## ANALYSIS OF EDUCATION DATA FROM DATA.GOV.IN

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In this project, I have taken the education data from data.gov.in of number of enrollments done in different classes, different genders, different states and in URBAN AND RURAL AREA.

The techniques and libraries i have used in this analysis can be used to analyse Big-Datas, but for the conveneince, here i have chosen relatively smaller datasets.

# Throughout the analysis I will be comparing the education statistics of rural and urban areas.

Let's start by importing libraries and data file

```
In [1]:
```

```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

I HAVE DIVIDED THE DATASET IN TWO DIFFERENT FILES OF URBAN AND RURAL SO AS TO REDUCE THE CONFUSION.

```
In [2]:
```

```
df=pd.read_csv("C:/Users/shubham bansal/Desktop/urban910.csv")
df2=pd.read_csv("C:/Users/shubham bansal/Desktop/2.csv")
```

Now we can begin to take a wide look of the dataset present

### In [3]:

df.head()

Out[3]:

	SI. No.	STATE/U.T.	Enrolment in Class IX - Boys	Enrolment in Class IX - Girls	Enrolment in Class IX - Total	in Class X		
0	1	Andaman Nicobar Islands	1570	1493	3063	1210	1194	2404
1	2	Andhra Pradesh	193654	191450	385104	185915	183755	369670
2	3	Arunachal Pradesh	5223	4806	10029	4704	3988	8692
3	4	Assam	30761	33880	64641	23085	24245	47330
4	5	Bihar	129048	102781	231829	111364	82020	193384

In [33]:

df.tail()

Out[33]:

								_ ^
	SI. No.	STATE/U.T.	Enrolment in Class IX - Boys	Enrolment in Class IX - Girls	in Class	Enrolment in Class X - Boys	Enrolment in Class X - Girls	
31	32	Tripura	7323	7773	15096	5718	5922	1
32	33	Uttar Pradesh	420750	315188	735938	395672	314225	7
33	34	Uttarakhand	29382	25023	54405	28289	24868	5
34	35	West Bengal	165882	167166	333048	138689	137340	2
35	INDIA	INDIA	3081926	2673862	5755788	2739662	2382426	5

In [41]:

df.reset\_index

### Out[41]:

		DataFrame.reset_index of	Sl. No.	STATE/	<u></u>
U.T		nt in Class IX - Boys \			
0		ndaman Nicobar Islands		1570	
1	2	Andhra Pradesh		193654	
2	3	Arunachal Pradesh		5223	
3	4	Assam		30761	
4	5	Bihar		129048	
5	6	Chandigarh		7819	
6	7	Chhattisgarh		61165	
7	8	Dadra Nagar Haveli		879	
8	9	Daman Diu		735	
9	10	Delhi		149040	
10	11	Goa		6321	
11	12	Gujarat		193377	
12	13	Haryana		66224	
13	14	Himachal Pradesh		9849	
14	15	Jammu Kashmir		22663	
15	16	Jharkhand		47180	
16	17	Karnataka		194582	
17	18	Kerala		80094	
18	19	Lakshadweep		381	
19	20	Madhya Pradesh		227710	
20	21	Maharashtra		398536	
21	22	Manipur		5789	
22	23	Meghalaya		5870	
23	24	Mizoram		5072	
24	25	Nagaland		6284	
25	26	Orissa		45240	
26	27	Puducherry		7158	
27	28	Punjab		80497	
28	29	Rajasthan		145017	
29	30	Sikkim		346	
30	31	Tamil Nadu		330505	
31	32	Tripura		7323	
32	33	Uttar Pradesh		420750	
33	34	Uttarakhand		29382	
34	35	West Bengal		165882	
35	INDIA	INDIA		3081926	
	Enrolment	in Class IX - Girls Enrol	ment in Class	IX - Total \	
0		1493		3063	
1		191450		385104	
2		4806		10029	
3		33880		64641	
4		102781		231829	
5		6338		14157	
6		58828		119993	
7		639		1518	
8		586		1321	
9		124001		273041	
10		5685		12006	
11		134923		328300	
12		52087		118311	
13		8539		18388	
14		20581		43244	
15		43591		90771	
16		188805		383387	
17		81040		161134	
18		282		663	

