APEX SPECIALIST SUPER BADGE CODES

APEX TRIGGERS

AccountAddressTrigger.axpt:

```
trigger AccountAddressTriggeron Account (before insert,before
update) { for(Account account:Trigger.New){
  if(account.Match_Billing_Address  c == True){
     account.ShippingPostalCode =
     account.BillingPostalCode;
   }
 }
}
```

ClosedOpportunityTrigger.axpt:

```
 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.s
   iz e() >
   0){
   insert
   tasklist;
```

```
    }
}
```

APEX TESTING

VerifyData.apxc:

```
public class VerifyDate {

        public static Date CheckDates(Date date1, Date date2){
            if(DateWithin30Days(date1,date2)) {
                return date2;

            } else {

            }
                                                    }

return SetEndOfMonthDate(date1);

        @TestVisible privatestatic Boolean DateWithin30Days(Datedate1, Date date2) {
            /check for date2being in
        the past if( date2 < date1) { return
        false; }
```

APEXSPECIALIST SUPER BADGE CODES

```
 /check that date2 is within (>=)30 days of date1
Date date30Days = date1.addDays(30);  /create a date 30 days away from
        date1 if( date2 >=date30Days ) { return false;}
        else { return true; }
}


 /method to returnthe end of the monthof a given date




@TestVisible private staticDate SetEndOfMonthDate(Date
date1){
        IntegertotalDays  =Date.daysInMonth(date1.year(),  date1.month());
        Date lastDay = Date.newInstance(date1.year(),
        date1.month(), totalDays); return lastDay;
}


}
```

TestVerifyData.apxc:

```
@isTest
private class TestVerifyDate {
```

```
    @isTest staticvoid Test_CheckDates_case1(){
        Date D = VerifyDate.CheckDates(date.parse('01/01/2022'),date.parse('01/05/2022'));
        System.assertEquals(date.parse('01/05/2022'), D);
}
    @isTest staticvoid Test_CheckDates_case2(){
        Date D = VerifyDate.CheckDates(date.parse('01/01/2022'), date.parse('05/05/2022'));
        System.assertEquals(date.parse('01/31/2022'), D);
    }
    @isTest static void Test_Within30Days_case1(){
        Boolean flag =
VerifyDate.DateWithin30Days(date.parse('01/01/2022'),
date.parse('12/30/2021'));
        System.assertEquals(false, flag);
    }
@isTest static void Test_Within30Days_case2(){
        Boolean flag =
VerifyDate.DateWithin30Days(date.parse('01/01/2022'),
date.parse('02/02/2021'));
        System.assertEquals(false, flag);
    }
@isTest staticvoid Test_Within30Days_case3(){


        Boolean flag =
```

APEXSPECIALIST SUPER BADGE CODES

```
VerifyDate.DateWithin30Days(date.parse('01/01/2022'),
date.parse('01/15/2022'));
      System.assertEquals(true,  flag);
   }
   @isTest staticvoid Test_SetEndOfMonthDate(){
      Date returndate =VerifyDate.SetEndOfMonthDate(date.parse('01/01/2022'));
}
}
```

RestrictContactByName.apxt:

```
trigger RestrictContactByName on Contact (beforeinsert, before update){


            /check contacts prior to insert or update for
           invalid data For (Contact c : Trigger.New) {
                  if(c.LastName == 'INVALIDNAME') {   /invalidname is invalid
                        c.AddError('The Last Name "'+c.LastName+'" is not allowedfor
                        DML');
                  }


           }
}
```

TestRestrictContactByName.apxc:

```
@isTest
private class TestRestrictContactByName
   { @isTeststatic void
   Test_insertupdateContact(){
      Contact cnt = new Contact();
```

```
        cnt.LastName = 'INVALIDNAME';









        Test.startTest();
        Database.SaveResult result =
        Database.insert(cnt,false);Test.stopTest(
        ); System.assert(!result.isSuccess());
        System.assert(result.getErrors().size() >
        0);
        System.assertEquals('The Last Name "INVALIDNAME" is not allowed for  DML',
result.getErrors()[0].getMessage());
    }
}
```

