

# A Real Time and Interactive Dashboard in Tourism Industry

## Test Plan

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# 1. Document History

History	Status	Date	Viewable	Editable	Responsible
<b>Project-Test plan_v1.docx</b> Create: - Introduction - Test Plan and Test Procedure - Unit Testing - System Testing - Reference - Appendix	Draft	23 July, 2019	ZJY, LYW, AJP	ZJY, LYW	ZJY, LYW
<b>Project-Test plan_v2.docx</b> Modify: - Unit Testing - System Testing - Appendix	Draft	22 Aug, 2019	ZJY, LYW, AJP	ZJY, LYW	ZJY, LYW

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<b>Project-Test plan_v3.docx</b> Modify: - Unit Testing - System Testing - Appendix	Draft	29 Oct, 2019	ZJY, LYW, AJP	ZJY, LYW	ZJY, LYW
<b>Project-Test plan_v4.docx</b> Modify: - Unit Testing - System Testing - Appendix	Final	28 Nov, 2019	ZJY, LYW, AJP	ZJY, LYW	ZJY, LYW

ZJY = Junyu Zhou

LYW = Yawei Li

AJP = Dr. Pree Thiengburanathum

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## **2. Introduction**

### **2.1 Objectives**

The objective of the test plan of A Real Time and Interactive Dashboard in Tourism Industry is to establish test plan of the unit testing and system testing and make sure that the bugs or the defects are discovered and fixed. The unit testing covers all of implemented method in the A Real Time and Interactive Dashboard in Tourism Industry system. The system testing covers the user requirements.

### **2.2 Scope**

This test plan describes the white box-testing and black-box testing are activities to defect the defects in the system and describes the system testing activities for testing a completely integrated system to verify that it meets the user requirements.

### **2.3 Acronyms and Definitions**

#### **2.3.1 Acronyms**

URS = User Requirement Specification

UTC = Unit Test Case

STC = System Test Case

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### 2.3.2 Definitions

Name	Definition
Feature	Transformation of input parameters to output parameters based on a specified algorithm. It describes the functionality of the product in the language of the product. Used for requirements analysis, design, coding, testing or maintenance. [1]
Design	The period in the software life cycle during which the designs for architecture, software components, interfaces, and data are created, documented, and verified to satisfy requirements. [2]
IEEE	Institute for Electrical and Electronics Engineers. Biggest global interest group for engineers of different branches and computer scientists. [3]
Requirement	(1) A condition or capability needed by the user to solve a problem or achieve an objective.  (2) A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document. (3) A documented representation of a condition or capability as in definition (1) or (2). [4]
Specification	Precise description of an activity or work product that serves as the basis or input for further activities or work product. A specification can

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	comprise requirements to a Product and how they will be solved. Different parts of a specification (e.g. what is to be done, how it will be done) must not be mixed. [5]
Unit testing	A level of the software testing process where individual units/components of a software/system are tested. The purpose is to validate that each unit of the software performs as designed [6]
System testing	A level of the software testing process where a complete, integrated system/software is tested. The purpose of this test is to evaluate the system's compliance with the specified requirements. [7]

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## **3. Test Plan and Test Procedure**

### **3.1 Scope of testing**

A Real Time and Interactive Dashboard in Tourism Industry will be tested by white-box and black-box testing techniques that are unit testing and system testing and record the test result in the test record.

### **3.2 Test Duration**

Progress	Data and Duration
Progress	Perform date:29 July,2019
Report I	Duration: 15 day

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### 3.3 Test Responsibility

Item	Responsibility
Unit test of dashboard	ZJY, LYW
Record unit test of dashboard	ZJY, LYW
System test of dashboard	ZJY, LYW
Record system test of dashboard	ZJY, LYW

### 3.4 Test Strategy

A Real Time and Interactive Dashboard in Tourism Industry test strategy will be following:

1. Design test case for each feature.
2. Prepare test data for each feature.
3. Determine expected results.
4. Perform testing on individual features.
5. Result of testing will be a record.
6. All test files will be store in the project repository.

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### 3.5 Result of Testing

In the test record the test result will separate into two parts, which are:

1. Actual output: The actual outputs that are performed by each test case. 2. Pass/Fail criteria:

2.1 Pass: the result of the actual result is same as expected result. 2.2 Fail: the result of the actual result is not same as expected result.

### 3.6 Test Environment

#### 3.6.1 Hardware

##### Computer:

##### MacBook Pro (Retina, 15-inch, Mid 2015)

Processor: 2.2 GHz Intel Core i7

Memory: 16 GB 1600 MHz DDR3

OS: MacOS Catalina 0.15 Beta (19A501i)

##### MacBook Pro MacBook Pro (15-inch, 2019)

Processor: 2.3 GHz Intel Core i9

Memory: 32 GB 2400 MHz DDR4

OS: MacOS Mojave 10.14.6

#### 2.6.2 Software

- Chrome version 75.0.3770.142 or later

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## 4. Unit Testing

[Progress I]

**UTC-01: Front-end: Method name: onUsernameChanged (e)**

Description: This method will validate format of username.

Test Date: 23 Aug 2019

Test Case:

ID	Description	Input	Expect Result
1	Input empty username	Username=	
2	Input username with special characters	Username= admin;']	Console displays (“Username cannot contain special characters!”)
3	Input username within 10 characters	Username= admin001	Console displays (“Format correct”)

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**UTC-02: Front-end: Method name: onPasswordChanged (e)**

Description: This method will validate format of password.

