APEX SPECIALIST SUPERBADGE

\*default data:

1.CreateDefaultData.apxc

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;

}

}

2.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');

}

}

\*AUTOMATE RECORD CREATION:

1)MaintenanceRequest.apxt

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

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

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

}

}

2)MaintenanceRequestHelper.apxc

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;

}

}

}

\*SYNCHRONIZATION SALESFORCE DATA WITH AN EXTERNAL SYSTEM:

1)WarehouseCalloutService.apxc

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);

}

}

}

}

\*SCHEDULE SYNCHRONIZATION USING APEX CODE:

1)WarehouseSyncSchedule.apxc

global class WarehouseSyncSchedule implements Schedulable {

global void execute(SchedulableContext ctx) {

WarehouseCalloutService.runWarehouseEquipmentSync();

}

}

\*TEST AUTOMATION LOGIC:

1)MaintenanceRequestHelperTest.apxc

@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);

}

}

2)MaintenanceRequestHelper.apxc

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;

}

}

}

3)MaintenanceRequest.apxt

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

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

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

}

}

\*TEST CALLOUT LOGIC:

1)WarehouseCalloutService.apxc

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);

}

}

}

}

2)WarehouseCalloutServiceTest.apxc

@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]);

}

}

3)WarehouseCalloutServiceMock.apxc

@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;

}

}

\*TEST SCHEDULING LOGIC:

1)WarehouseSyncSchedule.apxc

global class WarehouseSyncSchedule implements Schedulable {

global void execute(SchedulableContext ctx) {

WarehouseCalloutService.runWarehouseEquipmentSync();

}

}

2)WarehouseSyncScheduleTest.apxc

@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 ');

}

}

APPEX TRIGGERS

\*GET STARTED WITH APEX TRIGGERS:

1.AccountAddressTrigger.apxt

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

for(Account account:Trigger.New){

if(account.Match\_Billing\_Address\_\_c == True){

account.ShippingPostalCode = account.BillingPostalCode;

}

}

}

\*BULK APEX TRIGGERS:

1.ClosedOpportunityTrigger.apxt

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;

}

}

APPEX TESTING

\*GET STARTED WITH APEX UNIT TEST:

1.VerifyDate.apxc

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;

}

}

2.TestVerifyDate.apxc

@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'));

}

}

\*TEST APEX TRIGGERS:

1.RestrictContactByName.apxt

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');

}

}

}

2.TestRestrictContactByName.apxc

@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());

}

}

\*CREATE TEST DATA FOR APEX TESTS:

1.RandomContactFactory.apxc

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;

}

}

ASYNCHRONOUS APEX

\*USE FUTURE METHODS:

1.AccountProcessor.apxc

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;

}

}

2.AccountProcessorTest.apxc

@IsTest

private 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='Jane',LastName='Doe',AccountId = newAccount.Id);

insert newContact2;

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

accountIds.add(newAccount.Id);

Test.startTest();

AccountProcessor.countContacts(accountIds);

Test.stopTest();

}

}

\*USE BATCH APEX:

1.LeadProcessor.apxc

global class LeadProcessor implements Database.Batchable<sObject>{

global Integer count = 0;

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

return Database.getQueryLocator('SELECT ID, LeadSource FROM Lead');

}

global void execute (Database.BatchableContext bc, List<Lead> L\_list){

List<lead> L\_list\_new = new List<lead>();

for(lead L:L\_list){

L.leadsource = 'Dreamforce';

L\_list\_new.add(L);

count += 1;

}

update L\_list\_new;

}

global void finish(Database.BatchableContext bc){

system.debug('count = ' + count);

}

}

2.LeadProcessorTest.apxc

@isTest

public class LeadProcessorTest {

@isTest

public static void testit(){

List<lead> L\_list = new List<lead>();

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

Lead L = new lead();

L.LastName = 'name' +i;

L.Company = 'Company';

L.Status = 'Random Status';

L\_list.add(L);

}

insert L\_list;

Test.startTest();