APEX SPECIALIST SUPER BADGE CODES

RandomContactFactory.apxc:

```
public class RandomContactFactory {

    public static List<Contact> generateRandomContacts(Integer num_cnts, string lastname) {
      List<Contact> contacts = new List<Contact>();
        for(Integer i = 0; i < num_cnts; i++) {

            Contact cnt = new Contact(FirstName = 'Test' +i,LastName =
```

```
        lastname); contacts.add(cnt);

    }
    return contacts;
            }
}
```

ASYNCHRONOUS APEX

AccountProcessor.apxc:

```
public class AccountProcessor {
            @future
  public static void countContacts(List<Id> accountIds){
    List<Account> accountsToUpdate = new
    List<Account>();

    List<Account> accounts = [Select Id, Name, (Select Id from Contacts)from Account Where
    Id in
:accountIds];
```

```
        For(Account acc: accounts) {
                                List<Contact> contactList =
          acc.contacts; acc.Number_Of_Contacts  c =
          contactList.size(); accountsToUpdate.add(acc);
        }
        update accountsToUpdate;
    }
}
```

AccountProcessorTest.apxc:

```
@isTest
public class AccountProcessorTest {
                @isTest
    private static void testCountContacts() {
        Account newAccount = new Account(Name =
        'Test Account'); insert newAccount;
        Contact newContact1 = new Contact(FirstName = 'John',LastName = 'Doe',AccountId =
```

```
newAccount.Id);
```

APEXSPECIALIST SUPER BADGE CODES

```
        insert newContact1;


        Contact newContact2 = new Contact(FirstName = 'John',LastName = 'Doe',AccountId =
newAccount.Id);
        insert newContact2;
        List<Id> accountIds = new List<Id>();
        accountIds.add(newAccount.Id);
        Test.startTest();
        AccountProcessor.countContacts(acco
        untIds); Test.stopTest();
    }
}
```

LeadProcessor.apxc:

```
global class LeadProcessor implements
                Database.Batchable<sObject>{ global Integercount =
                0;


    global Database.QueryLocator start(Database.BatchableContext
    bc) { return Database.getQueryLocator('SELECT ID,LeadSource
    FROM Lead');
    }
    global void execute(Database.BatchableContext bc,
        List<Lead> L_list){ List<lead> L_list_new = new
        List<lead>();
        for(lead L: L_list){
            L.leadSource =
            'Dreamforce';
            L_list_new.add(L);
            count += 1;
        }
        update L_list_new;
    }
    global void
```

```
    finish(Database.BatchableContext bc){




    system.debug('count = ' + count);
  }
}
```

LeadProcessorTest.apxc:

```
@isTest
public class LeadProcessorTest {
        @isTest
  publicstatic void
        testit(){
```

APEX SPECIALIST SUPER BADGE CODES

```
    List<lead> L_list = new
    List<lead>();for(Integer i = 0; i
    < 200; i++) {
      Lead L = new
      Lead();
      L.LastName =
      'name'
```

```
        + i; L.Company =
        'Company';
        L.Status
        = 'Random Status';
        L_list.add(L);
      }
      insert
      L_list;
      Test.start
      Te st();
      LeadProcessor lp = new
      LeadProcessor(); Id batchId =
      Database.executeBatch(lp);
      Test.stopTest();
   }
}
```

AddPrimaryContact.apxc:

```
public class AddPrimaryContact implements
            Queueable{ private Contactcon;
   private String state;
   public AddPrimaryContact(Contact con, String
      state) { this.con = con;
      this.state =state;
   }
   public void execute(QueueableContext context) {
      List<Account> accounts = [Select Id,Name,(Select FirstName,LastName, Id from
                  contacts) from Account where BillingState = :state Limit 200];
      List<Contact> primaryContacts = new List<Contact>();
```

```
        for(Account acc : accounts) {
            Contact c =
            con.clone();
            c.AccountId =
            acc.Id;
            primaryContacts.a
            dd (c);
        }
        if(primaryContacts.si
            ze () > 0) { insert
            primaryContacts;
        }
    }
}
```

```
@isTest publicclass
```