Test Date: 23 Aug 2019

Test Case:

ID	Description	Input	Expect Result
4	Input password less than 6 digits	Password= 1234	Console displays (“Password must be more than 6 digits!”)
5	Input password with 6 digits	Password= admin001	Console displays (“Format correct”)
6	Input empty password	Password=	

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**UTC-03: Front-end: Method name: submitLogin (e)**

Description: This method will login to the dashboard.

Test Date: 23 Aug 2019

Test Case:

ID	Description	Input	Expect Result
7	Inputs correct username and password	Username= admin001  Password= admin001	Console displays ("login successful")
8	Inputs incorrect username or password	Username= admin001  Password= admin000	Console displays ("login failed")

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**UTC-04: Front-end: Method name: logout ()**

Description: This method will log out from dashboard.

Test Date: 23 Aug 2019

Test Case:

ID	Description	Input	Expect Result
9	Decision maker logs out from dashboard		Console displays(“Log out successfully”)

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### UTC-05: Front-end: Method name: showSummary ()

Description: This method will display summary on the dashboard page.

Test Date: 23 Aug 2019

Test Data:

```
sparklineData = [47, 45, 54, 38, 56, 24, 65, 31, 37, 39, 62, 51, 35, 41, 35, 27, 93, 53, 61, 27, 54, 43, 19, 46]
```

```
expectedData2 = {  
  seriesSpark1: [{data: [25, 66, 41, 89, 63, 25, 44, 12, 36, 9, 54]}],  
  seriesSpark2: [{data: [47, 45, 74, 14, 56, 74, 14, 11, 7, 39, 82]}],  
  seriesSpark3: [{data: [12, 14, 2, 47, 42, 15, 47, 75, 65, 19, 14]}],  
  seriesSpark4: [{data: [15, 75, 47, 65, 14, 2, 41, 54, 4, 27, 15]}],  
}
```

```
expectedData3 = {  
  total_comments: '135,965',  
  positive_comments: '99,821',  
  negative_comments: '10,212',  
  neutral_comments: '25,932',  
  percent_total: '100%',  
  percent_positive: '73.4%',  
  percent_negative: '7.5%',  
  percent_neutral: '19.1%',  
}
```

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}

```
expectedData4 = [  
    [ 1483203600000, 5], [ 1483808400000, 22],  
    [ 1484413200000, 52], [ 1485018000000, 87],  
    [ 1485622800000, 57], [ 1486227600000, 84],  
    [ 1486832400000, 87], [ 1487437200000, 43],  
    [ 1488042000000, 29], [ 1488646800000, 69],  
    [ 1489251600000, 81], [ 1489856400000, 46],  
    [ 1490461200000, 14], [ 1491066000000, 79],  
    [ 1491670800000, 9], [ 1492275600000, 51],  
    [ 1492880400000, 76], [ 1493485200000, 9],  
    [ 1494090000000, 51], [ 1494694800000, 77],  
    [ 1495299600000, 22], [ 1495904400000, 96],  
    [ 1496509200000, 18], [ 1497114000000, 67],  
    [ 1497718800000, 24], [ 1498323600000, 51],  
    [ 1498928400000, 41], [ 1499533200000, 83],  
    [ 1500138000000, 56], [ 1500742800000, 42],  
    [ 1501347600000, 76], [ 1501952400000, 20],  
    [ 1502557200000, 73], [ 1503162000000, 14],  
    [ 1503766800000, 67], [ 1504371600000, 8],  
    [ 1504976400000, 22], [ 1505581200000, 64],  
    [ 1506186000000, 44], [ 1506790800000, 1],  
    [ 1507395600000, 34], [ 1508000400000, 34],
```

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```

[ 1508605200000, 70], [ 1509210000000, 16],
[ 1509814800000, 20], [ 1510419600000, 17],
[ 1511024400000, 86], [ 1511629200000, 78]
]

expectedData5 = [400, 430, 448, 470, 540, 580, 690, 1100, 1200, 1380]

expectedData6 = [{name: 'Neutral',
  data: [44, 55, 57, 56, 61, 58, 63, 60, 66]}, {
  name: 'Positive',
  data: [76, 85, 101, 98, 87, 105, 91, 114, 94]}, {
  name: 'Negative',
  data: [35, 41, 36, 26, 45, 48, 52, 53, 41]}];

expectedData7 = [{name: 'Neutral',
  data: [44, 55, 41, 67, 22, 43, 21, 49, 39]}, {
  name: 'Positive',
  data: [13, 23, 20, 8, 13, 27, 33, 12, 14]}, {
  name: 'Negative',
  data: [11, 17, 15, 15, 21, 14, 15, 13, 9]}];

```

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Test Case:

ID	Description	Input	Expect Result
10	Decision maker could view the summary page.		Console displays (“Summary is showing!”)
11	Decision maker could view the sparkline chart.		{sparklineData}  {expectedData2}  {expectedData3}
12	Decision maker could view the positive comments rate line chart.		{expectedData4}
13	Decision maker could view the word frequency bar chart.		{expectedData5}
14	Decision maker could view the number of comments bar chart.		{expectedData6}
15	Decision maker could view the types of comments stacked column chart.		{expectedData7}

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**UTC-06: Front-end: Method name: componentDidMount ()**

Description: This method is initial method when component render.

Test Date: 27 Sep 2019

ID	Description	Input	Expect Result
16	Test when the browser accesses the view hotel page.		Console displays (“View component render!”)

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**UTC-07: Front-end: Method name: getAllHotel ()**

Description: This method is used to get all hotels.

Test Date: 27 Sep 2019

```
expectedData8 = {  
  
  "results": [{"count": 2,  
  
    "hotel": "Agriturismo Le Grotte"},  
  
    ...  
  
