***Apex Triggers : https://trailhead.salesforce.com/content/learn/modules/apex\_triggers?trailmix\_creator\_id=trailblazerconnect&trailmix\_slug=salesforce-developer-catalyst***

***1) Get Started with Apex Trigger***

**AccountAddressTrigger Code :**

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

**for (Account a : Trigger.new) {**

**if (a.Match\_Billing\_Address\_\_c == TRUE){**

**a.ShippingPostalCode = a.BillingPostalCode;**

**}**

**}**

**}**

***2) Bulk Apex Triggers Unit***

**ClosedOpportunityTrigger Code :**

**trigger ClosedOpportunityTrigger on Opportunity (after insert, after update) {**

**List<Task> taskList = new List<Task>();**

**for (Opportunity o :[SELECT Id,Name FROM Opportunity**

**WHERE Id IN :Trigger.New]){**

**taskList.add(new Task(Subject='Follow Up Test Task',**

**WhatId=o.Id,**

**Status='Not Started',**

**Priority='Normal'));**

**}**

**if (taskList.size() > 0){**

**insert taskList;**

**}**

**}**

***Apex Testing : https://trailhead.salesforce.com/content/learn/modules/apex\_testing?trailmix\_creator\_id=trailblazerconnect&trailmix\_slug=salesforce-developer-catalyst***

***1)Get Started with Apex Unit Testing***

**VerifyDate Code :**

**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**

**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**

**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 Code :**

**@isTest**

**private class TestVerifyDate {**

**@isTest static void testCheckDates() {**

**Date now = Date.today();**

**Date lastOfTheMonth = Date.newInstance(now.year(), now.month(), Date.daysInMonth(now.year(), now.month()));**

**Date plus60 = Date.today().addDays(60);**

**Date d1 = VerifyDate.CheckDates(now, now);**

**System.assertEquals(now, d1);**

**Date d2 = VerifyDate.CheckDates(now, plus60);**

**System.assertEquals(lastOfTheMonth, d2);**

**}**

**}**

***2) Test Apex Triggers Unit***

**RestrictContactByName Code :**

**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');**

**}**

**}**

**}**

**TestRestrictContactByName Code :**

**@isTest**

**private class TestRestrictContactByName {**

**@isTest**

**static void invalidName() {**

**try {**

**Contact c = new Contact(LastName='INVALIDNAME');**

**insert c;**

**}**

**catch (Exception e) {**

**System.assert(true);**

**}**

**}**

**}**

***3) Create Test Data for Apex Tests :***

**RandomContactFactory Code :**

**public class RandomContactFactory {**

**public static List<Contact> generateRandomContacts(Integer num, String lastName) {**

**List<Contact> contacts = new List<Contact>();**

**for (Integer i = 0; i < num; i++) {**

**Contact c = new Contact(FirstName=i.format(), LastName=lastName);**

**contacts.add(c);**

**}**

**return contacts;**

**}**

**}**

***Asynchronous Apex :* *https://trailhead.salesforce.com/content/learn/modules/asynchronous\_apex?trailmix\_creator\_id=trailblazerconnect&trailmix\_slug=salesforce-developer-catalyst***