APEX SPECIALIST SUPER BADGE CODES

AddPrimaryContactTest.apxc:

```
AddPrimaryContactTest{ static
```

```
    testmethod void
    testQueueable() {
        List<Account> testAccounts = new
        List<Account>(); for(Integer i = 0; i < 50; i++) {
            testAccounts.add(new Account (Name = 'Account' + i,BillingState = 'CA'));
        }
        for(Integer j =0; j < 50; j++) {
            testAccounts.add(new Account(Name = 'Account'+ j, BillingState ='NY'));
        }
        insert testAccounts;
        Contact testContact = new Contact(FirstName = 'John', LastName =
        'Doe'); insert testContact;
        AddPrimaryContact addit = new
        AddPrimaryContact(testContact,'CA'); Test.startTest();
        system.enqueueJob(ad
        dit); Test.stopTest();
        System.assertEquals(50, [Select count()from Contact where accountId in (Select Id
from Account where BillingState = 'CA')]);
    }
}
```

DailyLeadProcessor.apxc:

```
global class DailyLeadProcessor implements
    Schedulable{ global void
    execute(SchedulableContext ctx) {
        List<Lead> leadstoupdate = new List<Lead>();
        List<Lead> leads = [Select id From LeadWhere LeadSource = NULL Limit
        200]; for(Lead l: leads) {
            l.LeadSource = 'Dreamforce';
            leadstoupdate.add(l);
```

```
        }
        update leadstoupdate;
    }
}
```

APEX SPECIALIST SUPER BADGE CODES

DailyLeadProcessorTest.apxc:

```
@

i

s

T

e s
t

private class DailyLeadProcessorTest {
                public staticString CRON_EXP = '0 0 0 15 3 ?
    2024'; static testmethod void testScheduledJob()
        { List<Lead> leads = new
        List<Lead>(); for(Integer i
```

```
= 0; i < 200; i++) {
   Lead l = new Lead(
      FirstName = 'First'
      + i, LastName=
      'LastName',
      Company = 'The
      Inc'
   );
   leads.add(l);
}
insert
leads;
Test.start
Te st();
String jobId =
        System.schedule('ScheduledApexTest',CRON_EXP,new
        DailyLeadProcessor()); Test.stopTest();
List<Lead> checkleads = new List<Lead>();
checkleads = [SelectIdFrom Lead Where LeadSource = 'Dreamforce' and Company = 'The
Inc']; System.assertEquals(200,checkleads.size(),'Leads were not created');
  }
}
```

public class AnimalLocator{

APEX INTEGRATION SERVICES

AnimalLocator.apxc:

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) {

APEX SPECIALIST SUPER BADGE CODES

Map<String, Object> results = (Map<String,
Object>)JSON.deserializeUntyped(res.getBody()); animal = (Map<String, Object>)
results.get('animal');
}
return (String)animal.get('name');

```
    }

}

@isTest
private classAnimalLocatorTest{
```

AnimalLocatorTest.apxc:

```
    @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 implementsHttpCalloutMock {
      / 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.setStatusC
        od e(200); return
        response;
    }
}
```

ParkLocator.apxc:

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

@isTest private class
```

APEX SPECIALIST SUPER BADGE CODES

ParkLocatorTest.apxc:

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

ParkServiceMock.apxc:

```
@isTest
global class ParkServiceMock implements
  WebServiceMock { global void doInvoke(
        Obje
        ct
        stub,
        Obje
        ct
        reque
        st,
        Map<String, Object>


        response, String endpoint,
        String
        soapAction,
        String
        requestName,
        String
        responseNS,
        String
        responseNam
        e, String
        responseTyp
```

```
        e){
        /start -specifythe response you want to send
      ParkService.byCountryResponse response_x = new ParkService.byCountryResponse();
      response_x.return_x = new List<String>{'Yellowstone', 'MackinacNationalPark',
      'Yosemite'};
       / end
      response.put('response_x',response_x);
  }
}
```

AccountManager.apxc:

```
@RestResource(urlMapping='/Accounts/*/co
ntacts') global class AccountManager {
   @HttpGet
   global static AccountgetAccount()
      { RestRequest req =
      RestContext.request;
      String accId =req.requestURI.substringBetween('Accounts/', '/contacts');
```

APEX SPECIALIST SUPER BADGE CODES

```
      Account acc = [SELECT Id, Name, (SELECT Id, Name FROM
                  Contacts) FROM Account WHERE Id = :accId];


      return acc;
   }
}
```

AccountManagerTest.apxc:

```
@isTest
```

```
private class AccountManagerTest {


   private static testMethod void
      getAccountTest1() { Id recordId=
      createTestRecord();
       / Set up a test request
      RestRequest request=new RestRequest();
      request.requestUri = 'https:
      /na1.salesforce.com/services/apexrest/Accounts/'+ recordId
+'/contacts' ;
      request.httpMethod = 'GET';
      RestContext.request = request;
       / Call the methodto test
      Account thisAccount = AccountManager.getAccount();
       / Verify results
      System.assert(thisAccount !=
      null);
      System.assertEquals('Test record', thisAccount.Name);


   }


    / Helper method
      static Id createTestRecord() {
       / Create test record
      Account TestAcc = new Account(
        Name='Test record');
      insert TestAcc;
      Contact TestCon= new Contact(
      LastName='Test',
```

```
        AccountId =
        TestAcc.id);
        return
        TestAcc.Id;
    }
}
```

APEX SPECIALIST SUPER BADGE CODES

APEX SPECIALIST SUPER BADGE

Challeng
e-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',
```

APEX SPECIALIST SUPER BADGE CODES

```
        Subject =
        'RoutineMaintenance',
        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 (Casenc : 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;
}
```

```
    }
}
```

APEX SPECIALIST SUPER BADGE CODES

MaintenanceRequest.apxt:

```
trigger MaintenanceRequest on Case (before update, after update) {
    if(Trigger.isUpdate&& Trigger.isAfter){
        MaintenanceRequestHelper.updateWorkOrders(Trigger.New,  Trigger.OldMap);
    }
}
```

MaintenanceRequestHelperTest.apxc:

```
@

i

s

t

e

s

t

 public with sharing class MaintenanceRequestHelperTest {


    private static final string STATUS_NEW =
```

```
'New'; private staticfinal
stringWORKING= 'Working'; private
static final string CLOSED = 'Closed';
private static final string REPAIR =
'Repair';
private static final string REQUEST_ORIGIN = 'Web';

private static finalstring REQUEST_TYPE =
'Routine Maintenance'; private static final
string REQUEST_SUBJECT = 'Testing subject';


PRIVATE STATICVehicle_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,
```

APEX SPECIALIST SUPER BADGE CODES

```
                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];
```

APEX SPECIALIST SUPER BADGE CODES

```
    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
```

APEX SPECIALIST SUPER BADGE CODES

```
                where Maintenance_Request__c = :emptyReq.Id];

        system.assert(workPart != null);
        system.assert(allRequest.size() == 1);
    }


    @istest
    private static void testMaintenanceRequestBulk(){
        list<VehicleC> 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
equipmentLis
t;

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
   (r eq.Id);
}
update requestList;
```

APEX SPECIALIST SUPER BADGE CODES

```
        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);
    }
}
```

Challenge-2

WarehouseCalloutService.apxc:

```
public with sharingclass WarehouseCalloutService implements
    Queueable { privatestatic final StringWAREHOUSE_URL = 'https:
    /th-superbadge-
apex.herokuapp.com/equipmen
```

```
t';


    /class that makesaREST callout to an externalwarehouse system to get a list of equipment
that needs to be updated.
    /The callout's JSON response returns the equipment records that you upsert in
    Salesforce.


  @future(callout=true)
  public static void
    runWarehouseEquipmentSync(){ Http
    http = new Http();
    HttpRequest request =new HttpRequest();


    request.setEndpoint(WAREHOUSE_UR
    L); 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
```

());

APEX SPECIALIST SUPER BADGE CODES

System.debug(response.getBody());

/class maps the following fields:replacement part (alwaystrue), cost, current inventory, lifespan, maintenance cycle, and warehouse SKU
/warehouse SKU will be externalID for identifying which equipment records to update within Salesforce

```
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.si
          ze ()> 0){ upsert
          warehouseEq;
          System.debug('Your equipment was syncedwith the warehouse one');
        }
      }
    }

    public static void execute (QueueableContext context){
      runWarehouseEquipmentSync();
    }


}

@isTest
```

