```
trigger AccountAddressTrigger on Account (before insert, before update) {
    For(Account accountAddress: Trigger.new){
        if(accountAddress.BillingPostalCode !=null &&
accountAddress.Match_Billing_Address__c ==true){
            accountAddress.ShippingPostalCode=accountAddress.BillingPostalCode;
        }
    }

}
```

```
trigger ClosedOpportunityTrigger on Opportunity (after insert, after update) {
    List<Task> newtsk = new List<Task>();
    if(trigger.IsAfter && (trigger.IsInsert || trigger.IsUpdate)){
    for(Opportunity op:Trigger.New){
        if(op.StageName == 'Closed Won'){
            Task tsk = new Task();
tsk.Subject = 'Follow Up Test Task';
tsk.WhatId = op.id;
newtsk.add(tsk);
}
}
    }
    if(newtsk.size()>0){
```

```
        insert newtsk;
    }
}
```

```
public class VerifyDate {
//method to handle potential checks against two dates
public static Date CheckDates(Date date1, Date date2) {
//if date2 is within the next 30 days of date1, use date2.  Otherwise use the end of the month
if(DateWithin30Days(date1,date2)) {
return date2;
} else {
return SetEndOfMonthDate(date1);
}
}
//method to check if date2 is within the next 30 days of date1
private static Boolean DateWithin30Days(Date date1, Date date2) {
//check for date2 being in the past
if( date2 < date1) { return false; }

//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 return the end of the month of a given date
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;
}

}
```

```
@isTest
public class TestVerifyDate {
    @isTest static void testOldDate(){
        Date dateTest = VerifyDate.CheckDates(date.today(), date.today().addDays(-1));
        System.assertEquals(date.newInstance(2022, 4, 31), dateTest);
    }

    @isTest static void testLessThan30Days(){
        Date dateTest = VerifyDate.CheckDates(date.today(), date.today().addDays(20));
        System.assertEquals(date.today().addDays(20), dateTest);
```

```
    }

    @isTest static void testMoreThan30Days(){
        Date dateTest = VerifyDate.CheckDates(date.today(), date.today().addDays(31));
        System.assertEquals(date.newInstance(2022, 4, 31), dateTest);
    }

}
```

```
trigger RestrictContactByName on Contact (before insert, 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 allowed for DML');
}

}
```

```
}
```

```
@isTest
private class TestRestrictContactByName {

    @isTest static void testInvalidName() {
        //try inserting a Contact with INVALIDNAME
        Contact myConact = new Contact(LastName='INVALIDNAME');
        insert myConact;

        // Perform test
        Test.startTest();
        Database.SaveResult result = Database.insert(myConact, false);
        Test.stopTest();
        // Verify
        // In this case the creation should have been stopped by the trigger,
        // so verify that we got back an error.
        System.assert(!result.isSuccess());
        System.assert(result.getErrors().size() > 0);
        System.assertEquals('Cannot create contact with invalid last name.',
                             result.getErrors()[0].getMessage());

    }
}
```

```
//@isTest
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);
        }
        //insert contactList;
        System.debug(contactList.size());
        return contactList;
    }



public class AccountProcessor {

    //Writting the countContacts method and marking it whit the @future label.
```

```
    @future
    public static void countContacts(Set<Id> accountIDs) {

        // Creating a list that will contain all those accounts that are referenced through the accounIDs list.
        List<Account> accounts = [SELECT Id, Number_of_Contacts__c, (SELECT id FROM Contacts) from Account where id in :accountIDs];

        //Assigment from the total contact number to the Number_of_Contacts__c field for each account at accounts list.
