Project  Destination: Salesforce Org    Solution:   * Use SFDX deploy option * Use VS Code extension > Right click the file or files or folder > SFDX deploy |
| Triggers |
|  |
| **TRIGGERS CHEAT SHEET**    Trigger Structure:  ------------------  trigger TriggerName on ObjectName (trigger events) {      // Trigger logic and operations  }    Trigger Events:  ---------------  - before insert: Trigger runs before inserting records into the database.  - Example: Enforce validation rules or assign default values to fields before inserting new records.    - before update: Trigger runs before updating records in the database.  - Example: Perform field updates or perform calculations based on changed values before saving updates.    - before delete: Trigger runs before deleting records from the database.  - Example: Check dependencies or perform custom cascading delete operations before deleting records.    - after insert: Trigger runs after records are inserted into the database.  - Example: Send notifications or trigger additional processes based on the newly created records.    - after update: Trigger runs after records are updated in the database.  - Example: Update related records or invoke external systems based on the changes made.    - after delete: Trigger runs after records are deleted from the database.  - Example: Log deleted records, update related records, or trigger post-deletion actions.    Trigger Context Variables:  --------------------------  - **Trigger.new**: Returns a list of new records.  - Example: Access and modify the new records before they are inserted or updated.    - **Trigger.old**: Returns a list of old records (before update or delete).  - Example: Compare old and new values to track changes or enforce specific update rules.    - **Trigger.newMap**: Returns a map of new records, with record IDs as keys.  - Example: Perform efficient record lookups or comparisons using the record ID as the key.    - **Trigger.oldMap:** Returns a map of old records, with record IDs as keys.  - Example: Track changes in related records or perform before/after comparisons.    Trigger Best Practices:  -----------------------  1. Bulkification: Write triggers to handle bulk operations on multiple records.     Example: Use collections and loops to process multiple records efficiently.    2. Limit Consideration: Be mindful of governor limits and bulkify your code to avoid hitting them.     Example: Minimize database queries and optimize your code to process records in batches.    3. SOQL Queries: Minimize SOQL queries and utilize query optimization techniques (e.g., querying by record IDs).     Example: Use aggregate queries or relationship queries to fetch related data in a single query.    4. Error Handling: Properly handle exceptions and use addError() to surface validation errors.     Example: Check for specific conditions and add custom error messages to prevent record saving.    5. Testing: Write comprehensive test classes to ensure trigger behavior and coverage.     Example: Create test methods that cover positive and negative scenarios for trigger execution.    Sample Trigger Code Snippet:  ----------------------------  trigger AccountTrigger on Account (before insert) {      for (Account acc : Trigger.new) {          // Trigger logic and operations on each Account record          acc.Name = 'Updated Name';      }  } |
| Use case : 47    Travel Hut Organization wants to ensure that when a partner hotel is created, user should refrain from entering countries where Travel hut operations are not yet enabled    UnAuthorized countries are Afghanistan & North Korea    System should raise an error    Solution:    Options available: Validation Rules, Record Trigger Flow , Triggers     * Use Triggers * Event To be used: Before Insert and Before upddate * Use Context variables to control the execution logic * Use adderror to throw meg back to the users |
| Use case 48:    CEO of Travel hut would like to see the last opportunity closed date on account record page and use that to measure the effectiveness of Sales team in closing deals    Solution:     * Trigger * On which object trigger will be created ??- Opportunity * On which event(s) should be used ?? - After Update * Need a custom field on account to show last opportunity close date     Note:    1 . Create trigger in the org and then use VS code to bring code back to local SFDX  2. Writing bad trigger / APEX code |
| Use case 49:    CEO of Travel hut would like to see the Payment Processing Team informed of any new leads converted to customer via emails    Payment Processing team is having a queue to receive email    Solution:     * Trigger * On which object trigger will be created ??- Lead * On which event(s) should be used ?? - After Update |
