

Project – Milestone 2

Black box tests

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Plan of feature development

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Black box tests

Input Validations

MobileDevice

- Create a MobileDevice by passing a configuration file that does not exist (incorrect filename, empty string as filename and null value as filename).
- Create a MobileDevice by passing a configuration file that is empty.
- Create a MobileDevice by passing a configuration file that has special characters in both device name and address.
- Create a MobileDevice by passing a configuration file that has duplicate device name and address.
- Create a MobileDevice by passing a null as Government object.
- Pass empty string as individual to recordContact().
- Pass null value as individual to recordContact().
- Pass a string of special characters as individual to recordContact().
- Pass date<=0 to recordContact().
Note: Date is started as 1 i.e., 01/01/2020 is considered to be day 1.
- Pass duration<=0 to recordContact().
- Pass empty string as testHash to positiveTest().
- Pass null value as testHash to positiveTest().
- Pass a string of special characters as testHash to positiveTest().

Government

- Create a Government object by passing a configuration file that does not exist (incorrect filename, empty string as filename and null value as filename).
- Create a Government object by passing a configuration file that is empty.
- Create a Government object by passing a configuration file that has special characters in it.
- Pass empty strings as initiator and contactInfo to mobileContact().
- Pass null values as initiator and contactInfo to mobileContact().
- Pass special characters as initiator and contactInfo to mobileContact().
- Pass empty string as testHash to recordTestResult().
- Pass null value as testHash to recordTestResult().

- Pass string with special characters as testHash to recordTestResult().
- Pass date<=0 to recordTestResult() and findGatherings().
- Pass a valid string, date and result to recordTestResult().
- Operate when minSize and minTime are passed as negative values to findGatherings().
- Pass density as any float value to findGatherings().
- Pass valid data i.e., date>=1, minSize>=1, minTime>=1 and density to findGatherings().

Boundary Cases

MobileDevice

MobileDevice(String configurationFile, Government Object)

- Operate when configuration file has required data only in a single line.
- Operate when configuration file has multiple lines to read the required data.
- Operate when configuration line starts with an empty line.

readContact(String individual, int date, int duration)

- Call when you are reading it as the first contact.
- Call when the mobile device already contains a list of contacts and you're appending the new contact to the existing list.
- Call with individual as a string with a single character.
- Call with individual as a string with multiple characters.
- Call with date as 1.
- Call with date>1.
- Call with duration as 1.
- Call with duration>1.

positiveTest(String testHash)

- Call to report positive test for the first time.
- Call to report positive result for the second time or more.
- Call when testHash is a string with a single character.

- Call when testHash is a string with multiple characters.

synchronizeData()

- Operate when there is a single contact to synchronize with government server.
- Operate when there are multiple contacts to synchronize with government server.
- Operate when there is a single positive test to sync.
- Operate when there are multiple positive tests to sync.

Government

Government(String configurationFile)

- Operate when configuration file has required data in a single line.
- Operate when configuration line starts with an empty line.
- Operate when configuration file has multiple lines to read the required data.

mobileContact(String initiator, String contactInfo)

- Call with initiator as a string with single character.
- Call with initiator as a string with multiple characters.
- Operate when contactInfo contains a single contact.
- Operate when contactInfo contains multiple contacts.

recordTestResult(String testHash, int date, Boolean result)

- Operate when the test is the first one to be added to the database.
- Operate when the test is not the first test to be added to the database.
- Operate when date is 1.
- Operate when date is greater than 1.

findGatherings(int date, int minSize, int minTime, float density)

- Operate when date is 1.
- Operate when date is greater than 1.
- Operate when minSize is 1.
- Operate when minSize is greater than 1.

- Operate when minTime is 1.
- Operate when minTime is greater than 1.
- Operate when there is a single large gathering to report.
- Operate when there are more than 1 large gatherings to report.

