



# Strategy Support System for Maharashtra Police

## Project 3

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15 633 0007

**IDC School of Design**

**Guide:** Prof. Venkatesh R.

**Maharashtra Police Department**

**A.D.G. (Administration):** Dr. Pradnya Saravade



# Departments

**Establishment**

**Administration**

**SRPF**

**PTC**

**+17** more



# Departments

**Establishment**

**Administration**

**SRPF**

**PTC**

**+17** more

## Crime & Criminal Tracking Network & Systems

- Integrated System
- Better Governance
- Nationwide Networking Infrastructure

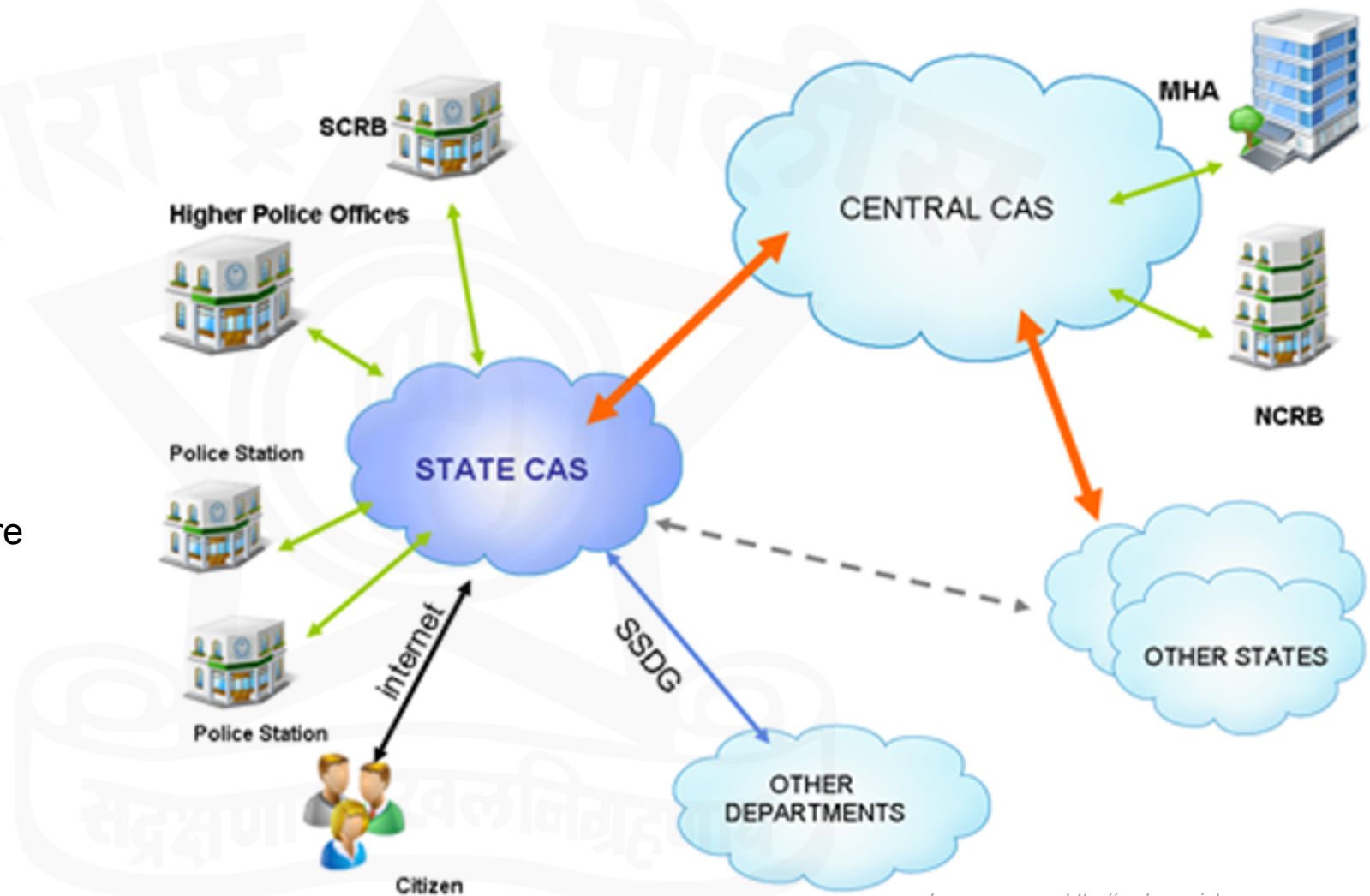
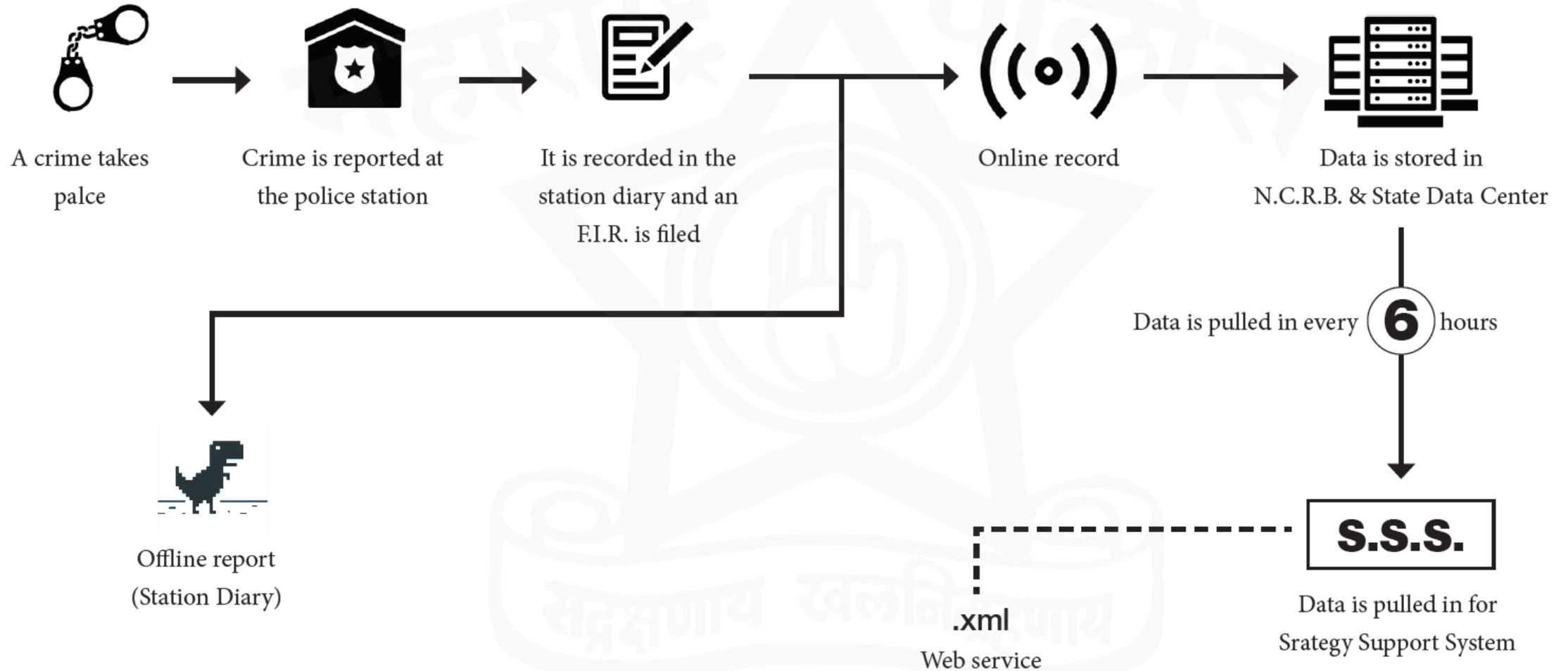
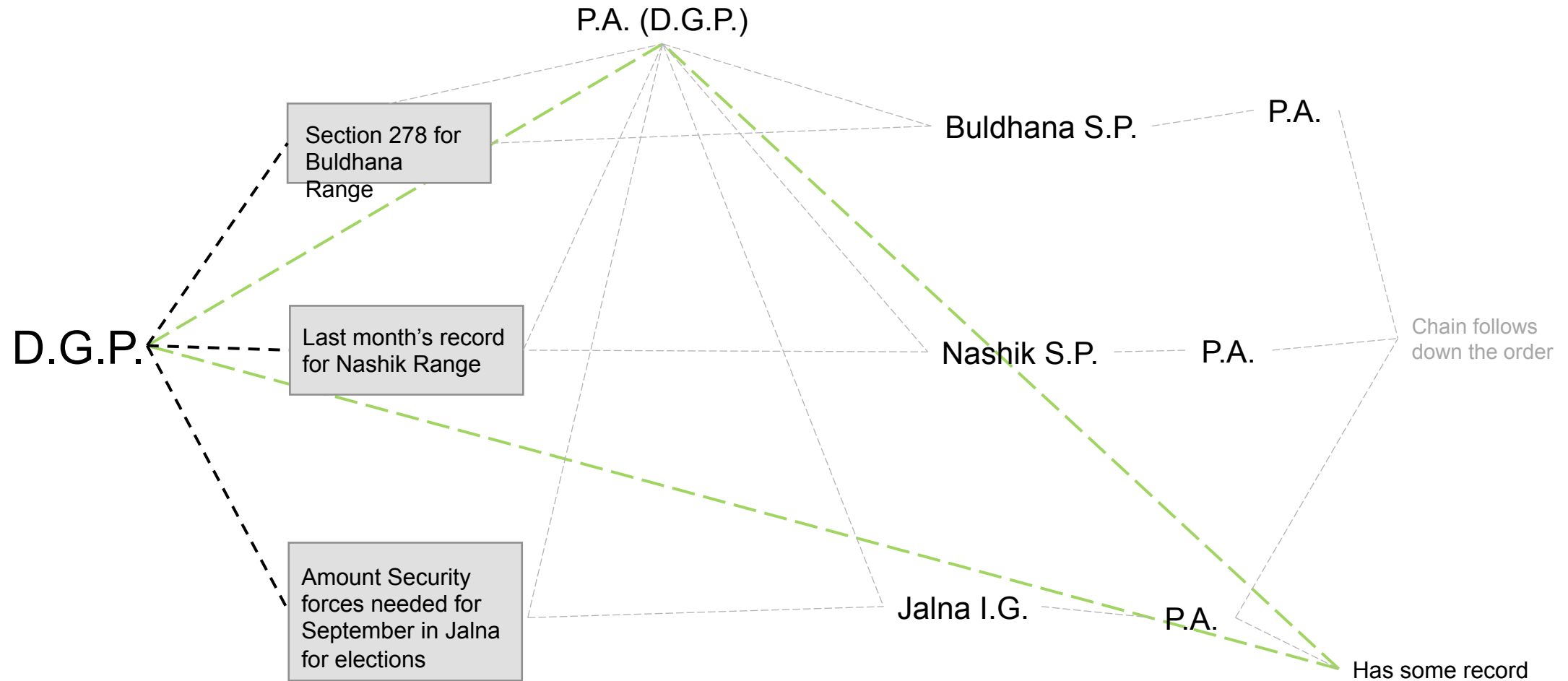


Image source: <http://ncrb.gov.in>

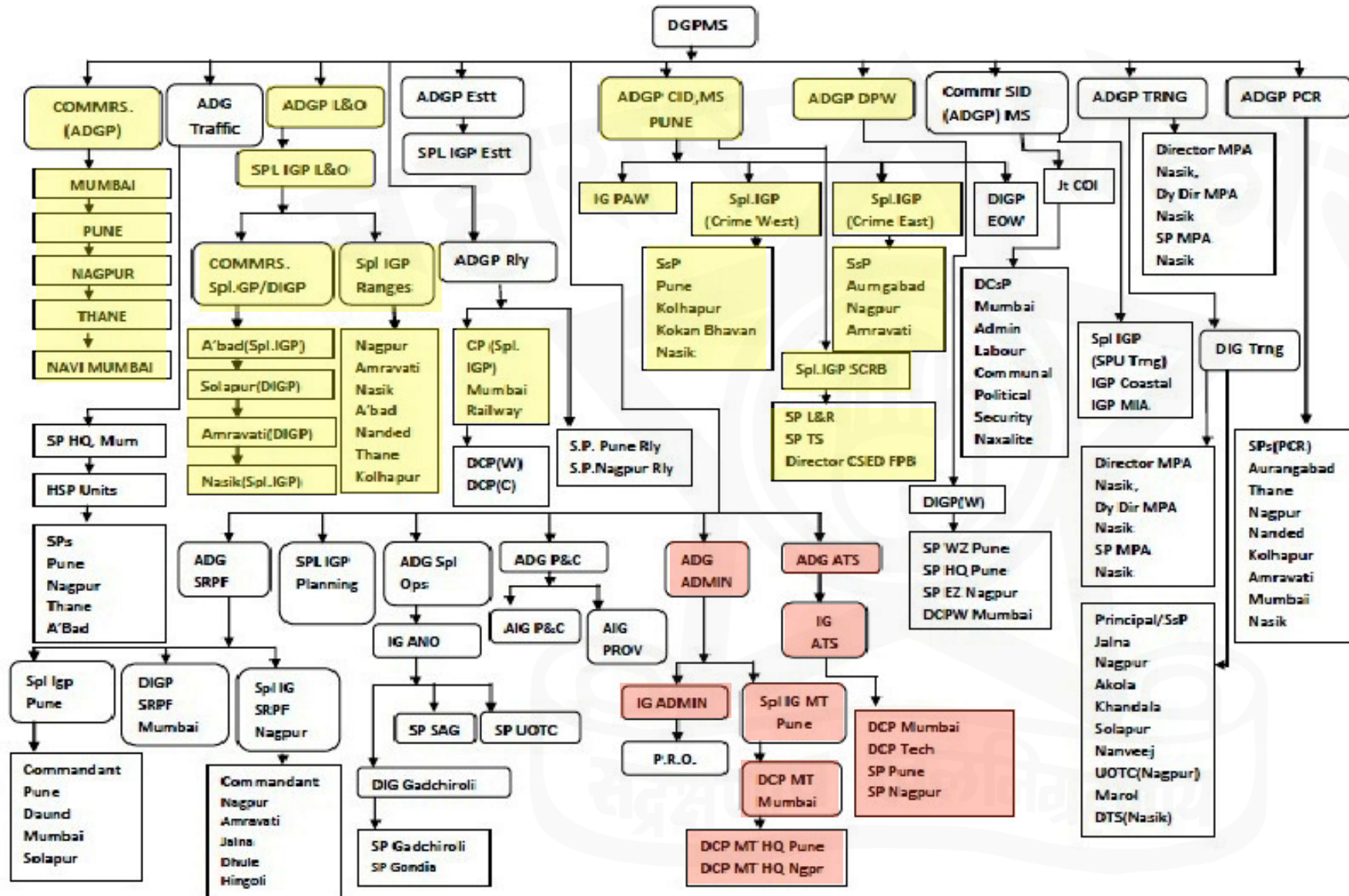






Time consuming & Inaccurate

# Hierarchy Chart



■ Primary users  
■ Secondary users



Image source: <http://jalpangeria.blogspot.in>



N.C.R.B (एन.सा.आर.बा)