```
19
                             185001
                                                                412711
20
                             347950
                                                                746486
21
                                5796
                                                                 11585
22
                                                                 12547
                                6677
23
                                5184
                                                                 10256
24
                                6034
                                                                 12318
25
                              43116
                                                                 88356
26
                               7196
                                                                 14354
27
                              68175
                                                                148672
28
                              94966
                                                                239983
29
                                                                   713
                                 367
30
                             327915
                                                                658420
31
                               7773
                                                                 15096
32
                             315188
                                                                735938
33
                              25023
                                                                 54405
34
                             167166
                                                                333048
35
                            2673862
                                                               5755788
    Enrolment in Class X - Boys Enrolment in Class X - Girls \
0
                             1210
1
                           185915
                                                            183755
2
                             4704
                                                              3988
3
                            23085
                                                             24245
4
                           111364
                                                             82020
5
                             6941
                                                              5472
6
                            53611
                                                             53236
7
                              726
                                                                531
8
                              583
                                                                525
9
                           115674
                                                             98833
10
                             5154
                                                              5024
11
                           166234
                                                            119185
12
                            61767
                                                             47402
13
                             9899
                                                              8442
14
                            19016
                                                             16596
15
                            40731
                                                             37308
16
                           170390
                                                            168781
17
                            72075
                                                             76096
18
                              303
                                                                250
19
                           207528
                                                            149285
20
                           336011
                                                            301802
21
                             5139
                                                              5205
22
                             4786
                                                              5446
23
                                                              5277
                             5277
24
                             4800
                                                              4781
25
                            37374
                                                              36383
26
                             5978
                                                              6247
27
                            77090
                                                              68328
28
                           160211
                                                             93242
29
                              318
                                                                321
30
                           277400
                                                            290871
31
                             5718
                                                              5922
                           395672
32
                                                            314225
33
                            28289
                                                             24868
34
                           138689
                                                            137340
35
                          2739662
                                                           2382426
    Enrolment in Class X - Total
                                    Enrolment in Class IX & X - Boys
0
                              2404
                                                                    2780
1
                            369670
                                                                  379569
2
                              8692
                                                                    9927
3
                             47330
                                                                   53846
```

4	193384	240412
5	12413	14760
6 7	106847 1257	114776 1605
8	1108	1318
9	214507	264714
10	10178	11475
11	285419	359611
12	109169	127991
13 14	18341 35612	19748 41679
15	78039	87911
16	339171	364972
17	148171	152169
18	553	684
19	356813	435238
20	637813	734547
21 22	10344 10232	10928 10656
23	10554	10349
24	9581	11084
25	73757	82614
26	12225	13136
27	145418	157587
28	253453	305228
29 30	639 568271	664 607905
31	11640	13041
32	709897	816422
33	53157	57671
34	276029	304571
34 35	276029 5122088	304571 5821588
35 I	5122088	
35	5122088	5821588
35 I	5122088 Enrolment in Class IX & X - Girls	5821588  Enrolment in Class IX & X - Total
35 I 0	5122088  Enrolment in Class IX & X - Girls  2687	5821588  Enrolment in Class IX & X - Total 5467
35 0 1	5122088  Enrolment in Class IX & X - Girls  2687  375205	5821588  Enrolment in Class IX & X - Total 5467 754774
35 0 1 2 3 4	5122088  Enrolment in Class IX & X - Girls  2687  375205  8794	5821588  Enrolment in Class IX & X - Total 5467 754774 18721
35 0 1 2 3 4 5	5122088  Enrolment in Class IX & X - Girls  2687  375205  8794  58125  184801  11810	5821588  Enrolment in Class IX & X - Total  5467  754774  18721  111971  425213  26570
35 0 1 2 3 4 5	5122088  Enrolment in Class IX & X - Girls  2687  375205  8794  58125  184801  11810  112064	5821588  Enrolment in Class IX & X - Total 5467 754774 18721 111971 425213 26570 226840
35 0 1 2 3 4 5 6 7	5122088  Enrolment in Class IX & X - Girls  2687  375205  8794  58125  184801  11810  112064  1170	5821588  Enrolment in Class IX & X - Total 5467 754774 18721 111971 425213 26570 226840 2775
35 0 1 2 3 4 5 6 7	5122088  Enrolment in Class IX & X - Girls  2687  375205  8794  58125  184801  11810  112064  1170  1111	5821588  Enrolment in Class IX & X - Total 5467 754774 18721 111971 425213 26570 226840 2775 2429
35 0 1 2 3 4 5 6 7 8	5122088  Enrolment in Class IX & X - Girls  2687  375205  8794  58125  184801  11810  112064  1170  1111  222834	5821588  Enrolment in Class IX & X - Total 5467 754774 18721 111971 425213 26570 226840 2775 2429 487548
35 0 1 2 3 4 5 6 7 8 9	5122088  Enrolment in Class IX & X - Girls 2687 375205 8794 58125 184801 11810 112064 1170 1111 222834 10709	Enrolment in Class IX & X - Total  5467 754774 18721 111971 425213 26570 226840 2775 2429 487548 22184
35 0 1 2 3 4 5 6 7 8	5122088  Enrolment in Class IX & X - Girls  2687  375205  8794  58125  184801  11810  112064  1170  1111  222834	5821588  Enrolment in Class IX & X - Total 5467 754774 18721 111971 425213 26570 226840 2775 2429 487548

13	16981	36729
14	37177	78856
15	80899	168810
16	357586	722558
17	157136	309305
18	532	1216
19	334286	769524
20	649752	1384299
21	11001	21929
22	12123	22779
23	10461	20810
24	10815	21899
25	79499	162113
26	13443	26579
27	136503	294090
28	188208	493436
29	688	1352
30	618786	1226691
31	13695	26736
32	629413	1445835
33	49891	107562
34	304506	609077
35	5056288	10877876
0 1 2 3 4 5 6 7 8 9 10 11 12	1	- Boys \ 14006 186268 53555 303704 856923 88987 567039 10674 8897 644690 73874 771664 682384