        for( Account account : accounts ) {
          account.Number_of_Contacts__c = account.contacts.size();
        }

        //Updating all accounts in list
        update accounts;

    }

}

@isTest
```

```
public class AccountProcessorTest {

    @isTest
    public static void countContactsTest(){
        //Creating an account and inserting it
        Account account = New Account(Name = 'Account Number 1');
        insert account;

        //Creating some contacts related to the account and inserting them
        List<Contact> contacts = new List<Contact>();
        contacts.add(New Contact(lastname = 'Related Contact 1', AccountId =
account.Id));
        contacts.add(New Contact(lastname = 'Related Contact 2', AccountId =
account.Id));
        contacts.add(New Contact(lastname = 'Related Contact 3', AccountId =
account.Id));
        contacts.add(New Contact(lastname = 'Related Contact 4', AccountId =
account.Id));
        insert contacts;

        //Creating a List with account Ids to pass them throught the
AccountProcessor.countContacts method
        Set<Id> accountIds = new Set<Id>();
        accountIds.add(account.id);

        //Starting Test:
```

```
        Test.startTest();


        //Calling the AccountProcessor.countContacts method
        AccountProcessor.countContacts(accountIds);


        //Finishing Test:
        Test.stopTest();
        Account ACC = [SELECT Number_of_Contacts__c FROM Account WHERE id =
:account.Id LIMIT 1];


        //Setting Assert (We have to parse the account.Number_of_Contacts__c
        //to integer to avoid some comparasion error between decimal and integer)
        System.assertEquals( Integer.valueOf(ACC.Number_of_Contacts__c) , 4);
    }



}
```

```
global class LeadProcessor implements
Database.Batchable<sObject>, Database.Stateful {
```

```
// instance member to retain state across transactions
global Integer recordsProcessed = 0;

global Database.QueryLocator start(Database.BatchableContext bc) {
return Database.getQueryLocator('SELECT Id, LeadSource FROM Lead');
}

global void execute(Database.BatchableContext bc, List<Lead> scope){
// process each batch of records
List<Lead> leads = new List<Lead>();
for (Lead lead : scope) {

lead.LeadSource = 'Dreamforce';
// increment the instance member counter
recordsProcessed = recordsProcessed + 1;

}
update leads;
}

global void finish(Database.BatchableContext bc){
System.debug(recordsProcessed + ' records processed. Shazam!');

}
```

```
}
```

```
@isTest
public class LeadProcessorTest {
@testSetup
static void setup() {
List<Lead> leads = new List<Lead>();
// insert 200 leads
for (Integer i=0;i<200;i++) {
leads.add(new Lead(LastName='Lead '+i,
Company='Lead', Status='Open - Not Contacted'));
}
insert leads;
}

static testmethod void test() {
Test.startTest();
LeadProcessor lp = new LeadProcessor();
Id batchId = Database.executeBatch(lp, 200);
Test.stopTest();
```

```
// after the testing stops, assert records were updated properly
System.assertEquals(200, [select count() from lead where LeadSource = 'Dreamforce']);
}
}



public class AddPrimaryContact implements Queueable {
    public contact c;
    public String state;

    public AddPrimaryContact(Contact c, String state) {
        this.c = c;
        this.state = state;
    }

    public void execute(QueueableContext qc) {
        system.debug('this.c = '+this.c+' this.state = '+this.state);
        List<Account> acc_lst = new List<account>([select id, name, BillingState from
account where account.BillingState = :this.state limit 200]);
        List<contact> c_lst = new List<contact>();
        for(account a: acc_lst) {
            contact c = new contact();
            c = this.c.clone(false, false, false, false);
```

```
            c.AccountId = a.Id;
            c_lst.add(c);
        }
        insert c_lst;
    }

}
```

```
@IsTest
public class AddPrimaryContactTest {

    @IsTest
    public static void testing() {
        List<account> acc_lst = new List<account>();
        for (Integer i=0; i<50;i++) {
            account a = new account(name=string.valueOf(i),billingstate='NY');
            system.debug('account a = '+a);
            acc_lst.add(a);
        }
        for (Integer i=0; i<50;i++) {
            account a = new account(name=string.valueOf(50+i),billingstate='CA');
```

```
            system.debug('account a = '+a);
            acc_lst.add(a);
        }
        insert acc_lst;
        Test.startTest();
        contact c = new contact(lastname='alex');
        AddPrimaryContact apc = new AddPrimaryContact(c,'CA');
        system.debug('apc = '+apc);
