EB Connection

**Grade settings**: Maximum grade: 100  
**Run**: Yes **Evaluate**: Yes  
**Automatic grade**: Yes

***EB Connection Management***

[*Click here to download the code skeleton*](https://cognizant.tekstac.com/pluginfile.php/69136/mod_vpl/intro/Electricity%20Board.zip)

***EB Connection Management System***is an automated application for manipulating the various EB Connections issued to the customers.

They have developed an application for taking various reports based on the EB connection issued. The details of the various functions supported by the system are provided in this case study.

You are required to write Junit test case and check the correctness of the application developed.

**Functional Requirements:**

The application has the below classes and methods implemented.

You are provided with a model class EBConnection

**Component Specification:**EBConnection **(Model Class)**

|  |  |  |
| --- | --- | --- |
| **Type(Class)** | **Attributes** | **Methods** |
| EBConnection | int connectionId  String ownerName  String connectionType  String meterId  String phase | Necessary getters and setters are provided.  A constructor is also provided. |

Here the **connectionType** can take a value either “Domestic “ or “Commercial” or “Industrial”

[Note: Values are case insensitive].

**Component Specification:**InvalidEBConnectionException **(This class inherits the Exception Class)**

|  |  |
| --- | --- |
| **Type(Class)** | **Methods** |
| InvalidEBConnectionException | Provided with a single argument constructor – InvalidEBConnectionException(String message) |

You are also provided with a utility class ElectricityBoard and the below business requirements are  implemented in it for which JUnit test cases are to be written and tested.

You are also provided with an utility class ElectricityBoard with business methods.

**Component Specification :**ElectricityBoard **(Utility Class)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Component Name** | **Type(Class)** | **Attributes** | **Methods** |
| ElectricityBoard | ElectricityBoard | List<EBConnection> ebConnectionList | Getter and setter for the ebConnectionList is provided. |

The below are the requirements  implemented in the Utility class for which JUnit test cases are to be written and tested.

**Component Specification:  ElectricityBoard** **(Utility Class)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Component Name** | **Type (Class)** | **Methods** | **Responsibilities** | **Exception** |
| Validating the connection type.. | EBConnection | public boolean validateConnectionType( String connectionType) | Validate the connectionType..  If valid return true , else this method should throw a user defined exception | Throw a user defined exception “InvalidEBConnectionException”  if the connectionType Is neither “Commercial” nor “Domestic” nor “Industrial” |
| View EBConnection by connection ID | EBConnection | public EBConnection viewEBConnectionById(int connectionId) | This method should return the EBConnection object with the connectionId passed as parameter from ebConnectionList.  If the ebConnectionList  is empty or if there is no EBConnection  with  the given connection id it should throw a user defined exception | Throw a user defined exception “InvalidEBConnectionException” if the  ebConnectionList  is empty or if there is  no EBConnection  in the given connection id. |
| View the list of EBConnection for a given connection type | EBConnection | public List<EBConnection> viewEBConnectionsByConnectionType(String connectionType) | This method takes the connectionType as argument. It should return the list of EBConnection for the  given connection type. If the ebConnectionList  is empty it should throw a user defined exception. | Throw a user defined exception “InvalidEBConnectionException” if the ebConnectionList  is empty. |
| View connection type wise EBConnection  details | EBConnection | public Map<String,List<EBConnection>> viewEBConnectionsConnectionTypeWise() | This method should return connectionType wise EBConnection The return type is map, where the connectionType is key and value is the List of EBConnection pertaining to that connectionType.  If the ebConnectionList is empty it should throw a user defined exception. | Throw a user defined exception “InvalidEBConnectionException” if the ebConnectionList  is empty. |
| View the number of EBconnection for each phase | EBConnection | public  Map<String,Integer> countTotalConnectionForEachPhase() | This method should return the number of EBConnection object for each phase based on the ebConnectionList. It returns a Map with key as phase and value as count of high performers.  If the enConnectionList is empty it should throw a user defined exception. | Throw a user defined exception “InvalidEBConnectionException” if the ebConnectionList  is empty. |

You need to write Junit test for the ElectricityBoard class.