    {"count": 282,  
  
      "hotel": "Park Hotel Villa Grazioli"}]}
```

ID	Description	Input	Expect Result
17	Test when connect to database.		expectedData8
18	Test when database is empty		
19	Test when cannot connect to database		alert: "Cannot connect to database, please try again"

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**UTC-08: Front-end: Method name: getHotel ()**

Description: This method is used to get data of a hotel.

Test Date: 27 Sep 2019

expectedData9 = [

    {"c\_id": 1627,"content": "The user only left a rating.","date": "2017-11-12",  
    "rating": 50},{  
    {"c\_id": 1640, "content": "The user only left a rating.", "date": "2017-  
02-05", "rating": 40}]

ID	Description	Input	Expect Result
20	Test when connect to database.	hotelname="Agriturismo Le Grotte"	expectedData9
21	Test when database is empty		
22	Test when cannot connect to database		alert: "Cannot connect to database, please try again"

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**UTC-09: Front-end: Method name: submit(e)**

Description: This method is used to submit a comment.

Test Date: 27 Sep 2019

ID	Description	Input	Expect Result
23	Test when connect to database.	comment = {username: "user", content: "good", hotel: "Agriturismo Le Grotte"}	{“message”: “comment added”}
24	Test when cannot connect to database		alert: “Cannot connect to database, please try again”

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### UTC-10: Front-end: Method name: getAll ()

Description: This method is used to get data of log information.

Test Date: 27 Sep 2019

expectedData10 = [

```
[{"content": "super admin logged in","creator": "super admin",="log_id":  
1,"time":"2019-10-08 15:40:37","type": "Login"}, {"content": "super admin logged  
in","creator": "super admin","log_id": 2, "time": "2019-10-08 15:40:52",  
"type":"Login"}, {"content": "super admin logged in","creator": "super  
admin","log_id": 3,"time": "2019-10-08 15:40:57","type": "Login"}]
```

ID	Description	Input	Expect Result
25	Test when connect to database.		expectedData10
26	Test when database is empty		
27	Test when cannot connect to database		alert: “Cannot connect to database, please try again”

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**UTC-11: Back-end: Method name: login ()**

Description: This method will receive http POST request “/users/login”

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
28	Inputs correct username and password	Username= admin001 Password= admin001	{“message”: "Login successfully", "token": "eyJ...g34GY", "user": "admin001”}
29	Inputs incorrect username or password	Username= admin001 Password= admin000	{“error”: "Invalid username and password"}

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**UTC-12: Back-end: Method name: admin\_login ()**

Description: This method will receive http POST request “/admin/login”

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
30	Inputs correct username and password	Username=super Password=supersuper	{“message”: “Super admin login successfully”, “token”: “eyJ0...TEjCzJln_wXR79yR-s”}
31	Inputs incorrect username or password	Username=super Password=supersuper	{“error”: “Invalid username and password”}

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**UTC-13: Back-end: Method name: delete\_account (username)**

Description: This method will receive http DELETE request

“/admin/delete/<username>”

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
32	Inputs exist username	Username= admin001	{“result”: {“message”: "User deleted"}}}
33	Inputs non- exist username	Username= admin002	{“result”: { "message": "No user found"} }

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**UTC-14: Back-end: Method name: register ()**

Description: This method will receive http POST request “users/register”

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
34	Inputs new user to register	Username= admin001  Password=admin001	{"result": {  "message": “admin001 registered”}  }

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**UTC-15: Back-end: Method name: get\_all\_account ()**

Description: This method will receive http POST request “users/get-all”.

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
35	Database has users		[{"status": "super admin added",  "trial_time": "Fri, 06 Sep 2019 07:05:07 GMT",  "username": "test"},  {"status": "super admin added",  "trial_time": "Fri, 06 Sep 2019 07:05:46 GMT",  "username": "test02"}]
36	Database has no users		

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**UTC-16: Back-end: Method name: edit\_username ()**

Description: This method will receive http POST request “users/edit/username”.

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
37	Inputs exist username to edit	<pre>{"username": "test@test.com",   "info": "feiji@test.com"}</pre>	<pre>{"result": {   "message": "test is changed to feiji@test.com"}}</pre>
38	Inputs non-exist username to edit	<pre>{"username": "test123@test.com",   "info": "feiji123@test.com"}</pre>	<pre>{   "result": {     "message":     "No user found"   } }</pre>

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**UTC-17: Back-end: Method name: edit\_password ()**

Description: This method will receive http POST request “users/edit/password”.

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
39	Inputs correct old password	{  "username":"test@test.com",  "password":"ttttt",  "new_password":"123456"  }	{  "message": "Password changed"  }
