

Name: Deep Patel
Dal ID: B00865413

Final Project **Test Cases**

1. Input Validation

- MobileDevice(configurationFile, contactTracer)
 - Null value passed for a configurationFile
 - Null value passed for a contactTracer
 - Empty value passes for a configurationFile
- recordContact(individual,date,duration)
 - Null value passed for individual in recordContact()
 - Empty string passes for individual in recordContact()
- positiveTest(testHash)
 - Null value passed for testHash into positiveTest()
 - Empty value passed for testHash into positiveTest()
- Government(configurationFile)
 - Null value passed for a configurationFile
 - Empty value passes for a configurationFile
- mobileContact(initiator, contactInfo)
 - Null value passed for initiator
 - Null value passed for contactInfo
- recordTestResult(testHash,date,result)
 - Null value passed as testHash into recordTestResult ()
 - Empty value passed as testHash into recordTestResult ()
- **Plan for Input Validation:**
 - I managed to provide validations for each methods for null values and empty values.

2. Boundary Cases

- MobileDevice(configurationFile , contactTracer)
 - configurationFile contains no data (Empty file)
 - configurationFile contains only one line (missing information)
 - configurationFile contains two line of configuration details(Valid case)
 - configurationFile contains more than two lines of configuration details.
- recordContact(individual, date, duration)
 - individual contains only single line of data.
 - Date is less than 0
 - Date is greater than current date. Ex: date 365 will exceeds todays date 346
 - Duration is less than equals 0
 - Duration is greater than minutes of a day.(Ex : duration of 1500 minutes which exceeds1440 minutes(24H))
- positiveTest(testHash)
 - testHash contains empty string
 - testHash is not alphanumeric string
- synchronizeData()
 - Not a single contact is stored and synchronizeData() is called.
 - Only one contact is stored and synchronizeData() is called.
 - Multiple individual's data is stored and synchronizeData() is called
- Government(configurationFile)
 - configurationFile contains no data (Empty file)
 - configurationoFile contains only one line(database)
 - configurationoFile contains only two lines (database, username)
 - configurationoFile contains three lines (database, username, password)
 - configurationFile contains more than 3 lines.
- mobileContact(initiator, contactInfo)
 - initiator contains no data in it (empty string)
 - contactInfo contains no testHash of mobile device
 - contactInfo contains one testHash of mobile device
 - contactInfo contains multiple testHash of mobile device
 - contactInfo contains no contacted individual
 - contactInfo contains only one contacted individual
 - contactInfo contains multiple contacted individual
- recordTestResult(testHash, date, result)
 - Value of date is less than 0.
 - Value of date is greater than the count of days till now.

- findGathering(date, minSize, minTime, density)
 - Value of date is negative.
 - Value of date is bigger than date count till the day (Ex : Count of today's date is 234 and date comes in as 360.)
 - minSize is negative
 - minSize is zero
 - minSize is any positive & non-zero number (Valid)
 - minTime is negative
 - minTime is equals zero.
 - minTime is any positive & non-zero number (Valid)
 - Density is negative.
 - Density is zero
 - Density is any positive between 0 and 1(Valid)

- **Plan for boundary test cases:**
 - I managed to check all parameter comes into each methods for their null and empty values when needed.
 - I also managed all boundaries for find gathering so no un-expected data can be passed.

3. Control Flow

- MobileDevice(configurationFile , contactTracer)
 - configurationFile contains only Address of the mobileDevice(One line only)
 - configurationFile contains Device name but device address is empty.
 - contactTracer contains empty object of Government class(Empty data strings)
- recordContact(individual, date, duration)
 - individual comes in contact on a same day.(without synchronize)
 - individual comes in contact on a different day.(Without synchronize)
 - individual comes in contact on a same day.(After synchronize)
 - individual comes in contact on a different day.(After synchronize)
 - Store individual that already exist
- positiveTest(testHash)
 - Same testHash stored more than once(without synchronize)
 - Same testHash stored more than once(After synchronize)
 - Multiple different testHash stored.
- synchronizeData()
 - Synchronize Data while has no device contacted in a day
 - Synchronize data while same device is contacted in a day
 - Synchronize data while has many device contacted in a day
 - Positive tested individuals get in contact (Alert)
 - Alerted contacts gets in contact again after some day
- Government(configurationFile)
 - Null values passed in as configurationFile
 - Empty values passed in as configurationFile
 - Invalid credentials passed in configurationFile
- General :
 - Connection can't be established (invalid credentials).
 - Connection can't be established (Failure to connect).
- mobileContact(initiator, contactInfo)
 - initiator already exist in a database with same contact
 - test hash already stored in a databse
 - contactInfo contains only testHash info
 - contactInfo only contains only the contacts(individuals) info
 - contactInfo only contains testHashes and contacts both
 - Same testHash comes in xml format to be stored(Not get stored)
 - testHash comes to be stored when no match found in testinfo table(Not get stored)

- recordTestResult(testHash, date, result)
 - testHash already exist in the database on given date.
 - testHash does not exist in database on given date.
- findGathering(date, minSize, minTime, density)
 - No contacts are there on particular date(No reporting : 0)
 - Contacts are there but none exceeds minSize (No reporting)
 - Contacts are there but none exceeds minTime (No reporting)
 - Density of contacted connections is less than density (No reporting)
- **Plan for Control flow cases:**
 - I managed to store only those test hashes which are not existed already for same device.
 - I managed to store only those testHashes which are already updated by test agencies into their table.
 - I checked contacts for multiple entries on the same date for same device and combine their duration as well.
 - recordTestResult will also add only those testHashes which not exist in table already.
 - I also managed to alert only those contacts who are newly came(Do not alert for those who are already alerted . I take one table in database for that)

4. Data Flow

- Call synchronizeData() without calling recordContact()(No contact)
- Call synchronizeData() without calling positiveTest()
- Call findGathering while having no contact Data in database on particular date.