

APEX SPECIALIST SUPER BADGE CODES

APEX TRIGGERS

AccountAddressTrigger.apxt:-

```
trigger AccountAddressTrigger on Account (before insert,before update) {  
    for(Account a:Trigger.New){  
        if(a.Match_Billing_Address__c==true){  
            a.ShippingPostalCode=a.BillingPostalCode;  
        }  
    }  
}
```

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;  
    }  
}
```

Apex Testing

VerifyDate.apxc:-

```
public class VerifyDate {  
    public static Date CheckDates(Date date1, Date date2) {  
        if(DateWithin30Days(date1,date2)) {  
            return date2;  
        }  
    }  
}
```

```
else {
    return SetEndOfMonthDate(date1);
}
}

private static Boolean DateWithin30Days(Date date1, Date date2) {
    if( date2 < date1) { return false; }

    Date date30Days = date1.addDays(30);
    if( date2 >= date30Days ) { return false; }
    else { return true; }
}

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.apxc

```
@isTest
public class TestVerifyDate
{
    static testMethod void testMethod1()
    {
        Date d = VerifyDate.CheckDates(System.today(),System.today()+1);
        Date d1 = VerifyDate.CheckDates(System.today(),System.today()+60);
    }
}
```

RestrictContactByName.apxt

```
trigger RestrictContactByName on Contact (before insert, before update) {
    for (Contact c : Trigger.New) {
        if(c.LastName == 'INVALIDNAME') {
            c.AddError("The Last Name '"+c.LastName+"' is not allowed for DML");
        }
    }
}
```

```
}  
  
@isTest  
private class TestRestrictContactByName {  
    static testMethod void metodoTest() {  
        List<Contact> listContact= new List<Contact>();  
        Contact c1 = new Contact(FirstName='Francesco', LastName='Riggio',  
email='Test@test.com');  
        Contact c2 = new Contact(FirstName='Francesco1', LastName =  
'INVALIDNAME',email='Test@test.com');  
        listContact.add(c1);  
        listContact.add(c2);  
        Test.startTest();  
        try{  
            insert listContact;  
        }  
        catch(Exception ee){}  
        Test.stopTest();  
    }  
}
```

RandomContactFactory.apxc:

```
public class RandomContactFactory {  
    public static List<Contact> generateRandomContacts(Integer numContactsToGenerate, String  
FName) {  
        List<Contact> contactList = new List<Contact>();  
        for(Integer i=0;i<numContactsToGenerate;i++) {  
            Contact c = new Contact(FirstName=FName + ' ' + i, LastName = 'Contact ' +i);  
            contactList.add(c);  
            System.debug(c);  
        }  
    }  
}
```

```
    }  
    System.debug(contactList.size());  
    return contactList;  
}  
}
```

Asynchronous Apex

AccountProcessor.apxc

```
public class AccountProcessor {  
    @future  
    public static void countContacts(List<Id> accountIds){  
        List<Account> accounts = [Select Id, Name from Account Where Id IN : accountIds];  
        List<Account> updatedAccounts = new List<Account>();  
        for(Account account : accounts){  
            account.Number_of_Contacts__c = [Select count() from Contact Where AccountId =:  
account.Id];  
            System.debug('No Of Contacts = ' + account.Number_of_Contacts__c);  
            updatedAccounts.add(account);  
        }  
        update updatedAccounts;  
    }  
}
```

AccountProcessorTest.apxc

```
@isTest  
public class AccountProcessorTest {  
    @isTest  
    public static void testNoOfContacts(){  
        Account a = new Account();
```

```
a.Name = 'Test Account';  
Insert a;  
Contact c = new Contact();  
c.FirstName = 'Bob';  
c.LastName = 'Willie';  
c.AccountId = a.Id;  
Contact c2 = new Contact();  
c2.FirstName = 'Tom';  
c2.LastName = 'Cruise';  
c2.AccountId = a.Id;  
List<Id> acctIds = new List<Id>();  
acctIds.add(a.Id);  
Test.startTest();  
AccountProcessor.countContacts(acctIds);  
Test.stopTest();  
}  
}
```

LeadProcessor.apxc:

```
public class LeadProcessor implements Database.Batchable<sObject> {  
    public Database.QueryLocator start(Database.BatchableContext bc) {  
        return Database.getQueryLocator([Select LeadSource From Lead ]);  
    }  
    public void execute(Database.BatchableContext bc, List<Lead> leads){  
        for (Lead Lead : leads) {  
            lead.LeadSource = 'Dreamforce';  
        }  
        update leads;  
    }  
}
```

```
    }  
    public void finish(Database.BatchableContext bc){  
        }  
}
```

LeadProcessorTest.apxc

```
@isTest  
  
public class LeadProcessorTest {  
    @testSetup  
    static void setup() {  
        List<Lead> leads = new List<Lead>();  
        for(Integer counter=0 ;counter <200;counter++){  
            Lead lead = new Lead();  
            lead.FirstName ='FirstName';  
            lead.LastName ='LastName'+counter;  
            lead.Company ='demo'+counter;  
            leads.add(lead);  
        }  
        insert leads;  
    }  
    @isTest static void test() {  
        Test.startTest();  
        LeadProcessor leadProcessor = new LeadProcessor();  
        Id batchId = Database.executeBatch(leadProcessor);  
        Test.stopTest();  
    }  
}
```