I.I.F.-I (एकीकृत अन्वेषण  
फॉर्म-१)

## FIRST INFORMATION REPORT (Under Section 154 Cr.P.C.)

रथम खबर अहवाल  
(कलम १५४ फौजदारी प्रक्रिया संहिता)

F.I.R. no.	Date	Police station	Range, District, Zone	Acts & Sects
------------	------	----------------	-----------------------	--------------

FIR No. (प्रथम खबर क्र.): 0229

System Date and Time (ससिस्टम दिनांक और समय): 28/09/2016 19:07 वाजता

Original Date and Time (वास्तविक दिनांक और समय): 28/09/2016 18:52 वाजता

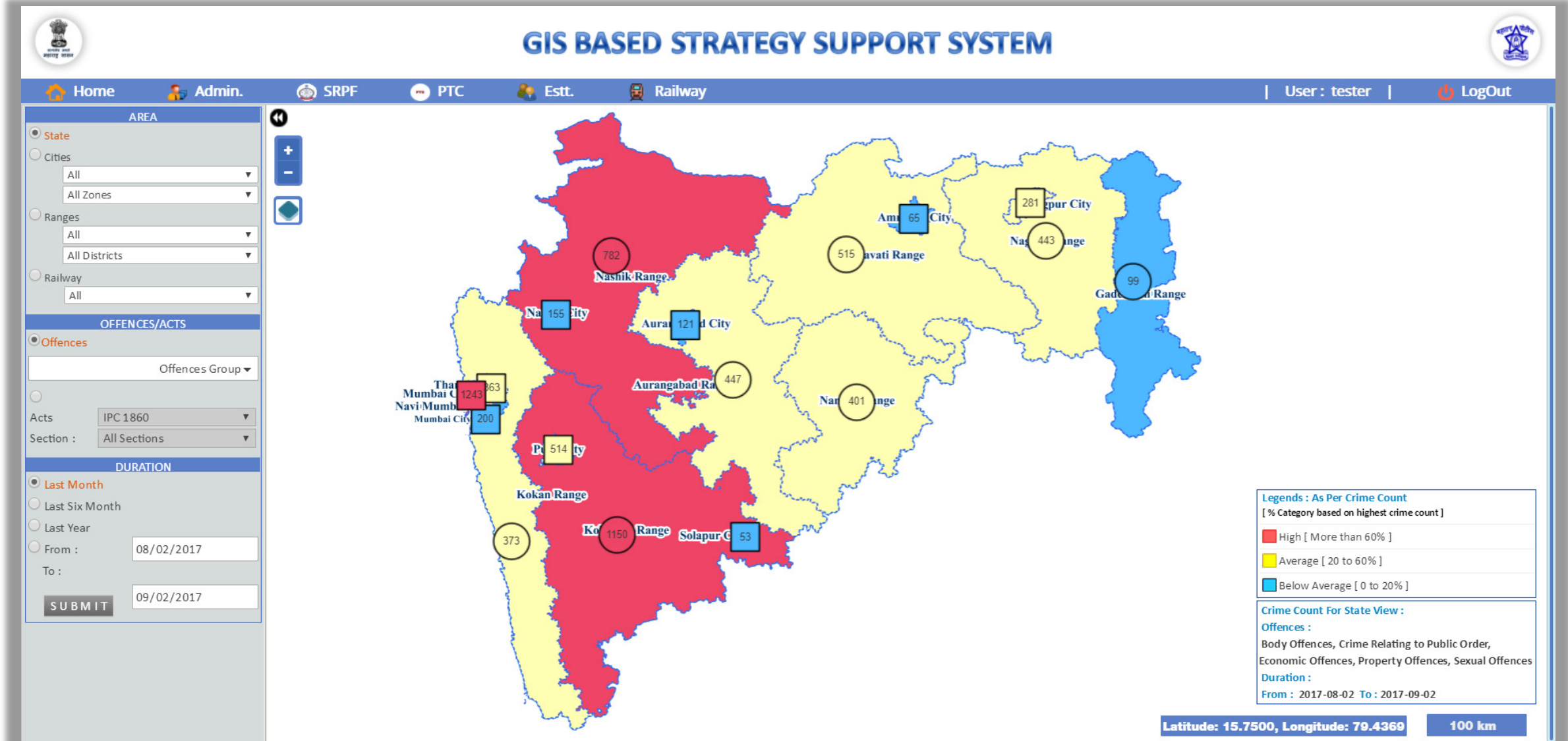
2.	S.No. (अ.क्र.)	Acts (अधिनियम)	Sections (कलम)
	1	भारतीय दंड संहिता १८६०	३४
	2	भारतीय दंड संहिता १८६०	३९२

3. (a) Occurrence of offence (गुन्हयाची घटना):

1 Day (दिवस): रविवार

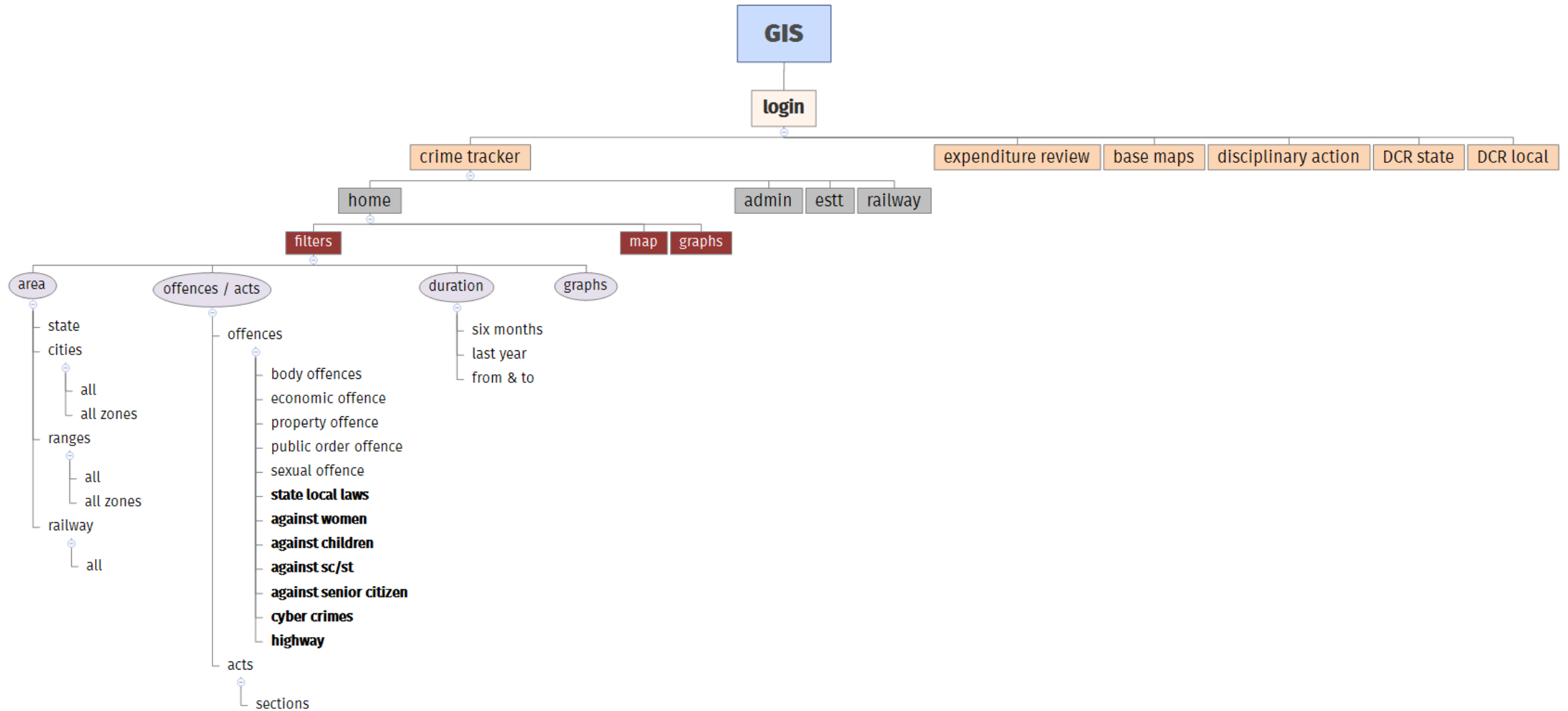
Date from (दिनांक पासून): 25/09/2016

Date To (दिनांक पर्यंत): 25/09/2016





# Existing Architecture





# M.E.T. Police Department



## Crime Data Dashboard

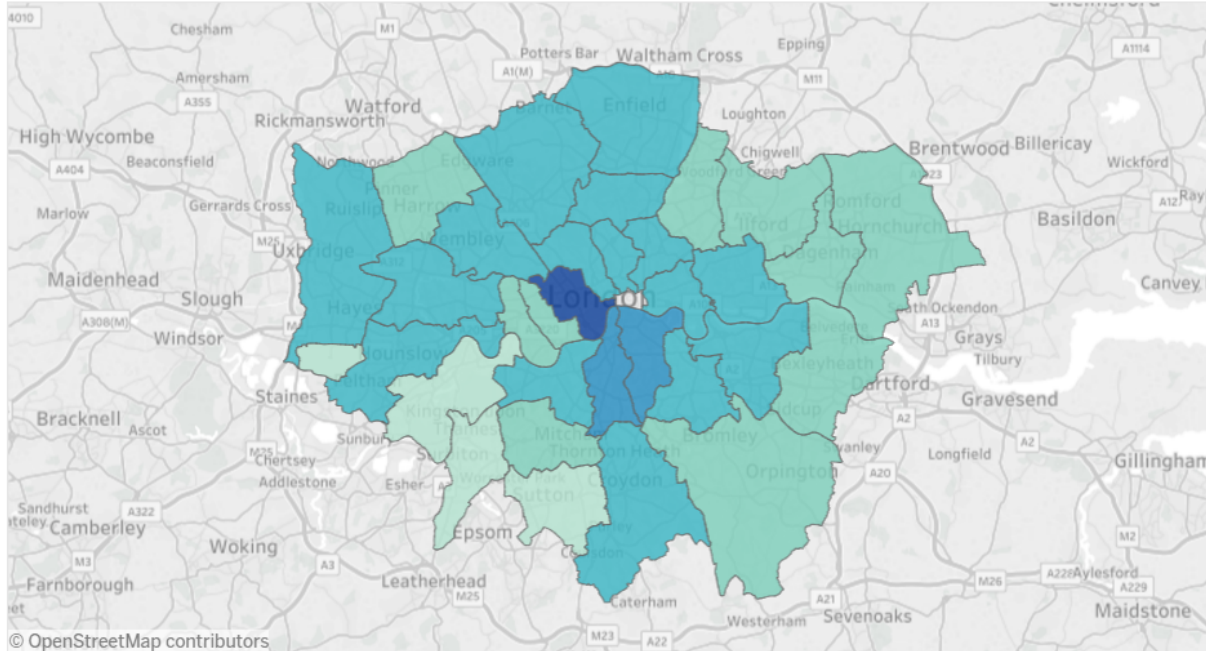
BETA



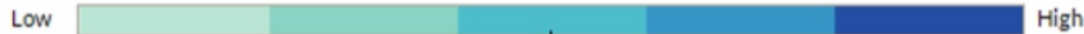
Major crime  Minor crime

Time range  
June 2015

June 2017



To clear selected area click on a blank area of the map.