Control Flow

MobileDevice

MobileDevice(String configurationFile, Government contactTracer)

- Create a MobileDevice by passing a valid configuration file that has only device name and address in the given format along with a valid Government object.
- Create a MobileDevice by passing a configuration file that contains only device name and address, but in a different format.
- Create a MobileDevice by passing a configuration file that has more parameters/data other than device name and address.

readContact(String individual, int date, int duration)

- Call when the contact/individual already exists with same date, but with different duration.
- Call when the contact/individual already exists with same duration, but with a different date.
- Operate when the contact already exists with same date and duration.

synchronizeData()

- Operate when there are no contacts and positive tests to sync with government server i.e., only device hash.
- Operate when there are contacts and positive test results to sync along with device hash.

Government

Government(String configurationFile)

- The given details are valid and able to connect to the database.
- The given details are invalid and unable to connect to the database.
- Create a Government object by passing a valid configuration file that contains domain name of the database, username and password details (to access the database) in a given format.
- Create a Government object by passing a configuration file that contains only domain name of the database, username and password details (to access the database), but in a different format.
- Create a Government object by passing a configuration file that has more parameters/data other than domain name of the database, username and password.

mobileContact(String initiator, String conactInfo)

- Operate when initiator is new and does not already exist in the database.
- Operate when initiator already exists in the database.
- Operate when contactInfo does not contain contacts to sync with database.
- Operate when contactInfo does not contain positive test result to store in the database.
- Operate when contactInfo does not follow a proper format of contacts (at least one contact is in a different format).
- Operate when contactInfo consists of duplicate contacts.
- Operate when contactInfo consists of contacts who are already present in the database, but needs an update such as date of contact, duration of contact and result of the contact.
- Operate when positive test result details in contactInfo does not match with any tests in the database.
- Operate when positive test result details in contactInfo matches with any one of the tests in the database.

recordTestResult(String testHash, int date, Boolean result)

- Operate when testHash already exists in the database with same date and result i.e., a duplicate test.
- Operate when testHash already exists in the database but with a different date or a different result.

- Operate when result is true.
- Operate when result is false.

findGatherings(int date, int minSize, int minTime, float density)

- Operate when minSize is 0.
- Operate when minTime is 0.
- Operate when a gathering is greater than density.
- Operate when a gatherings is less than or equal to density.
- Operate when there are no large gatherings to report.

Data Flow

MobileDevice

- Call recordContact() before positiveTest().
- Call positiveTest() before recordContact() and Government.recordTestResult().
- Call synchronizeData() before calling recordContact() and after calling positiveTest().
- Call synchronizeData() before calling positiveTest() and after calling recordContact().

Note: synchronizeData() before recordContact() and positiveTest() is mentioned as part of Control Flow.

Note: synchronizeData() after recordContact() and positiveTest() is mentioned as part of Control Flow.

Government

- Call mobileContact() before recordTestResult() and findGatherings().
- Record a test in the server by calling recordTestResult() before mobileContact(), findGatherings() and MobileDevice.positiveTest().
- Call findGatherings() before calling mobileContact() and recordTestResult().
- Call findGatherings() after mobileContact() and before recordTestResult().
- Call findGatherings() after recordTestResult() and before mobileContent().

Plan of feature development

The following plan is not a final plan and changes will be updated in case of any unplanned events on a regular basis.

Estimated date of completion	Feature	Class	Status
10-Nov-20	Analyze the problem statement and design the blue print of the solution architecture.	N/A	In Progress
15-Nov-20	Create a new hash for each device based on the inputs in the configuration file.	MobileDevice	Not Started
	Ability to store a positive test result.	MobileDevice	Not Started
	Ability to record new/old contacts.	MobileDevice	Not Started
	Format the contacts data in order to use it for sync purpose.	MobileDevice	Not Started
20-Nov-20	Ability to read details and connect to a database from the given configuration file.	Government	Not Started
	Add the mobile contacts of a particular mobile device to a database.	Government	Not Started
	Ability to add test result details to a data base.	Government	Not Started
22-Nov-20	Ability to find large gatherings	Government	Not Started
25-Nov-20	Main class for interaction between end user and program.	N/A	Not Started
30-Nov-20	Refining Test Cases Document	N/A	Not Started
	Testing the implemetation and correcting bugs	N/A	Not Started
6-Dec-20	Documentation	N/A	Not Started
12-Dec-20	Final Review	N/A	Not Started