Faculty of Computers and Artificial intelligence-
Cairo University (credit hours system)

Assignment 2

Subject: Software Testing

Subject code: SCS357

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Application Service class:

Method	Params	Returns	Values	Exception	Ch ID	Characteristics	Cov ered by
`getCurrentWeather (String cityName)`	cityName	String	String		C1	Returns weather of the specified city by city name.	
`getCurrentWeather (int cityId)`	cityId	String	String		C2	Returns weather of the specified city by city id.	
`getCurrentWeather (int latitude, int longitude)`	latitude, longitude	String	String		C3	Returns weather of the specified city by latitude and longitude values.	

We used **all combinations** coverage criteria in the below functions because all characteristics must be used.

`getCurrentWeather(String cityName)`

There are 4 blocks in city name which are valid city name, invalid city name, null, empty string.

City name: {E1: valid city name, E2: invalid city name, E3: empty string, E4: null}

T1: cityName = valid city name (covers E1)

T2: cityName = invalid city name (covers E2)

T3: cityName = empty string (covers E3)

T4: cityName = null (covers E4)

```
getCurrentWeather(int cityId)
```

There are 3 blocks in city id which are valid city id, invalid city id, zero.

City id: {E1: valid city id, E2: invalid city id, E3: zero}

T1: cityId = valid city id (covers E1)

T2: cityId = invalid city id (covers E2)

T3: cityId = zero (covers E3)

```
getCurrentWeather(int latitude, int longitude)
```

There are 4 blocks in latitude and longitude which are valid number, invalid number, zero.

latitude: {E1: positive number, E2: negative number, E3: zero, E4: invalid}

longitude: {E5: positive number, E6: negative number, E7: zero, E8: invalid}

T1: {latitude= positive number, longitude = negative number} (covers E1 and E6)

T2: {latitude= negative number, longitude = positive number} (covers E2 and E5)

T3: {latitude= negative number, longitude = negative number} (covers E2 and E6)

T4: {latitude= invalid number, longitude = invalid number} (covers E1, E4, E5, E8)

T5: {latitude= zero, longitude = zero} (covers E3 and E7)

Weather Service class:

Method	Params	Returns	Values	Exception	Ch ID	Characteristics	Cov ered by
`getCurrentWeather (String cityName)`	cityName	String	String		C1	Returns weather of the specified city by city name.	
`getCurrentWeather (int cityId)`	cityId	String	String		C2	Returns weather of the specified city by city id.	
`getCurrentWeather (int latitude, int longitude)`	latitude, longitude	String	String		C3	Returns weather of the specified city by latitude and longitude values.	

We used **all combinations** coverage criteria in the below functions because all characteristics must be used.

`getCurrentWeather(String cityName)`

There are 4 blocks in city name which are valid city name, invalid city name, null, empty string.

City name: {E1: valid city name, E2: invalid city name, E3: empty string, E4: null}

T1: cityName = valid city name (covers E1)

T2: cityName = invalid city name (covers E2)

T3: cityName = empty string (covers E3)

T4: cityName = null (covers E4)

```
getCurrentWeather(int cityId)
```

There are 4 blocks in city id which are valid city id, invalid city id, zero, negative number.

City id: {E1: valid city id, E2: invalid city id, E3: zero, E4: negative number}

T1: cityId = valid city id (covers E1)

T2: cityId = invalid city id (covers E2 and E4)

T3: cityId = zero (covers E3)

```
getCurrentWeather(int latitude, int longitude)
```

There are 4 blocks in latitude and longitude which are valid number, invalid number, zero, invalid.

latitude: {E1: positive number, E2: negative number, E3: zero, E4: invalid}

longitude: {E5: positive number, E6: negative number, E7: zero, E8: invalid}

T1: {latitude= positive number, longitude = negative number} (covers E1 and E6)

T2: {latitude= negative number, longitude = positive number} (covers E2 and E5)

T3: {latitude= negative number, longitude = negative number} (covers E2 and E6)

T4: {latitude= invalid number, longitude = invalid number} (covers E1, E4, E5, E8)

T5: {latitude= zero, longitude = zero} (covers E3 and E7)

Gson Service class:

Method	Params	Returns	Values	Exception	Ch ID	Characteristics	Cov ered by
`<T> T fromJson(String json, Class<T> classOfT)`	Json, classOfT	<T>, the type of the desired object	<T>	`JsonSyntaxException`	C1	Returns object from json.	
`String toJson(Object object)`	object	String	String		C2	Changes object to json.	

We used **all combinations** coverage criteria in the below functions because all characteristics must be used.