LeadProcessor lp = new LeadProcessor();

Id batchId = Database.executeBatch(lp);

Test.stopTest();

}

}

\*CONTROL PROCESSES WITH QUEUEABLE APEX:

1.AddPrimaryContact.apxc

public class AddPrimaryContact implements Queueable{

private Contact con;

private String state;

public AddPrimaryContact(Contact con, String state){

this.con = con;

this.state = state;

}

public void execute(QueueableContext context){

List<Account> accounts = [Select Id, Name, (Select FirstName, LastName, Id from contacts)

from Account where BillingState = :state Limit 200];

List<Contact> primaryContacts = new List<Contact>();

for(Account acc:accounts){

Contact c = con.clone();

c.AccountId = acc.Id;

primaryContacts.add(c);

}

if(primaryContacts.size() > 0){

insert primaryContacts;

}

}

}

2.AddPrimaryContactTest.apxc

@isTest

public class AddPrimaryContactTest {

static testmethod void testQueueable(){

List<Account> testAccounts = new List<Account>();

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

testAccounts.add(new Account(Name='Account '+i,BillingState='CA'));

}

for(Integer j=0;j<50;j++){

testAccounts.add(new Account(Name='Account '+j,BillingState='NY'));

}

insert testAccounts;

Contact testContact = new Contact(FirstName = 'John', LastName ='Doe');

insert testContact;

AddPrimaryContact addit = new addPrimaryContact(testContact, 'CA');

Test.startTest();

system.enqueueJob(addit);

Test.stopTest();

System.assertEquals(50,[Select count() from Contact where accountId in(Select Id from Account where BillingState='CA')]);

}

}

\*SCHEDULE JOBS USING APEX SCHEDULER:

1.DailyLeadProcessor.apxc

global class DailyLeadProcessor implements Schedulable {

global void execute(SchedulableContext ctx) {

List<Lead> lList = [Select Id, LeadSource from Lead where LeadSource = null];

if(!lList.isEmpty()) {

for(Lead l: lList) {

l.LeadSource = 'Dreamforce';

}

update lList;

}

}

}

2.DailyLeadProcessorTest.apxc

@isTest

private class DailyLeadProcessorTest {

static testMethod void testDailyLeadProcessor() {

String CRON\_EXP = '0 0 1 \* \* ?';

List<Lead> lList = new List<Lead>();

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

lList.add(new Lead(LastName='Dreamforce'+i, Company='Test1 Inc.', Status='Open - Not Contacted'));

}

insert lList;

Test.startTest();

String jobId = System.schedule('DailyLeadProcessor', CRON\_EXP, new DailyLeadProcessor());

}

}

APEX INTEGRATION SERVICES

\*APEX REST CALLOUTS:

1.AnimalLocator.apxc

public class AnimalLocator{

public static String getAnimalNameById(Integer x){

Http http = new Http();

HttpRequest req = new HttpRequest();

req.setEndpoint('https://th-apex-http-callout.herokuapp.com/animals/' + x);

req.setMethod('GET');

Map<String, Object> animal= new Map<String, Object>();

HttpResponse res = http.send(req);

if (res.getStatusCode() == 200) {

Map<String, Object> results = (Map<String, Object>)JSON.deserializeUntyped(res.getBody());

animal = (Map<String, Object>) results.get('animal');

}

return (String)animal.get('name');

}

}

2.AnimalLocatorMock.apxc

@isTest

global class AnimalLocatorMock implements HttpCalloutMock {

// Implement this interface method

global HTTPResponse respond(HTTPRequest request) {

// Create a fake response

HttpResponse response = new HttpResponse();

response.setHeader('Content-Type', 'application/json');

response.setBody('{"animals": ["majestic badger", "fluffy bunny", "scary bear", "chicken", "mighty moose"]}');

response.setStatusCode(200);

return response;

}

}

3.AnimalLocatorTest.apxc

@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 );

}

}

\*APEX SOAP CALLOUTS:

1.ParkService.apxc

//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;

