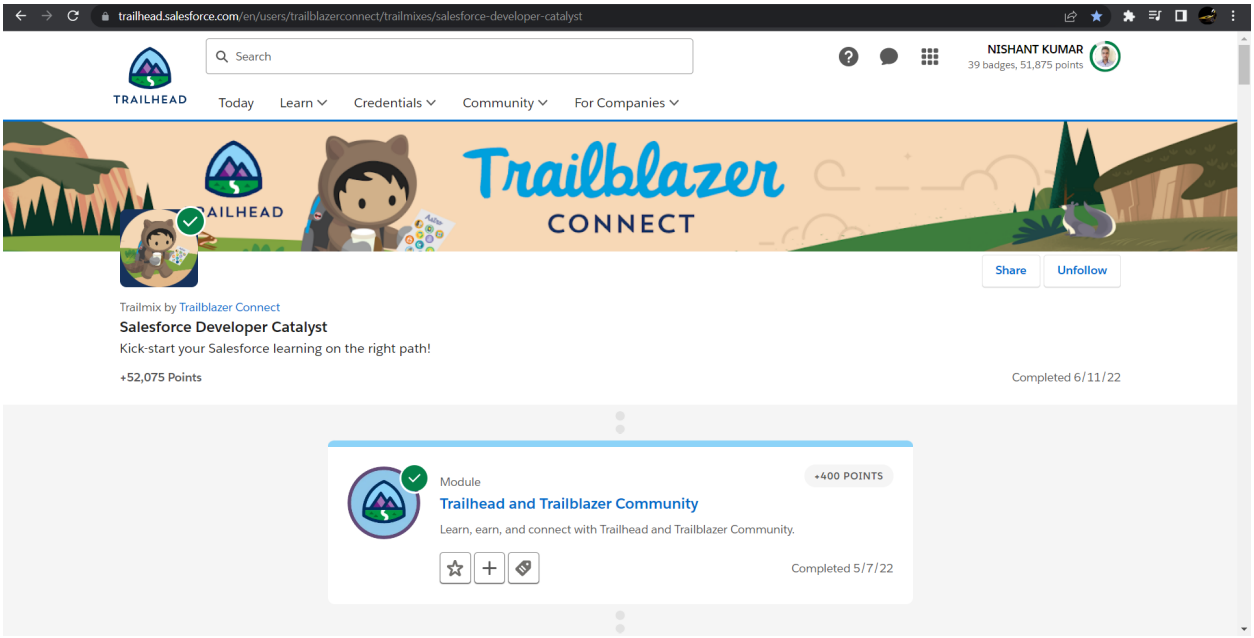
Trailblazer Link: https://trailblazer.me/id/nkumar1767

Salesforce Developer Catalyst : (Completed on 11th June,2022)



SUPERBADGE:

2 Superbadges

Superbadge

Process Automation Specialist

Completed June 11, 2022

Showcase your mastery of business process automation without writing a line of code.

Superbadge

Apex Specialist

Completed June 5, 2022

Use integration and business logic to push your Apex coding skills to the limit.

APEX CODES

Entity Type: Classes

Entities:

>GeocodingService:

```
public with sharing class GeocodingService {
   private static final String BASE_URL =
'https://nominatim.openstreetmap.org/search?format=json';

   @InvocableMethod(callout=true label='Geocode address')
   public static List<Coordinates> geocodeAddresses(
      List<GeocodingAddress> addresses
   ) {
      List<Coordinates> computedCoordinates = new List<Coordinates>();

      for (GeocodingAddress address : addresses) {
         String geocodingUrl = BASE_URL;
         geocodingUrl += (String.isNotBlank(address.street))
            ? '&street=' + address.street
            : '';
         geocodingUrl += (String.isNotBlank(address.city))
            ? '&city=' + address.city
            : '';
         geocodingUrl += (String.isNotBlank(address.state))
            ? '&state=' + address.state
            : '';
         geocodingUrl += (String.isNotBlank(address.country))
            ? '&country=' + address.country
            : '';
         geocodingUrl += (String.isNotBlank(address.postalcode))
            ? '&postalcode=' + address.postalcode
            : '';

         Coordinates coords = new Coordinates();
```

```
        if (geocodingUrl != BASE_URL) {
            Http http = new Http();
            HttpRequest request = new HttpRequest();
            request.setEndpoint(geocodingUrl);
            request.setMethod('GET');
            request.setHeader(
                'http-referer',
                URL.getSalesforceBaseUrl().toExternalForm()
            );
            HttpResponse response = http.send(request);
            if (response.getStatusCode() == 200) {
                List<Coordinates> deserializedCoords = (List<Coordinates>)
JSON.deserialize(
                    response.getBody(),
                    List<Coordinates>.class
                );
                coords = deserializedCoords[0];
            }
        }

        computedCoordinates.add(coords);
    }
    return computedCoordinates;
  }

  public class GeocodingAddress {
    @InvocableVariable
    public String street;
    @InvocableVariable
    public String city;
    @InvocableVariable
    public String state;
    @InvocableVariable
    public String country;
    @InvocableVariable
    public String postalcode;
  }
```

```
    public class Coordinates {
        @InvocableVariable
        public Decimal lat;
        @InvocableVariable
        public Decimal lon;
    }
}
```