London

	Rate	Crime Count
Total crimes	2.06	1,601,106
Theft and Handling		625,850
Violence Against the Person		492,460
Burglary		145,614
Criminal Damage		133,837
Drugs		81,160

Recorded crime count



June 2017 compared to previous month:

12 months to June 2017 compared to the previous 12 months

▼ 1.46%

▲ 5.47%

← Undo → Redo ↶ Reset

tableau

22,626 views

Share Download Full Screen



## Principles & Guidelines

- Information at a glance
- The inverted pyramid
- Less is More
- Make the complex simple
- Telling a clear story
- Reveals details as needed

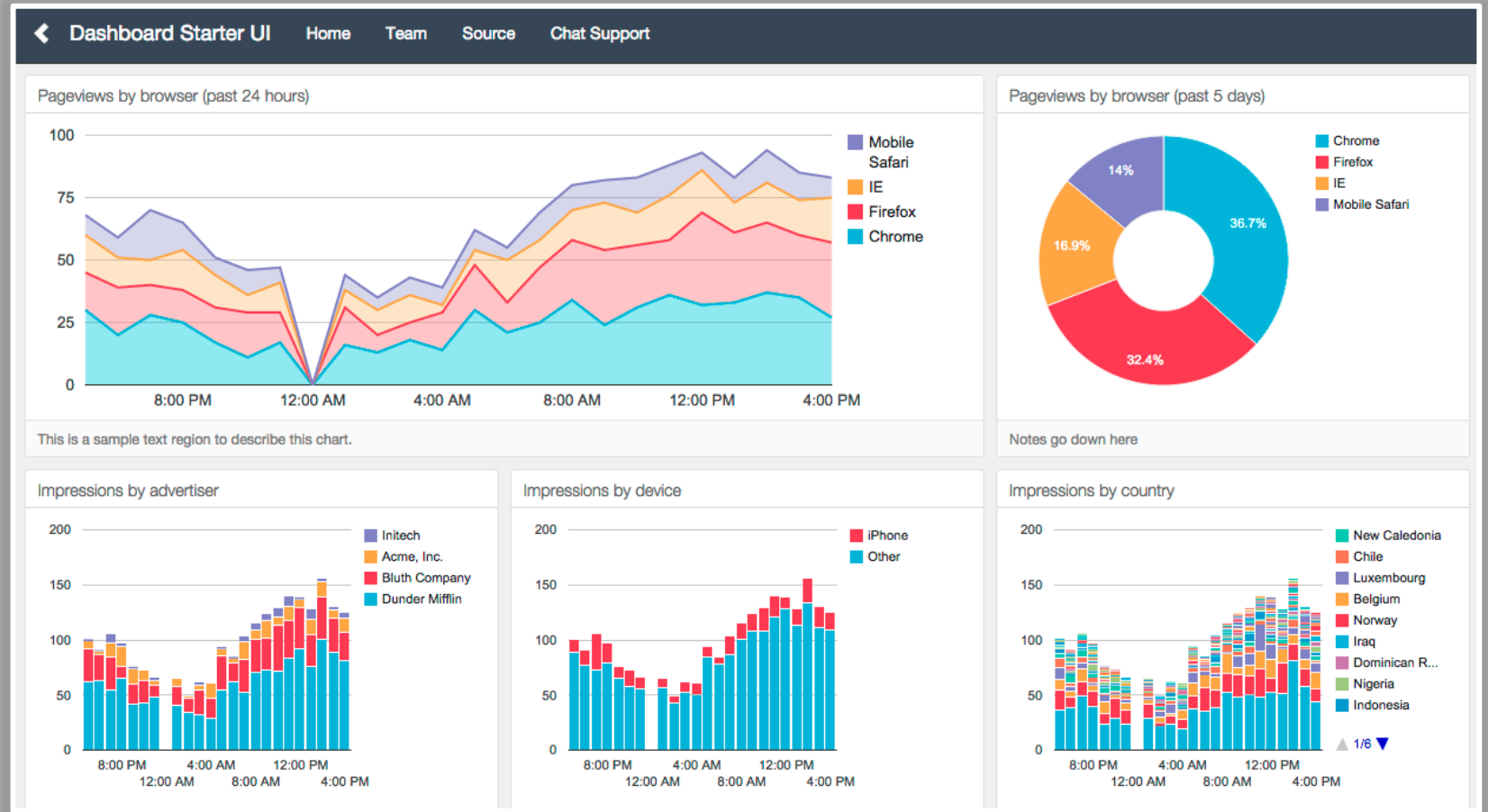
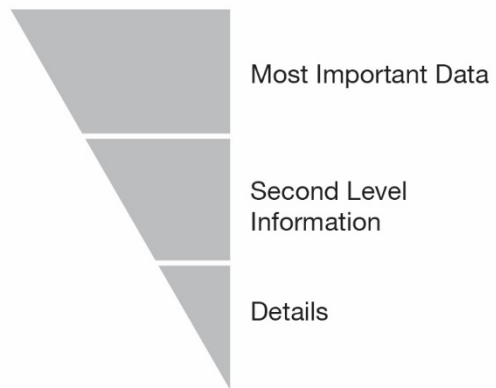


Image source: GitHub

## Dr. Andrew Abela's categorization of visualization charts

- Composition
- Comparison
- Distribution
- Relationship

## Chart Suggestions—A Thought-Starter

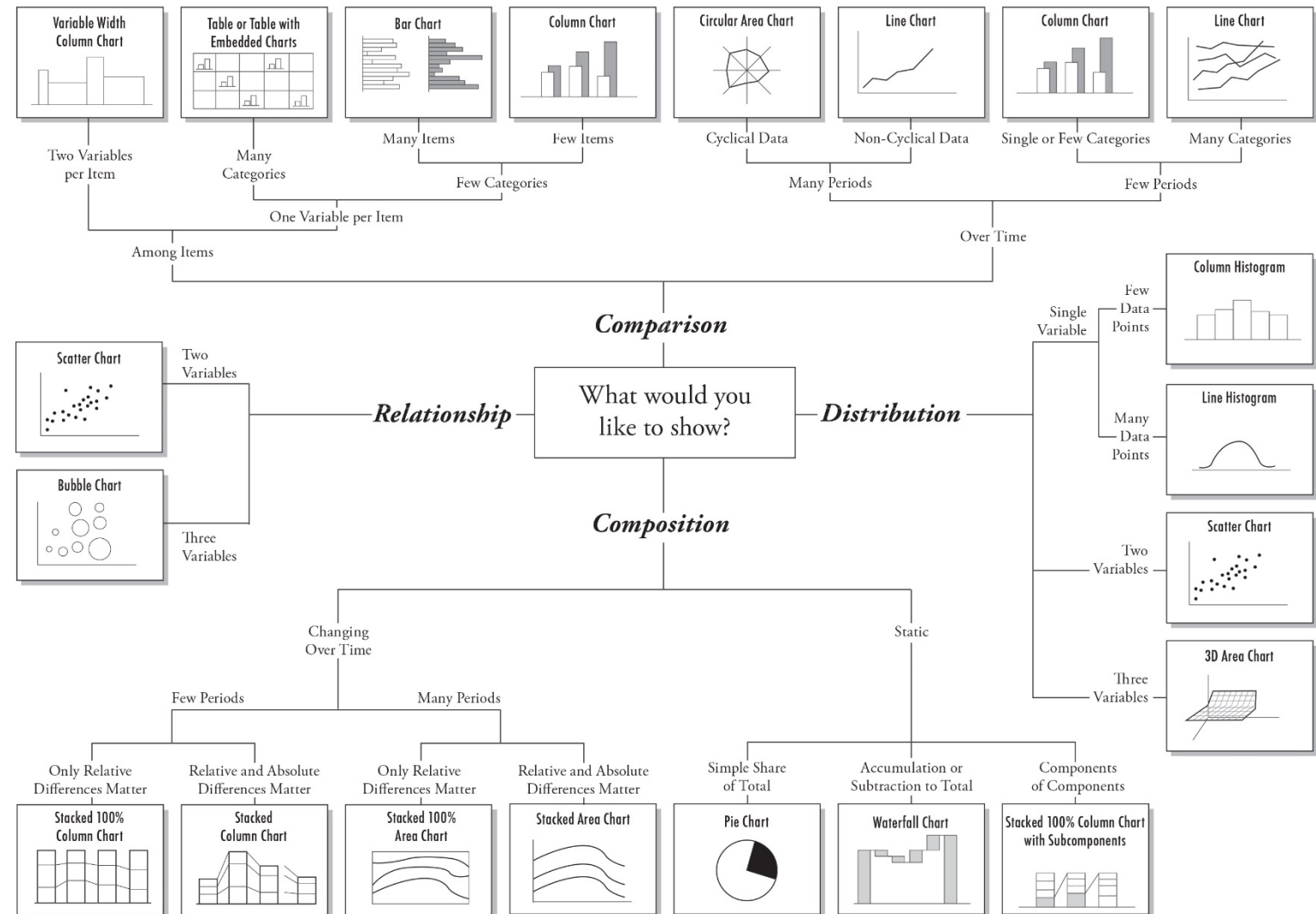
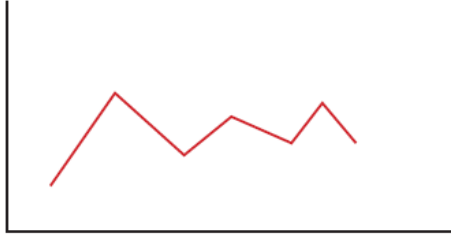


Image source: <https://extremepresentation.com/about/>

Line Charts

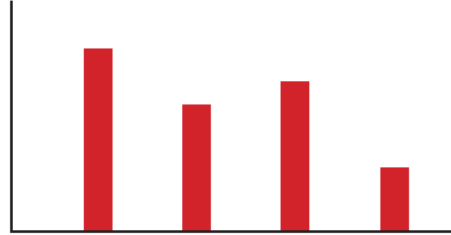


They are great when it comes to displaying patterns of change across a continuum. They are compact, clear and precise. Line charts format is common and familiar to most people so they can easily be analyzed at a glance.

**Cons:**

Too many lines (variables) can make the chart hard to decipher. You may also find your user constantly referencing the legend to remind them which one they are looking at. If you have too many variables, it's time to consider a second chart.

Bar Charts



They quickly compare items in the same category. They are easy to understand, clear and compact.

**Cons:**

Aesthetically speaking, when you have too much data, columns become very thin and ugly. This also leaves little room to properly label your chart. Imagine we had ten different age ranges, per column. Some results, if not most, would be only slivers. To make your chart easy to understand use good colors, proper spacing and a balanced layout. This invites people to look at your chart and even enjoy it. A pretty chart is much nicer way to consume data than squinting at a table.

Pie charts



They rank low in precision because users find it difficult to accurately compare the sizes of the pie slices. The scale resulting in the smallest slices are so small that they even cannot be displayed.

**Cons:**

Cannot show more than 5-6 variables. After six it is hard for eyes to decipher what are the slices proportion. It also become difficult to label the pie chart. Circles take up space.

Scatterplots



They lack precision and clarity as the relationships between two quantitative measures don't change very frequently. Still, they can be used for an interactive presentation for knowledgeable users.

**Cons:**

Needs huge data sets, does not work with smaller data sets. It also aims at showing a correlation of variables.

Heat Maps

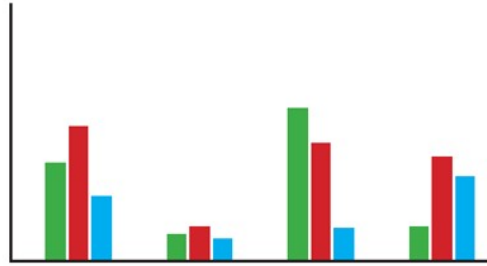


Heat maps are most effective for giving an overview of information. For geospatial data, map is the most optimal data visualization tool.

**Cons:**

Needs a lot of space.

Column Graphs

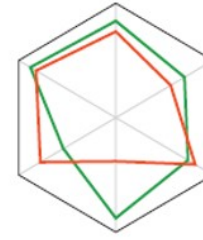


Good for showing chronological data, such as growth over specific periods, and for comparing data across categories. At a glance, one can compare multiple variables in a single group.

**Cons:**

Can use for only 4-5 variables across just 4-5 groups. More the variables and more number of groups, more is the time invested in reading the data.

Spider Chart

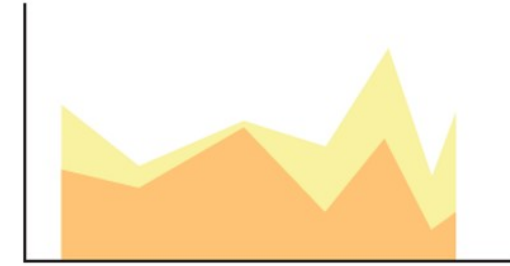


Good to show the spread of multiple variable at a glance. The concentration of strengths and weaknesses is evident at a glance.

**Cons:**

Cannot use it if there are more than 5 values/ variables to compare.

Area Chart



Useful for showing part-to-whole relations, such as showing individual sales reps' contribution to total sales for a year. It helps you analyze both overall and individual trend information.

**Cons:**

Making sure not using more than 2-3 variables which are not overlapping each other. Not suitable for dynamic data sets.



# Problem Statement

To navigate intuitively within the dashboard and to encourage users to engage with the data sets.

## Objective of the System

To save time, provide accurate information and maintain transparency in the department.