        System.enqueueJob(apc);
        Test.stopTest();
        List<contact> c_lst = new List<contact>([select id from contact]);
        Integer size = c_lst.size();
        system.assertEquals(50, size);
    }

}
```

```
global class DailyLeadProcessor implements Schedulable{
    global void execute(SchedulableContext ctx){
        List<Lead> leads = [SELECT Id, LeadSource FROM Lead WHERE LeadSource = ''];
```

```
        if(leads.size() > 0){
            List<Lead> newLeads = new List<Lead>();

            for(Lead lead : leads){
                lead.LeadSource = 'DreamForce';
                newLeads.add(lead);
            }

            update newLeads;
        }
    }
}
```

```
@isTest
private class DailyLeadProcessorTest{
    //Seconds Minutes Hours Day_of_month Month Day_of_week optional_year
    public static String CRON_EXP = '0 0 0 2 6 ? 2022';

    static testmethod void testScheduledJob(){
        List<Lead> leads = new List<Lead>();
```

```
        for(Integer i = 0; i < 200; i++){
            Lead lead = new Lead(LastName = 'Test ' + i, LeadSource = '', Company = 'Test Company ' + i, Status = 'Open - Not Contacted');
            leads.add(lead);
        }

        insert leads;

        Test.startTest();
        // Schedule the test job
        String jobId = System.schedule('Update LeadSource to DreamForce', CRON_EXP, new DailyLeadProcessor());

        // Stopping the test will run the job synchronously
        Test.stopTest();
    }
}
```

```
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');
    }
}
```

```
@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 );
    }
```

```
}
```

```
@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;
   }
}
```

```
//Generated by wsdl2apex
```

```
public class ParkService {

    public class byCountryResponse {

        public String[] return_x;

        private String[] return_x_type_info = new
String[]{'return','http://parks.services/',null,'0','-1','false'};

        private String[] apex_schema_type_info = new
String[]{'http://parks.services/','false','false'};

        private String[] field_order_type_info = new String[]{'return_x'};

    }

    public class byCountry {

        public String arg0;

        private String[] arg0_type_info = new
String[]{'arg0','http://parks.services/',null,'0','1','false'};

        private String[] apex_schema_type_info = new
String[]{'http://parks.services/','false','false'};

        private String[] field_order_type_info = new String[]{'arg0'};

    }

    public class ParksImplPort {

        public String endpoint_x = 'https://th-apex-soap-
service.herokuapp.com/service/parks';

        public Map<String,String> inputHttpHeaders_x;

        public Map<String,String> outputHttpHeaders_x;

        public String clientCertName_x;

        public String clientCert_x;

        public String clientCertPasswd_x;

        public Integer timeout_x;
```

```
    private String[] ns_map_type_info = new String[]{'http://parks.services/',
'ParkService'};

    public String[] byCountry(String arg0) {

      ParkService.byCountry request_x = new ParkService.byCountry();

      request_x.arg0 = arg0;

      ParkService.byCountryResponse response_x;

      Map<String, ParkService.byCountryResponse> response_map_x = new
Map<String, ParkService.byCountryResponse>();

      response_map_x.put('response_x', response_x);

      WebServiceCallout.invoke(

       this,

       request_x,

       response_map_x,

       new String[]{endpoint_x,

       '',

       'http://parks.services/',

       'byCountry',

       'http://parks.services/',

       'byCountryResponse',

       'ParkService.byCountryResponse'}

      );

      response_x = response_map_x.get('response_x');

      return response_x.return_x;

    }

  }
```

```
}
```

```
@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);
   }
```

```
}
```

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

```
@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);
    }
```

```
}
```

```
@RestResource(urlMapping='/Accounts/*/contacts')
global class AccountManager {
    @HttpGet
    global static Account getAccount() {
        RestRequest req = RestContext.request;
        String accId = req.requestURI.substringBetween('Accounts/', '/contacts');
        Account acc = [SELECT Id, Name, (SELECT Id, Name FROM Contacts)
                       FROM Account WHERE Id = :accId];
        return acc;
    }
}
```

```
@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 method to 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
;
    }
}
```