>GeocodingServiceTest:

```
@isTest
private with sharing class GeocodingServiceTest {
    private static final String STREET = 'Camino del Jueves 26';
    private static final String CITY = 'Armilla';
    private static final String POSTAL_CODE = '18100';
    private static final String STATE = 'Granada';
    private static final String COUNTRY = 'Spain';
    private static final Decimal LATITUDE = 3.123;
    private static final Decimal LONGITUDE = 31.333;

    @isTest
    static void successResponse() {
        // GIVEN
        GeocodingService.GeocodingAddress address = new
GeocodingService.GeocodingAddress();
        address.street = STREET;
        address.city = CITY;
        address.postalcode = POSTAL_CODE;
        address.state = STATE;
        address.country = COUNTRY;

        Test.setMock(
            HttpCalloutMock.class,
            new OpenStreetMapHttpCalloutMockImpl()
        );

        // WHEN
```

```
        List<GeocodingService.Coordinates> computedCoordinates =
GeocodingService.geocodeAddresses(
            new List<GeocodingService.GeocodingAddress>{ address }
        );

        // THEN
        System.assert(
            computedCoordinates.size() == 1,
            'Expected 1 pair of coordinates were returned'
        );
        System.assert(
            computedCoordinates[0].lat == LATITUDE,
            'Expected mock lat was returned'
        );
        System.assert(
            computedCoordinates[0].lon == LONGITUDE,
            'Expected mock lon was returned'
        );
    }
    @isTest
    static void blankAddress() {
        // GIVEN
        GeocodingService.GeocodingAddress address = new
GeocodingService.GeocodingAddress();

        Test.setMock(
            HttpCalloutMock.class,
            new OpenStreetMapHttpCalloutMockImpl()
        );

        // WHEN
        List<GeocodingService.Coordinates> computedCoordinates =
GeocodingService.geocodeAddresses(
            new List<GeocodingService.GeocodingAddress>{ address }
        );

        // THEN
```

```
        System.assert(
            computedCoordinates.size() == 1,
            'Expected 1 pair of coordinates were returned'
        );
        System.assert(
            computedCoordinates[0].lat == null,
            'Expected null lat was returned'
        );
        System.assert(
            computedCoordinates[0].lon == null,
            'Expected null lon was returned'
        );
    }
    @isTest
    static void errorResponse() {
        // GIVEN
        GeocodingService.GeocodingAddress address = new
GeocodingService.GeocodingAddress();
        address.street = STREET;
        address.city = CITY;
        address.postalcode = POSTAL_CODE;
        address.state = STATE;
        address.country = COUNTRY;

        Test.setMock(
            HttpCalloutMock.class,
            new OpenStreetMapHttpCalloutMockImplError()
        );

        // WHEN
        List<GeocodingService.Coordinates> computedCoordinates =
GeocodingService.geocodeAddresses(
            new List<GeocodingService.GeocodingAddress>{ address }
        );

        // THEN
        System.assert(
```

```
        computedCoordinates.size() == 1,
        'Expected 1 pair of coordinates were returned'
    );
    System.assert(
        computedCoordinates[0].lat == null,
        'Expected null lat was returned'
    );
    System.assert(
        computedCoordinates[0].lon == null,
        'Expected null lon was returned'
    );
  }

  public class OpenStreetMapHttpCalloutMockImpl implements HttpCalloutMock {
    public HTTPResponse respond(HTTPRequest req) {
        HttpResponse res = new HttpResponse();
        res.setHeader('Content-Type', 'application/json');
        res.setBody('[{"lat": ' + LATITUDE + ',"lon": ' + LONGITUDE + '}]');
        res.setStatusCode(200);
        return res;
    }
  }

  public class OpenStreetMapHttpCalloutMockImplError implements HttpCalloutMock {
    public HTTPResponse respond(HTTPRequest req) {
        HttpResponse res = new HttpResponse();
        res.setHeader('Content-Type', 'application/json');
        res.setStatusCode(400);
        return res;
    }
  }
}
```

>PagedResult:

```
public with sharing class PagedResult {
  @AuraEnabled
  public Integer pageSize { get; set; }
```

```
    @AuraEnabled
    public Integer pageNumber { get; set; }

    @AuraEnabled
    public Integer totalItemCount { get; set; }

    @AuraEnabled
    public Object[] records { get; set; }
}

>PageController:
public with sharing class PropertyController {
    private static final Decimal DEFAULT_MAX_PRICE = 9999999;
    private static final Integer DEFAULT_PAGE_SIZE = 9;

    /**
     * Endpoint that retrieves a paged and filtered list of properties
     * @param searchKey String used for searching on property title, city and tags
     * @param maxPrice Maximum price
     * @param minBedrooms Minimum number of bedrooms
     * @param minBathrooms Minimum number of bathrooms
     * @param pageSize Number of properties per page
     * @param pageNumber Page number
     * @return PagedResult object holding the paged and filtered list of properties
     */
    @AuraEnabled(cacheable=true)
    public static PagedResult getPagedPropertyList(
        String searchKey,
        Decimal maxPrice,
        Integer minBedrooms,
        Integer minBathrooms,
        Integer pageSize,
        Integer pageNumber
    ) {
        // Normalize inputs
        Decimal safeMaxPrice = (maxPrice == null
            ? DEFAULT_MAX_PRICE
```

```
    : maxPrice);
Integer safeMinBedrooms = (minBedrooms == null ? 0 : minBedrooms);
Integer safeMinBathrooms = (minBathrooms == null ? 0 : minBathrooms);
Integer safePageSize = (pageSize == null
    ? DEFAULT_PAGE_SIZE
    : pageSize);
Integer safePageNumber = (pageNumber == null ? 1 : pageNumber);

String searchPattern = '%' + searchKey + '%';
Integer offset = (safePageNumber - 1) * safePageSize;

PagedResult result = new PagedResult();
result.pageSize = safePageSize;
result.pageNumber = safePageNumber;
result.totalItemCount = [
    SELECT COUNT()
    FROM Property__c
    WHERE
        (Name LIKE :searchPattern
        OR City__c LIKE :searchPattern
        OR Tags__c LIKE :searchPattern)
        AND Price__c <= :safeMaxPrice
        AND Beds__c >= :safeMinBedrooms
        AND Baths__c >= :safeMinBathrooms
];
result.records = [
    SELECT
        Id,
        Address__c,
        City__c,
        State__c,
        Description__c,
        Price__c,
        Baths__c,
        Beds__c,
        Thumbnail__c,
        Location__Latitude__s,
```

```
        Location__Longitude__s
      FROM Property__c
      WHERE
        (Name LIKE :searchPattern
        OR City__c LIKE :searchPattern
        OR Tags__c LIKE :searchPattern)
        AND Price__c <= :safeMaxPrice
        AND Beds__c >= :safeMinBedrooms
        AND Baths__c >= :safeMinBathrooms
      WITH SECURITY_ENFORCED
      ORDER BY Price__c
      LIMIT :safePageSize
      OFFSET :offset
    ];
    return result;
}

/**
 * Endpoint that retrieves pictures associated with a property
 * @param propertyId Property Id
 * @return List of ContentVersion holding the pictures
 */
@AuraEnabled(cacheable=true)
public static List<ContentVersion> getPictures(Id propertyId) {
    List<ContentDocumentLink> links = [
      SELECT Id, LinkedEntityId, ContentDocumentId
      FROM ContentDocumentLink
      WHERE
        LinkedEntityId = :propertyId
        AND ContentDocument.FileType IN ('PNG', 'JPG', 'GIF')
      WITH SECURITY_ENFORCED
    ];

    if (links.isEmpty()) {
      return null;
    }
```

```
        Set<Id> contentIds = new Set<Id>();

        for (ContentDocumentLink link : links) {
            contentIds.add(link.ContentDocumentId);
        }

        return [
            SELECT Id, Title
            FROM ContentVersion
            WHERE ContentDocumentId IN :contentIds AND IsLatest = TRUE
            WITH SECURITY_ENFORCED
            ORDER BY CreatedDate
        ];
    }
}
```