}

}

}

2.ParkServiceMock.apxc

@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();

response\_x.return\_x = new List<String>{'Yosemite', 'Sequoia', 'Crater Lake'};

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

}

}

3.ParkLocator.apxc

public class ParkLocator {

public static List < String > country(String country) {

ParkService.ParksImplPort prkSvc = new ParkService.ParksImplPort();

return prkSvc.byCountry(country);

}

}

4.ParkLocatorTest.apxc

@isTest

public class ParkLocatorTest {

@isTest static void testCallout() {

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

String country = 'United States';

List<String> expectedParks = new List<String>{'Yosemite', 'Sequoia', 'Crater Lake'};

System.assertEquals(expectedParks,ParkLocator.country(country));

}

}

\*APEX WEB SERVICES:

1.AccountManager.apxc

@RestResource(urlMapping='/Accounts/\*/contacts')

global with sharing class AccountManager {

@HttpGet

global static Account getAccount(){

RestRequest request = RestContext.request;

String accountId = request.requestURI.substringBetween('Accounts/','/contacts');

Account result = [SELECT ID,Name,(SELECT ID, FirstName, LastName FROM Contacts)

FROM Account

WHERE Id = :accountId];

return result;

}

}

2.AccountManagerTest.apxc

@isTest

private class AccountManagerTest {

@isTest

static void testGetAccount(){

Account a = new Account(Name='TestAccount');

insert a;

Contact c = new Contact(AccountId=a.Id, FirstName='Test', LastName='Test');

insert c;

RestRequest request = new RestRequest();

request.requestUri ='https://yourInstance.salesforce.com/services/apexrest/Accounts/'+a.id+'/contacts';

request.httpMethod = 'GET';

RestContext.request = request;

Account myAcct = AccountManager.getAccount();

System.assert(myAcct !=null);

System.assertEquals('TestAccount', myAcct.Name);

}

}

1.AsyncParkService.apxc

//Generated by wsdl2apex

public class AsyncParkService {

public class byCountryResponseFuture extends System.WebServiceCalloutFuture {

public String[] getValue() {

ParkService.byCountryResponse response = (ParkService.byCountryResponse)System.WebServiceCallout.endInvoke(this);

return response.return\_x;

}

}

public class AsyncParksImplPort {

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

public Map<String,String> inputHttpHeaders\_x;

public String clientCertName\_x;

public Integer timeout\_x;

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

public AsyncParkService.byCountryResponseFuture beginByCountry(System.Continuation continuation,String arg0) {

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

request\_x.arg0 = arg0;

return (AsyncParkService.byCountryResponseFuture) System.WebServiceCallout.beginInvoke(

this,

request\_x,

AsyncParkService.byCountryResponseFuture.class,

continuation,

new String[]{endpoint\_x,

'',

'http://parks.services/',

'byCountry',

'http://parks.services/',

'byCountryResponse',

'ParkService.byCountryResponse'}

);

}

}

}

2.AsyncParksService

//Generated by wsdl2apex

public class AsyncParksService {

public class byCountryResponseFuture extends System.WebServiceCalloutFuture {

public String[] getValue() {

parksService.byCountryResponse response = (parksService.byCountryResponse)System.WebServiceCallout.endInvoke(this);

return response.return\_x;

}

}

public class AsyncParksImplPort {

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

public Map<String,String> inputHttpHeaders\_x;

public String clientCertName\_x;

public Integer timeout\_x;

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

public AsyncParksService.byCountryResponseFuture beginByCountry(System.Continuation continuation,String arg0) {

parksService.byCountry request\_x = new parksService.byCountry();

request\_x.arg0 = arg0;

return (AsyncParksService.byCountryResponseFuture) System.WebServiceCallout.beginInvoke(

this,

request\_x,

AsyncParksService.byCountryResponseFuture.class,

continuation,

new String[]{endpoint\_x,

'',

'http://parks.services/',

'byCountry',

'http://parks.services/',

'byCountryResponse',

'parksService.byCountryResponse'}

);

}

}

}