WarehouseCalloutServiceMock.apxc:

```
global classWarehouseCalloutServiceMock implements HttpCalloutMock {
    / implementhttp mock callout
   global staticHttpResponse respond(HttpRequest request){
```

APEX SPECIALIST SUPER BADGE CODES

```
        HttpResponse response = new
        HttpResponse();
        response.setHeader('Content-
        Type', 'application/json');
```

```
response.setBody('[{"_id":"55d66226726b611100aaf741","replacement":false,"quantity":5,"nam
e"
:"Gene   rator                                                    1000
kW","maintenanceperiod":365,"lifespan":120,"cost":5000,"sku":"100003"},{"_id":"55d66226726b61
1100a af742","replacement":true,"quantity":183,"name":"Cooling
Fan","maintenanceperiod":0,"lifespan":0,"cost":300,"sku":"100004"},{"_id":"55d66226726b611100
aaf743 ","replacement":true,"quantity":143,"name":"Fuse
20A","maintenanceperiod":0,"lifespan":0,"cost":22,"sku":"100005"}]');
        response.setStatusCode(200);


        return response;
    }
}
```

WarehouseCalloutServiceTest.apxc:

```
@IsTest
private class WarehouseCalloutServiceTest {
    / implement your mock callouttest
```

```
        here @isTest
    static void
        testWarehouseCallout(){
        test.startTest();
        test.setMock(HttpCalloutMock.class,new WarehouseCalloutServiceMock());
        WarehouseCalloutService.execute(null);
        test.stopTest();


        List<Product2> product2List = new List<Product2>();
        product2List = [SELECTProductCode FROM Product2];

        System.assertEquals(3, product2List.size());
        System.assertEquals('55d66226726b611100aaf74
        1', product2List.get(0).ProductCode);
        System.assertEquals('55d66226726b611100aaf74
        2', product2List.get(1).ProductCode);
        System.assertEquals('55d66226726b611100aaf74
        3', product2List.get(2).ProductCode);
    }
}
```

Challenge-3

WarehouseSyncSchedule.apxc:

```
global with sharing class WarehouseSyncSchedule implementsSchedulable{
```

APEX SPECIALIST SUPER BADGE CODES

```
    global void execute(SchedulableContext ctx){
        System.enqueueJob(newWarehouseCalloutService());
    }
}
```

WarehouseSyncScheduuleTest.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 Scheduleto Test', scheduleTime, new
WarehouseSyncSchedule());
        Test.stopTest();

         /Contains schedule information for a scheduledjob. CronTrigger is similarto a cron job
on UNIX systems.
         / This object is available in API version 17.0 and later.

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



    }
}
```

Challenge-4

MaintenanceRequestHelperTest.apxc:

```
@istest
public with sharing class MaintenanceRequestHelperTest {

    private static final string STATUS_NEW =
    'New'; private staticfinal
    stringWORKING= 'Working'; private
    static final string CLOSED = 'Closed';
    private static final string REPAIR =
    'Repair';
    private static final string REQUEST_ORIGIN = 'Web';
    private static finalstring REQUEST_TYPE =
    'Routine Maintenance'; private static final
    string REQUEST_SUBJECT = 'Testing subject';

    PRIVATE STATICVehicle_c createVehicle(){
```

APEX SPECIALIST SUPER BADGE CODES

```
        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;
```

APEX SPECIALIST SUPER BADGE CODES

```
   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;
```

APEXSPECIALIST SUPER BADGE CODES

```
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<VehicleC> 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
equipmentLis
t;
```

APEX SPECIALIST SUPER BADGE CODES

```
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
           (r eq.Id);
        }
        updatere
        qu estList;
        test.stopT
        es t();

        list<case> allRequests= [select id
                          from case
                          where status=:STATUS_NEW];

        list<Equipment_Maintenance_Item_c> workParts = [select id
                                    fromEquipment_Maintenance_Item  c
                                    whereMaintenance_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'){
```

APEX SPECIALIST SUPER BADGE CODES

```
      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=
                'RoutineMaintenance',
                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));
```

APEX SPECIALIST SUPER BADGE CODES

```
        }

        newCases.add(nc);
    }

    insert newCases;

    List<Equipment_Maintenance_Item  c> clonedWPs = new
List<Equipment_Maintenance_Item
    c>(); for (Casenc : 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;
    }
  }
}
```

Challenge-5

WarehouseCalloutService.apxc:

```
public with sharing classWarehouseCalloutService implements
  Queueable { privatestatic final StringWAREHOUSE_URL = 'https:
  /th-superbadge-
apex.herokuapp.com/equipmen
t';

   /class that makesaREST callout to an externalwarehouse system to get a list of equipment
that needs to be updated.
   /The callout's JSON response returns the equipment records that you upsert in
   Salesforce.