>SampleDataController:

```
public with sharing class SampleDataController {
    @AuraEnabled
    public static void importSampleData() {
        delete [SELECT Id FROM Case];
        delete [SELECT Id FROM Property__c];
        delete [SELECT Id FROM Broker__c];
        delete [SELECT Id FROM Contact];

        insertBrokers();
        insertProperties();
        insertContacts();
    }

    private static void insertBrokers() {
        StaticResource brokersResource = [
            SELECT Id, Body
            FROM StaticResource
            WHERE Name = 'sample_data_brokers'
        ];
        String brokersJSON = brokersResource.body.toString();
```

```
    List<Broker__c> brokers = (List<Broker__c>) JSON.deserialize(
        brokersJSON,
        List<Broker__c>.class
    );
    insert brokers;
}

private static void insertProperties() {
    StaticResource propertiesResource = [
        SELECT Id, Body
        FROM StaticResource
        WHERE Name = 'sample_data_properties'
    ];
    String propertiesJSON = propertiesResource.body.toString();
    List<Property__c> properties = (List<Property__c>) JSON.deserialize(
        propertiesJSON,
        List<Property__c>.class
    );
    randomizeDateListed(properties);
    insert properties;
}

private static void insertContacts() {
    StaticResource contactsResource = [
        SELECT Id, Body
        FROM StaticResource
        WHERE Name = 'sample_data_contacts'
    ];
    String contactsJSON = contactsResource.body.toString();
    List<Contact> contacts = (List<Contact>) JSON.deserialize(
        contactsJSON,
        List<Contact>.class
    );
    insert contacts;
}

private static void randomizeDateListed(List<Property__c> properties) {
```

```
        for (Property__c property : properties) {
            property.Date_Listed__c =
                System.today() - Integer.valueof((Math.random() * 90));
        }
    }
}
```

>TestPropertyController:

```
@isTest
private class TestPropertyController {
    private final static String MOCK_PICTURE_NAME = 'MockPictureName';

    public static void createProperties(Integer amount) {
        List<Property__c> properties = new List<Property__c>();
        for (Integer i = 0; i < amount; i++) {
            properties.add(
                new Property__c(
                    Name = 'Name ' + i,
                    Price__c = 20000,
                    Beds__c = 3,
                    Baths__c = 3
                )
            );
        }
        insert properties;
    }
    static testMethod void testGetPagedPropertyList() {
        TestPropertyController.createProperties(5);
        Test.startTest();
        PagedResult result = PropertyController.getPagedPropertyList(
            '',
            999999,
            0,
            0,
            10,
            1
        );
```

```
    Test.stopTest();
    System.assertEquals(5, result.records.size());
}

static testMethod void testGetPicturesNoResults() {
    Property__c property = new Property__c(Name = 'Name');
    insert property;

    Test.startTest();
    List<ContentVersion> items = PropertyController.getPictures(
        property.Id
    );
    Test.stopTest();

    System.assertEquals(null, items);
}

static testMethod void testGetPicturesWithResults() {
    Property__c property = new Property__c(Name = 'Name');
    insert property;

    // Insert mock picture
    ContentVersion picture = new Contentversion();
    picture.Title = MOCK_PICTURE_NAME;
    picture.PathOnClient = 'picture.png';
    picture.Versiondata = EncodingUtil.base64Decode('MockValue');
    insert picture;

    // Link picture to property record
    List<ContentDocument> documents = [
        SELECT Id, Title, LatestPublishedVersionId
        FROM ContentDocument
        LIMIT 1
    ];
    ContentDocumentLink link = new ContentDocumentLink();
    link.LinkedEntityId = property.Id;
    link.ContentDocumentId = documents[0].Id;
```

```
        link.shareType = 'V';
        insert link;

        Test.startTest();
        List<ContentVersion> items = PropertyController.getPictures(
            property.Id
        );
        Test.stopTest();

        System.assertEquals(1, items.size());
        System.assertEquals(MOCK_PICTURE_NAME, items[0].Title);
    }
}
```

>TestSampleDataController:

```
@isTest
private class TestSampleDataController {
    @isTest
    static void importSampleData() {
        Test.startTest();
        SampleDataController.importSampleData();
        Test.stopTest();

        Integer propertyNumber = [SELECT COUNT() FROM Property__c];
        Integer brokerNumber = [SELECT COUNT() FROM Broker__c];
        Integer contactNumber = [SELECT COUNT() FROM Contact];

        System.assert(propertyNumber > 0, 'Expected properties were created.');
        System.assert(brokerNumber > 0, 'Expected brokers were created.');
        System.assert(contactNumber > 0, 'Expected contacts were created.');
    }
}
```

