

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 ');  
  
    }  
  
}
```