40	Inputs incorrect old password	{"username":"test@test.com",  "password":"kkkkkk",  "new_password":"123456"}	{"error": "Invalid username and password"}

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**UTC-18: Back-end: Method name: approve\_user ()**

Description: This method will receive http POST request “admin/approve”.

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
41	Super admin approves the request	{"username": "testagain"}	{"result": {"message": "testagain's request is approved"}}
42	Cannot find the user	{"username": "testttagain"}	{"result": {"message": "No user found"}}

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**UTC-19: Back-end: Method name: reject\_user ()**

Description: This method will receive http POST request “admin/reject”.

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
43	Super admin rejects the request	{"username": "testagain"}	{"result": {"message": "testagain's request is rejected"}}
44	Cannot find the user	{"username": "testttagain"}	{"result": {"message": "No user found"}}

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**UTC-20: Back-end: Method name: get\_pending ()**

Description: This method will receive http GET request “admin/get-pending”.

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
45	Database has users that their status is “pending”		{ "results": [ {"status": "pending", "trial_time": "pending", "username": "hello"} ]} }
46	Cannot find the user		{ "results": [] }

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**UTC-21: Back-end: Method name: add\_user ()**

Description: This method will receive http POST request “admin/add”.

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
47	Database has users that their status is “pending”	<pre>{"username": "test_admin_add@test.com",  "trial_time": 14,  "status": "approved" }</pre>	<pre>{"result": {"message": "test_admin_add@test.com added"}}</pre>

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**UTC-22: Back-end: Method name: get\_account\_by\_username ()**

Description: This method will receive http GET request “/users/get-by-username”.

Test Date: 23 Aug 2019

ID	Description	Input	Expect Result
48	Inputs exist user	{"test_admin_add@test.com"}	{"result": {"message": "User found",  "status": "approved",  "trial_time ": "Fri, 06 Sep 2019 07:34:06 GMT",  "username": "test_admin_add@test.com"}}}
49	Inputs non-exist user	{"username": "junyu"}	{  "result": {  "message": "No user found"  }  }

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### UTC-23: Back-end: Method name: get\_all ()

Description: This method will receive http GET request and get comment data from database.

Test Date: 27 Sep 2019

expectedData11 =[ {'\_id': ObjectId('5d84c401361d71734497ae6a'), 'c\_id': 11, 'date': '2017-03-06', 'hotel': 'One Park Hotel', 'rating': 10,'content': "Would defo not recommend this hotel it's..."},...]

ID	Description	Input	Expect Result
50	Test when connect to database		expectedData11
51	Test when database is empty		
52	Test when cannot connect to database		alert: “Cannot connect to database, please try again”

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**UTC-24: Back-end: Method name: get\_count\_by\_date ()**

Description: This method will receive http GET request and get the comment count by date from database.

Test Date: 27 Sep 2019

expectedData12 = [{"count": 1, "date": "2003-05-31"}, ...

{"count": 1, "date": "2004-04-25"}]

ID	Description	Input	Expect Result
53	Test when connect to database		expectedData12
54	Test when database is empty		
55	Test when cannot connect to database		alert: "Cannot connect to database, please try again"

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**UTC-25: Back-end: Method name: get\_count\_by\_date\_positive ()**

Description: This method will receive http GET request and get the positive comment count by date from database.

Test Date: 27 Sep 2019

expectedData13 = [{"count": 0, "date": "2003-05-31"}, ...

{"count": 0, "date": "2004-04-25"}]

ID	Description	Input	Expect Result
56	Test when connect to database		expectedData13
57	Test when database is empty		
58	Test when cannot connect to database		alert: "Cannot connect to database, please try again"

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**UTC-26: Back-end: Method name: get\_count\_by\_date\_negative ()**

Description: This method will receive http GET request and get the negative comment count by date from database.

Test Date: 27 Sep 2019

expectedData14 = [{"count": 1, "date": "2003-05-31"}, ...

{"count": 1, "date": "2004-04-25"}]

ID	Description	Input	Expect Result
59	Test when connect to database		expectedData14
60	Test when database is empty		
61	Test when cannot connect to database		alert: "Cannot connect to database, please try again"

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**UTC-27: Back-end: Method name: get\_count\_by\_date\_neutral ()**

Description: This method will receive http GET request and get the neutral comment count by date from database.

Test Date: 27 Sep 2019

expectedData15 = [{"count": 0, "date": "2003-05-31"}, ...

{"count": 0, "date": "2004-04-25"}]

ID	Description	Input	Expect Result
62	Test when connect to database		expectedData15
63	Test when database is empty		
64	Test when cannot connect to database		alert: "Cannot connect to database, please try again"

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### UTC-28: Back-end: Method name: get\_hotel ()

Description: This method will receive http GET request and get the number of comments of each hotel from database.

Test Date: 27 Sep 2019