**Testing Scenarios:**

You are provided with a class  “ElectricityBoardTest”  to do this testing.

**Note:**

To perform testing the ebConnectionList should contain objects of EBConnection.

To do this, in ElectricityBoardTest  class you are provided with a setup method. Use this method to initialize the  ebConnectionList  attribute in ElectricityBoard class.

Create few objects for   EBConnection,   populate a list with these objects and set the ebConnectionList to this list using the setEbConnectionList method in ElectricityBoard class.

The below are the test methods to be implemented in ElectricityBoardTest class.

|  |  |
| --- | --- |
| **Test Method** | **Scenarios / Responsibilities** |
| test11ValidateConnectionTypeWhenDomestic | This method should test the validateConnectionType method when “Domestic” is passed as parameter |
| test12ValidateConnectionTypeWhenCommercial | This method should test the validateConnectionType  method when “Commercial” is passed as parameter. |
| test13ValidateConnectionTypeWhenIndustrial | This method should test the validateConnectionType method when “Industrial” is passed as parameter. |
| test14ValidateConnectionTypeWhenInvalid | This method should test the validateConnectionType method when invalid value is passed as parameter  validateConnectionType is expected  to throw InvalidEBConnectionException when type is invalid.  Write JUnit to test for the exception thrown  either by using appropriate annotation or by using try catch block. |
| test15ViewEBConnectionByIdWhenValid | This method should test the correctness of  viewEBConnectionById method for  an existing connection id .  Perform testing for the correctness of the value returned. |
| test16ViewEBConnectionByIdWhenInvalid | This method should test the correctness of  viewEBConnectionById  method for a non existing connection id.  Perform testing for the correctness of the value returned.  viewEBConnectionById  method is expected  to throw InvalidEBConnectionException when connection id does not exist.  Write JUnit to test for the exception thrown  either by using appropriate annotation or by using try catch block |
| test17ViewEBConnectionsByConnectionType | This method should test the correctness of  viewEBConnectionsByConnectionType method.  Perform testing for the correctness of the value returned. |
| test18ViewEBConnectionsConnectionTypeWise | This method should test the correctness of  viewEBConnectionsConnectionTypeWise method.  Perform testing for the correctness of the value returned. |
| test19CountTotalConnectionForEachPhase | This method should test the correctness of countTotalConnectionForEachPhase method.  Perform testing for the correctness of the value returned. |
| test20ViewEBConnectionsByConnectionTypeForEmptyList | This method should test the correctness of viewEBConnectionsByConnectionType method for an empty ebConnectionList.  viewEBConnectionsByConnectionType method is expected  to throw InvalidEBConnectionException when ebConnectionList is empty.  Write JUnit to test for the exception thrown  either by using appropriate annotation or by using try catch block |
| test21ViewEBConnectionsConnectionTypeWiseForEmptyList | This method should test the correctness of  viewEBConnectionsConnectionTypeWise method for an empty ebConnectionList.  viewEBConnectionsConnectionTypeWise  method is expected  to throw InvalidEBConnectionException when ebConnectionList is empty.  Write JUnit to test for the exception thrown  either by using appropriate annotation or by using try catch block |
| test22CountTotalConnectionForEachPhaseForEmptyList | This method should test the correctness of countTotalConnectionForEachPhase method for an empty ebConnectionList.  countTotalConnectionForEachPhase  method is expected  to throw InvalidEBConnectionException when ebConnectionList is empty.  Write JUnit to test for the exception thrown  either by using appropriate annotation or by using try catch block |

Implement the test methods and provide the needed annotation to all the methods in ElectricityBoardTest  class.

Also this class is provided with  the annotation, so that the test methods are executed in ascending order of the test method names.

You are provided with a Main class with the main method to check the correctness of the test methods written in ElectricityBoardTest  class.

Having completed writing the test methods, uncomment the code in Main class and execute the main method.