### **Mastercard D&S Platforms Team India**

### COVID-19 Project Test Plan

May 20, 2020



## **TABLE OF CONTENTS**

POINT OF CONTACTS	3
INTRODUCTION	4
FEATURE SUMMARY	5
DO NOT FORGET LIST	8
FRONT END TESTING	S
PERFORMANCE TESTING	27
AUTOMATED TESTING	28
ANALYTIC TESTING	29

# POINT OF CONTACTS

SDE Feature Lead	Aditi Sharma (Aditi.Sharma@mastercard.com)
SQE Lead	Tushar Goswamy (Tushar.Goswamy@mastercard.com)
SQE Mentor	Saumya Goswami (Saumya.Goswami@mastercard.com)
PM-D Point of Contact	
Key Clients	Mastercard Internal Team

### INTRODUCTION

The scope of this project is to create an interactive dashboard which can enable users to perform the following tasks:

- Study the spread of the COVID-19 Pandemic over time and across 5 countries (India, Italy, Germany, Singapore, USA)
- 2. Perform detailed analysis by further stratification of the spread based on demographic indicators (age, income, population density)
- 3. Study recoveries and deaths in addition to the positive cases over time and across the selected geographies
- 4. Analyse the impact of the spread on 3 Industries (Airlines, Travel & Entertainment, Food)
- 5. Study and Compare the Government Policy actions and interventions on the 5 countries, as well as their impact on various indicators

The final deliverables of the project are:

- 1. Working link of the final web dashboard
- 2. All the code scripts on the Github repository of the project
- 3. Proper Documentation of each code snippet for the entire project
- 4. Presentation of the project with individual experience and learning

The task of the SQE during the course of this project would be to ensure the following:

- 1. Prepare the test plans for the features and components of the project
- 2. Write automated tests for the working of all Front-End features of the dashboard and ensure they are working properly across browsers and locations
- 3. Write Front-End Testing to verify graphs and all statistical information is being displayed properly
- 4. Write and execute analytic testing to verify data on graphs
- 5. Perform API testing for all APIs to ensure that the entire code pipeline is running smoothly and all use cases and edge cases have been handled.

### FEATURE SUMMARY

### Requirements

#### 1. Time Series Graphs for the entire country

On clicking a country name card on the Homepage, we are directed to the detailed analysis section for that country. The Section for each country contains the following graphs (country level) to aid data visualisation:

- I. Daily Cases Plot(Confirmed, Recovered, Deceased)
- li. Active Vs Recovered Plot
- lii. Recovered Vs Deceased Plot
- Iv. Confirmed VS Recovered Plot
- V. Total Cases Plot (Active, Confirmed, Recovered, Deceased) for the top 10 states

#### Latest Statistical information for each State

The section for each country also includes an information section which displays the updated values for the following fields:

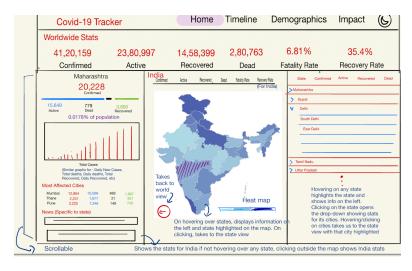
- I. Confirmed Cases for each state
- li. Active cases for each state
- lii. Deaths for each state
- ly. Recoveries for each state

#### 3. Drop-Down Stats bar for each State

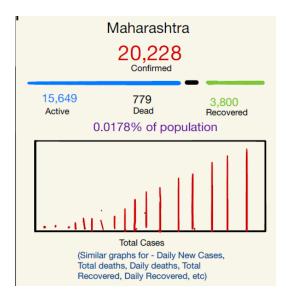
The right-hand section for each country's page features a list of its States with a drop-down button for each state. Upon clicking the dropdown button, the statistical information (Confirmed/Active/Recovered/Deaths) about its top cities is displayed.

### Mockups

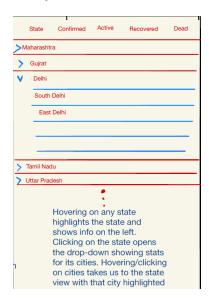
1. Country View for the selected Country



2. Graphs & Latest Statistical information for the selected state displayed on the left



### 3. Drop-down Stats Bar for each state



### Github Project Task Link

The task status for this feature can be accessed at this link.