| **Governor Limits**    1 . Do not run SOQL or SOQL or DML statements inside for loop.  Solution: Bulkify your code using APEX collections (SET, MAP or LIST) |
| Use Case #50:    Developer has been tasked to send email to a particular DL or an email Address when an high value opportunity is created for Class A customer. Also, when a high severity case is created for Class A customer, an email alert should be send to HighValuedCustomerRelationship DL or an email address.    It is important that this setup should be configurable outside of code as it may happen that business can decide to not to send email or change DL or change email address    Solution:  ~~Option 1: Custom Label~~  ~~Option 2: Custom settings~~  Option 3: Custom Meta Data Types |
| Unit Testing     * Min. 75% code coverage should exists in order for moving code from dev to test * Devs will write unit test classes to test each and every line of code written * Special annotations to denote specific functionalities w.r.t unit testing * @isTest * @testsetup * Special functions to check test results and ensure a test is passed or failed * System.assertEquals * System.assertNotEquals * 2 ways in which we can setup test data in APEX * Use @testsetup function * Use Test.LoadData (TODO) * Prep a csv file with all the test data * Load csv into static resources      * Refer the CSV file in test class using Test.LoadData |
| Key points to remember:   * Method marked with @TestSetUp annotation executes before any testMethod * Data created in this method doesn’t need to be created again and again, and it is by default available for all test methods * There can be only one setup method per test class * Test setup methods are supported only with the default data isolation mode for a test class. If the test class or a test method has access to organization data by using the @isTest(SeeAllData=true) annotation, test setup methods aren’t supported in this class * Exception: https://developer.salesforce.com/docs/atlas.en-us.apexcode.meta/apexcode/apex\_testing\_data\_access.htm * Every test method will get unchanged version of the test data created in setup method, doesn’t matter if any other test method has modified the data |
| Use Case #51:    As a developer create a test class to ensure code written to implement a business process is tested and code coverage is met as per Salesforce stds.    Solution   * Create unit testing class * Execute either using * UI   Or   * Developer Console   Or   * SFDX |
| Async Programming    Special annotations:  @future : Any method annotated with @future will not run sequentially but asyn way  Key points to remember   * Does not accept sObjects list * Does not return any data and always void * Should be a public or global static method * More governor limits * Cap of 50 future method per APEX * To avoid CPU limits governor limit * To avoid Mixed DML operations error * Callout (calling external APIs) from Trigger can only be achieved thru future method   Every test method will get unchanged version of the test data created in setup method, doesn’t matter if any other test method has modified the data    Special way to process large set of data async way |
| Use case #52:    CEO of travel hut would like to setup a Account Payment Receivables Team to ensure deal amount is collected on time.    Whenever, payment date is updated in hotel partner record and if payment due date is one day from tomorrow, Account payment receivables team members should be notified via email .    **Note:** It is possible that team members change time to time so as their email address so ensure that its stored in a configurable way    Solution:     * Use async programming * Use @future annotation * A new custom field to hold payment date on account (hotel partner) record * Use custom meta data and configure email address to support frequent changes |
| **Implicit Sharing**   * System enables parent record access to the user when child record access is enabled * E:g:   Access to account when related opportunity record access is given  Access to account when related case record access is given  Access to contact when related case record access is given |
| Batch Processing    Key points to remember:     * Batch APEX is just another class * Batch APEX must implement an interface Database.Batchable * Based on batch size, salesforce will break records to be processed and then runs batch apex code   For eg:  Say u have 1000 records and batch size is 200 then BATCH APEX Code will run 5 times  Say u have 4500 records and batch size is 2000 then BATCH APEX Code will run 3 times |