```
13
                                           90047
14
                                         215526
15
                                         436754
16
                                        2006164
17
                                         714102
18
                                            2918
19
                                        2167563
20
                                        4499632
21
                                           71810
22
                                           68955
23
                                           59729
24
                                           64760
                                         488432
25
26
                                           71873
27
                                         851872
28
                                        1544262
29
                                            4576
30
                                        2928391
31
                                           61536
32
                                        4440147
33
                                         289665
34
                                        1649565
35
                                       30990944
    Enrolment in Class Total (I to X) - Girls
0
                                            13113
1
                                         2069607
2
                                            49993
3
                                           310620
4
                                           810960
5
                                            71910
6
                                           537347
7
                                             8348
8
                                             7196
9
                                         1399778
10
                                            66376
11
                                         1373023
12
                                           539752
13
                                            72106
14
                                           187687
15
                                           424154
16
                                         1902682
17
                                           712414
18
                                             2637
19
                                         1851902
20
                                         3915065
21
                                            71649
22
                                            74005
23
                                            57791
24
                                            60664
25
                                           456155
26
                                            69664
27
                                           688023
28
                                         1161195
29
                                             4508
30
                                         2808523
31
                                            60861
32
                                         3700457
33
                                           247034
34
                                         1641466
                                        27428665
```

	Enrolment	in	Class	Total	(I	to	X)	- Total		
0							•	27119		
1								4255875		
2								103548		
3								614324		
4								1667883		
5								160897		
6								1104386		
7								19022		
8								16093		
9								3044468		
10								140250		
11								3144687		
12								1222136		
13								162153		
14								403213		
15								860908		
16								3908846		
17								1426516		
18								5555		
19								4019465		
20								8414697		
21								143459		
22								142960		
23								117520		
24								125424		
25								944587		
26								141537		
27								1539895		
28								2705457		
29								9084		
30								5736914		
31								122397		
32								8140604		
33								536699		
34								3291031		
35							:	58419609	>	

```
In [4]:
```

```
df2.head()
```

#### Out[4]:

	SI. No.	STATE/U.T.	Enrolment in Class IX - Boys	Enrolment in Class IX - Girls	Enrolment in Class IX - Total	in Class X	Enrolment in Class X - Girls	Enrolmo in Class - To
0	1	Andaman Nicobar Islands	2133	1847	3980	1679	1593	3272
1	2	Andhra Pradesh	359101	337303	696404	355213	325571	680784
2	3	Arunachal Pradesh	5726	4724	10450	4927	4307	9234
3	4	Assam	142243	150197	292440	102457	104620	207077
4	5	Bihar	400915	319167	720082	331568	246099	577667

In [5]:

```
df.count()
```

```
Out[5]:
```

```
S1. No.
                                              36
STATE/U.T.
                                              36
Enrolment in Class IX - Boys
                                              36
Enrolment in Class IX - Girls
                                              36
Enrolment in Class IX - Total
                                              36
Enrolment in Class X - Boys
                                              36
Enrolment in Class X - Girls
                                              36
Enrolment in Class X - Total
                                              36
Enrolment in Class IX & X - Boys
                                              36
Enrolment in Class IX & X - Girls
                                              36
Enrolment in Class IX & X - Total
                                              36
Enrolment in Class Total (I to X) - Boys
                                              36
Enrolment in Class Total (I to X) - Girls
                                              36
Enrolment in Class Total (I to X) - Total
                                              36
dtype: int64
```

### In [6]:

```
print(len(df))
```

36

#### In [7]:

```
print(len(df2))
```

36

In [8]:

```
df.dtypes
Out[8]:
S1. No.
                                                object
STATE/U.T.
                                                object
Enrolment in Class IX - Boys
                                                 int64
Enrolment in Class IX - Girls
                                                 int64
Enrolment in Class IX - Total
                                                 int64
Enrolment in Class X - Boys
                                                 int64
Enrolment in Class X - Girls
                                                 int64
Enrolment in Class X - Total
                                                 int64
Enrolment in Class IX & X - Boys
                                                 int64
Enrolment in Class IX & X - Girls
                                                 int64
Enrolment in Class IX & X - Total
                                                 int64
Enrolment in Class Total (I to X) - Boys
                                                 int64
Enrolment in Class Total (I to X) - Girls
                                                 int64
                                                 int64
Enrolment in Class Total (I to X) - Total
dtype: object
In [9]:
df.columns
Out[9]:
Index(['Sl. No.', 'STATE/U.T.', 'Enrolment in Class IX - Boys',
       'Enrolment in Class IX - Girls', 'Enrolment in Class IX - Total',
       'Enrolment in Class X - Boys', 'Enrolment in Class X - Girls',
       'Enrolment in Class X - Total', 'Enrolment in Class IX & X - Boys',
       'Enrolment in Class IX & X - Girls',
       'Enrolment in Class IX & X - Total',
       'Enrolment in Class Total (I to X) - Boys',
       'Enrolment in Class Total (I to X) - Girls',
       'Enrolment in Class Total (I to X) - Total'],
      dtype='object')
In [10]:
df2.columns
Out[10]:
Index(['Sl. No.', 'STATE/U.T.', 'Enrolment in Class IX - Boys',
       'Enrolment in Class IX - Girls', 'Enrolment in Class IX - Total',
       'Enrolment in Class X - Boys', 'Enrolment in Class X - Girls', 'Enrolment in Class X - Total', 'Enrolment in Class IX & X - Boys',
       'Enrolment in Class IX & X - Girls',
       'Enrolment in Class IX & X - Total',
       'Enrolment in Class Total (I to X) - Boys',
       'Enrolment in Class Total (I to X) - Girls',
       'Enrolment in Class Total (I to X) - Total'],
      dtype='object')
```

## Let's begin with data cleaning and wrangling wherever required!!

In [11]:

df.isnull()

### Out[11]:

	SI. No.	STATE/U.T.	Enrolment in Class IX - Boys	Enrolment in Class IX - Girls	Enrolment in Class IX - Total	in Class X	Enrolment in Class X - Girls	Er in
0	False	False	False	False	False	False	False	Fa
1	False	False	False	False	False	False	False	Fa
2	False	False	False	False	False	False	False	Fa
3	False	False	False	False	False	False	False	Fa
4	False	False	False	False	False	False	False	Fa
5	False	False	False	False	False	False	False	Fa