## DO NOT FORGET LIST

	Feature	Status
Check scaling of graphs during Zoom In/Out	Country Graphs	
Check repetition of values for drop-down menu	Drop-Down Menu	

# FRONT END TESTING

Requirement	Case #	Test Steps	Expected Results	Screenshot	Status	Bugs/ Notes
Time-series Graph for the entire country	1	Click on country card on the homepage	Detailed analysis section for that country should get displayed  All 5 plots for the country should be clearly visible  Drop-down Menu for each state should be present at the right with the arrow button  The Title, axes labels and legend should be present with legible font size and colour  Data on the graph is updated as per the latest day  Scale of the graph is appropriate as per the range of the data  Colour for the plot of each dataset should be different			

		1		I	
			 and distinguishable		
	2	Hover cursor over graph	Cursor should change into a tool-tip to enable detailed inspection of the graph Information about that data point should be visible		
	3	Zoom In/Out on the webpage	The shape of the graph should adjust itself accordingly		
Statistical Info Section for each state	1	Hover cursor over the state on the country map	The information section should display the stats for the state selected The information should be updated and latest The font, size and colour of the display values and labels should be legible Spelling of the value labels and state names should be correct		
Drop-down stats bar for each state	1	Click on drop-down button for	Statistical information for the top cities of		

	a state	that state should be visible as a dropdown  All information should fit within the boundaries of the drop-down  The previous drop-down should revert to normal when a new state is selected			
--	---------	--	--	--	--

#### Graph Test Cases for each Country:

Country	Test Case	Graph Category	Expected Results	Screenshot	Notes/Bugs
India	1.11	Daily Cases Plot	☐ Title of the plot is legible (Font		
	1.12	Active Vs Recovered Plot	size, colour,		
	1.13	Recovered Vs Deceased Plot	spelling is correct)		
	1.14	Confirmed Vs Recovered Plot	<ul> <li>Axes labels for both Y and X axis are legible (Font size, colour, spelling is correct)</li> <li>Legend is clearly visible</li> <li>Labels in the Legend are legible (Font size, colour, spelling is correct)</li> <li>Data on the graph is updated</li> <li>Scale of the graph is</li> </ul>		
		Total Cases Plot (Top 10			
	1.15	States)	appropriate as		

			per the range of the data Colour for the plot of each dataset should be different and distinguishable Cursor should change into a tool-tip to enable detailed inspection of the graph	
Italy	1.21	Daily Cases Plot	Title of the plot is legible (Font	
	1.22	Active Vs Recovered Plot	size, colour,	
	1.23	Recovered Vs Deceased Plot	spelling is correct) Axes labels for	
	1.24	Confirmed Vs Recovered Plot	both Y and X axis are legible	
		Total Cases Plot (Top 10	(Font size, colour, spelling is correct) Legend is clearly visible Labels in the Legend are legible (Font size, colour, spelling is correct) Data on the graph is updated Scale of the graph is appropriate as per the range of the data Colour for the plot of each dataset should be different and distinguishable Cursor should	
	1.25	States)	change into a	

			tool-tip to enable detailed inspection of the graph	
Germany		Daily Cases Plot Active Vs Recovered Plot Recovered Vs Deceased	Title of the plot is legible (Font size, colour, spelling is	
	1.33	Confirmed Vs Recovered	correct) Axes labels for both Y and X axis are legible (Font size, colour, spelling	
			is correct) Legend is clearly visible Labels in the Legend are legible (Font size, colour, spelling is correct) Data on the graph is updated Scale of the graph is	
			appropriate as per the range of the data Colour for the plot of each dataset should be different and distinguishable Cursor should change into a tool-tip to enable detailed	
	1.35	Total Cases Plot (Top 10 States)	inspection of the graph	
Singapore		Daily Cases Plot	Title of the plot	
		Active Vs Recovered Plot Recovered Vs Deceased	is legible (Font size, colour,	

	Plot	spelling is
1.44	Plot Confirmed Vs Recovered Plot	correct)  Axes labels for both Y and X axis are legible (Font size, colour, spelling is correct)  Legend is clearly visible  Labels in the Legend are legible (Font size, colour, spelling is correct)  Data on the graph is updated  Scale of the graph is appropriate as
1.45	Total Cases Plot (Top 10 States)	per the range of the data  Colour for the plot of each dataset should be different and distinguishable  Cursor should change into a tool-tip to enable detailed inspection of the graph
USA 1.5	Daily Cases Plot	☐ Title of the plot is legible (Font
1.52	Active Vs Recovered Plot	size, colour,
1.53	Recovered Vs Deceased Plot	spelling is correct)  Axes labels for
1.54	Confirmed Vs Recovered Plot	both Y and X axis are legible
1.58	Total Cases Plot (Top 10 States)	(Font size, colour, spelling is correct)

☐ Legend is clearly visible
☐ Labels in the
Legend are
legible (Font
size, colour,
spelling is
correct)
☐ Data on the
graph is updated
☐ Scale of the
graph is
appropriate as
per the range of
the data
☐ Colour for the
plot of each
dataset should
be different and
distinguishable
☐ Cursor should
change into a
tool-tip to
enable detailed
inspection of
the graph

