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**Salesforce TrailHead Superbadges**

## **Codes :-**

### **APEX SPECIALIST SUPERBADGE :**

#### **2. Apex specialist -automate record creation**

Trigger:

Maintenance request:

Trigger maintenancerequest on case (before update, after update) {

    If(trigger.isupdate && trigger.isafter){

        Maintenancerequesthelper.updateworkorders(trigger.new, trigger.oldmap);

    }

}

Maintenance request helper class

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,  
ProductId, Product.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,  
                ProductId =cc.ProductId,  
                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.Product.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;
}
}

```

### 3.Apex Specialist - Synchronize Salesforce data with an external system

made from remote site warehouse url : <https://th-superbadge-apex.herokuapp.com>

warehouse callout service

```

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

        //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){
    runWarehouseEquipmentSync();
}

}

```

execute anonymous window ( CTRL+E ) and run this method ,

-----

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

## 4. Apex Specialist - Schedule synchronization

WarehouseSyncSchedule

```

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

```

## 5. Apex Specialist - Test automation logic

## 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);
}
}

```

\*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;
}
}
}

```

MaintenanceRequest ::

```

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

```

## 6. Apex Specialist - Test callout logic

## WAREHOUSE CALLOUTSERVICE:

```
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 ::

@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 :

```

@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. Apex Specialist - test scheduling logic :

WarehouseSyncSchedule :

```

global class WarehouseSyncSchedule implements Schedulable {
    global void execute(SchedulableContext ctx) {

        WarehouseCalloutService.runWarehouseEquipmentSync();
    }
}

```

WarehouseSyncScheduleTest :

```

@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 super badge:***

### **2. Process Automation Specialist-Automate Leads**

```

OR(
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)),
LEN(State) <> 2,
NOT(OR(Country ="US",Country ="USA",Country ="United States", ISBLANK(Country)))
)

```

### **3. Process Automation Specialist -Automate Accounts**

```

ValidationForBilling
OR(
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)),
LEN(BillingState) <> 2,
NOT(OR(BillingCountry ="US",BillingCountry ="USA",BillingCountry ="United States",
ISBLANK(BillingCountry))),

```



```

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)),
LEN(ShippingState) <> 2,
NOT(OR(ShippingCountry = "US", ShippingCountry = "USA", ShippingCountry = "United States", ISBLANK(ShippingCountry )))
)

```

ValidationForType

```

ISCHANGED(Name) && (OR(ISPICKVAL(Type, 'Customer - Direct'), ISPICKVAL(Type, 'Customer - Channel'))))

```

## 4. Process Automation Specialist - Create Robot Setup Object

```

CASE(weekday(Date__c),
1,"Sunday",
2,"Monday",
3,"Tuesday",
4,"Wednesday",
5,"Thursday",
6,"Friday",
7,"Saturday",
Text(weekday(Date__c))
)

```

## 8. Process Automation Specialist step8 Automate Setups

```

CASE(
MOD([Opportunity].CloseDate + 180 - DATE(1900, 1, 7),7),
0, [Opportunity].CloseDate + 181,
6, [Opportunity].CloseDate + 182,
[Opportunity].CloseDate + 180
)

```

.....