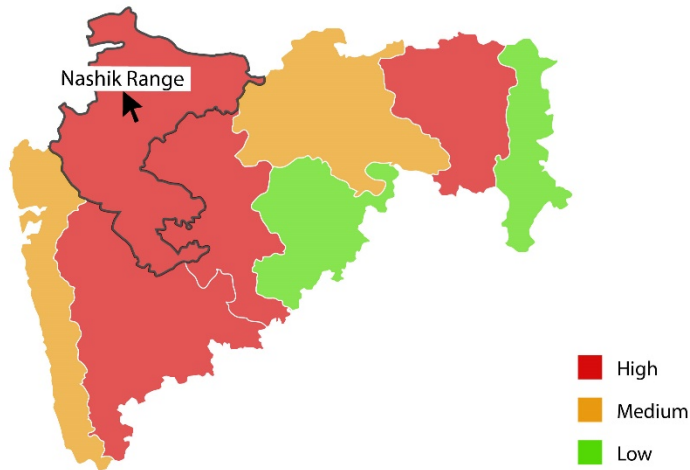






# Layouts

## Strategy Support System

[Home](#)[Admin](#)[Esst.](#)[Railway](#)[Tester](#)[Log out](#)☐ Last month☒ Last 6 Months☐ Last year☐ Custom

### Districts in Nashik

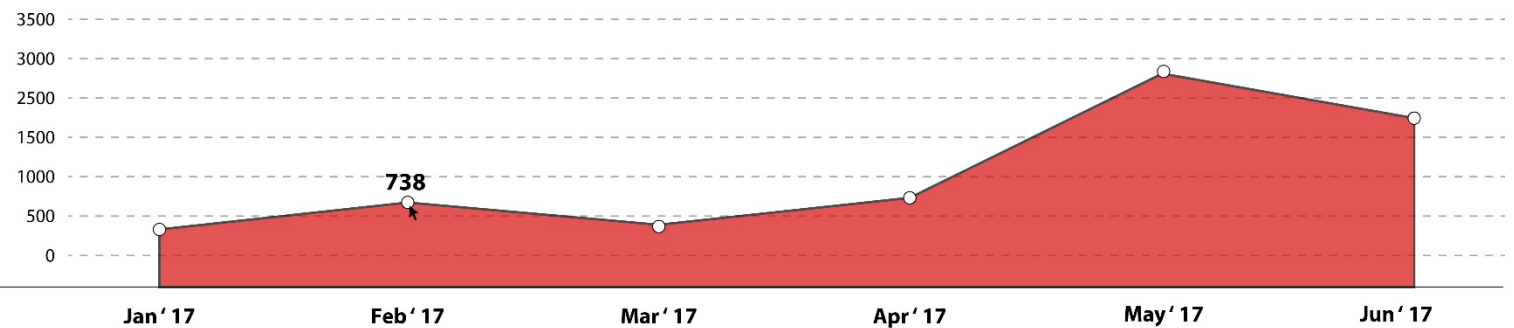
Ahmednagar	38
Dhule	38
Jalgaon	38
Nandurbar	38
Nashik Rural	38

Acts

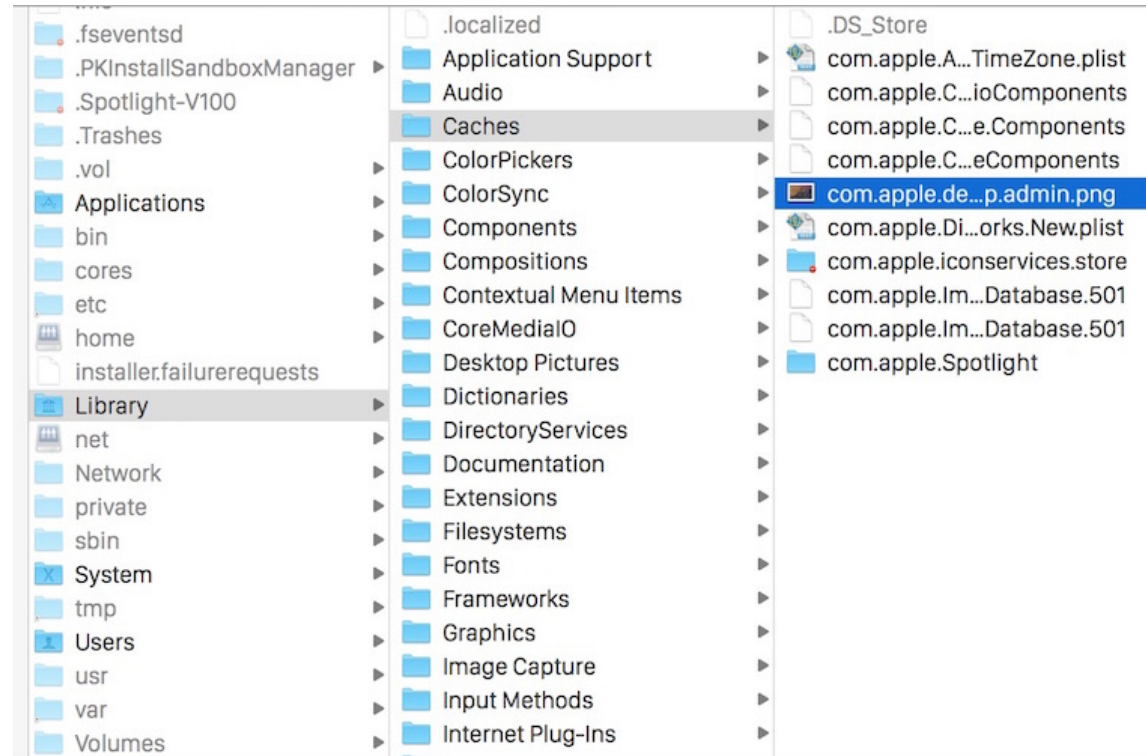
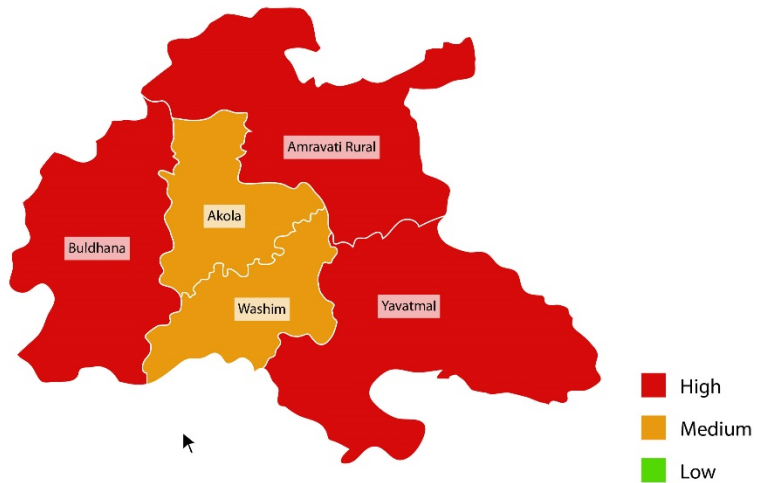
### Group 1

### Group 2

State Local Laws	38
Against Women	57
Against Children	23
Against SC/ST	27
Against Senior Citizen	26
Cyber Crimes	40
Highway	20



## Strategy Support System

[Home](#)[Admin](#)[Esst.](#)[Railway](#)[Tester](#)[Log out](#)☐ Last month☒ Last 6 Months☐ Last year☐ Custom





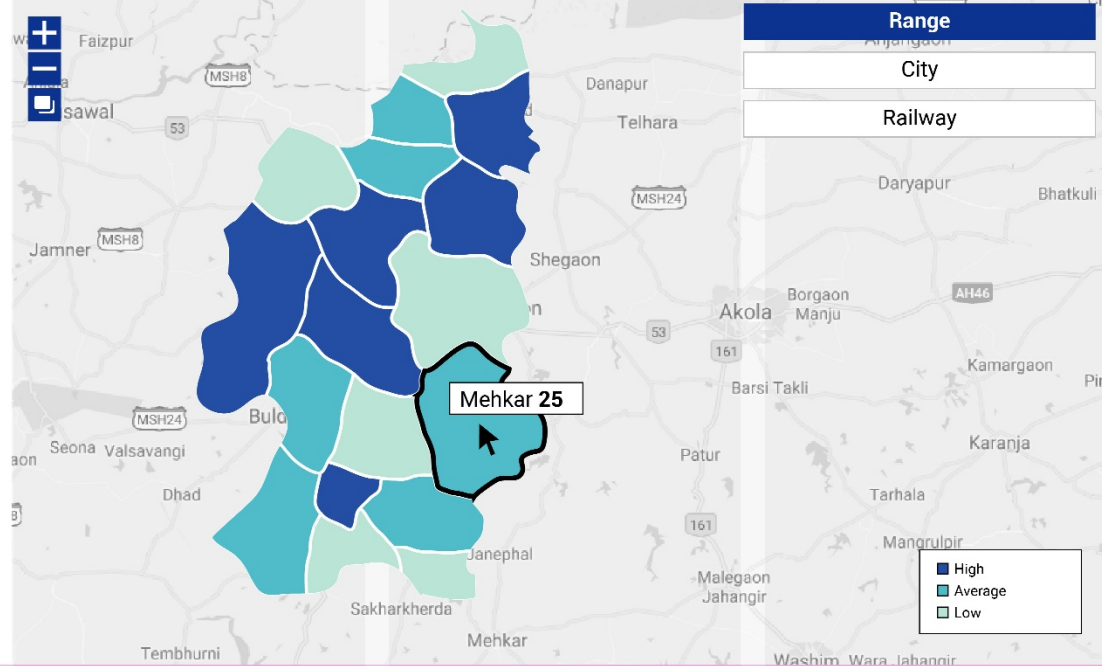
### Duration

- ☐ Last Year
- ☐ Last 6 Months
- ☒ Last Month
- ☐ Pick your date

### Search by Acts & Sections

IPC 1860

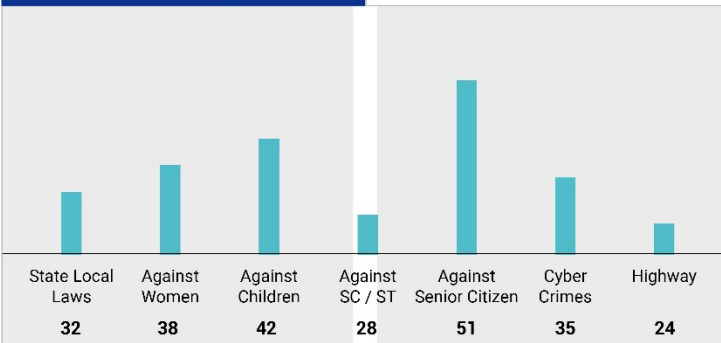
All Sections



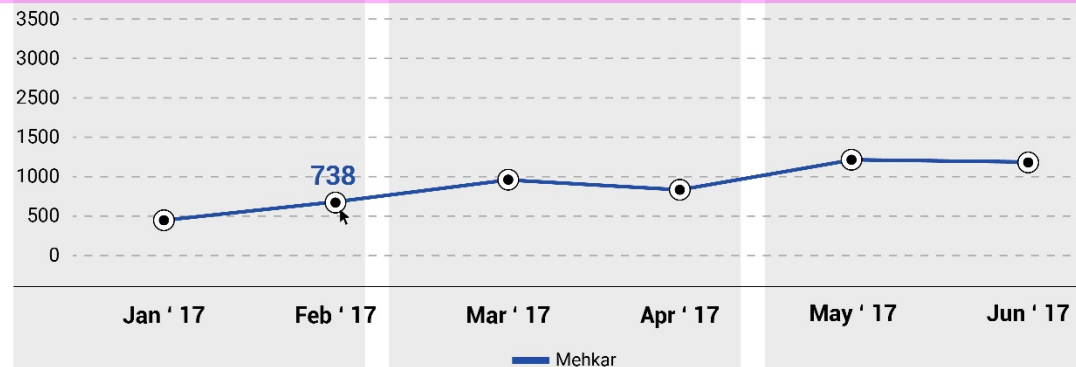
### < All Ranges > Amravati > Buldhana >

Sort by	Name	Highest	Lowest
	Chikli	41	
	Deulgaon Raja	40	
	Khamgaon	35	
	Shegaon	24	
	Malkapur	23	
	Motala	21	
	Nandura	24	
	Mehkar	25	
	Lonar	43	
	Sindekh Raja	21	
	Jalgaon Jamod	105	
	Chikli	41	
	Deulgaon Raja	40	
	Khamgaon	35	
	Shegaon	24	
	Malkapur	23	
	Motala	21	
	Nandura	24	
	Mehkar	25	
	Lonar	43	
	Sindekh Raja	21	
	Jalgaon Jamod	105	

### Offences Group 1

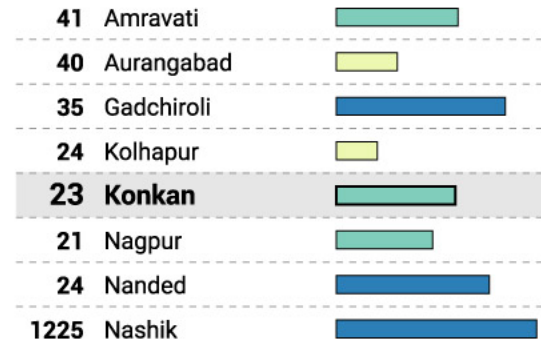
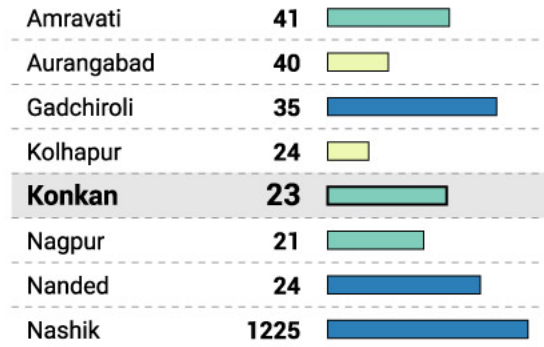
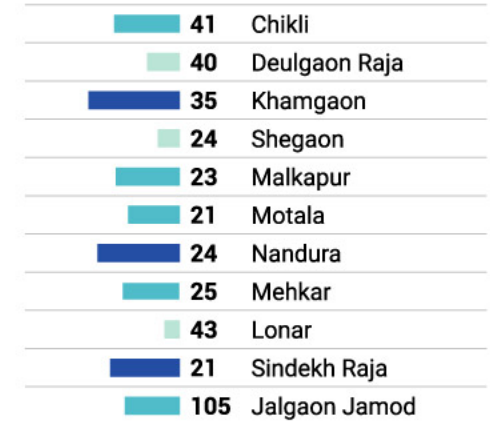
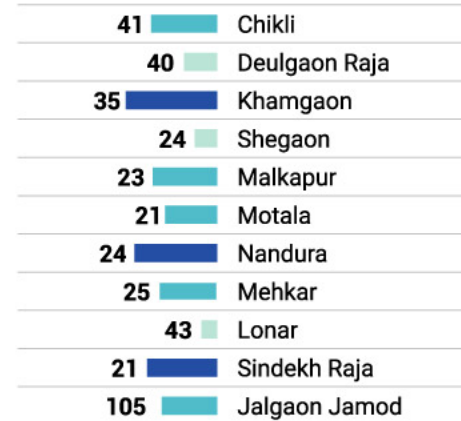
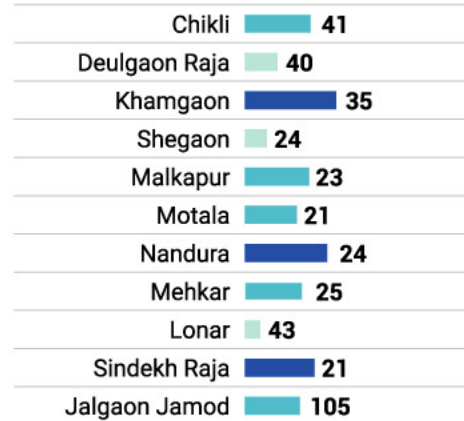
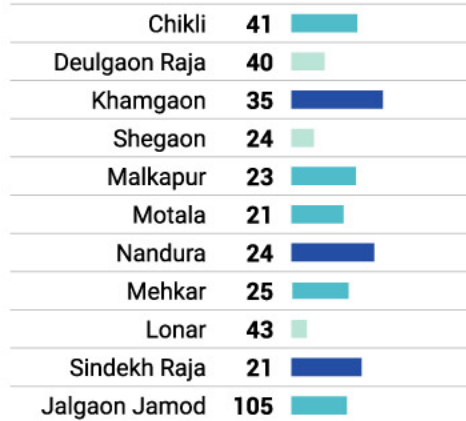