>VerifyDate:

```
public class VerifyDate {

        //method to handle potential checks against two dates
```

```
	public static Date CheckDates(Date date1, Date date2) {
		//if date2 is within the next 30 days of date1, use date2.  Otherwise use
the end of the month
		if(DateWithin30Days(date1,date2)) {
			return date2;
		} else {
			return SetEndOfMonthDate(date1);
		}
	}

	//method to check if date2 is within the next 30 days of date1
	@TestVisible private static Boolean DateWithin30Days(Date date1, Date date2) {
		//check for date2 being in the past
	if( date2 < date1) { return false; }

	//check that date2 is within (>=) 30 days of date1
	Date date30Days = date1.addDays(30); //create a date 30 days away from date1
		if( date2 >= date30Days ) { return false; }
		else { return true; }
	}

	//method to return the end of the month of a given date
	@TestVisible private static Date SetEndOfMonthDate(Date date1) {
		Integer totalDays = Date.daysInMonth(date1.year(), date1.month());
		Date lastDay = Date.newInstance(date1.year(), date1.month(), totalDays);
		return lastDay;
	}

}

>TestVerifyDate:
@isTest
private class TestVerifyDate {

   @isTest static void Test_CheckDates_case1(){
      Date D = VerifyDate.CheckDates(date.parse('01/01/2022'),
date.parse('01/05/2022'));
```

```
        System.assertEquals(date.parse('01/05/2022'), D);

    }

    @isTest static void Test_CheckDates_case2(){
        Date D = VerifyDate.CheckDates(date.parse('01/01/2022'),
date.parse('05/05/2022'));
        System.assertEquals(date.parse('01/31/2022'), D);
    }

    @isTest static void Test_DateWithin30Days_case1(){
        Boolean flag = VerifyDate.DateWithin30Days(date.parse('01/01/2022'),
date.parse('12/30/2021'));
        System.assertEquals(false, flag);
    }

    @isTest static void Test_DateWithin30Days_case2(){
        Boolean flag = VerifyDate.DateWithin30Days(date.parse('01/01/2022'),
date.parse('02/02/2022'));
        System.assertEquals(false, flag);
    }

    @isTest static void Test_DateWithin30Days_case3(){
        Boolean flag = VerifyDate.DateWithin30Days(date.parse('01/01/2022'),
date.parse('01/15/2022'));
        System.assertEquals(true, flag);
    }

    @isTest static void Test_SetEndOfMonthDate(){
        Date returndate = VerifyDate.SetEndOfMonthDate(date.parse('01/01/2022'));
    }

}
```

>TestRestrictContactByName:

```
@isTest
public class TestRestrictContactByName {
```

```
    @isTest static void Test_insertupdateContact(){
        Contact cnt = new Contact();
        cnt.LastName = 'INVALIDNAME';

        Test.startTest();
        Database.SaveResult result = Database.insert(cnt, false);
        Test.stopTest();

        System.assert(!result.isSuccess());
        System.assert(result.getErrors().size()>0);
        System.assertEquals('The Last Name "INVALIDNAME" is not allowed for DML',
result.getErrors()[0].getMessage());
    }
}
```

>RandomContactFactory:

```
public class RandomContactFactory {

    public static List<Contact> generateRandomContacts(Integer numcnt, string
lastname){
        List<Contact> contacts = new List<Contact>();
        for(Integer i=0;i<numcnt;i++){
            Contact cnt = new Contact(FirstName = 'Test '+i, LastName = lastname);
            contacts.add(cnt);
        }
        return contacts;

    }
}
```

>AccountProcessor:

```
public class AccountProcessor {

    @future
    public static void countContacts(List<Id> accountIds){
```

```
        List<Account> accountsToUpdate = new List<Account>();

        List<Account> accounts = [Select Id, Name, (Select Id from Contacts) from Account
Where Id in :accountIds];

        For(Account acc:accounts){
            List<Contact> contactList = acc.Contacts;
            acc.Number_Of_Contacts__c = contactList.size();
            accountsToUpdate.add(acc);

        }
        update accountsToUpdate;

    }
}
```

>AccountProcessorTest:

```
@IsTest
public class AccountProcessorTest {
            @IsTest
    private static void testCountContacts(){
        Account newAccount = new Account(Name='Test Account');
        insert newAccount;

        Contact newContact1 = new Contact(FirstName='John',LastName='Doe',AccountId
= newAccount.Id);
        insert newContact1;

        Contact newContact2 = new Contact(FirstName='John',LastName='Doe',AccountId
= newAccount.Id);
        insert newContact2;

        List<Id> accountIds = new List<Id>();
        accountIds.add(newAccount.Id);

        Test.startTest();
        AccountProcessor.countContacts(accountIds);
```

```
        Test.stopTest();

    }
}
```

>LeadProcessor:

```
global class LeadProcessor implements
Database.Batchable<sObject>, Database.Stateful {

    // instance member to retain state across transactions
    global Integer recordsProcessed = 0;

    global Database.QueryLocator start(Database.BatchableContext bc) {
        return Database.getQueryLocator('SELECT Id, LeadSource FROM Lead');
    }

    global void execute(Database.BatchableContext bc, List<Lead> scope){
        // process each batch of records
        List<Lead> leads = new List<Lead>();
        for (Lead lead : scope) {

            lead.LeadSource = 'Dreamforce';
            // increment the instance member counter
            recordsProcessed = recordsProcessed + 1;

        }
        update leads;
    }

    global void finish(Database.BatchableContext bc){
        System.debug(recordsProcessed + ' records processed. Shazam!');

    }
}
```