```
expectedData16 = "results": [{"count": 2,"hotel": "Agriturismo Le Grotte"}, {"count": 2,"hotel": "Locanda Specchio di Diana Albergo Diffusso"}, {"count": 2,"hotel": "Hotel Nespolo D'Oro"},  
... ,  
{"count": 3,"hotel": "Il Giardino di Diana Bed and Breakfast"},]
```

ID	Description	Input	Expect Result
65	Test when connect to database		expectedData16
66	Test when database is empty		
67	Test when cannot connect to database		alert: "Cannot connect to database, please try again"

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**UTC-29: Back-end: Method name: get\_hotel\_by\_name ()**

Description: This method will receive http GET request and get the comment of inputting hotel from database.

Test Date: 27 Sep 2019

```
expectedData9 = [{"c_id": 1627,"content": "The user only left a rating.,"date":  
"2017-11-12", "rating": 50},{ "c_id": 1640, "content": "The user only left a rating.",  
"date": "2017-02-05","rating": 40}]
```

ID	Description	Input	Expect Result
68	Test when connect to database	name = “Agriturismo Le Grotte”	expectedData9
69	Test when database is empty	name = “Agriturismo Le Grotte”	
70	Test when cannot connect to database	name = “Agriturismo Le Grotte”	alert: “Cannot connect to database, please try again”
71	Test when input nonsexist hotel name	name = “AAA”	

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### UTC-30: Back-end: Method name: add\_comment ()

Description: This method will receive http POST request and store the comment to database.

Test Date: 27 Sep 2019

expectedData17 = {"c\_id": 1675,"content": "Hate it", "date": "2019-10-08", "rating": 10}

expectedData18 = {"c\_id": 1676, "content": "Love it", "date": "2019-10-08", "rating": 50}

expectedData19 = {"c\_id": 1677, "content": "It's ok", "date": "2019-10-08", "rating": 30}

ID	Description	Input	Expect Result
72	Test when connect to database and input a negative comment	{"content": "Hate it", "hotel": "Test", "user": "Peter"}	expectedData17
73	Test when connect to database and input a positive comment	{"content": "Love it", "hotel": "Test", "user": "Peter"}	expectedData18

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74	Test when connect to database and input a neutral comment	{ "content": "It's ok", "hotel": "Test", "user": "Peter" }	expectedData19
75	Test when database is empty	{ "content": "It's ok", "hotel": "Test", "user": "Peter" }	expectedData19
76	Test when cannot connect to database		alert: "Cannot connect to database, please try again"

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**UTC-31: Back-end: Method name: record\_log ()**

Description: This method will record log information and store to database.

Test Date: 27 Sep 2019

ID	Description	Input	Expect Result
77	Test when super admin login		{ "content": "super admin logged in", "creator": "super admin", "log_id": 1, "time": "2019-10-08 15:40:37", "type": "Login" },
78	Test when admin login		{ "content": "admin logged in", "creator": "admin", "log_id": 1, "time": "2019-10-08 15:40:37", "type": "Login" },
79	Test when admin write a comment		{ "content": "admin wrote a comment", "creator": "admin", "log_id": 1, "time": "2019-10-08 15:40:37", "type": "Comment" },
80	Test when admin edit username		{ "content": "admin edit username", "creator": "admin", "log_id": 1, "time": "2019-10-08 15:40:37", "type": "Edit" },

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<b>81</b>	Test when admin edit password		{ "content": "admin edit password", "creator": "admin", "log_id": 1, "time": "2019-10-08 15:40:37", "type": "Edit" },
<b>82</b>	Test when admin login but failed		{ "content": "admin login failed", "creator": "admin", "log_id": 1, "time": "2019-10-08 15:40:37", "type": "Login" },
<b>83</b>	Test when super admin deletes an account		{ "content": "super admin delete an account", "creator": "super admin", "log_id": 1, "time": "2019-10-08 15:40:37", "type": "Delete" },
<b>84</b>	Test when super admin approves all register request.		{ "content": "all user approved.", "creator": "super admin", "log_id": 1, "time": "201910-08 15:40:37", "type": "Approve" },
<b>85</b>	Test when super admin rejects all register request.		{ "content": "all user rejected.", "creator": "super admin", "log_id": 1, "time": "201910-08 15:40:37", "type": "Reject" },

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**UTC-32: Front-end: Method name: Heatmap ()**

Description: This method is used to get data from backend and call the chart API.

Test Date: 28 November 2019

ID	Description	Input	Expect Result
86	Test when connect to database.		
87	Test when the chart API called successfully		console.log(“Heatmap is showing!”)
88	Test when cannot connect to database		alert: “Cannot connect to database, please try again”

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**UTC-33: Front-end: Method name: WordCloud ()**

Description: This method is used to get data from backend and call the chart API.

Test Date: 28 November 2019

ID	Description	Input	Expect Result
89	Test when connect to database.		
90	Test when the chart API called successfully		console.log("WordCloud is showing!")
91	Test when cannot connect to database		alert: "Cannot connect to database, please try again"

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### UTC-34: Back-end: Method name: get\_words ()

Description: This method will get the frequency of each word in comments from database.

Test Date: 28 November 2019

```
expectedData20 = [{  
    "count": 1068,  
    "word": "good"  
},  
  
{  
    "count": 865,  
    "word": "nice"  
},  
  
{  
    "count": 763,  
    "word": "great"  
},  
  
{  
    "count": 548,  
    "word": "small"  
},  
  
    ... ,
```

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```
{
  "count": 431,
  "word": "other"
},.]}
```

ID	Description	Input	Expect Result
92	Test when get data from database		expectedData20
93	Test when cannot connect database		[]
94	Test when database is empty		[]

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### UTC-35: Back-end: Method name: get\_Top10 ()

Description: This method will get the comments details of top 10 hotels with the most comments.

Test Date: 28 November 2019

```
expectedData21 = [{  
    "hotel": "Domus Caesari",  
    "negative": 5,  
    "neutral": 47,  
    "p_negative": "8.2%",  
    "p_neutral": "77.0%",  
    "p_positive": "14.8%",  
    "positive": 9  
},  
    ... {  
    "hotel": "Hotel Castel Vecchio",  
    "negative": 8,  
    "neutral": 45,
```

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```

    "p_negative": "12.1%",

    "p_neutral": "68.2%",

    "p_positive": "19.7%",

    "positive": 13

}, {}]

```

ID	Description	Input	Expect Result
95	Test when get data from database		expectedData21
96	Test when cannot connect database		[]
97	Test when database is empty		[]

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**UTC-36: Back-end: Method name: get\_positive\_line ()**

Description: This method will get the positive comments of each year.

Test Date: 28 November 2019