### Offences Group 2



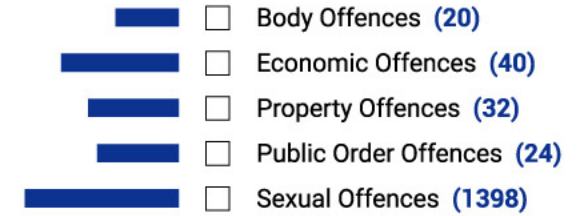
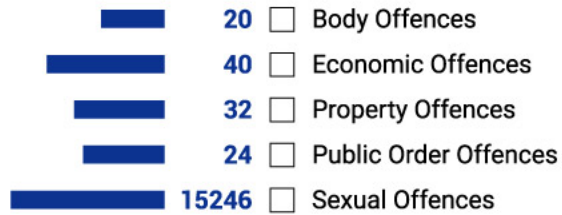


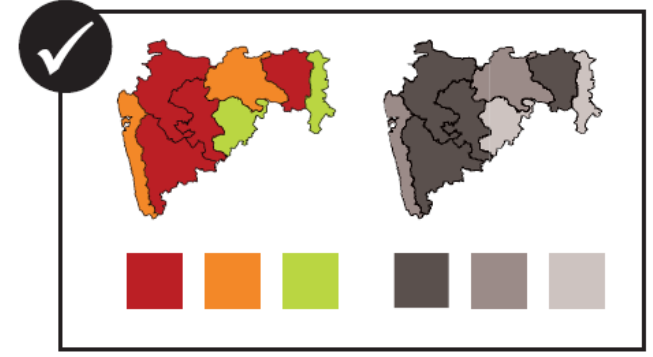
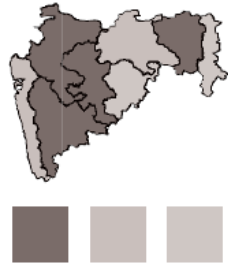
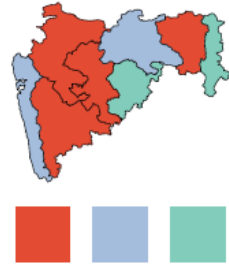
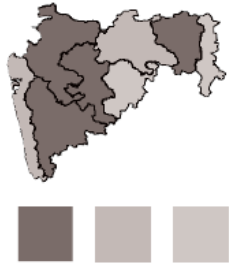
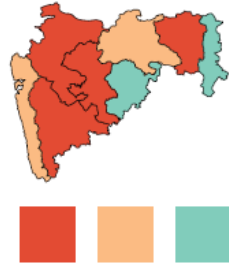
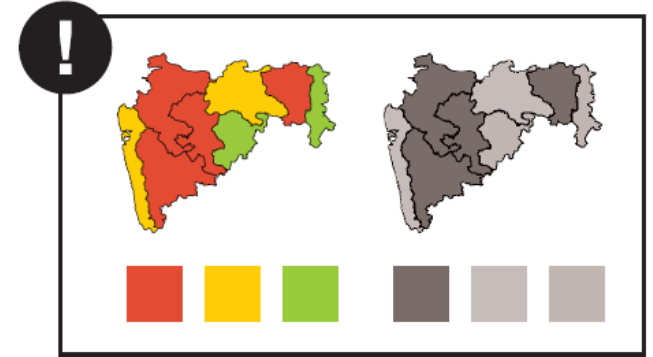
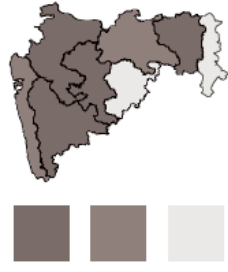
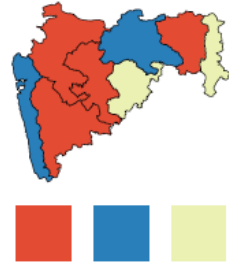
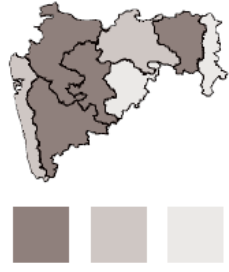
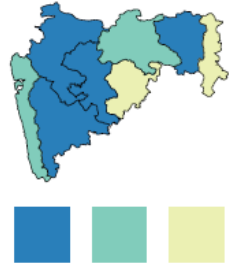
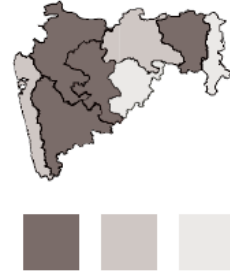
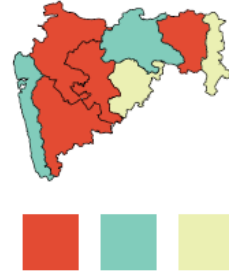
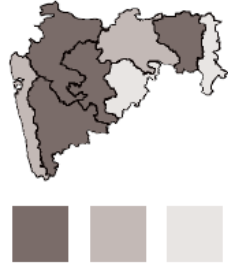
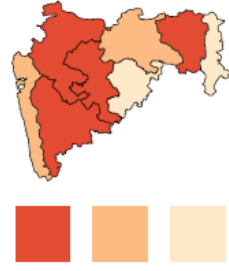
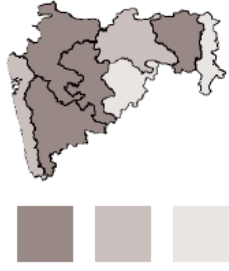
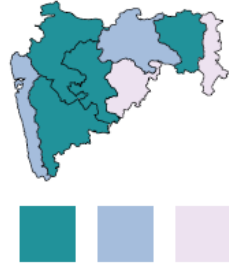
# Bar Graphs





# Filters







# Prototype



### Filters

#### Offences Group 1

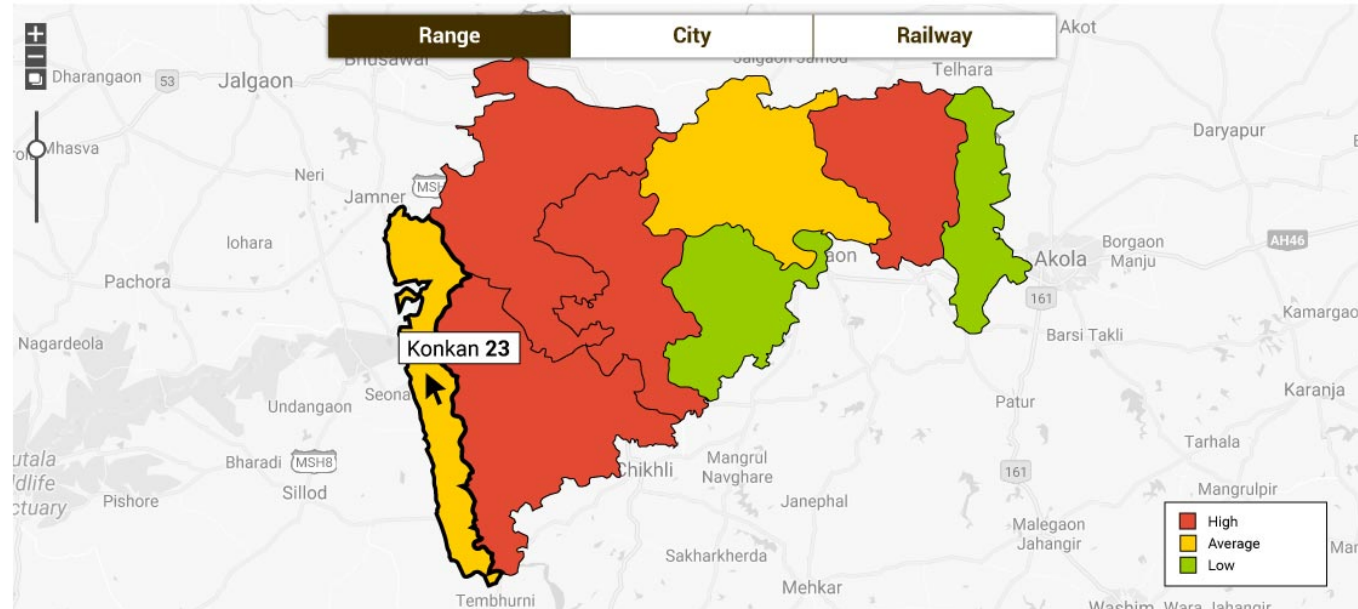
- ☒ Body Offences 20
- ☒ Economic Offences 40
- ☒ Property Offences 32
- ☒ Public Order Offences 24
- ☒ Sexual Offences 15246

#### Offences Group 1

- ☐ State Local Laws 20
- ☐ Against Women 40
- ☐ Against Children 32
- ☐ Against SC / ST 24
- ☐ Against Senior Citizen 46
- ☐ Cyber Crimes 25
- Highway 0

### Acts & Sections

### Geo spatial Data



### Stats

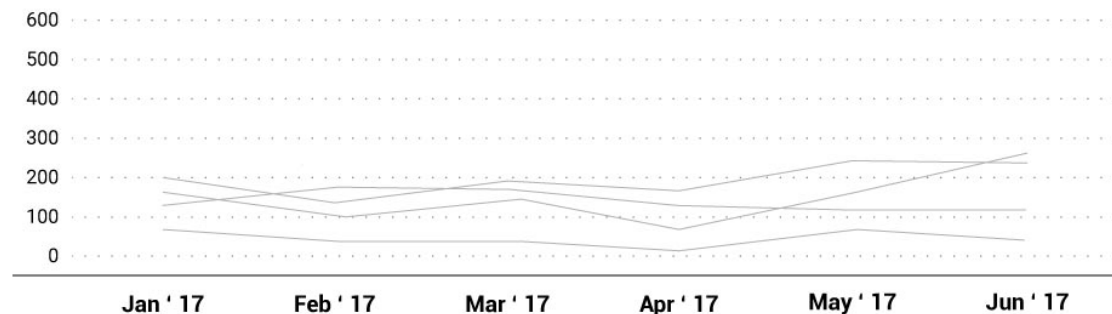
[All Ranges > Amravati](#)

Sort by	Name	High	Low
	Akola	120	
	Amravati Rural	230	
	Buldhana	112	
	Washim	87	
	Yavatmal	57	

### Duration

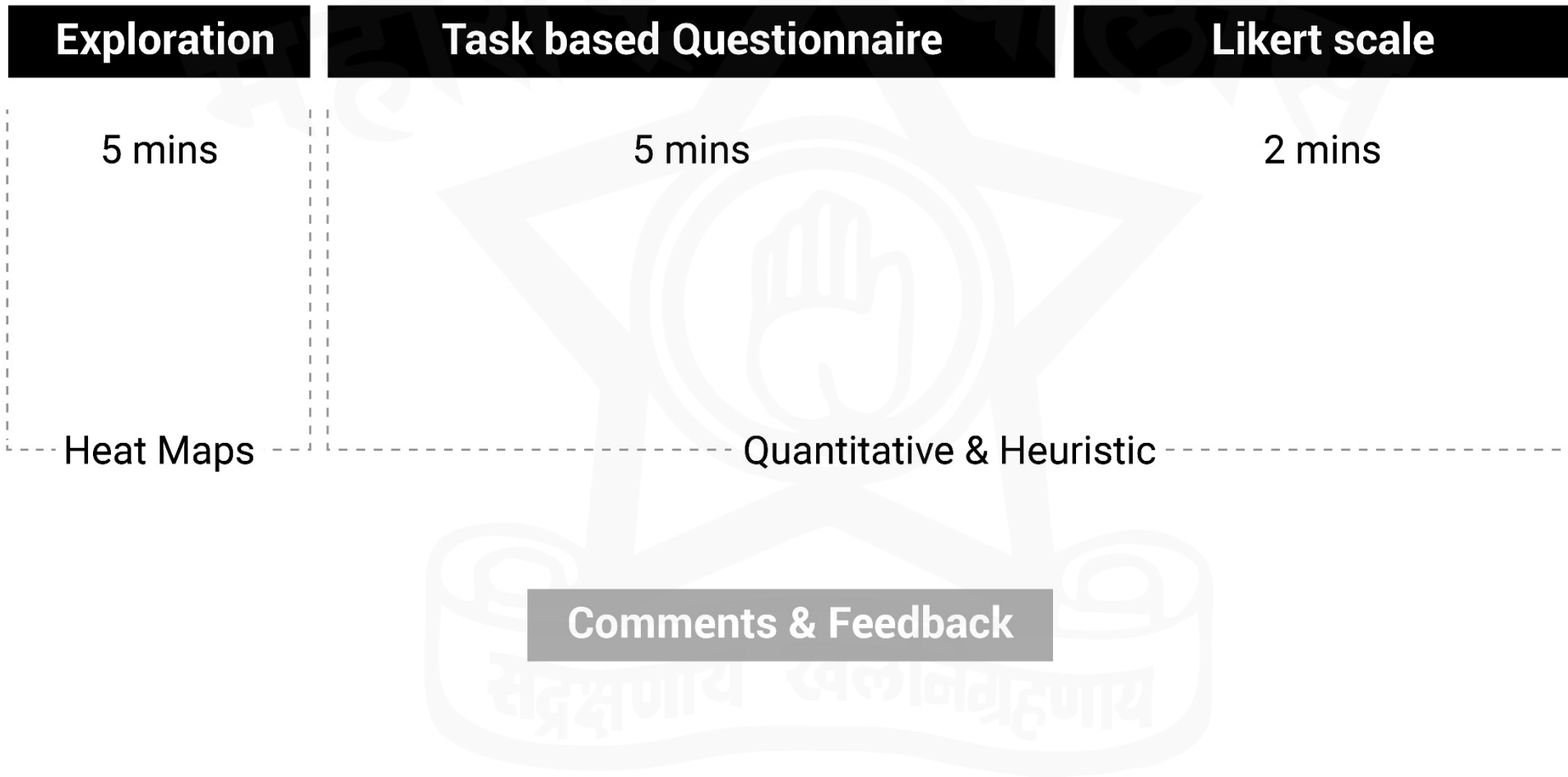
- ☐ Last Year
- ☒ Last 6 Months
- ☐ Last Month
- ☐ Pick your date

