

MaintenanceRequest.apxt :-

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

WarehouseCalloutService.apxc :-

```
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();
}
}
```

WarehouseSyncSchedule.apxc :-

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

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);
  }
}

```

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);
    }

}
}
}

```

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]);
}
}
```

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;
}
}
```

WarehouseSyncSchedule.apxc :-

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

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 ');

}
}
```