```
expectedData22 = {[  
    "2003", 1], ["2004",3],  
    ...  
    [ "2019", 73]]
```

ID	Description	Input	Expect Result
98	Test when get data from database		expectedData22
99	Test when cannot connect database		[]
100	Test when database is empty		[]

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# **5. System Testing**

## **5.1 Super admin**

**STC-01: Super admin can login to the system and manage accounts.**

**Description:** The system testing for URS-01 – URS07. The system should provide an interface. The interface includes “All account”, “Waiting List”, “Dashboard”, and “Logout” buttons. Super admin can log in to system, view all accounts or waiting list page, edit account information, delete account, add admin account, accept or reject admin account register request.

**Prerequisite:**

- The browser is not logged in to the system.
- Test data in the Appendix 1.

**Test Script:**

### **1. Login to the system**

1.1 Input username and password.

1.2 Click “Login” button.

### **2. Add admin account**

2.1 Click “All accounts” button.

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2.2 Click “Add” button

2.3 Input username, trial time and status then click “Save” or “Cancel” button.

### **3. Edit account information**

3.1 Click “All accounts” button.

3.2 Click “Edit” button.

3.3 Input username and trial time then click “Save” or “Cancel” button.

### **4. Delete account**

4.1 Click “All accounts” button.

4.2 Click “Delete” button

4.3 Click “Save” or “Cancel” button.

### **5. Accept or reject admin account register request**

5.1 Click “Waiting List” button.

5.2 Select “Approval” or “Reject” then click “Save” or “Cancel” button.

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**Test Case:**

<b>ID</b>	<b>Description</b>	<b>Input</b>	<b>Expect Result</b>
1	Super admin login by inputting correct username and password	Username= super  Password= supersuper	The system redirects to super admin page.
2	Super admin login by inputting incorrect username and password.	Username= super  Password= super	Show an error message “Login failed”
3	View accounts	-	Show all accounts information
4	View waiting list	-	Show waiting list information
5	View accounts when database is empty	-	Show a message “No record to display”
6	View accounts when cannot connect to	-	Show a message “Cannot connect to database” then provide refresh and cancel

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	database		button
7	View waiting list when database is empty	-	Show a message “No record to display”
8	View waiting list when cannot connect to database	-	Show a message “Cannot connect to database” and provide refresh and cancel button
9	Edit user information and click “Save”	Username= super Trial Time = 30	User’s trial time increased 30 days and system saves the new information to database.
10	Edit user information and click “Cancel”	Username= super Trial Time = 30	System cancel the edit action.
11	Edit user information and click “Save”	Username= super Trial Time = -30	User’s trial time decreased 30 days and system saves the new information to database.
12	Delete account and	-	Remove user account from

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	click “Save” button		database.
13	Delete account and click “Cancel” button	-	System cancel the delete action.
14	Add admin account and click “Save” button	username = admin  trial time = 30  status = approved	System records account information to database.
15	Add admin account and click “Cancel” button	username = admin  trial time = 30  status = approved	System cancel the add admin account action.
16	Accept admin account register request and click “Save” button	-	System records account information to database.
17	Accept admin account register request and click “Cancel” button	-	System cancel the accept admin account register request action.

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18	Reject admin account register request and click “Save” button	-	System records account information to database.
19	Reject admin account register request and click “Cancel” button	-	System cancel the reject admin account register request action.

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## STC-02: Super admin can view system log

**Description:** The system testing for URS26. The system should provide an interface.

The interface includes a table which shows “ID”, “User”, “Time”, “Type” and “Content” of each log. Super admin view log information and account information.

### Prerequisite:

- The super admin is logged in.
- Test data in the Appendix 1.

### Test Script:

#### 1. View System log and account information.

1.1 Click “System Log” button.

### Test Case:

ID	Description	Input	Expect Result
20	Super admin can view system log	-	The system displays the table which shows “ID”, “User”, “Time”, “Type” and “Content” of logs.

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## 4.2 Admin

### STC-03: Admin can login or register account.

**Description:** The system testing for URS-08 –URS09. The system should provide an interface. The interface includes “Login”, “Register” buttons. Admin can log in and register.

#### Prerequisite:

- The browser is not logged in to the system.
- Test data in the Appendix 1.

#### Test Script:

##### 1. Login to the admin page.

1.1 Input username and password.

1.2 Click “Login” button.

##### 2. Register account

2.1 Input username and password.

2.2 Click “Register” button.

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**Test Case:**

ID	Description	Input	Expect Result
21	Admin login by Inputting correct username and password	Username= admin001  Password= admin001	The system redirects to admin page.
22	Admin login by Inputting incorrect username and password.	Username= admin001  Password= admin	Show an error message “Login failed”
23	Admin register account by inputting username and password.	Username= admin001  Password= admin001	The system records account information to database

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#### **STC-04: Admin can edit information**

**Description:** The system testing for URS-10. The system should provide an interface. The interface includes “Edit” buttons. Admin can edit their username and password.

**Prerequisite:**

- The browser is logged in to the system.
- Test data in the Appendix 1.

**Test Script:**

**1. Edit username.**

- 1.1 Input username.
- 1.2 Click “Save” or “Cancel” button.

**2. Edit password.**

- 2.1 Input password.
- 2.2 Click “Save” or “Cancel” button.

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**Test Case:**

ID	Description	Input	Expect Result