### Trend Chart





# Evaluation plan







# Evaluation

## Task

During the last 6 months which range has the highest and lowest no. of F.I.R.'s registered respectively? \*

- ☐ Konkan & Nagpur
- ☐ Kolhapur & Konkan
- ☐ Amravati & Gadchiroli
- ☐ Nashik & Nanded

In the last year how many total property offences sections have been registered? \*

- ☐ 1125
- ☐ 1084
- ☐ 985
- ☐ 1905

What is the count of F.I.R.'s registered for Koyana nagar in Satara district of Kolhapur range against children registered in the last 6 months? \*

- ☐ 5
- ☐ 3
- ☐ 1
- ☐ 0

How many F.I.R.'s of section 56 have been registered in for Gondia district in last month? \*

- ☐ 1
- ☐ 20
- ☐ 0
- ☐ 3

Considering Economic offences and Property offences how many sections have been registered in Cyber crime in the last year? \*

- ☐ 250
- ☐ 320
- ☐ 149

## Scale

Answer the following questions with 1 being the lowest or least preferred and 10 being the highest or most preferred.

Is the overall text readable enough? \*

	1	2	3	4	5	6	7	8	9	10	
Less	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very

Are the colours on the map good enough to differentiate between high medium and low? \*

	1	2	3	4	5	6	7	8	9	10	
Less	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very

Does the stats list on the right hand side of the design communicate clearly about the no. F.I.R.'s registered in the range/ district / zone? \*

	1	2	3	4	5	6	7	8	9	10	
Less	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very

Does the stats list on the right hand side of the design communicate clearly about the no. F.I.R.'s registered in the range/ district / zone? \*

	1	2	3	4	5	6	7	8	9	10	
Less	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very

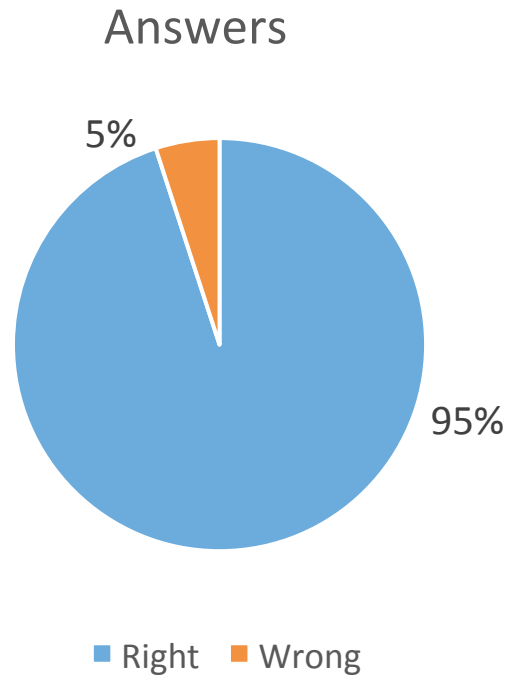
Does the filters list on the left hand side of the design communicate clearly about the no. sections registered in the particular offences group? \*

	1	2	3	4	5	6	7	8	9	10	
Less	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very





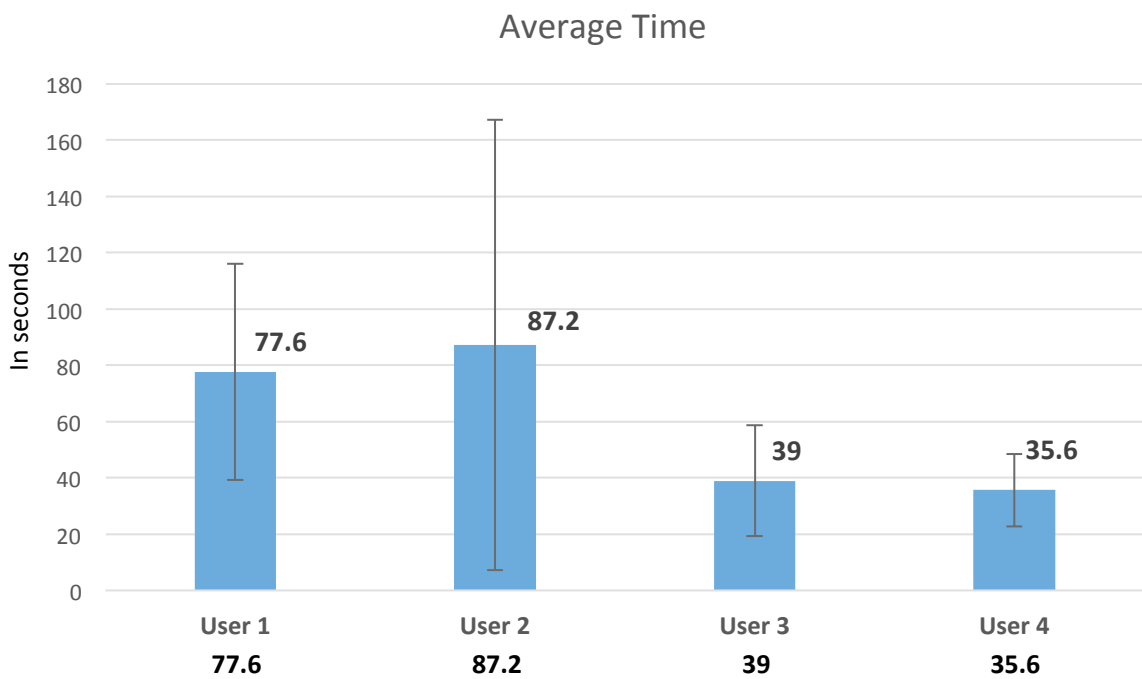
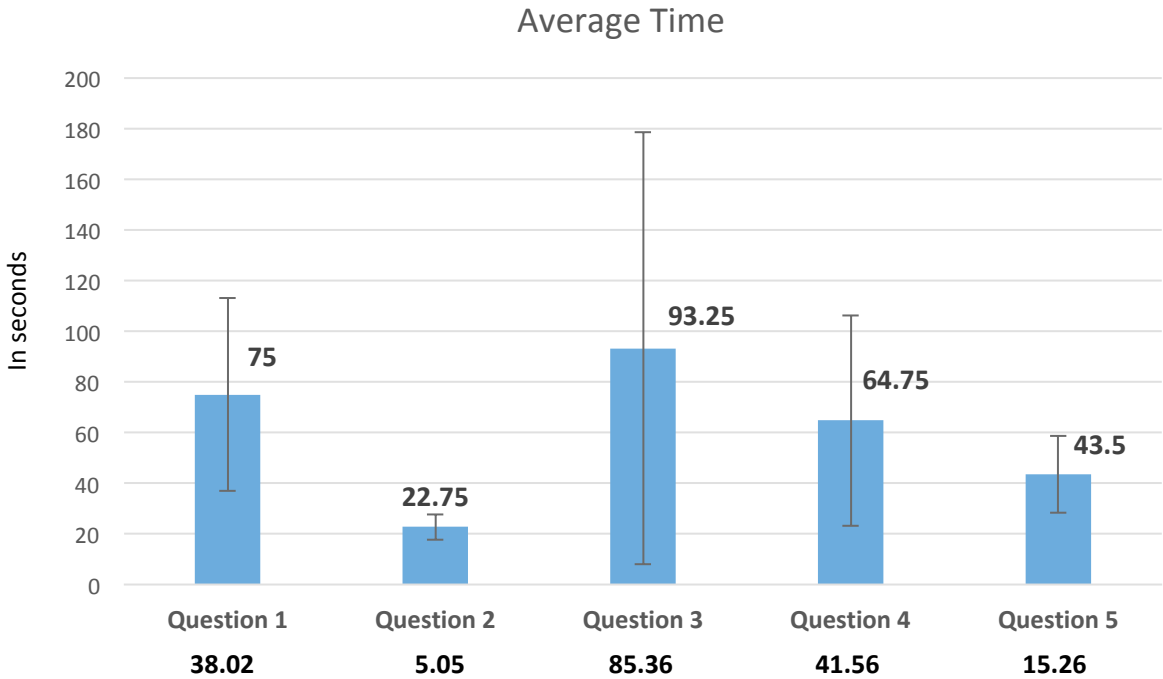
# Evaluation



Participant	Right / Wrong				
	Q1	Q2	Q3	Q4	Q5
1	Right	Right	Right	Right	Right
2	Right	Right	Right	Right	Right
3	Right	Right	Wrong	Right	Right
4	Right	Right	Right	Right	Right



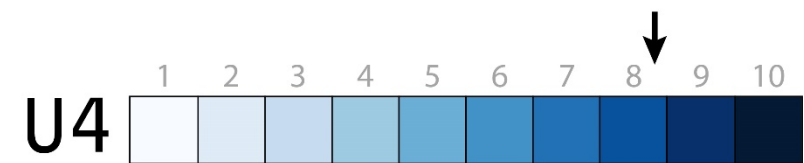
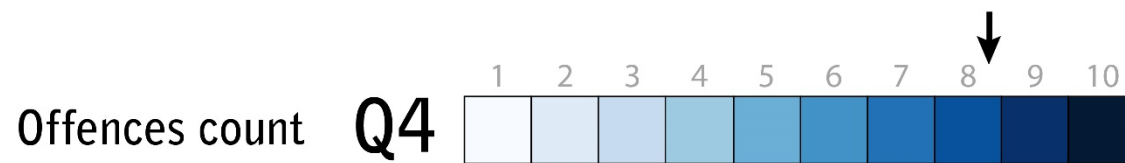
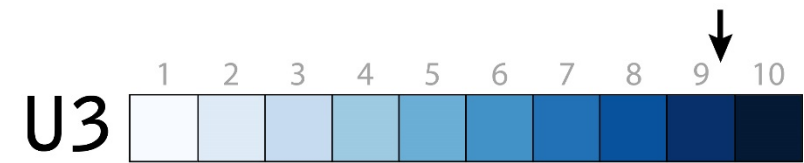
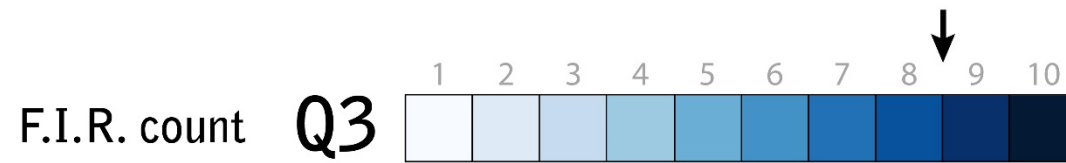
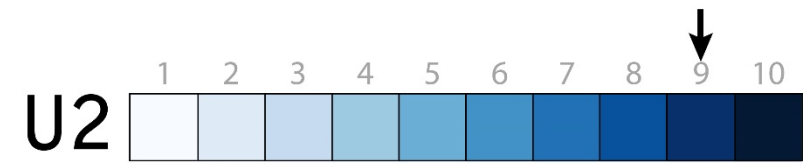
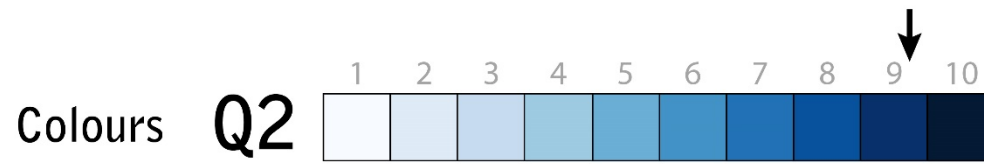
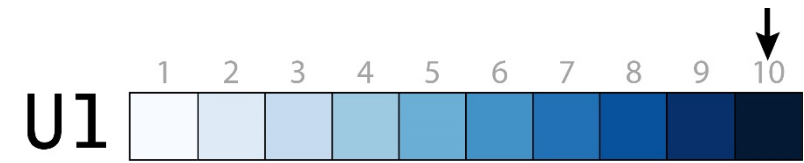
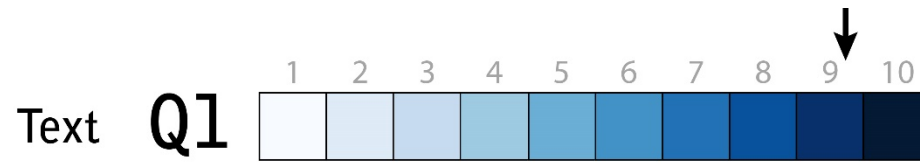
# Evaluation