>LeadProcessorTest:

```
@isTest
```

```
public class LeadProcessorTest {
 @testSetup
   static void setup() {
      List<Lead> leads = new List<Lead>();
      // insert 200 leads
      for (Integer i=0;i<200;i++) {
         leads.add(new Lead(LastName='Lead '+i,
            Company='Lead', Status='Open - Not Contacted'));
      }
      insert leads;
   }

   static testmethod void test() {
      Test.startTest();
      LeadProcessor lp = new LeadProcessor();
      Id batchId = Database.executeBatch(lp, 200);
      Test.stopTest();

      // after the testing stops, assert records were updated properly
      System.assertEquals(200, [select count() from lead where LeadSource =
'Dreamforce']);
   }
}
```

>AddPrimaryContact:

```
public class AddPrimaryContact implements Queueable {
   public contact c;
   public String state;

   public AddPrimaryContact(Contact c, String state) {
      this.c = c;
      this.state = state;
   }

   public void execute(QueueableContext qc) {
      system.debug('this.c = '+this.c+' this.state = '+this.state);
      List<Account> acc_lst = new List<account>([select id, name, BillingState from
```

```
account where account.BillingState = :this.state limit 200]);
        List<contact> c_lst = new List<contact>();
        for(account a: acc_lst) {
            contact c = new contact();
            c = this.c.clone(false, false, false, false);
            c.AccountId = a.Id;
            c_lst.add(c);
        }
        insert c_lst;
    }

}
```

>AddPrimaryContactTest:

```
@IsTest
public class AddPrimaryContactTest {

    @IsTest
    public static void testing() {
        List<account> acc_lst = new List<account>();
        for (Integer i=0; i<50;i++) {
            account a = new account(name=string.valueOf(i),billingstate='NY');
            system.debug('account a = '+a);
            acc_lst.add(a);
        }
        for (Integer i=0; i<50;i++) {
            account a = new account(name=string.valueOf(50+i),billingstate='CA');
            system.debug('account a = '+a);
            acc_lst.add(a);
        }
        insert acc_lst;
        Test.startTest();
        contact c = new contact(lastname='alex');
        AddPrimaryContact apc = new AddPrimaryContact(c,'CA');
        system.debug('apc = '+apc);
        System.enqueueJob(apc);
        Test.stopTest();
```

```
        List<contact> c_lst = new List<contact>([select id from contact]);
        Integer size = c_lst.size();
        system.assertEquals(50, size);
    }

}
```

>CreateDefaultData:

```
public with sharing class CreateDefaultData{
    Static Final String TYPE_ROUTINE_MAINTENANCE = 'Routine Maintenance';
    //gets value from custom metadata How_We_Roll_Settings__mdt to know if Default
data was created
    @AuraEnabled
    public static Boolean isDataCreated() {
        How_We_Roll_Settings__c      customSetting =
How_We_Roll_Settings__c.getOrgDefaults();
        return customSetting.Is_Data_Created__c;
    }

    //creates Default Data for How We Roll application
    @AuraEnabled
    public static void createDefaultData(){
        List<Vehicle__c> vehicles = createVehicles();
        List<Product2> equipment = createEquipment();
        List<Case> maintenanceRequest = createMaintenanceRequest(vehicles);
        List<Equipment_Maintenance_Item__c> joinRecords =
createJoinRecords(equipment, maintenanceRequest);

        updateCustomSetting(true);
    }


    public static void updateCustomSetting(Boolean isDataCreated){
        How_We_Roll_Settings__c      customSetting =
How_We_Roll_Settings__c.getOrgDefaults();
        customSetting.Is_Data_Created__c = isDataCreated;
        upsert customSetting;
```

```
    }

    public static List<Vehicle__c> createVehicles(){
        List<Vehicle__c> vehicles = new List<Vehicle__c>();
        vehicles.add(new Vehicle__c(Name = 'Toy Hauler RV', Air_Conditioner__c = true,
Bathrooms__c = 1, Bedrooms__c = 1, Model__c = 'Toy Hauler RV'));
        vehicles.add(new Vehicle__c(Name = 'Travel Trailer RV', Air_Conditioner__c = true,
Bathrooms__c = 2, Bedrooms__c = 2, Model__c = 'Travel Trailer RV'));
        vehicles.add(new Vehicle__c(Name = 'Teardrop Camper', Air_Conditioner__c = true,
Bathrooms__c = 1, Bedrooms__c = 1, Model__c = 'Teardrop Camper'));
        vehicles.add(new Vehicle__c(Name = 'Pop-Up Camper', Air_Conditioner__c = true,
Bathrooms__c = 1, Bedrooms__c = 1, Model__c = 'Pop-Up Camper'));
        insert vehicles;
        return vehicles;
    }

    public static List<Product2> createEquipment(){
        List<Product2> equipments = new List<Product2>();
        equipments.add(new Product2(Warehouse_SKU__c =
'55d66226726b611100aaf741',name = 'Generator 1000 kW', Replacement_Part__c =
true,Cost__c = 100 ,Maintenance_Cycle__c = 100));
        equipments.add(new Product2(name = 'Fuse 20B',Replacement_Part__c =
true,Cost__c = 1000, Maintenance_Cycle__c = 30  ));
        equipments.add(new Product2(name = 'Breaker 13C',Replacement_Part__c =
true,Cost__c = 100  , Maintenance_Cycle__c = 15));
        equipments.add(new Product2(name = 'UPS 20 VA',Replacement_Part__c =
true,Cost__c = 200  , Maintenance_Cycle__c = 60));
        insert equipments;
        return equipments;

    }

    public static List<Case> createMaintenanceRequest(List<Vehicle__c> vehicles){
        List<Case> maintenanceRequests = new List<Case>();
        maintenanceRequests.add(new Case(Vehicle__c = vehicles.get(1).Id, Type =
TYPE_ROUTINE_MAINTENANCE, Date_Reported__c = Date.today()));
        maintenanceRequests.add(new Case(Vehicle__c = vehicles.get(2).Id, Type =
```

```
TYPE_ROUTINE_MAINTENANCE, Date_Reported__c = Date.today()));
        insert maintenanceRequests;
        return maintenanceRequests;
    }

    public static List<Equipment_Maintenance_Item__c>
createJoinRecords(List<Product2> equipment, List<Case> maintenanceRequest){
        List<Equipment_Maintenance_Item__c> joinRecords = new
List<Equipment_Maintenance_Item__c>();
        joinRecords.add(new Equipment_Maintenance_Item__c(Equipment__c =
equipment.get(0).Id, Maintenance_Request__c = maintenanceRequest.get(0).Id));
        joinRecords.add(new Equipment_Maintenance_Item__c(Equipment__c =
equipment.get(1).Id, Maintenance_Request__c = maintenanceRequest.get(0).Id));
        joinRecords.add(new Equipment_Maintenance_Item__c(Equipment__c =
equipment.get(2).Id, Maintenance_Request__c = maintenanceRequest.get(0).Id));
        joinRecords.add(new Equipment_Maintenance_Item__c(Equipment__c =
equipment.get(0).Id, Maintenance_Request__c = maintenanceRequest.get(1).Id));
        joinRecords.add(new Equipment_Maintenance_Item__c(Equipment__c =
equipment.get(1).Id, Maintenance_Request__c = maintenanceRequest.get(1).Id));
        joinRecords.add(new Equipment_Maintenance_Item__c(Equipment__c =
equipment.get(2).Id, Maintenance_Request__c = maintenanceRequest.get(1).Id));
        insert joinRecords;
        return joinRecords;

    }
}
```