24	Edit username and click “Save” button.	Username= admin002	The system stores information to database.
25	Edit username and click “Cancel” button.	Username= admin002	System cancel the edit action.
26	Edit password and input old password then click “Save” button.	Old password=admin001 New password=admin002	The system stores information to database.
27	Edit password and input old password then click “Cancel” button.	Old password=admin001 New password=admin002	System cancel the edit action.

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**STC-05: Admin can logout from system.**

**Description:** The system testing for URS-11. The system should provide an interface.

The interface includes “Logout” buttons. Admin can logout system.

**Prerequisite:**

- The browser is logged in to the system.
- Test data in the Appendix 1.

**Test Script:****1. Click logout button.****Test Case:**

ID	Description	Input	Expect Result
28	Admin logout.	-	System remove user token from local storage.

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## STC-06: View the summary of data visualization result

**Description:** The system testing for URS-12 – URS-16. The system should provide an interface. The interface includes all the summary sparkline chart, positive comments rate line chart, word frequency bar chart, number of comments bar chart, types of comments stacked column chart.

### Prerequisite:

- Admin is logged in.
- Test data in the Database.

### Test Script:

1. Access the homepage.
2. Access to the dashboard.

### Test Case:

ID	Description	Input	Expect Result
29	View all the summary sparkline chart.	-	System displays the data in Appendix expectedData3, expectedData4

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30	View positive comments rate line chart.	-	System displays the data in Appendix expectedData4
31	View word frequency bar chart.	-	System displays the data in Appendix expectedData5
32	View number of comments bar chart.	-	System displays the data in Appendix expectedData6
33	View types of comments stacked column chart.	-	System displays the data in Appendix expectedData7
34	View charts when cannot connect to database	-	Show a message “Cannot connect to database” then provide refresh and cancel button

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## STC-07: View the comments

**Description:** The system testing for URS-20. The system should provide an interface. The interface includes a list of all hotels and the user could click to access each hotel page to view comments.

### Prerequisite:

- Test data in the Database.

### Test Script:

1. View the hotel list.

2. View comments.

2.1 User clicks a hotel.

2.2 User view comments of clicked hotel.

### Test Case:

ID	Description	Input	Expect Result
35	View all the comments of selected hotel.	-	System displays the data in Appendix exceptedData11.

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## **STC-08: Write the comments**

**Description:** The system testing for URS-25. The system should provide an interface.  
The interface includes an input area for inputting comment.

### **Prerequisite:**

- Admin is logged in.

### **Test Script:**

**1. View the hotel list.**

**2. Write a comment.**

2.1 Admin clicks a hotel.

2.2 Admin accesses the hotel page.

2.3 Admin inputs a comment.

2.4 Admin clicks “Submit” button.

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**Test Case:**

ID	Description	Input	Expect Result
36	Write a comment for a hotel	“This hotel is good.”	User could input a comment and system displays new comment at hotel page, the comment includes content, date, ID and rating.

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## STC-09: View the heatmap of data

**Description:** The system testing for URS-18 The system should provide an interface.  
The interface includes heatmap and legend.

### Prerequisite:

- Admin is logged in.
- Test data in the Database.

### Test Script:

1. Access the homepage.
2. Access to the dashboard.
3. Clicks Heatmap button.
4. Clicks each legend (Negative, natural, positive)

### Test Case:

ID	Description	Input	Expect Result
37	View the heatmap		System displays the data in Appendix expectedData21

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38	Clicks positive legend		System displays the chart with positive comments only.
39	Clicks negative legend		System displays the chart with negative comments only.
40	Clicks neutral legend		System displays the chart with neutral comments only.
41	When system cannot connect to database		Show a message “Cannot connect to database” then provide refresh and cancel button

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## STC-10: View the Wordcloud of data

**Description:** The system testing for URS17. The system should provide an interface.

The interface includes heatmap and legend.

### Prerequisite:

- Admin is logged in.
- Test data in the Database.

### Test Script:

1. Access the homepage.
2. Access to the dashboard.
3. Move mouse over each word.

### Test Case:

ID	Description	Input	Expect Result
42	View the word cloud		System displays the data in Appendix expectedData20
43	Move mouse over a word		System displays the frequency of word.

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44	When system cannot connect to database		Show a message “Cannot connect to database” then provide refresh and cancel button
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### STC-11: View the data by selecting sentiment

**Description:** The system testing for URS-19 – URS-21. The system should provide an interface. The interface includes heatmap and legend.

**Prerequisite:**

- Admin is logged in.
- Test data in the Database.

**Test Script:**

1. Access the homepage.
2. Access to the dashboard.
3. Clicks each legend (Negative, neutral, positive)

**Test Case:**

ID	Description	Input	Expect Result
45	Clicks the neutral legend		System displays the chart with neutral comments only.
46	Move mouse over a column.		System displays the frequency of the column.

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47	Clicks the positive legend		System displays the chart with positive comments only.
48	Clicks the negative legend		System displays the chart with negative comments only.
49	When system cannot connect to database		Show a message “Cannot connect to database” then provide refresh and cancel button

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## **6. Appendix**

### **1. Account information**

Username: admin001

Password: admin001

### **2. Sparkline chart information**

sparklineData = [47, 45, 54, 38, 56, 24, 65, 31, 37, 39, 62, 51, 35, 41, 35, 27, 93, 53, 61, 27, 54, 43, 19, 46]