Participant	Time taken (in seconds)				
	Q1	Q2	Q3	Q4	Q5
1	108	27	68	123	62
2	107	20	217	62	30
3	35	17	67	26	50
4	50	27	21	48	32



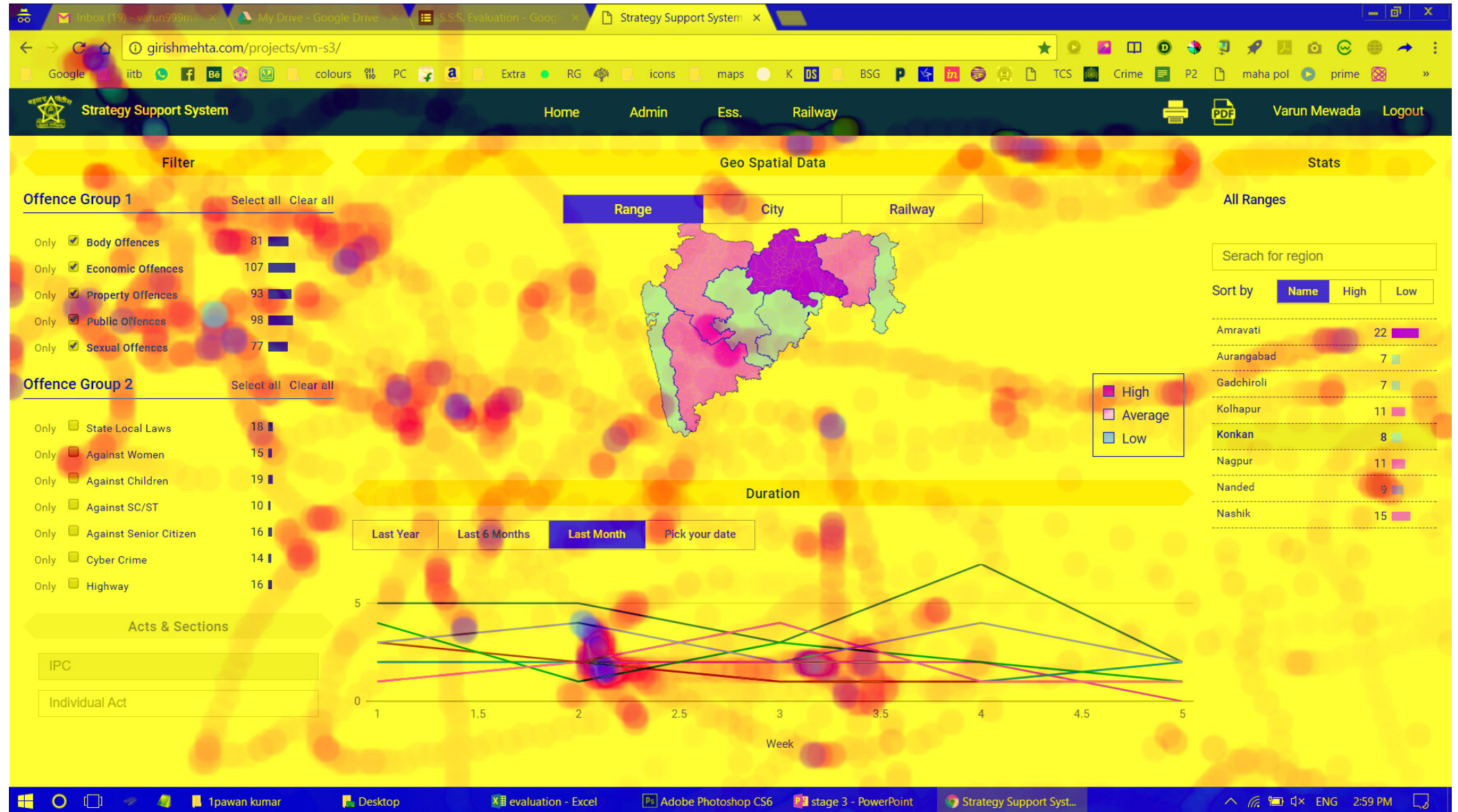
# Evaluation





# Evaluation

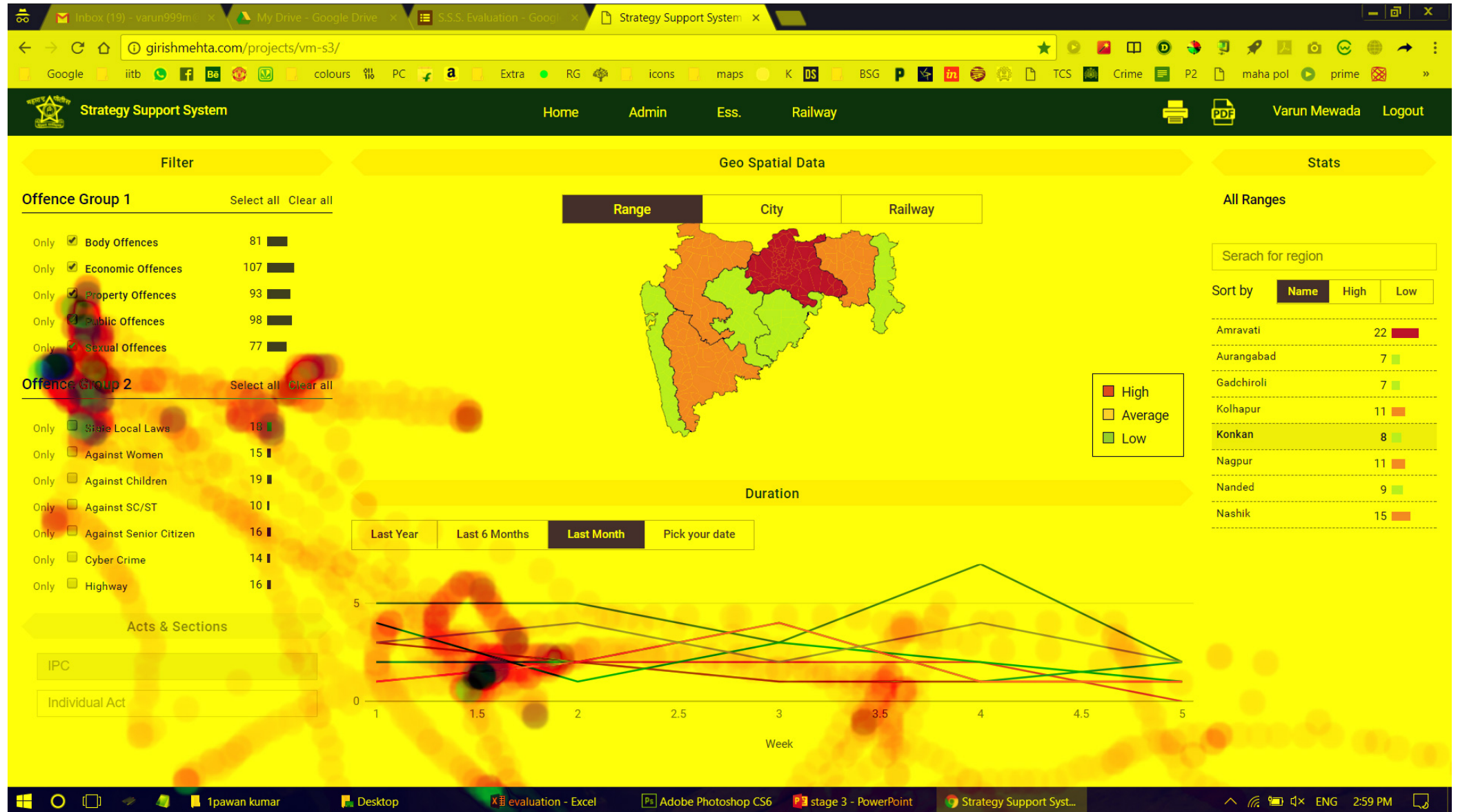
Q1





# Evaluation

Q2

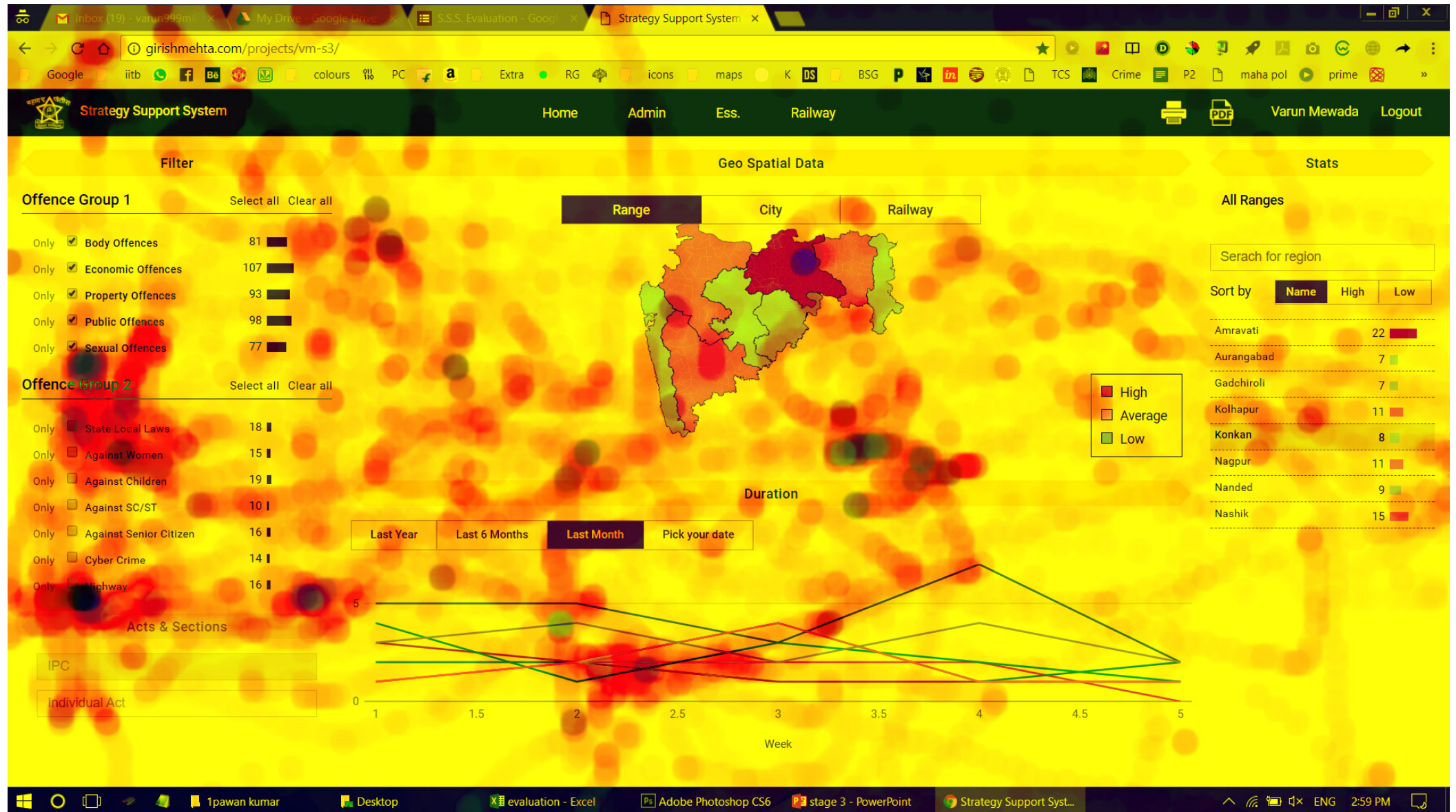






# Evaluation

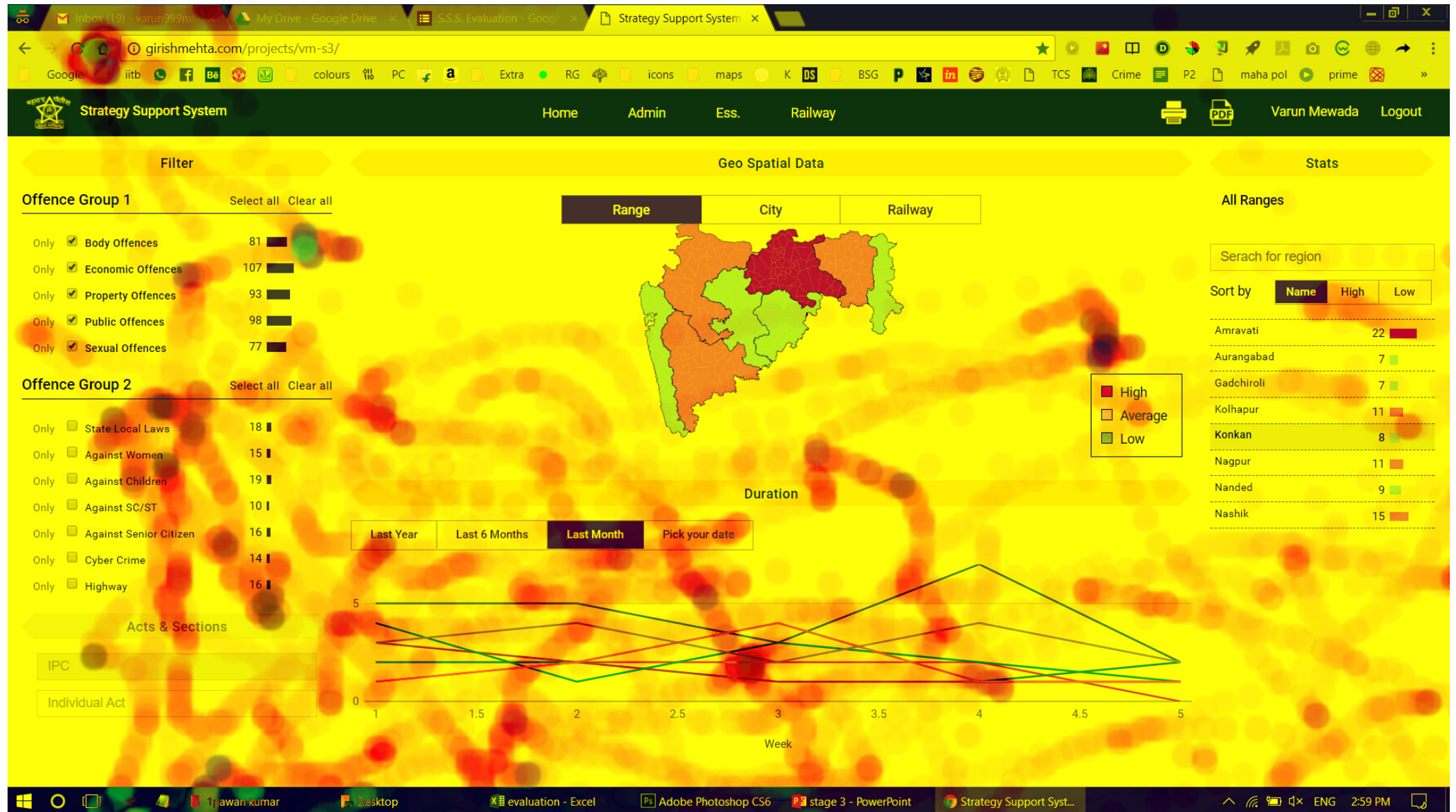
Q3





# Evaluation

Q4

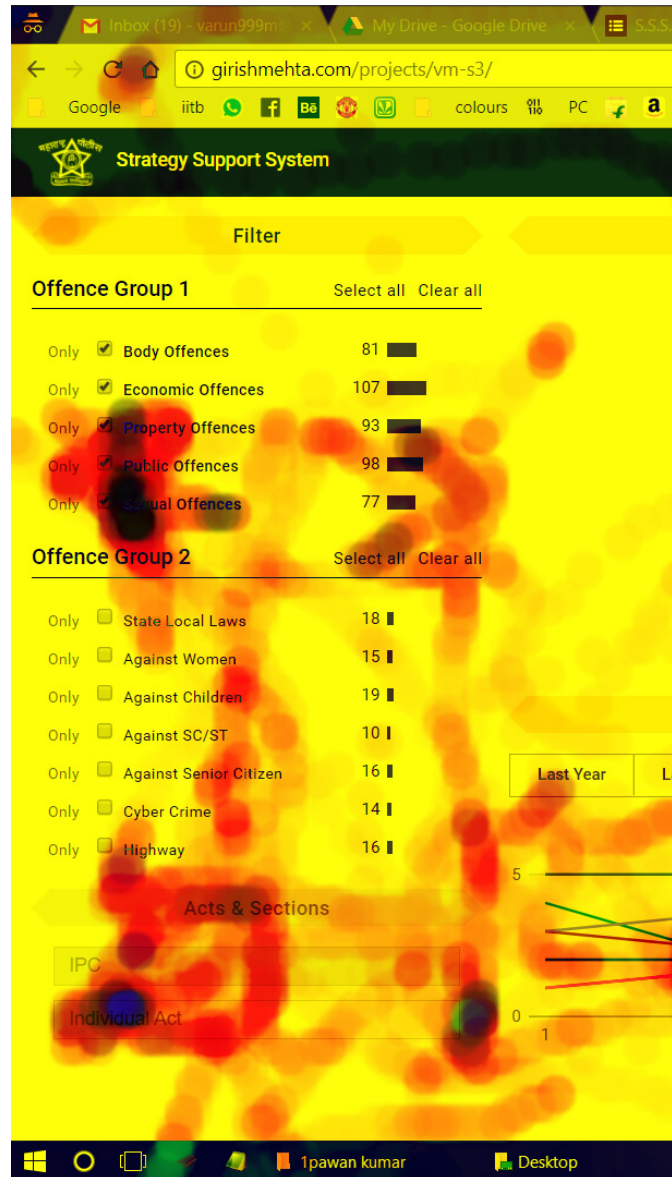






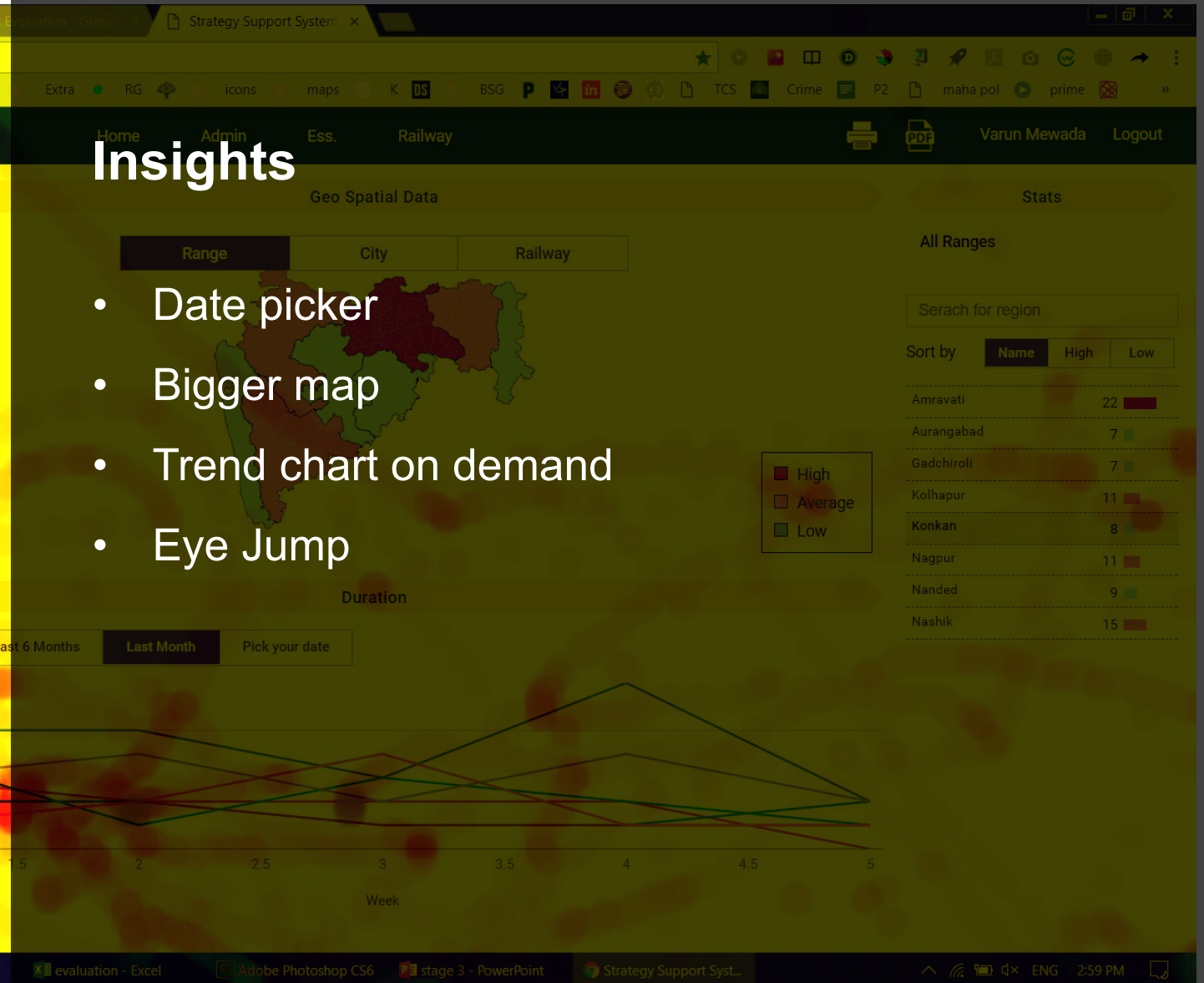
# Evaluation

Q5



## Insights

- Date picker
- Bigger map
- Trend chart on demand
- Eye Jump









Offences Group 1

<input checked="" type="checkbox"/> Body Offences	20	<div></div>
<input checked="" type="checkbox"/> Economic Offences	40	<div></div>
<input checked="" type="checkbox"/> Property Offences	32	<div></div>