  @future(callout=true)
  public static void
```

```
runWarehouseEquipmentSync(){ Http
http = new Http();
HttpRequest request = new

HttpRequest();request.setEndpoint(WAREHOUSE_URL);
```

APEX SPECIALIST SUPER BADGE CODES

```
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());
```

```
        /class maps the following fields:replacement part (alwaystrue), cost, current
inventory, lifespan, maintenance cycle, and warehouse SKU
        /warehouse SKU will be externalID for identifying which equipment records
to update within Salesforce
        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.si
          ze ()> 0){ upsert
          warehouseEq;
          System.debug('Your equipment was syncedwith the warehouse one');
        }
      }
```

```
    }

    public static void execute (QueueableContext context){
        runWarehouseEquipmentSync();
    }

}

@isTest
```

APEXSPECIALIST SUPER BADGE CODES

WarehouseCalloutServiceMock.apxc:

```
global classWarehouseCalloutServiceMock implements HttpCalloutMock {
    / implementhttp mock callout
    global staticHttpResponse respond(HttpRequest request){
```

```
        HttpResponse response = new
        HttpResponse();
        response.setHeader('Content-
        Type', 'application/json');

response.setBody('[{"_id":"55d66226726b611100aaf741","replacement":false,"quantity":5,"
na me":"Gene                rator 1000
kW","maintenanceperiod":365,"lifespan":120,"cost":5000,"sku":"100003"},{"_id":"55d6622672
6b611100a af742","replacement":true,"quantity":183,"name":"Cooling
Fan","maintenanceperiod":0,"lifespan":0,"cost":300,"sku":"100004"},{"_id":"55d66226726b611
100aaf743 ","replacement":true,"quantity":143,"name":"Fuse
20A","maintenanceperiod":0,"lifespan":0,"cost":22,"sku":"100005"}]');
        response.setStatusCode(200);


        return response;
    }
}
```

WarehouseCalloutServiceTest.apxc:

```
@isTest
global classWarehouseCalloutServiceMock implements HttpCalloutMock {
     / implementhttp mock callout
    global staticHttpResponse respond(HttpRequest request){


        HttpResponse response = new
        HttpResponse();
        response.setHeader('Content-
        Type', 'application/json');
```

```
response.setBody('[{"_id":"55d66226726b611100aaf741","replacement":false,"quantity":5,"
na me":"Gene                rator 1000
kW","maintenanceperiod":365,"lifespan":120,"cost":5000,"sku":"100003"},{"_id":"55d6622672
6b611100a af742","replacement":true,"quantity":183,"name":"Cooling
Fan","maintenanceperiod":0,"lifespan":0,"cost":300,"sku":"100004"},{"_id":"55d66226726b611
100aaf743 ","replacement":true,"quantity":143,"name":"Fuse
```

```
20A","maintenanceperiod":0,"lifespan":0,"cost":22,"sku":"100005"}]');
```

APEX SPECIALIST SUPER BADGE CODES

```
        response.setStatusCode(200);


        return response;
    }
}
```

Challenge-6

WarehouseSyncSchedule.apxc:

```
global with sharing class WarehouseSyncSchedule implements
   Schedulable{ global void execute(SchedulableContext ctx){
      System.enqueueJob(new WarehouseCalloutService());
   }
}
```

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 Scheduleto Test', scheduleTime, new
WarehouseSyncSchedule());
      Test.stopTest();
       /Contains schedule information for a scheduledjob. CronTrigger is similarto a cron job
on UNIX systems.
```

```
        / This object is available in API version 17.0 and later.
        CronTrigger a=[SELECT Id FROM CronTrigger where NextFireTime >
        today]; System.assertEquals(jobID, a.Id,'Schedule ');


    }
}
```