**1)Quiz**

**2)Use Future Methods**

**AccountProcessor Code :**

**public class AccountProcessor {**

**@future**

**public static void countContacts(List<Id> accountIds) {**

**List<Account> accounts = [SELECT Id,**

**Name,**

**Number\_of\_Contacts\_\_c,**

**(**

**SELECT Contact.Id**

**FROM Contacts**

**)**

**FROM Account**

**WHERE Id in :accountIds];**

**for (Account a : accounts) {**

**a.Number\_of\_Contacts\_\_c = a.Contacts.size();**

**}**

**update accounts;**

**}**

**}**

**AccountProcessorTest Code :**

**@isTest**

**private class AccountProcessorTest {**

**static TestMethod void myTest() {**

**List<Account> accounts = new List<Account>();**

**for (Integer i=0; i<100; i++) {**

**Account account = new Account();**

**account.Name = 'AccountProcessorTest Account ' + i;**

**accounts.add(account);**

**}**

**insert accounts;**

**List<Id> accountIds = new List<Id>();**

**List<Contact> contacts = new List<Contact>();**

**for (Account a : accounts) {**

**accountIds.add(a.Id);**

**for (Integer i=0; i<5; i++) {**

**Contact contact = new Contact();**

**contact.FirstName = 'AccountProcessor Test Contact';**

**contact.LastName = String.valueOf(i);**

**contact.AccountId = a.Id;**

**contacts.add(contact);**

**}**

**}**

**insert contacts;**

**Test.startTest();**

**AccountProcessor.countContacts(accountIds);**

**Test.stopTest();**

**List<Account> results = [SELECT Id, Number\_of\_Contacts\_\_c**

**FROM Account**

**WHERE Id in :accountIds];**

**for (Account a : results) {**

**System.AssertEquals(5, a.Number\_of\_Contacts\_\_c);**

**}**

**}**

**}**

***3)Use Batch Apex***

**LeadProcessor Code :**

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

**global Integer recs\_processed = 0;**

**global Database.QueryLocator start(Database.BatchableContext bc) {**

**String sQuery = '';**

**sQuery += 'SELECT Id, Name, Status,';**

**sQuery += 'LeadSource ';**

**sQuery += 'FROM Lead ';**

**sQuery += 'LIMIT 100000';**

**return Database.getQueryLocator(sQuery);**

**}**

**global void execute(Database.BatchableContext bc, List<Lead> scope) {**

**for (Lead l : scope) {**

**l.LeadSource = 'Dreamforce';**

**recs\_processed += 1;**

**}**

**update scope;**

**}**

**global void finish(Database.BatchableContext bc) {**

**AsyncApexJob job = [SELECT Id,**

**Status,**

**NumberOfErrors,**

**TotalJobItems,**

**JobItemsProcessed,**

**CreatedBy.Email**

**FROM AsyncApexJob**

**WHERE Id = :bc.getJobId()];**

**String s = '';**

**s += job.JobItemsProcessed + ' job items processed ';**

**s += 'out of ' + job.TotalJobItems + ' total job items. ';**

**s += job.NumberOfErrors + ' error(s) encountered. ';**

**System.debug(s);**

**s = recs\_processed + ' record(s) processed.';**

**System.debug(s);**

**}**

**}**

**LeadProcessorTest Code :**

**@isTest**

**private class LeadProcessorTest {**

**@testSetup**

**static void createLeads() {**

**List<Lead> leads = new List<Lead>();**

**for (Integer i=0; i<200; i++) {**

**Lead l = new Lead();**

**l.FirstName = 'Test';**

**l.LastName = 'Lead';**

**l.Company = 'Test Lead ' + i;**

**leads.add(l);**

**}**

**insert leads;**

**}**

**static TestMethod void myTest() {**

**Test.startTest();**

**LeadProcessor lp = new LeadProcessor();**

**Id batchId = Database.executeBatch(lp);**

**Test.stopTest();**

**System.assertEquals(200, [SELECT Count()**

**FROM Lead**

**WHERE Name = 'Test Lead'**

**AND LeadSource = 'Dreamforce']);**

**}**

**}**

***4)Controp Processes with Queueable Apex***

**AddPrimaryContact Code :**

**public class AddPrimaryContact implements Queueable {**

**private Contact contactObj;**

**private String state\_code;**

**public AddPrimaryContact(Contact c, String s) {**

**this.contactObj = c;**

**this.state\_code = s;**

**}**

**public void execute(QueueableContext context) {**

**List<Account> accounts = [SELECT Id**

**FROM Account**

**WHERE BillingState = :this.state\_code**

**LIMIT 200];**

**List<Contact> contacts = new List<Contact>();**

**for (Account a : accounts) {**

**Contact c = this.contactObj.clone(false, false, false, false);**

**c.AccountId = a.Id;**

**contacts.add(c);**

**}**

**if (contacts.size() > 0) {**

**insert contacts;**

**}**

**}**

**}**

**AddPrimaryContactTest Code :**

**@isTest**

**private class AddPrimaryContactTest {**

**@testSetup**

**static void setup() {**

**List<Account> accounts = new List<Account>();**

**for (Integer i=0; i<50; i++) {**

**Account ny = new Account();**

**ny.Name = 'Test Account (NY)';**

**ny.BillingState = 'NY';**

**accounts.add(ny);**

**Account ca = new Account();**

**ca.Name = 'Test Account (CA)';**

**ca.BillingState = 'CA';**

**accounts.add(ca);**

**}**

**insert accounts;**

**}**

**static TestMethod void myTest() {**

**Contact contactObj = new Contact(**

**FirstName = 'California',**

**LastName = 'Bob'**

**);**

**String state\_abbrev = 'CA';**

**Test.startTest();**

**AddPrimaryContact apc = new AddPrimaryContact(contactObj, state\_abbrev);**

**Id jobId = System.enqueueJob(apc);**

**Test.stopTest();**

**List<Account> accounts = [SELECT Id, (SELECT Contact.Name FROM Account.Contacts) FROM Account WHERE BillingState = 'CA'];**

**System.assertEquals(50, accounts.size());**

**for (Account a : accounts) {**

**System.assertEquals(a.Contacts.size(), 1);**

**}**

**}**

**}**

***5)Schedule Jobs Using the Apex Scheduler***

**DailyLeadProcessor Code :**

**global class DailyLeadProcessor implements Schedulable {**

**global void execute(SchedulableContext ctx) {**

**List<Lead> leads = [SELECT Id,**

**LeadSource**

**FROM Lead**

**WHERE LeadSource = '' OR LeadSource = null**

**LIMIT 200];**

**for (Lead l : leads) {**

**l.LeadSource = 'Dreamforce';**

**}**

**if (leads.size() > 0) {**

**update leads;**

**}**

**}**

**}**

**DailyLeadProcessorTest Code :**

**@isTest**

**private class DailyLeadProcessorTest {**

**@testSetup**

**static void setup() {**

**List<Lead> leads = new List<Lead>();**

**for (Integer i=0; i<200; i++) {**

**Lead l = new Lead();**

**l.FirstName = 'Test';**

**l.LastName = 'Lead ' + i;**

**l.Company = 'Test Company ' + i;**

**leads.add(l);**

**}**

**insert leads;**

**}**

**static TestMethod void myTest() {**

**String jobName = 'Daily Lead Processor - Test';**

**String CRON\_EXP = '0 0 0 15 3 ? 2017'; // dummy cron entry**

**test.startTest();**

**DailyLeadProcessor dp = new DailyLeadProcessor();**

**String JobId = System.schedule(jobName, CRON\_EXP, dp);**

**test.stopTest();**

**List<Lead> results = [SELECT Id FROM Lead WHERE LeadSource = 'Dreamforce'];**

**System.assertEquals(200, results.size());**

**}**

**}**

***Apex Integration Services :https://trailhead.salesforce.com/content/learn/modules/apex\_integration\_services?trailmix\_creator\_id=trailblazerconnect&trailmix\_slug=salesforce-developer-catalyst***

**1)Quiz**

**2)Apex REST Callouts**

**AnimalLocator Code :**

**public class AnimalLocator {**

**public static HttpResponse makeGetCallout {**

**Http http = new Http();**

**HttpRequest request = new HttpRequest();**

**request.setEndpoint('https://th-apex-http-callout.herokuapp.com/animals/:id');**

**request.setMethod('GET');**

**HttpResponse response = http.send(request);**

**// If the request is successful, parse the JSON response.**

**if (response.getStatusCode() == 200) {**

**// Deserialize the JSON string into collections of primitive data types.**

**Map<Integer, Object> Results**

**}**

**}**

**}**

**AnimalLocatorTest Code :**

**@isTest**  
**private class AnimalLocatorTest{**  
 **@isTest static void AnimalLocatorMock1() {**  
 **Test.SetMock(HttpCallOutMock.class, new AnimalLocatorMock());**  
 **string result=AnimalLocator.getAnimalNameById(3);**  
 **string expectedResult='chicken';**  
 **System.assertEquals(result, expectedResult);**  
 **}**  
**}**