| Use case #53:  Say, Travel Hut has millions of traveller contacts in the system. As per GDPR regulations, the team has introduced email opt-out flag in the system on contact record.    There is a requirement given to developers to update “Promotional Email opt-out Flag” to true for all the contacts    Challenges ahead:   * Update millions of records with out hitting Governor Limits   Solution:   * Use custom field to capture email opt-out detail * Use **BATCH APEX** |
| **With Sharing / With no sharing Significance**     * APEX Code will always run in System mode i.e. Access to all the records or brings all the records from DB * Best practice is to ensure APEX code runs in user context mode i.e. Access only records for which user has access to * How do you implement |
| Use case #54:    As a developer, I want my APEX code to be tested for different users. So that, I know only the records for which the user has success to are retrieved from the Database  Solution:   * Use With sharing in the class * Write a test class and test method * Use System.Runas() in test method |
| Lightning Framework |
| * Aura Framework * LWC Framework * Javascript * HTML * CSS   +   * Leverage Base or Std. components * Leverage Salesforce Lightning Design System (CSS Framework)     Tips:     * In Customer project, Github or bitbucket or Gitlab or AZ DevOps  or SVN is used to keep SFDX project code base safe |
| [Different Org and its significance    Dev >> SIT >> UAT >> Prod    Developer Org   * 2 types * Developer Edition (Dev org, Dev-pro) * Scratch Org * Both the orgs are used for development purpose     Sandbox Org   * Meant for testing (SIT or UAT or Performance or Integration) * 2 Types * Partial Copy * Full Copy |
| How to create a scratch org:     * U need a master org with DEV HUB option enabled     Scratch Org Considerations:   * Short lived (life span is configurable from 7 days to max. 30 days) * Meant for development purpose * You will get vanilla version so as a developer you have to |
| Use case #55:    Say, as a developer you have given a task to develop a custom application from scratch using LWC framework.    And, you have also been asked to do the development using Scratch org    How do you setup scratch org and start with the coding    Solution:  Step 1: Enable Dev Hub and authorize dev org enabled org either using VS code or SFDX direct command  *Note: Use this command if you don’t see* ***(D)*** *marked against the org for which devhub is enable*  *sfdx config:set defaultdevhubusername=<orgusername>*  Step 2: Use SFDX to Create a scratch Org   * Run SFDX command either via terminal or VS Code extension form SFDX project folder   Step 3: Connect VS code SFDX project and scratch org   * When scratch org is created from VS code, automatically VS code gets connected to the scratch org * Keep SFDX project updated with existing code if there are any      * Start with Code development either directly on scratch org OR SFDX project offline      * To manage scratch orgs, use ‘Active Scratch org’ inbuilt app from master org |
| LWC Framework: Things to remembers     1. LWC component File Name Convention dictates that we should use camel case when LWC is created 2. When a LWC is created, we are essentially building a new custom HTML tag. 3. HTML std. dictates we should use kebab case when tags are referred in HTML code |
| Features:     * Data Binding – Accessing values from JS to HTML * Use Curly Braces to refer JS property in HTML * Use Std. LWC components or base components as much as possible   <https://developer.salesforce.com/docs/component-library/bundle/lightning-map/documentation>   * Reactive Properties * By default, all properties defined in LWC are reactive * There are 2 ways to define * @track latValue (old way of coding)   OR   * latValue  1. refreshAPEX  * Cache bursting so that the screen will always should latest data * Use Cached data if the underlying data has not changed. If the data is changed then refresh APEX will help bursting the cache  1. Parent -Child Components in LWC  * Adding a component inside another component * Config changes done at parent component level gets automatically inherited by the child component      |  |  | | --- | --- | | Related Components    Parent to Child | Use public property for communication    In child component, expose a @api public property      In parent component, refer the public property as an attribute (follow kebab case) in HTML and pass the value | | Related Components    Child to Parent | Use custom events for communication    In the child component, create a custom event with Custom event system class and use JS object format to wrap data to be sent to parent          In parent Component, refer the custom event name as an event in