

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 ');

}

}
```