**AnimalLocatorMock Code :**

**@isTest**  
**global class AnimalLocatorMock implements HttpCalloutMock {**  
 **global HTTPResponse respond(HTTPRequest request) {**  
 **HttpResponse response = new HttpResponse();**  
 **response.setHeader('Content-Type', 'application/json');**  
 **response.setBody('{"animal":{"id":1,"name":"chicken","eats":"chicken food","says":"cluck cluck"}}');**  
 **response.setStatusCode(200);**  
 **return response;**  
 **}**  
**}**

***2)Apex SOAP Callouts***

**ParkService Code :**

**//Generated by wsdl2apex**

**public class ParkService {**

**public class byCountryResponse {**

**public String[] return\_x;**

**private String[] return\_x\_type\_info = new String[]{'return','http://parks.services/',null,'0','-1','false'};**

**private String[] apex\_schema\_type\_info = new String[]{'http://parks.services/','false','false'};**

**private String[] field\_order\_type\_info = new String[]{'return\_x'};**

**}**

**public class byCountry {**

**public String arg0;**

**private String[] arg0\_type\_info = new String[]{'arg0','http://parks.services/',null,'0','1','false'};**

**private String[] apex\_schema\_type\_info = new String[]{'http://parks.services/','false','false'};**

**private String[] field\_order\_type\_info = new String[]{'arg0'};**

**}**

**public class ParksImplPort {**

**public String endpoint\_x = 'https://th-apex-soap-service.herokuapp.com/service/parks';**

**public Map<String,String> inputHttpHeaders\_x;**

**public Map<String,String> outputHttpHeaders\_x;**

**public String clientCertName\_x;**

**public String clientCert\_x;**

**public String clientCertPasswd\_x;**

**public Integer timeout\_x;**

**private String[] ns\_map\_type\_info = new String[]{'http://parks.services/', 'ParkService'};**

**public String[] byCountry(String arg0) {**

**ParkService.byCountry request\_x = new ParkService.byCountry();**

**request\_x.arg0 = arg0;**

**ParkService.byCountryResponse response\_x;**

**Map<String, ParkService.byCountryResponse> response\_map\_x = new Map<String, ParkService.byCountryResponse>();**

**response\_map\_x.put('response\_x', response\_x);**

**WebServiceCallout.invoke(**

**this,**

**request\_x,**

**response\_map\_x,**

**new String[]{endpoint\_x,**

**'',**

**'http://parks.services/',**

**'byCountry',**

**'http://parks.services/',**

**'byCountryResponse',**

**'ParkService.byCountryResponse'}**

**);**

**response\_x = response\_map\_x.get('response\_x');**

**return response\_x.return\_x;**

**}**

**}**

**}**

**ParkLocator Code :**

**public class ParkLocator {**

**public static String[] country(String country){**

**ParkService.ParksImplPort parks = new ParkService.ParksImplPort();**

**String[] parksname = parks.byCountry(country);**

**return parksname;**

**}**

**}**

**ParkLocatorTest Code :**

**@isTest**

**private class ParkLocatorTest{**

**@isTest**

**static void testParkLocator() {**

**Test.setMock(WebServiceMock.class, new ParkServiceMock());**

**String[] arrayOfParks = ParkLocator.country('India');**

**System.assertEquals('Park1', arrayOfParks[0]);**

**}**

**}**

**ParkServiceMock Code :**

**@isTest**

**global class ParkServiceMock implements WebServiceMock {**

**global void doInvoke(**

**Object stub,**

**Object request,**

**Map<String, Object> response,**

**String endpoint,**

**String soapAction,**

**String requestName,**

**String responseNS,**

**String responseName,**

**String responseType) {**

**ParkService.byCountryResponse response\_x = new ParkService.byCountryResponse();**

**List<String> lstOfDummyParks = new List<String> {'Park1','Park2','Park3'};**

**response\_x.return\_x = lstOfDummyParks;**

**response.put('response\_x', response\_x);**

**}**

**}**

***4) Apex Web Services***

**AccountManager Code :**

**@RestResource(urlMapping='/Accounts/\*/contacts')**  
**global with sharing class AccountManager {**  
  
  
 **@HttpGet**  
 **global static account getAccount() {**  
  
 **RestRequest request = RestContext.request;**  
  
 **String accountId = request.requestURI.substring(request.requestURI.lastIndexOf('/')-18,**  
 **request.requestURI.lastIndexOf('/'));**  
 **List<Account> a = [select id, name, (select id, name from contacts) from account where id = :accountId];**  
 **List<contact> co = [select id, name from contact where account.id = :accountId];**  
 **system.debug('\*\* a[0]= '+ a[0]);**  
 **return a[0];**  
  