Statistical Information Section Test cases for each state

Country	Results	Screenshots	Bugs/Notes
India			
Italy			
Germany			
Singapore			
USA			

The tests mentioned below will be performed for each of the 5 countries and will be recorded in the table above:

#### 1. India

State	Test Case	Statistical Info Section	Expected Results	Drop-dow n Menu	Expected Results	Screenshots
Andhra Pradesh	2.01	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	□ Statistical information for the top cities of that state should be visible as a dropdown   □ All information should fit within the boundaries of the drop-down   □ The previous drop-down should revert to normal when a new state is selected	
Arunachal Pradesh	2.01	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected	
Assam	2.02	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font,	Click on drop-dow n button	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down	

			size, colour and spelling should be correct)			The previous drop-down should revert to normal when a new state is selected	
Bihar	2.03	Active Confirmed Deaths Recovered	Stats for the selected state is displayed The information is updated The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button		Statistical information for the top cities of that state should be visible as a dropdown All information should fit within the boundaries of the drop-down The previous drop-down should revert to normal when a new state is selected	
Chhattisg arh	2.04	Active Confirmed Deaths Recovered	Stats for the selected state is displayed The information is updated The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button		Statistical information for the top cities of that state should be visible as a dropdown All information should fit within the boundaries of the drop-down The previous drop-down should revert to normal when a new state is selected	
Goa	2.05	Active Confirmed Deaths Recovered	Stats for the selected state is displayed The information is updated The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button		Statistical information for the top cities of that state should be visible as a dropdown All information should fit within the boundaries of the drop-down The previous drop-down should revert to normal when a new state is selected	
Gujarat	2.06	Active Confirmed Deaths	Stats for the selected state is displayed	Click on drop-dow n button	٥	Statistical information for the top cities of that	

		Recovered	☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)		state should be visible as a dropdown  All information should fit within the boundaries of the drop-down  The previous drop-down should revert to normal when a new state is selected
Haryana	2.07	Active Confirmed Deaths Recovered	□ Stats for the selected state is displayed □ The information is updated □ The display values should be legible (font, size, colour and spelling should be correct)		☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down ☐ The previous drop-down should revert to normal when a new state is selected
Himachal Pradesh	2.08	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down ☐ The previous drop-down should revert to normal when a new state is selected
Jammu and Kashmir	2.09	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and	Click on drop-dow	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal

			spelling should be correct)		when a new state is selected
Jharkhan d	2.1	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The informatio is updated ☐ The display values should be legible (font size, colour and spelling should be correct)		□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected
Karnataka	2.11	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The informatio is updated ☐ The display values should be legible (font size, colour and spelling should be correct)		☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down ☐ The previous drop-down should revert to normal when a new state is selected
Kerala	2.12	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The informatio is updated ☐ The display values should be legible (font size, colour and spelling should be correct)	Click on	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down ☐ The previous drop-down should revert to normal when a new state is selected
Madya Pradesh	2.13	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The informatio is updated	Click on drop-dow n button	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information

			☐ The display values should be legible (font, size, colour and spelling should be correct)		should fit within the boundaries of the drop-down  The previous drop-down should revert to normal when a new state is selected
Maharash tra	2.14	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down ☐ The previous drop-down should revert to normal when a new state is selected
Manipur	2.15	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down ☐ The previous drop-down should revert to normal when a new state is selected
Meghalay a	2.16	Active Confirmed Deaths Recovered	□ Stats for the selected state is displayed □ The information is updated □ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected

Mizoram	2.17	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected
Nagaland	2.18	Active Confirmed Deaths Recovered	□ Stats for the selected state is displayed □ The information is updated □ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected
Orissa	2.19	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected
Punjab	2.2	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font,	Click on drop-dow n button	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down

			spell	colour and ing should orrect)		The previous drop-down should revert to normal when a new state is selected	
Rajasthan	2.21	Active Confirmed Deaths Recovered	selectis dis dis dis up.  The control to the lessize, spellice is size.	for the state splayed information dated should gible (font, colour and ing should prrect)	Click on drop-dow n button	Statistical information for the top cities of that state should be visible as a dropdown All information should fit within the boundaries of the drop-down The previous drop-down should revert to normal when a new state is selected	
Sikkim	2.22	Active Confirmed Deaths Recovered	selectis dis dis lis up.  The is up.  The ovalue be lesize, spelli	for the sted state splayed nformation dated display es should gible (font, colour and ing should prrect)	Click on drop-dow n button	Statistical information for the top cities of that state should be visible as a dropdown All information should fit within the boundaries of the drop-down The previous drop-down should revert to normal when a new state is selected	
Tamil Nadu	2.23	Active Confirmed Deaths Recovered	selectis dis dis dis up.  The control to the contro	for the sted state splayed nformation dated display es should gible (font, colour and ing should prrect)	Click on drop-dow n button	Statistical information for the top cities of that state should be visible as a dropdown All information should fit within the boundaries of the drop-down The previous drop-down should revert to normal when a new state is selected	
Telagana	2.24	Active Confirmed Deaths	selec	for the ted state played	Click on drop-dow n button	Statistical information for the top cities of that	