`<T> T fromJson(String json, Class<T> classOfT)`

There are 4 blocks in json which are valid string, null, empty string, and invalid input.

json: {E1: valid string, E2: null, E3: empty string, E4: invalid input}

T1: {json = valid string} (covers E1)

T2: {json = null } (covers E2)

T3: {json = empty string } (covers E3)

T4: {json = invalid string } (covers E4)

*Note there was an exception which was `JsonSyntaxException` that we covered by T4.

`String toJson(Object object)`

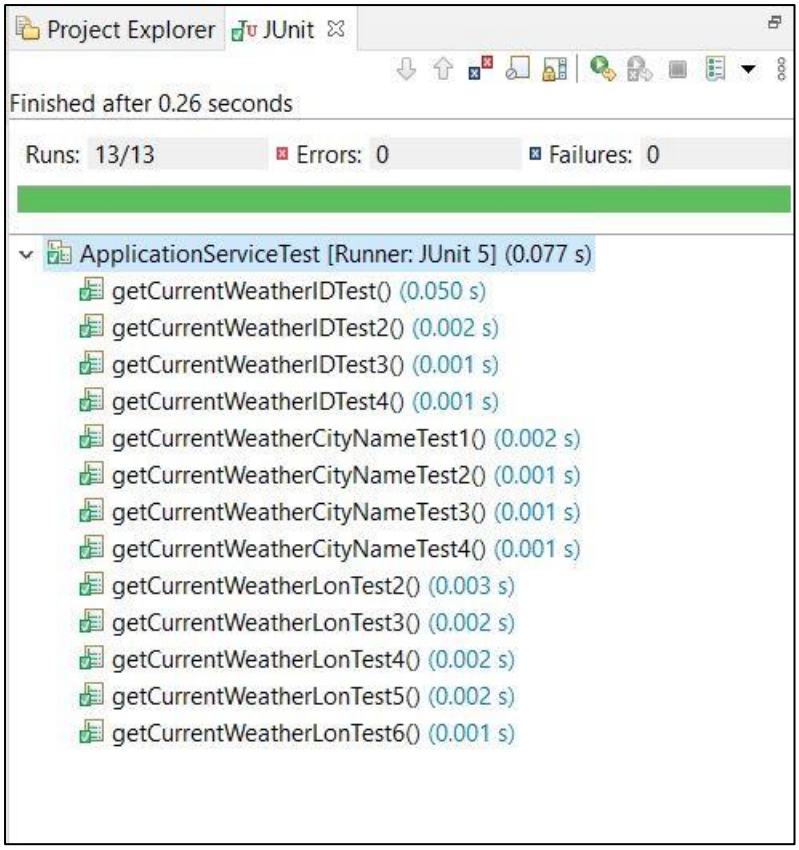
There are 3 blocks in object which are valid string, null and empty string.

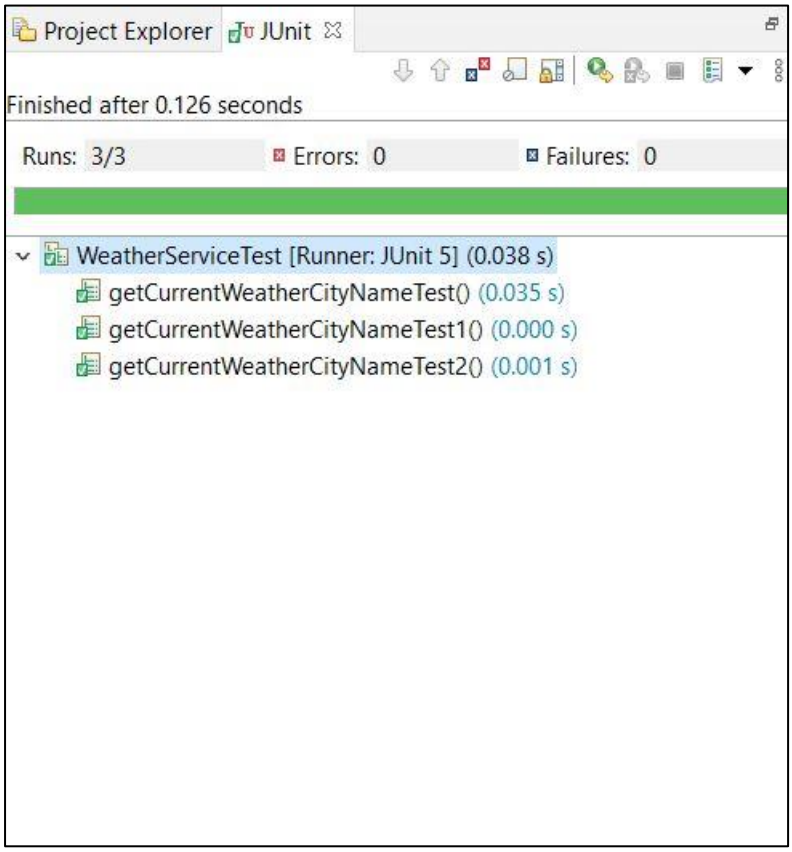
object: {E1: valid string, E2: null, E3: empty string}