>CreateDefaultDataTest:

```
@isTest
private class CreateDefaultDataTest {
    @isTest
    static void createData_test(){
        Test.startTest();
        CreateDefaultData.createDefaultData();
        List<Vehicle__c> vehicles = [SELECT Id FROM Vehicle__c];
        List<Product2> equipment = [SELECT Id FROM Product2];
        List<Case> maintenanceRequest = [SELECT Id FROM Case];
```

```
        List<Equipment_Maintenance_Item__c> joinRecords = [SELECT Id FROM
Equipment_Maintenance_Item__c];

        System.assertEquals(4, vehicles.size(), 'There should have been 4 vehicles
created');
        System.assertEquals(4, equipment.size(), 'There should have been 4 equipment
created');
        System.assertEquals(2, maintenanceRequest.size(), 'There should have been 2
maintenance request created');
        System.assertEquals(6, joinRecords.size(), 'There should have been 6 equipment
maintenance items created');

    }

    @isTest
    static void updateCustomSetting_test(){
        How_We_Roll_Settings__c      customSetting =
How_We_Roll_Settings__c.getOrgDefaults();
        customSetting.Is_Data_Created__c = false;
        upsert customSetting;

        System.assertEquals(false, CreateDefaultData.isDataCreated(), 'The custom setting
How_We_Roll_Settings__c.Is_Data_Created__c should be false');

        customSetting.Is_Data_Created__c = true;
        upsert customSetting;

        System.assertEquals(true, CreateDefaultData.isDataCreated(), 'The custom setting
How_We_Roll_Settings__c.Is_Data_Created__c should be true');

    }
}
```

>MaintenanceRequestHelper:

```
public with sharing class MaintenanceRequestHelper {
    public static void updateworkOrders(List<Case> updWorkOrders, Map<Id,Case>
nonUpdCaseMap) {
```

```
    Set<Id> validIds = new Set<Id>();


    For (Case c : updWorkOrders){
        if (nonUpdCaseMap.get(c.Id).Status != 'Closed' && c.Status == 'Closed'){
            if (c.Type == 'Repair' || c.Type == 'Routine Maintenance'){
                validIds.add(c.Id);



            }
        }
    }

    if (!validIds.isEmpty()){
        List<Case> newCases = new List<Case>();
        Map<Id,Case> closedCasesM = new Map<Id,Case>([SELECT Id, Vehicle__c,
Equipment__c, Equipment__r.Maintenance_Cycle__c,(SELECT
Id,Equipment__c,Quantity__c FROM Equipment_Maintenance_Items__r)
                                                FROM Case WHERE Id IN :validIds]);
        Map<Id,Decimal> maintenanceCycles = new Map<ID,Decimal>();
        AggregateResult[] results = [SELECT Maintenance_Request__c,
MIN(Equipment__r.Maintenance_Cycle__c)cycle FROM
Equipment_Maintenance_Item__c WHERE Maintenance_Request__c IN :ValidIds GROUP
BY Maintenance_Request__c];

    for (AggregateResult ar : results){
        maintenanceCycles.put((Id) ar.get('Maintenance_Request__c'), (Decimal)
ar.get('cycle'));
    }

        for(Case cc : closedCasesM.values()){
            Case nc = new Case (
                ParentId = cc.Id,
            Status = 'New',
                Subject = 'Routine Maintenance',
                Type = 'Routine Maintenance',
                Vehicle__c = cc.Vehicle__c,
```

```
                Equipment__c =cc.Equipment__c,
                Origin = 'Web',
                Date_Reported__c = Date.Today()

            );

            If (maintenanceCycles.containskey(cc.Id)){
                nc.Date_Due__c = Date.today().addDays((Integer)
maintenanceCycles.get(cc.Id));
            }

            newCases.add(nc);
        }

        insert newCases;

        List<Equipment_Maintenance_Item__c> clonedWPs = new
List<Equipment_Maintenance_Item__c>();
        for (Case nc : newCases){
            for (Equipment_Maintenance_Item__c wp :
closedCasesM.get(nc.ParentId).Equipment_Maintenance_Items__r){
                Equipment_Maintenance_Item__c wpClone = wp.clone();
                wpClone.Maintenance_Request__c = nc.Id;
                ClonedWPs.add(wpClone);

            }
        }
        insert ClonedWPs;
    }
  }
}
```