<input checked="" type="checkbox"/> Public Order Offences	24	<div></div>
<input checked="" type="checkbox"/> Sexual Offences	15246	<div></div>

Offences Group 1

<input type="checkbox"/> State Local Laws	20	<div></div>
<input type="checkbox"/> Against Women	40	<div></div>
<input type="checkbox"/> Against Children	32	<div></div>
<input type="checkbox"/> Against SC / ST	24	<div></div>
<input type="checkbox"/> Against Senior Citizen	46	<div></div>
<input type="checkbox"/> Cyber Crimes	25	<div></div>
<input type="checkbox"/> Highway	10	<div></div>

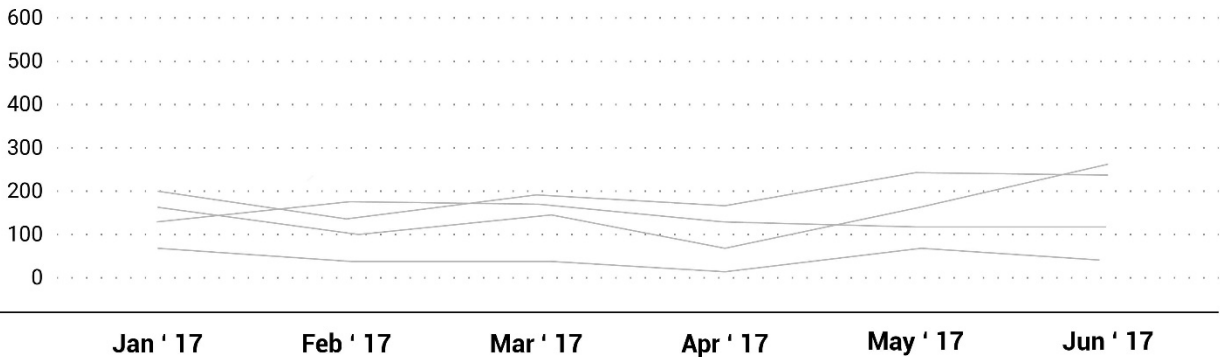
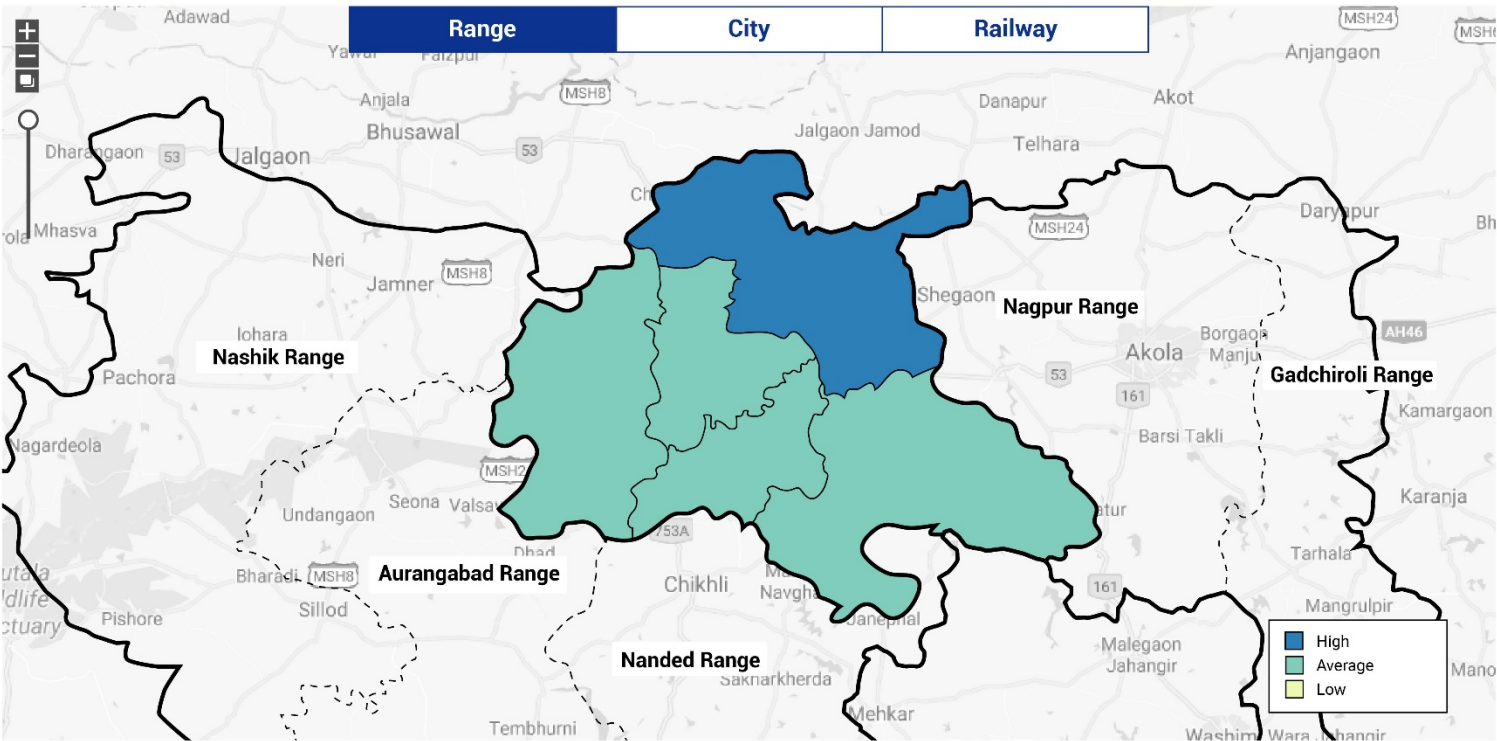
Acts & Sections

IPC 1860

All Sections

Duration

- ☐ Last Year
- ☒ Last 6 Months
- ☐ Last Month
- ☐ Pick your date



< All Ranges > Amravati

Sort by **Name** High Low