

APEX SPECIALIST SUPERBADGE-SOLUTIONS

Automated Record Creation

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));
} else {
nc.Date_Due__c = Date.today().addDays((Integer)
cc.Equipment__r.maintenance_Cycle__c);
}
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.apxt

```

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

```

Synchronize Salesforce data with an external system

WarehouseCalloutService.apxc :-

```

public with sharing class WarehouseCalloutService implements Queueable {
private static final String WAREHOUSE_URL = 'https://th-

```

```

superbadgeapex.herokuapp.com/equipment';
//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 qqfesc80rqna4ljmv0ga2m5m6f58twm7nqc27h0gx2(){
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());
//class maps the following fields: replacement part (always true), cost, current
inventory, lifespan, maintenance cycle, and warehouse SKU
//warehouse SKU will be external ID for identifying which equipment records
to update within Salesforce
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 = (Integer) mapJson.get('cost');
myEq.Warehouse_SKU__c = (String) mapJson.get('sku');
myEq.Current_Inventory__c = (Double) mapJson.get('quantity');
myEq.ProductCode = (String) mapJson.get('_id');
warehouseEq.add(myEq);
}
if (warehouseEq.size() > 0){
upsert warehouseEq;
System.debug('Your equipment was synced with the warehouse one');
}
}
}
}

```

```

public static void execute (QueueableContext context){
qqfesc80rqna4ljmv0ga2m5m6f58twm7nqc27h0gx2();
}
}

```

After saving the code open execute anonymous window (CTRL+E) and run this method ,

```
System.enqueueJob(new WarehouseCalloutService());
```

Schedule synchronization using Apex code

WarehouseSyncSchedule.apxc :-

```

global with sharing class WarehouseSyncSchedule implements Schedulable{
global void execute(SchedulableContext ctx){
System.enqueueJob(new WarehouseCalloutService());
}
}

```

Test automation logic

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);
}
}

```

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;
}
}
}

```

MaintenanceRequest.apxt :-

```

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

```

Test callout logic

WarehouseCalloutService.apxc :-

```

public with sharing class WarehouseCalloutService {
private static final String WAREHOUSE_URL = 'https://th-
superbadgeapex.herokuapp.com/equipment';
//@future(callout=true)
public static void qqfesc80rqna4ljmv0ga2m5m6f58twm7nqc27h0gx2(){
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.apxc :-

```

@Test
private class WarehouseCalloutServiceTest {
@Test
static void testWareHouseCallout(){
Test.startTest();
// implement mock callout test here
Test.setMock(HTTPCalloutMock.class, new WarehouseCalloutServiceMock());
WarehouseCalloutService.qqfesc80rqna4ljmv0ga2m5m6f58twm7nqc27h0gx2();
Test.stopTest();
}
}

```

```

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

```

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,"quant
ity":5,"name":"Generator 1000
kW","maintenanceperiod":365,"lifespan":120,"cost":5000,"sku":"100003"}');
response.setStatusCode(200);
return response;
}
}

```

Test scheduling logic

WarehouseSyncSchedule.apxc :-

```

global class WarehouseSyncSchedule implements Schedulable {
global void execute(SchedulableContext ctx) {
WarehouseCalloutService.qqfesc80rqna4ljmv0ga2m5m6f58twm7nqc27h0gx2();
}
}

```

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 ');
    }
}
```

PROCESS AUTOMATION SPECIALIST - SUPERBADGE

Automata leads

error condition formula

```
OR(AND(LEN(State) > 2,  
NOT(CONTAINS("AL:AK:AZ:AR:CA:CO:CT:DE:DC:FL:GA:HI:ID:IL:IN:IA:KS:KY:LA:ME:MD:MA:MI:MN:MS:MO:MT:NE:NV:NH:NJ:NM:NY:NC:ND:OH:OK:OR:PA:RI:SC:SD:TN:TX:UT:VT:VA:WA:WV:WI:WY", State )) ), NOT(OR(Country = "US",Country = "USA",Country = "United States", ISBLANK(Country))))
```

Automate accounts

error condition formula1

```
OR(AND(LEN(BillingState) > 2,  
NOT(CONTAINS("AL:AK:AZ:AR:CA:CO:CT:DE:DC:FL:GA:HI:ID:IL:IN:IA:KS:KY:LA:ME:MD:MA:MI:MN:MS:MO:MT:NE:NV:NH:NJ:NM:NY:NC:ND:OH:OK:OR:PA:RI:SC:SD:TN:TX:UT:VT:VA:WA:WV:WI:WY", BillingState ))  
,AND(LEN(ShippingState) > 2,  
NOT(CONTAINS("AL:AK:AZ:AR:CA:CO:CT:DE:DC:FL:GA:HI:ID:IL:IN:IA:KS:KY:LA:ME:MD:MA:MI:MN:MS:MO:MT:NE:NV:NH:NJ:NM:NY:NC:ND:OH:OK:OR:PA:RI:SC:SD:TN:TX:UT:VT:VA:WA:WV:WI:WY", ShippingState))  
,NOT(OR(BillingCountry = "US",BillingCountry = "USA",BillingCountry = "United States",  
ISBLANK(BillingCountry))),  
NOT(OR(ShippingCountry = "US",ShippingCountry = "USA",ShippingCountry = "United States", ISBLANK(ShippingCountry))))  
error condition formula1  
ISCHANGED( Name ) && ( OR( ISPICKVAL( Type ,Customer - Direct') ,ISPICKVAL( Type ,Customer - Channel') ))
```

Automata steps

formula

```
Case ( WEEKDAY( Date__c ),  
1,"Sunday",  
2,"Monday",  
3,"Tuesday",  
4,"Wednesday",
```

```
5,"Thursday",  
6,"Friday",  
7,"Saturday",  
Text(WEEKDay(Date__c)))
```