>MaintenanceRequestHelperTest:

```
@istest
public with sharing class MaintenanceRequestHelperTest {

   private static final string STATUS_NEW = 'New';
```

```
    private static final string WORKING = 'Working';
    private static final string CLOSED = 'Closed';
    private static final string REPAIR = 'Repair';
    private static final string REQUEST_ORIGIN = 'Web';
    private static final string REQUEST_TYPE = 'Routine Maintenance';
    private static final string REQUEST_SUBJECT = 'Testing subject';

    PRIVATE STATIC Vehicle__c createVehicle(){
        Vehicle__c Vehicle = new Vehicle__C(name = 'SuperTruck');
        return Vehicle;
    }

    PRIVATE STATIC Product2 createEq(){
        product2 equipment = new product2(name = 'SuperEquipment',
                                  lifespan_months__C = 10,
                                  maintenance_cycle__C = 10,
                                  replacement_part__c = true);
        return equipment;
    }

    PRIVATE STATIC Case createMaintenanceRequest(id vehicleId, id equipmentId){
        case cs = new case(Type=REPAIR,
                    Status=STATUS_NEW,
                    Origin=REQUEST_ORIGIN,
                    Subject=REQUEST_SUBJECT,
                    Equipment__c=equipmentId,
                    Vehicle__c=vehicleId);
        return cs;
    }

    PRIVATE STATIC Equipment_Maintenance_Item__c createWorkPart(id equipmentId,id
requestId){
        Equipment_Maintenance_Item__c wp = new
Equipment_Maintenance_Item__c(Equipment__c = equipmentId,
                                                  Maintenance_Request__c = requestId);
        return wp;
    }
```

```
@istest
private static void testMaintenanceRequestPositive(){
    Vehicle__c vehicle = createVehicle();
    insert vehicle;
    id vehicleId = vehicle.Id;

    Product2 equipment = createEq();
    insert equipment;
    id equipmentId = equipment.Id;

    case somethingToUpdate = createMaintenanceRequest(vehicleId,equipmentId);
    insert somethingToUpdate;

    Equipment_Maintenance_Item__c workP =
createWorkPart(equipmentId,somethingToUpdate.id);
    insert workP;

    test.startTest();
    somethingToUpdate.status = CLOSED;
    update somethingToUpdate;
    test.stopTest();

    Case newReq = [Select id, subject, type, Equipment__c, Date_Reported__c,
Vehicle__c, Date_Due__c
            from case
            where status =:STATUS_NEW];

    Equipment_Maintenance_Item__c workPart = [select id
                                from Equipment_Maintenance_Item__c
                                where Maintenance_Request__c =:newReq.Id];

    system.assert(workPart != null);
    system.assert(newReq.Subject != null);
    system.assertEquals(newReq.Type, REQUEST_TYPE);
    SYSTEM.assertEquals(newReq.Equipment__c, equipmentId);
```

```
        SYSTEM.assertEquals(newReq.Vehicle__c, vehicleId);
        SYSTEM.assertEquals(newReq.Date_Reported__c, system.today());
    }

    @istest
    private static void testMaintenanceRequestNegative(){
        Vehicle__C vehicle = createVehicle();
        insert vehicle;
        id vehicleId = vehicle.Id;

        product2 equipment = createEq();
        insert equipment;
        id equipmentId = equipment.Id;

        case emptyReq = createMaintenanceRequest(vehicleId,equipmentId);
        insert emptyReq;

        Equipment_Maintenance_Item__c workP = createWorkPart(equipmentId,
emptyReq.Id);
        insert workP;

        test.startTest();
        emptyReq.Status = WORKING;
        update emptyReq;
        test.stopTest();

        list<case> allRequest = [select id
                                 from case];

        Equipment_Maintenance_Item__c workPart = [select id
                                                  from Equipment_Maintenance_Item__c
                                                  where Maintenance_Request__c = :emptyReq.Id];

        system.assert(workPart != null);
        system.assert(allRequest.size() == 1);
    }
```

```
   @istest
   private static void testMaintenanceRequestBulk(){
      list<Vehicle__C> vehicleList = new list<Vehicle__C>();
      list<Product2> equipmentList = new list<Product2>();
      list<Equipment_Maintenance_Item__c> workPartList = new
list<Equipment_Maintenance_Item__c>();
      list<case> requestList = new list<case>();
      list<id> oldRequestIds = new list<id>();

      for(integer i = 0; i < 300; i++){
        vehicleList.add(createVehicle());
         equipmentList.add(createEq());
      }
      insert vehicleList;
      insert equipmentList;

      for(integer i = 0; i < 300; i++){
         requestList.add(createMaintenanceRequest(vehicleList.get(i).id,
equipmentList.get(i).id));
      }
      insert requestList;

      for(integer i = 0; i < 300; i++){
         workPartList.add(createWorkPart(equipmentList.get(i).id, requestList.get(i).id));
      }
      insert workPartList;

      test.startTest();
      for(case req : requestList){
         req.Status = CLOSED;
         oldRequestIds.add(req.Id);
      }
      update requestList;
      test.stopTest();

      list<case> allRequests = [select id
                                from case
```

```
                        where status =: STATUS_NEW];

    list<Equipment_Maintenance_Item__c> workParts = [select id
                                                     from Equipment_Maintenance_Item__c
                                                     where Maintenance_Request__c in: oldRequestIds];

    system.assert(allRequests.size() == 300);
  }
}
```

