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,"quanti
ty":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 ');

    }

}
```