 **}**  
  
**}**

**AccountManagerTest Code :**

**@Istest(SeeAllData=true)**  
**public class AccountManagerTest {**  
  
  
  
 **@IsTest**  
 **public static void testaccountmanager() {**  
 **RestRequest request = new RestRequest();**  
 **request.requestUri = 'https://mannharleen-dev-ed.my.salesforce.com/services/apexrest/Accounts/00190000016cw4tAAA/contacts';**  
 **request.httpMethod = 'GET';**  
 **RestContext.request = request;**  
  
 **system.debug('test account result = '+ AccountManager.getAccount());**  
  
  
  
 **}**  
   
  
}

***APEX SPECIALIST SUPERBADGE :***

***https://trailhead.salesforce.com/content/learn/modules/apex\_integration\_services?trailmix\_creator\_id=trailblazerconnect&trailmix\_slug=salesforce-developer-catalyst***

***1)Quiz***

***2)Automate Record Creation***

**MaintenanceRequestHelper Code :**

**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;**

**}**

**}**

### **}**

### **MaitenanceRequest** **Code :**

**trigger MaintenanceRequest on Case (before update, after update) {**

**if(Trigger.isUpdate && Trigger.isAfter){**

**MaintenanceRequestHelper.updateWorkOrders(Trigger.New, Trigger.OldMap);**

**}**

**}**

***3)Synchronize Salesforce Data***

**WarehouseCalloutService Code :**

**public with sharing class WarehouseCalloutService {**

**private static final String WAREHOUSE\_URL = 'https://th-superbadge-apex.herokuapp.com/equipment';**

**//@future(callout=true)**

**public static void runWarehouseEquipmentSync(){**

**Http http = new Http();**

**HttpRequest request = new HttpRequest();**

**request.setEndpoint(WAREHOUSE\_URL);**

**request.setMethod('GET');**

**HttpResponse response = http.send(request);**

**List<Product2> warehouseEq = new List<Product2>();**

**if (response.getStatusCode() == 200){**

**List<Object> jsonResponse = (List<Object>)JSON.deserializeUntyped(response.getBody());**

**System.debug(response.getBody());**

**for (Object eq : jsonResponse){**

**Map<String,Object> mapJson = (Map<String,Object>)eq;**

**Product2 myEq = new Product2();**

**myEq.Replacement\_Part\_\_c = (Boolean) mapJson.get('replacement');**

**myEq.Name = (String) mapJson.get('name');**

**myEq.Maintenance\_Cycle\_\_c = (Integer) mapJson.get('maintenanceperiod');**

**myEq.Lifespan\_Months\_\_c = (Integer) mapJson.get('lifespan');**

**myEq.Cost\_\_c = (Decimal) mapJson.get('lifespan');**

**myEq.Warehouse\_SKU\_\_c = (String) mapJson.get('sku');**

**myEq.Current\_Inventory\_\_c = (Double) mapJson.get('quantity');**

**warehouseEq.add(myEq);**

**}**

**if (warehouseEq.size() > 0){**

**upsert warehouseEq;**

**System.debug('Your equipment was synced with the warehouse one');**

**System.debug(warehouseEq);**

**}**

**}**

**}**

**}**

***4)Schedule Synchronization***

**WarehouseSyncSchedule Code :**

**global class WarehouseSyncSchedule implements Schedulable {**

**global void execute(SchedulableContext ctx) {**

**WarehouseCalloutService.runWarehouseEquipmentSync();**

**}**

**}**

***5)Test Automatic Logic***

**MaintenanceRequestHelperTest Code :**

**@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;**

**}**

**MaintenanceRequestHelper Code :**

**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;**

**}**

**}**

**}**

**MaintenanceRequest Code :**

**trigger MaintenanceRequest on Case (before update, after update) {**

**if(Trigger.isUpdate && Trigger.isAfter){**

**MaintenanceRequestHelper.updateWorkOrders(Trigger.New, Trigger.OldMap);**

**}**

**}**

***6) Test Callout Logic***

**WarehouseCalloutService