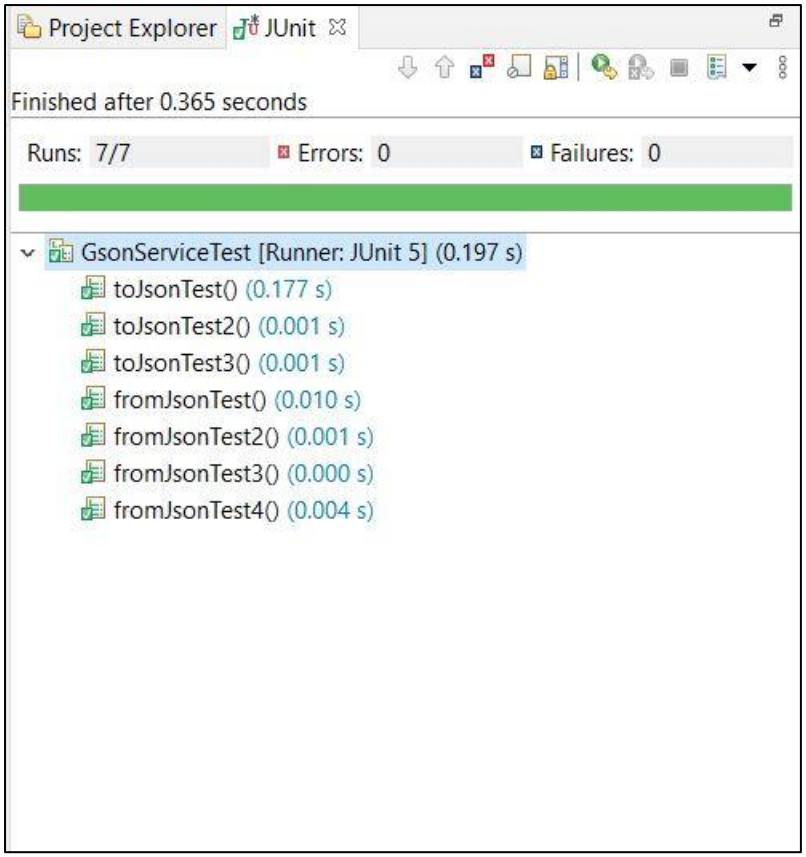
T1: { object = valid string} (covers E1)

T2: { object = null } (covers E2)

T3: { object = empty string } (covers E3)


Project Explorer
JUnit
Finished after 0.26 seconds
Runs: 13/13
Errors: 0
Failures: 0
ApplicationServiceTest [Runner: JUnit 5] (0.077 s)
getCurrentWeatherIDTest() (0.050 s)
getCurrentWeatherIDTest2() (0.002 s)
getCurrentWeatherIDTest3() (0.001 s)
getCurrentWeatherIDTest4() (0.001 s)
getCurrentWeatherCityNameTest1() (0.002 s)
getCurrentWeatherCityNameTest2() (0.001 s)
getCurrentWeatherCityNameTest3() (0.001 s)
getCurrentWeatherCityNameTest4() (0.001 s)
getCurrentWeatherLonTest2() (0.003 s)
getCurrentWeatherLonTest3() (0.002 s)
getCurrentWeatherLonTest4() (0.002 s)
getCurrentWeatherLonTest5() (0.002 s)
getCurrentWeatherLonTest6() (0.001 s)


Project Explorer
JUnit
Finished after 0.126 seconds
Runs: 3/3
Errors: 0
Failures: 0
WeatherServiceTest [Runner: JUnit 5] (0.038 s)
getCurrentWeatherCityNameTest() (0.035 s)
getCurrentWeatherCityNameTest1() (0.000 s)
getCurrentWeatherCityNameTest2() (0.001 s)


Project Explorer
JUnit
Finished after 0.365 seconds
Runs: 7/7
Errors: 0
Failures: 0
GsonServiceTest [Runner: JUnit 5] (0.197 s)
toJsonTest() (0.177 s)
toJsonTest2() (0.001 s)
toJsonTest3() (0.001 s)
fromJsonTest() (0.010 s)
fromJsonTest2() (0.001 s)
fromJsonTest3() (0.000 s)
fromJsonTest4() (0.004 s)