```
expectedData2 = {  
    seriesSpark1: [{data: [25, 66, 41, 89, 63, 25, 44, 12, 36, 9, 54]}],  
    seriesSpark2: [{data: [47, 45, 74, 14, 56, 74, 14, 11, 7, 39, 82]}],  
    seriesSpark3: [{data: [12, 14, 2, 47, 42, 15, 47, 75, 65, 19, 14]}],  
    seriesSpark4: [{data: [15, 75, 47, 65, 14, 2, 41, 54, 4, 27, 15]}],  
}
```

```
expectedData3 = {  
    total_comments: '135,965',  
    positive_comments: '99,821',  
    negative_comments: '10,212',  
    neutral_comments: '25,932',  
    percent_total: '100%',  
    percent_positive: '73.4%',  
    percent_negative: '7.5%',  
}
```

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```

percent_neutral: '19.1%',
}

```

### 3. Positive comments rate line chart information

```

expectedData4 = [
    [ 1483203600000, 5], [ 1483808400000, 22],
    [ 1484413200000, 52], [ 1485018000000, 87],
    [ 1485622800000, 57], [ 1486227600000, 84],
    [ 1486832400000, 87], [ 1487437200000, 43],
    [ 1488042000000, 29], [ 1488646800000, 69],
    [ 1489251600000, 81], [ 1489856400000, 46],
    [ 1490461200000, 14], [ 1491066000000, 79],
    [ 1491670800000, 9], [ 1492275600000, 51],
    [ 1492880400000, 76], [ 1493485200000, 9],
    [ 1494090000000, 51], [ 1494694800000, 77],
    [ 1495299600000, 22], [ 1495904400000, 96],
    [ 1496509200000, 18], [ 1497114000000, 67],
    [ 1497718800000, 24], [ 1498323600000, 51],
    [ 1498928400000, 41], [ 1499533200000, 83],

```

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[ 1500138000000, 56], [ 1500742800000, 42],  
 [ 1501347600000, 76], [ 1501952400000, 20],  
 [ 1502557200000, 73], [ 1503162000000, 14],  
 [ 1503766800000, 67], [ 1504371600000, 8],  
 [ 1504976400000, 22], [ 1505581200000, 64],  
 [ 1506186000000, 44], [ 1506790800000, 1],  
 [ 1507395600000, 34], [ 1508000400000, 34],  
 [ 1508605200000, 70], [ 1509210000000, 16],  
 [ 1509814800000, 20], [ 1510419600000, 17],  
 [ 1511024400000, 86], [ 1511629200000, 78]  
 ]

#### 4. Word frequency bar chart information

expectedData5 = [400, 430, 448, 470, 540, 580, 690, 1100, 1200, 1380]

#### 5. Number of comments bar chart information

```
expectedData6 = [{
  name: 'Neutral',
  data: [44, 55, 57, 56, 61, 58, 63, 60, 66]
}, {
  name: 'Positive',
```

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```

      data: [76, 85, 101, 98, 87, 105, 91, 114, 94]
    }, {
      name: 'Negative',
      data: [35, 41, 36, 26, 45, 48, 52, 53, 41]
    }
  ]];

```

## 6. Types of comments stacked column chart information

```

expectedData7 = [{
  name: 'Neutral',
  data: [44, 55, 41, 67, 22, 43, 21, 49, 39]
}, {
  name: 'Positive',
  data: [13, 23, 20, 8, 13, 27, 33, 12, 14]
}, {
  name: 'Negative',
  data: [11, 17, 15, 15, 21, 14, 15, 13, 9]
}
];

expectedData8 = {
  "results": [{"count": 2, "hotel": "Agriturismo Le Grotte"},
  ...
  {"count": 282, "hotel": "Park Hotel Villa Grazioli"}]}

```

```

expectedData9 = [{"c_id": 1627, "content": "The user only left a rating.", "date":

```

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```
"2017-11-12", "rating": 50}, {"c_id": 1640, "content": "The user only left a rating.",  
"date": "2017-02-05", "rating": 40}]
```

```
expectedData10 = [{"content": "super admin logged in", "creator": "super admin",=  
"log_id": 1, "time": "2019-10-08 15:40:37", "type": "Login"}, {"content": "super admin  
logged in", "creator": "super admin", "log_id": 2, "time": "2019-10-08 15:40:52",  
"type": "Login"}, {"content": "super admin logged in", "creator": "super  
admin", "log_id": 3, "time": "2019-10-08 15:40:57", "type": "Login"}]
```

```
expectedData11 = [ {'_id': ObjectId('5d84c401361d71734497ae6a'), 'c_id': 11, 'date':  
'2017-03-06', 'hotel': 'One Park Hotel', 'rating': 10, 'content': "Would defo not  
recommend this hotel it's..."}, ...]
```

```
expectedData12 = [{"count": 1, "date": "2003-05-31"}, ...  
{"count": 1, "date": "2004-04-25"}]
```

```
expectedData14 = [{"count": 1, "date": "2003-05-31"}, ...  
{"count": 1, "date": "2004-04-25"}]
```

```
expectedData15 = [{"count": 0, "date": "2003-05-31"}, ...  
{"count": 0, "date": "2004-04-25"}]
```

```
expectedData16 = "results": [{"count": 2, "hotel": "Agriturismo Le Grotte"}, {  
"count": 2, "hotel": "Locanda Specchio di Diana Albergo Diffusso"}, {"count": 2,  
"hotel": "Hotel Nespole D'Oro"}, ... ,  
{"count": 3, "hotel": "Il Giardino di Diana Bed and Breakfast"},]
```

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expectedData17 = {"c\_id": 1675,"content": "Hate it", "date": "2019-10-08", "rating": 10}

expectedData18 = {"c\_id": 1676, "content": "Love it", "date": "2019-10-08", "rating": 50}

expectedData19 = {"c\_id": 1677, "content": "It's ok", "date": "2019-10-08", "rating": 30}

expectedData20 = [{{"count": 1068, "word": "good"}, {"count": 865, "word": "nice"}, {"count": 763, "word": "great"}, {"count": 548, "word": "small"}, {"count": 435, "word": "other"}, {"count": 431, "word": "other"}],]

expectedData21 = [{{"hotel": "Domus Caesari", "negative": 5, "neutral": 47, "p\_negative": "8.2%", "p\_neutral": "77.0%", "p\_positive": "14.8%", "positive": 9}, {"hotel": "Hotel Castel Vecchio", "negative": 8, "neutral": 45, "p\_negative": "12.1%", "p\_neutral": "68.2%", "p\_positive": "19.7%", "positive": 13}, ]

expectedData22 = [{"2003", 1}, {"2004", 3}, {"2019", 73}]

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