HTML and use JS method to read the values sent by the child | | Unrelated Components | Use messaging channel or pub sub |     Redirection in LWC:   * NavigationMixIn : It helps to redirect user to a record page, app page , list view or external web page etc * How to use: * Import NavigationMixIn method * Wrap LightingElement base class * Send details to NavigationMixIn method in JS object format     showToastMessage   * Use this whenever u wanted to show messages on the screen as popup. Messages could be success, error, warning etc     uiRecordAPI   * Use this to work with one record at a time * Use this to create, update, delete or select a record     uiRecordAPI vs APEX   * When u wanted to work with single record go with uiRecordAPI * When u wanted to work with multiple records go with APEX |
| Open Item:     * Why is inline edit on List view not working in some cases? - Setup > User Interface > Edit > Inline Editing > Enable Inline Editing > Save      * How do I share config / code changes made in one org to other orgs * Package.xml * Change set * SFDX * DevOps Center * App change products * Order of execution * Validation Rule on account obj * One or more Flows on account obj * One or more Triggers on account obj * Deduplication rules on account     Ref: <https://www.salesforceben.com/learn-salesforce-order-of-execution/>  <https://intellipaat.com/blog/salesforce-order-of-execution/>     * Trigger undelete   When u restore record from Recycle bin  Ref : <https://www.sfdc-lightning.com/2019/10/what-is-after-undelete-event-in-apex.html>     * ~~Governor limits~~ * ~~Transaction in APEX~~ * Platform Events in FLOW   Ref: https://www.youtube.com/channel/UCN8KILvhwaKEiLlTC9f-43Q   * How do a developer or developers work on single code base all the time      * How do I call an APEX Class from FLOW     Ref:  <https://www.asagarwal.com/how-to-call-apex-from-flow-using-invocable-action/#:~:text=To%20call%20Apex%20from%20Flow%2C%20you%20need%20to%20define%20the,method%20in%20the%20Apex%20class>.    <https://www.youtube.com/channel/UCN8KILvhwaKEiLlTC9f-43Q>    <https://www.youtube.com/embed/ZZvuYj8bMcA?feature=oembed>   * Running unit test from VS code   Note: Have Java version 11 & above  Ref: <https://www.youtube.com/watch?v=rhX4Isd6ABo>     * When to use Database Iterable   Ref: <https://salesforceblue.com/batch-apex-using-iterables/>     * Await & Async JS methods     Ref: <https://www.salesforcesavvy.in/2023/04/async-await-in-lightning-web-components.html#:~:text=In%20LWC%20(Lightning%20Web%20Components,easier%20to%20read%20and%20understand>.    <https://www.salesforcesavvy.in/2023/04/promise-chaining-vs-async-await-with.html> |
| Next Steps:     1. Finish your LWC project      1. External certification & prerequisites     Use the link to setup your external certification  <https://www.webassessor.com/salesforce>    **To get the FREE voucher code :**    Whenever you are ready to take the Salesforce Administrator Certification exam, for the exam voucher (subject to availability), you must send the below screenshots to the Salesforce Capability Leader’s email id (gopinath\_cheng@hcl.com). You must mention the tentative dates as well.        1) Completion of Salesforce Trailhead Administrator Certification Credential Trailmix & Developer Certification Credential TrailMix (100% - with your name clearly visible)    2) Completion of Trailhead Expeditioner Rank (ignore if it is covered as part of the point #1 above)    3) D&APass Salesforce Administrator Assessment: Grade should be 6.0 and above  (applicable for now.  Subject to change.)        4) Training attendance should be above 50% (we have these details, so no screenshot required for this)    FOR DnA PASS Assessment:    Step 1: Submit you details for DnA PASS Internal assessment in the MS Forms link    <https://forms.office.com/r/y8VezaK6iK>    Step 2: Work with IT team (use TARMAC app) and get Safe Exam Browser Installed. Refer the link shared for instructions      Further Reading:  Admin certification preparation:      Youtube Channel: https://www.youtube.com/@salesforcehut    Site: https://www.examtopics.com/exams/salesforce/adm-201/    Flows:    Youtube Channel: https://www.youtube.com/@salesforcecafe2907    Site: https://automationchampion.com/learning-flow/        General:    Site: https://www.salesforceben.com/  Site: <https://admin.salesforce.com/>      Trail Mix:    <https://trailhead.salesforce.com/users/strailhead/trailmixes/prepare-for-your-salesforce-administrator-credential>    [Prepare for Your Salesforce Platform Developer I Credential Trailmix |](https://trailhead.salesforce.com/en/users/strailhead/trailmixes/prepare-for-your-salesforce-platform-developer-i-credential) |