		Recovered	☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)		state should be visible as a dropdown  All information should fit within the boundaries of the drop-down  The previous drop-down should revert to normal when a new state is selected
Tripura	2.25	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)		□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected
Uttaranch al	2.26	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	Click on drop-dow n button	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected
Uttar Pradesh	2.27	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and	Click on drop-dow	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal

				lling should correct)		when a new state is selected	
West Bengal	2.28	Active Confirmed Deaths Recovered	sele is d is d The is u The valu be I size spe	ts for the ected state isplayed information pdated display ues should egible (font, e, colour and lling should correct)	Click on drop-dow n button	Statistical information for the top cities of that state should be visible as a dropdown All information should fit within the boundaries of the drop-down The previous drop-down should revert to normal when a new state is selected	
Andaman and Nicobar Islands	2.29	Active Confirmed Deaths Recovered	sele is d The is u The valu be I size spe	ts for the ected state isplayed information pdated display ues should egible (font, e, colour and lling should correct)	Click on drop-dow n button	Statistical information for the top cities of that state should be visible as a dropdown All information should fit within the boundaries of the drop-down The previous drop-down should revert to normal when a new state is selected	
Chandigar h	2.3	Active Confirmed Deaths Recovered	sele is d The is u The valu be I size spe	ts for the ected state isplayed information pdated display ues should egible (font, e, colour and lling should correct)	Click on drop-dow n button	Statistical information for the top cities of that state should be visible as a dropdown All information should fit within the boundaries of the drop-down The previous drop-down should revert to normal when a new state is selected	
Dadra & Nagar Haveli and Daman &	2.31	Active Confirmed Deaths Recovered	sele is d The	ts for the ected state isplayed information pdated	Click on drop-dow n button	Statistical information for the top cities of that state should be visible as a dropdown All information	

Diu			☐ The display values should be legible (font, size, colour and spelling should be correct)	should fit within the boundaries of the drop-down  The previous drop-down should revert to normal when a new state is selected
Delhi	2.32	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down ☐ The previous drop-down should revert to normal when a new state is selected
Jammu and Kashmir	2.33	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down ☐ The previous drop-down should revert to normal when a new state is selected
Jammu (Winter)	2.34	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected

Lakshadw	2.35	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected
Puducherr	2.36	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	□ Statistical information for the top cities of that state should be visible as a dropdown □ All information should fit within the boundaries of the drop-down □ The previous drop-down should revert to normal when a new state is selected
Ladakh	2.37	Active Confirmed Deaths Recovered	☐ Stats for the selected state is displayed ☐ The information is updated ☐ The display values should be legible (font, size, colour and spelling should be correct)	☐ Statistical information for the top cities of that state should be visible as a dropdown ☐ All information should fit within the boundaries of the drop-down ☐ The previous drop-down should revert to normal when a new state is selected

## PERFORMANCE TESTING

Requirement	Case #	Test Steps	Time Consumed	Status	Notes/Bugs
Country Page	1	Access country card from Homepage			
Graph	1	Wait for each graph to load			
Statistical	1	Hover over a			

Information Section		state on the Map		
Drop-down Menu	1	Click on the drop-down button for a state		

## **AUTOMATION TESTING**

Requirement	Scenario#	Operation	Pull Request Link
Access Country page	1	Open country page by clicking on the country card	
Access State information	2	Hover cursor over the state on the map	

Drop-down Menu	Click on the drop-down button for	
	a state	

# **ANALYTIC TESTING**

Scenario	DB	Description	Value	Expected	Actual	Statu s
1	CovidViz	Test Plot	Data is NUII	'No Data available' should be displayed		
2			Data is 0	0 should be displayed		

3		Data input is Negative	'Invalid Data' should be displayed	
4		V alue is $10^9$	Complete value should be displayed without any overlap	
5	Test Stat Informatio n section	Data is NUII	'No Data available' should be displayed	
6		Data is 0	0 should be displayed	
7		Data input is Negative	'Invalid Data' should be displayed	
8		V alue is $10^9$	Complete value should be displayed without any overlap	
9	Drop-down menu	Data is NUII	'No Data available' should be displayed	
10		Data is 0	0 should be displayed	
11		Data input is Negative	'Invalid Data' should be displayed	
12		V alue is $10^9$	Complete value should be displayed without any overlap	