AddPrimaryContact.apxc

```
public class AddPrimaryContact implements Queueable
{
    private Contact c;
    private String state;
    public AddPrimaryContact(Contact c, String state)
    {
        this.c = c;
        this.state = state;
    }
    public void execute(QueueableContext context)
    {
        List<Account> ListAccount = [SELECT ID, Name ,(Select id,FirstName,LastName from
contacts ) FROM ACCOUNT WHERE BillingState = :state LIMIT 200];
        List<Contact> lstContact = new List<Contact>();
        for (Account acc:ListAccount)
        {
            Contact cont = c.clone(false,false,false,false);
            cont.AccountId = acc.id;
            lstContact.add( cont );
        }
        if(lstContact.size() >0 )
        {
            insert lstContact;
        }
    }
}
```

AddPrimaryContactTest.apxc

```
@isTest
public class AddPrimaryContactTest
{
    @isTest static void TestList()
    {
        List<Account> Teste = new List <Account>();
        for(Integer i=0;i<50;i++)
        {
            Teste.add(new Account(BillingState = 'CA', name = 'Test'+i));
        }
        for(Integer j=0;j<50;j++)
        {
            Teste.add(new Account(BillingState = 'NY', name = 'Test'+j));
        }
        insert Teste;
        Contact co = new Contact();
        co.FirstName='demo';
        co.LastName = 'demo';
        insert co;
        String state = 'CA';
        AddPrimaryContact apc = new AddPrimaryContact(co, state);
        Test.startTest();
        System.enqueueJob(apc);
        Test.stopTest();
    }
}
```

DailyLeadProcessor.apxc


```
public class DailyLeadProcessor implements Schedulable {  
    Public void execute(SchedulableContext SC){  
        List<Lead> LeadObj=[SELECT Id from Lead where LeadSource=null limit 200];  
        for(Lead l:LeadObj){  
            l.LeadSource='Dreamforce';  
            update l;  
        }  
    }  
}
```

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

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');

    }

}
```

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 );

    }

}
```

```
}  
}
```

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;  
    }  
}
```

ParkLocator.apxc

```
public class ParkLocator {  
    public static string[] country(string theCountry) {  
        ParkService.ParksImplPort parkSvc = new ParkService.ParksImplPort(); // remove space  
        return parkSvc.byCountry(theCountry);  
    }  
}
```

ParkLocatorTest.apxc

```
@isTest
```

```
private class ParkLocatorTest {  
    @isTest static void testCallout() {  
        Test.setMock(WebServiceMock.class, new ParkServiceMock ());  
        String country = 'United States';  
        List<String> result = ParkLocator.country(country);  
        List<String> parks = new List<String>{'Yellowstone', 'Mackinac National Park',  
'Yosemite'};  
        System.assertEquals(parks, result);  
    }  
}
```

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) {  
        // start - specify the response you want to send  
        ParkService.byCountryResponse response_x = new ParkService.byCountryResponse();  
        response_x.return_x = new List<String>{'Yellowstone', 'Mackinac National Park',  
'Yosemite'};  
        // end
```

```
        response.put('response_x', response_x);  
    }  
}
```

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,Name from Contacts) from Account where  
Id=:accountId Limit 1];  
  
        return result;  
  
    }  
}
```

AccountManagerTest.apxc

```
@IsTest  
  
private class AccountManagerTest {  
  
    @isTest static void testGetContactsByAccountId(){  
  
        Id recordId=createTestRecord();  
  
        RestRequest request=new RestRequest();  
  
        request.requestUri='https://yourInstance.my.salesforce.com/services/apexrest/Accounts/'+  
recordId+'/contacts';  
  
        request.httpMethod='GET';  
  
        RestContext.request=request;  
  
        Account thisAccount=AccountManager.getAccount();  
  
        System.assert(thisAccount != null);  
  
        System.assertEquals('Test record',thisAccount.Name);  
    }  
}
```

```
    }  
    static Id createTestRecord(){  
        Account accountTest=new Account(  
            Name='Test record'  
        );  
        insert accountTest;  
        Contact contactTest=new Contact(  
            FirstName='John',LastName='Doe',AccountId=accountTest.Id);  
        insert contactTest;  
        return accountTest.Id;  
    }  
}
```

APEX SPECIALIST SUPER BADGE

Challenge 1:

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);  
  
    }  
  
}
```

Challenge-2:

WarehouseCalloutService.apxc

```
public with sharing class WarehouseCalloutService implements Queueable {  
  
    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 = (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();  
}  
}
```

Challenge-3:

WarehouseSyncSchedule.apxc

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

Challenge-4:

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);
    }
}
```

Challenge-5:**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 {

global static HttpResponse respond(HttpRequest request){

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

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

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;

```
}

}
```

Challenge-6:

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();  
  
        CronTrigger a=[SELECT Id FROM CronTrigger where NextFireTime > today];  
  
        System.assertEquals(jobID, a.Id,'Schedule ');  
  
    }  
  
}
```

