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

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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

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```
@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);
```

```
4
                    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

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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;
```

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```
        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';
        }
```

```
7
        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);
```

```
8
        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 )
```

```
9
        {
            insert lstContact;
        }
    }
}4
```

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';
```

```
10
        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 {
```

```
11
        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:

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```
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
```

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```
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 {
```

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```
        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 {
```

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```
    @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(){
```

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```
        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);
              }
```

```
20
                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) {
```

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```
        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-
```

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```
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-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=REOrigPAIR,
                         Status=STATUS_NEW,
                         in=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;
```

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```
                                                    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
```

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```
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];
```

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```
        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++){
```

```
30
                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 {
```

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```
        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,
```

```
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                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);
  }
```

```
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}
```

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');
```

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```
            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
```

```
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    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();
```

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```
        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 ');
    }
}
```