>WarehouseCalloutService:

```
public with sharing class WarehouseCalloutService implements Queueable {
  private static final String WAREHOUSE_URL = 'https://th-superbadge-
apex.herokuapp.com/equipment';


  //Write a class that makes a REST callout to an external warehouse system to get a
list of equipment that needs to be updated.
  //The callout's JSON response returns the equipment records that you upsert in
Salesforce.

  @future(callout=true)
  public static void runWarehouseEquipmentSync(){
    System.debug('go into runWarehouseEquipmentSync');
    Http http = new Http();
    HttpRequest request = new HttpRequest();

    request.setEndpoint(WAREHOUSE_URL);
    request.setMethod('GET');
    HttpResponse response = http.send(request);

    List<Product2> product2List = new List<Product2>();
    System.debug(response.getStatusCode());
    if (response.getStatusCode() == 200){
      List<Object> jsonResponse =
(List<Object>)JSON.deserializeUntyped(response.getBody());
      System.debug(response.getBody());
```

```
        //class maps the following fields:
        //warehouse SKU will be external ID for identifying which equipment records to
update within Salesforce
        for (Object jR : jsonResponse){
            Map<String,Object> mapJson = (Map<String,Object>)jR;
            Product2 product2 = new Product2();
            //replacement part (always true),
            product2.Replacement_Part__c = (Boolean) mapJson.get('replacement');
            //cost
            product2.Cost__c = (Integer) mapJson.get('cost');
            //current inventory
            product2.Current_Inventory__c = (Double) mapJson.get('quantity');
            //lifespan
            product2.Lifespan_Months__c = (Integer) mapJson.get('lifespan');
            //maintenance cycle
            product2.Maintenance_Cycle__c = (Integer)
mapJson.get('maintenanceperiod');
            //warehouse SKU
            product2.Warehouse_SKU__c = (String) mapJson.get('sku');

            product2.Name
 = (String) mapJson.get('name');
            product2.ProductCode = (String) mapJson.get('_id');
            product2List.add(product2);
        }

        if (product2List.size() > 0){
            upsert product2List;
            System.debug('Your equipment was synced with the warehouse one');
        }
    }
  }

  public static void execute (QueueableContext context){
    System.debug('start runWarehouseEquipmentSync');
    runWarehouseEquipmentSync();
```

```
        System.debug('end runWarehouseEquipmentSync');
    }

}
```

>WarehouseSyncSchedule:

```
global with sharing class WarehouseSyncSchedule implements Schedulable {
    // implement scheduled code here
    global void execute (SchedulableContext ctx){
        System.enqueueJob(new WarehouseCalloutService());
    }
}
```

>WarehouseSyncScheduleTest:

```
@isTest
public with sharing class WarehouseSyncScheduleTest {
    // implement scheduled code here
    //
    @isTest static void test() {
        String scheduleTime = '00 00 00 * * ? *';
        Test.startTest();
        Test.setMock(HttpCalloutMock.class, new WarehouseCalloutServiceMock());
        String jobId = System.schedule('Warehouse Time to Schedule to test',
scheduleTime, new WarehouseSyncSchedule());
        CronTrigger c = [SELECT State FROM CronTrigger WHERE Id =: jobId];
        System.assertEquals('WAITING', String.valueOf(c.State), 'JobId does not match');

        Test.stopTest();
    }
}
```

>WarehouseCalloutServiceMock:

```
@isTest
global class WarehouseCalloutServiceMock implements HttpCalloutMock {
    // implement http mock callout
    global static HttpResponse respond(HttpRequest request) {
```

```
        HttpResponse response = new HttpResponse();
        response.setHeader('Content-Type', 'application/json');

response.setBody('[{"_id":"55d66226726b611100aaf741","replacement":false,"quantity":5
,"name":"Generator 1000
kW","maintenanceperiod":365,"lifespan":120,"cost":5000,"sku":"100003"},{"_id":"55d66226
726b611100aaf742","replacement":true,"quantity":183,"name":"Cooling
Fan","maintenanceperiod":0,"lifespan":0,"cost":300,"sku":"100004"},{"_id":"55d66226726b6
11100aaf743","replacement":true,"quantity":143,"name":"Fuse
20A","maintenanceperiod":0,"lifespan":0,"cost":22,"sku":"100005"}]');
        response.setStatusCode(200);

        return response;
    }
}

>WarehouseCalloutServiceTest:
@IsTest
private class WarehouseCalloutServiceTest {
    // implement your mock callout test here
            @isTest
    static void testWarehouseCallout() {
        test.startTest();
        test.setMock(HttpCalloutMock.class, new WarehouseCalloutServiceMock());
        WarehouseCalloutService.execute(null);
        test.stopTest();

        List<Product2> product2List = new List<Product2>();
        product2List = [SELECT ProductCode FROM Product2];

        System.assertEquals(3, product2List.size());
        System.assertEquals('55d66226726b611100aaf741',
product2List.get(0).ProductCode);
        System.assertEquals('55d66226726b611100aaf742',
product2List.get(1).ProductCode);
        System.assertEquals('55d66226726b611100aaf743',
product2List.get(2).ProductCode);
```

```
    }
}
```

Triggers:

>AccountAddressTrigger:

```
trigger AccountAddressTrigger on Account (before insert, before update) {

    for(Account account:Trigger.New){
        if(account.Match_Billing_Address__c == True){
            account.ShippingPostalCode = account.BillingPostalCode;
        }
    }
}
```

>ClosedOpportunityTrigger:

```
trigger ClosedOpportunityTrigger on Opportunity (after insert, after update) {
            List<Task> tasklist = new List<Task>();

    for(Opportunity opp: Trigger.New){
        if(opp.StageName == 'Closed Won'){
            tasklist.add(new Task(Subject = 'Follow Up Test Task',WhatId = opp.Id));
        }
    }

    if(tasklist.size()>0){
        insert tasklist;
    }
}
```

>RestrictContactByName:

```
trigger RestrictContactByName on Contact (before insert, before update) {

            //check contacts prior to insert or update for invalid data
            For (Contact c : Trigger.New) {
                    if(c.LastName == 'INVALIDNAME') {        //invalidname is invalid
                            c.AddError('The Last Name "'+c.LastName+'" is not allowed for
```

```
DML');
                }

        }



}
```

>MaintenanceRequest:

```
trigger MaintenanceRequest on Case (before update, after update) {
   if(Trigger.isUpdate && Trigger.isAfter){
      MaintenanceRequestHelper.updateWorkOrders(Trigger.New, Trigger.OldMap);
   }
}
```