Code :**

**public with sharing class WarehouseCalloutService {**

**private static final String WAREHOUSE\_URL = 'https://th-superbadge-apex.herokuapp.com/equipment';**

**//@future(callout=true)**

**public static void runWarehouseEquipmentSync(){**

**Http http = new Http();**

**HttpRequest request = new HttpRequest();**

**request.setEndpoint(WAREHOUSE\_URL);**

**request.setMethod('GET');**

**HttpResponse response = http.send(request);**

**List<Product2> warehouseEq = new List<Product2>();**

**if (response.getStatusCode() == 200){**

**List<Object> jsonResponse = (List<Object>)JSON.deserializeUntyped(response.getBody());**

**System.debug(response.getBody());**

**for (Object eq : jsonResponse){**

**Map<String,Object> mapJson = (Map<String,Object>)eq;**

**Product2 myEq = new Product2();**

**myEq.Replacement\_Part\_\_c = (Boolean) mapJson.get('replacement');**

**myEq.Name = (String) mapJson.get('name');**

**myEq.Maintenance\_Cycle\_\_c = (Integer) mapJson.get('maintenanceperiod');**

**myEq.Lifespan\_Months\_\_c = (Integer) mapJson.get('lifespan');**

**myEq.Cost\_\_c = (Decimal) mapJson.get('lifespan');**

**myEq.Warehouse\_SKU\_\_c = (String) mapJson.get('sku');**

**myEq.Current\_Inventory\_\_c = (Double) mapJson.get('quantity');**

**warehouseEq.add(myEq);**

**}**

**if (warehouseEq.size() > 0){**

**upsert warehouseEq;**

**System.debug('Your equipment was synced with the warehouse one');**

**System.debug(warehouseEq);**

**}**

**}**

**}**

**}**

**WarehouseCalloutServiceTest Code :**

**@isTest**

**private class WarehouseCalloutServiceTest {**

**@isTest**

**static void testWareHouseCallout(){**

**Test.startTest();**

**// implement mock callout test here**

**Test.setMock(HTTPCalloutMock.class, new WarehouseCalloutServiceMock());**

**WarehouseCalloutService.runWarehouseEquipmentSync();**

**Test.stopTest();**

**System.assertEquals(1, [SELECT count() FROM Product2]);**

**}**

**}**

**WarehouseCalloutServiceMock Code :**

**@isTest**

**global class WarehouseCalloutServiceMock implements HttpCalloutMock {**

**// implement http mock callout**

**global static HttpResponse respond(HttpRequest request){**

**System.assertEquals('https://th-superbadge-apex.herokuapp.com/equipment', request.getEndpoint());**

**System.assertEquals('GET', request.getMethod());**

**// Create a fake response**

**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"}]');**

**response.setStatusCode(200);**

**return response;**

**}**

**}**

**7) Test Scheduling Logic**

**WarehouseSyncSchedule Code :**

**global class WarehouseSyncSchedule implements Schedulable {**

**global void execute(SchedulableContext ctx) {**

**WarehouseCalloutService.runWarehouseEquipmentSync();**

**}**

**}**

**WarehouseSyncScheduleTest Code :**

**@isTest**

**public class WarehouseSyncScheduleTest {**

**@isTest static void WarehousescheduleTest(){**

**String scheduleTime = '00 00 01 \* \* ?';**

**Test.startTest();**

**Test.setMock(HttpCalloutMock.class, new WarehouseCalloutServiceMock());**

**String jobID=System.schedule('Warehouse Time To Schedule to Test', scheduleTime, new WarehouseSyncSchedule());**

**Test.stopTest();**

**//Contains schedule information for a scheduled job. CronTrigger is similar to a cron job on UNIX systems.**

**// This object is available in API version 17.0 and later.**

**CronTrigger a=[SELECT Id FROM CronTrigger where NextFireTime > today];**

**System.assertEquals(jobID, a.Id,'Schedule ');**

**}**

**}**

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