6	False	False	False	False	False	False	False	Fa
7	False	False	False	False	False	False	False	Fa
8	False	False	False	False	False	False	False	Fa
9	False	False	False	False	False	False	False	Fa
10	False	False	False	False	False	False	False	Fa
11	False	False	False	False	False	False	False	Fa
12	False	False	False	False	False	False	False	Fa
13	False	False	False	False	False	False	False	Fa
14	False	False	False	False	False	False	False	Fa
15	False	False	False	False	False	False	False	Fa
16	False	False	False	False	False	False	False	Fa
17	False	False	False	False	False	False	False	Fa
18	False	False	False	False	False	False	False	Fa
19	False	False	False	False	False	False	False	Fa
20	False	False	False	False	False	False	False	Fa
21	False	False	False	False	False	False	False	Fa
22	False	False	False	False	False	False	False	Fa
23	False	False	False	False	False	False	False	Fa
24	False	False	False	False	False	False	False	Fε
25	False	False	False	False	False	False	False	Fa
26	False	False	False	False	False	False	False	Fa
27	False	False	False	False	False	False	False	Fε
28	False	False	False	False	False	False	False	Fa
29	False	False	False	False	False	False	False	Fa
30	False	False	False	False	False	False	False	Fa

	SI. No.	STATE/U.T.	Enrolment in Class IX - Boys	Enrolment in Class IX - Girls	in Class	in Class X	Enrolment in Class X - Girls	Er in
31	False	False	False	False	False	False	False	Fa
32	False	False	False	False	False	False	False	Fa
33	False	False	False	False	False	False	False	Fa
34	False	False	False	False	False	False	False	Fa
35	False	False	False	False	False	False	False	Fa

In [12]:

df2.isnull()

### Out[12]:

	SI. No.	STATE/U.T.	Enrolment in Class IX - Boys	Enrolment in Class IX - Girls	Enrolment in Class IX - Total	Enrolment in Class X - Boys	Enrolment in Class X - Girls	Er in
0	False	False	False	False	False	False	False	Fa
1	False	False	False	False	False	False	False	Fa
2	False	False	False	False	False	False	False	Fa
3	False	False	False	False	False	False	False	Fa
4	False	False	False	False	False	False	False	Fa
5	False	False	False	False	False	False	False	Fa
6	False	False	False	False	False	False	False	Fa
7	False	False	False	False	False	False	False	Fa
8	False	False	False	False	False	False	False	Fa
9	False	False	False	False	False	False	False	Fa
10	False	False	False	False	False	False	False	Fa
11	False	False	False	False	False	False	False	Fa
12	False	False	False	False	False	False	False	Fa
13	False	False	False	False	False	False	False	Fa
14	False	False	False	False	False	False	False	Fa
15	False	False	False	False	False	False	False	Fa
16	False	False	False	False	False	False	False	Fa
17	False	False	False	False	False	False	False	Fa
18	False	False	False	False	False	False	False	Fa
19	False	False	False	False	False	False	False	Fa
20	False	False	False	False	False	False	False	Fa
21	False	False	False	False	False	False	False	Fa
22	False	False	False	False	False	False	False	Fa
23	False	False	False	False	False	False	False	Fa
24	False	False	False	False	False	False	False	Fa
25	False	False	False	False	False	False	False	Fa
26	False	False	False	False	False	False	False	Fa
27	False	False	False	False	False	False	False	Fa
28	False	False	False	False	False	False	False	Fa
29	False	False	False	False	False	False	False	Fa
30	False	False	False	False	False	False	False	Fa

	SI. No.	STATE/U.T.	Enrolment in Class IX - Boys	in Class		in Class X	in Class X	Er in
31	False	False	False	False	False	False	False	Fa
32	False	False	False	False	False	False	False	Fa
33	False	False	False	False	False	False	False	Fa
34	False	False	False	False	False	False	False	Fa
35	False	False	False	False	False	False	False	Fa▼
4								<b>.</b>

SO, NO NULL VALUES ARE PRESENT IN THE DATASET

After getting an overviewof the data it is somewhat clear to us that the data is cleaned here and no missing value is present, so we jump into analytics.

# Now comes the most important part, the data analytics.

In this dataset, as number of states are more, so we have to use many visualisation algorithms and libraries to properly analyse the data patterns.

```
In [13]:
```

```
df['STATE/U.T.'][df['Enrolment in Class Total (I to X) - Boys']>df['Enrolment in Class
Total (I to X) - Girls']].count()
```

Out[13]:

34

In [14]:

```
 df2['STATE/U.T.'][df2['Enrolment in Class Total (I to X) - Boys']>df2['Enrolment in Class Total (I to X) - Girls']].count() \\
```

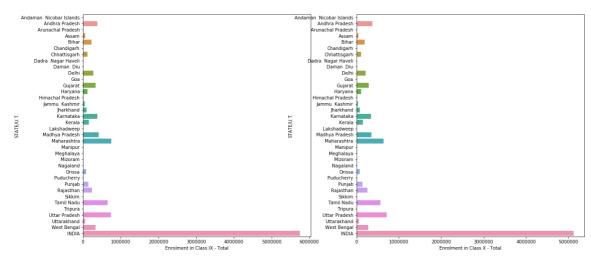
Out[14]:

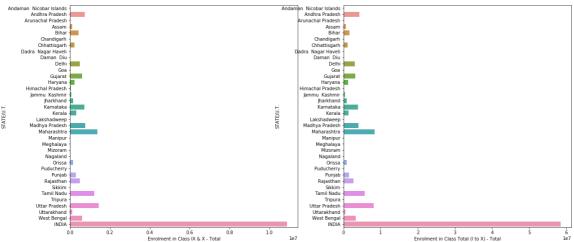
31

## SO OUT OF 35 STATES, 34 HAVE MORE NUMBER OF ENROLLMENTS OF BOYS IN URBAN AREAS.

## OUT OF 35 STATES, 31 HAVE MORE NUMBER OF ENROLLMENTS OF BOYS IN RURAL AREAS.

#### In [15]:

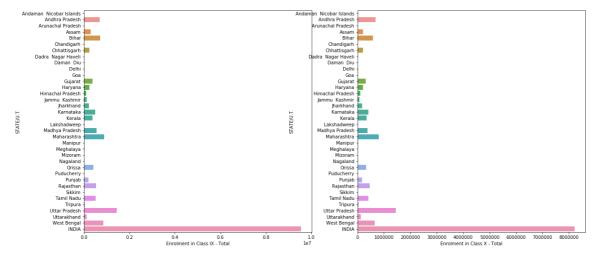


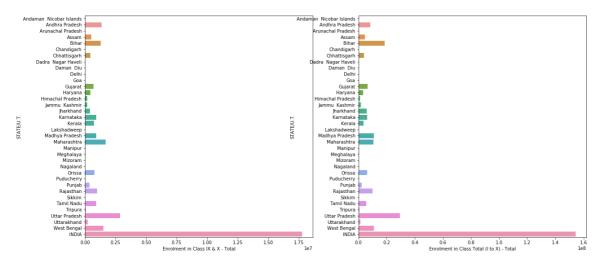


In urban areas it is clear that the states ANDHRA PRADESH, DELHI,KARNATAKA,MADHYAPRADESH, MAHARASHTRA, TAMIL NADU, UP,WEST BENGAL have a clear advantage

# I will be using the same algorithms for both the rural and urban areas to get a clear insight.

#### In [16]:





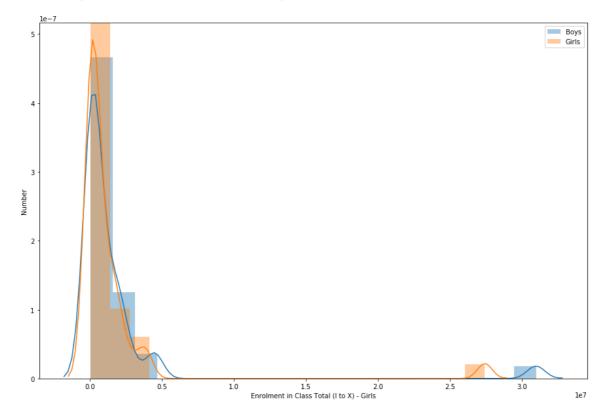
In Rural areas it is clear that the states: ANDHRA PRADESH, BIHAR, MAHARASHTRA, UP,WEST BENGAL have a clear edge in both boys and girls enrollments.

#### In [17]:

```
fig, ax = plt.subplots(figsize=(15,10))
ax = sns.distplot(df['Enrolment in Class Total (I to X) - Boys'], bins=20, label = 'Boy
s', ax = ax)
ax = sns.distplot(df['Enrolment in Class Total (I to X) - Girls'], bins=20, label = 'Gi
rls', ax = ax)
ax.legend()
_ = ax.set_ylabel('Number')
```

C:\Users\public\Anaconda3\lib\site-packages\matplotlib\axes\\_axes.py:6462: UserWarning: The 'normed' kwarg is deprecated, and has been replaced by the 'density' kwarg.

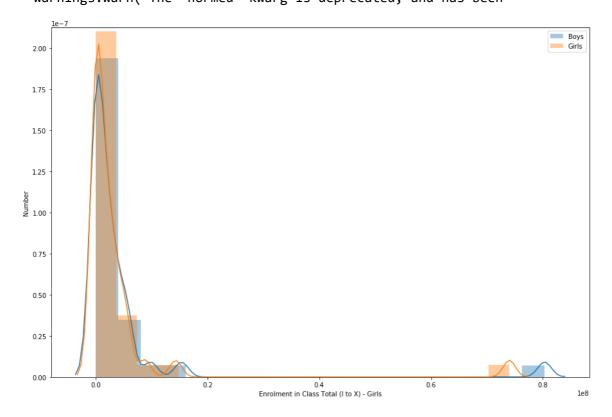
warnings.warn("The 'normed' kwarg is deprecated, and has been "



#### In [18]:

```
fig, ax = plt.subplots(figsize=(15,10))
ax = sns.distplot(df2['Enrolment in Class Total (I to X) - Boys'], bins=20, label = 'B
oys', ax = ax)
ax = sns.distplot(df2['Enrolment in Class Total (I to X) - Girls'], bins=20, label = 'G
irls', ax = ax)
ax.legend()
_ = ax.set_ylabel('Number')
```

C:\Users\public\Anaconda3\lib\site-packages\matplotlib\axes\\_axes.py:6462:
UserWarning: The 'normed' kwarg is deprecated, and has been replaced by th
e 'density' kwarg.
 warnings.warn("The 'normed' kwarg is deprecated, and has been "



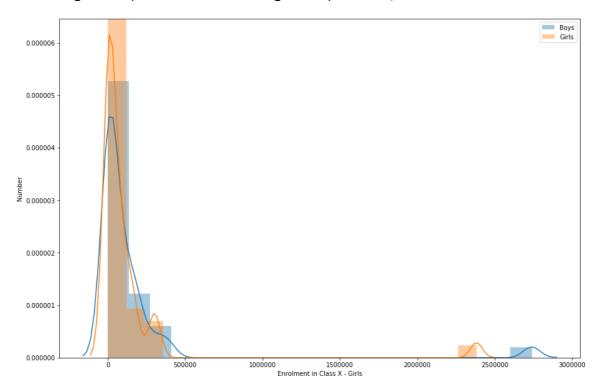
From above two plots it was found that the number of enrollments of girls is more than double in urban areas than in rural areas.

#### In [19]:

```
fig, ax = plt.subplots(figsize=(15,10))
ax = sns.distplot(df['Enrolment in Class X - Boys'], bins=20, label = 'Boys', ax = ax)
ax = sns.distplot(df['Enrolment in Class X - Girls'], bins=20, label = 'Girls', ax = ax
)
ax.legend()
_ = ax.set_ylabel('Number')
```

C:\Users\public\Anaconda3\lib\site-packages\matplotlib\axes\\_axes.py:6462: UserWarning: The 'normed' kwarg is deprecated, and has been replaced by the 'density' kwarg.

warnings.warn("The 'normed' kwarg is deprecated, and has been "

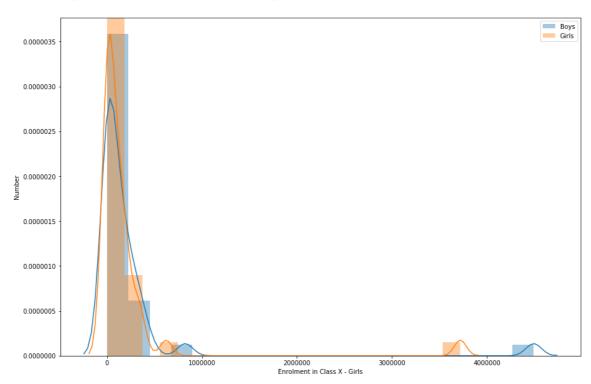


#### In [20]:

```
fig, ax = plt.subplots(figsize=(15,10))
ax = sns.distplot(df2['Enrolment in Class X - Boys'], bins=20, label = 'Boys', ax = ax)
ax = sns.distplot(df2['Enrolment in Class X - Girls'], bins=20, label = 'Girls', ax = a
x)
ax.legend()
_ = ax.set_ylabel('Number')
```

C:\Users\public\Anaconda3\lib\site-packages\matplotlib\axes\\_axes.py:6462:
UserWarning: The 'normed' kwarg is deprecated, and has been replaced by the 'density' kwarg.

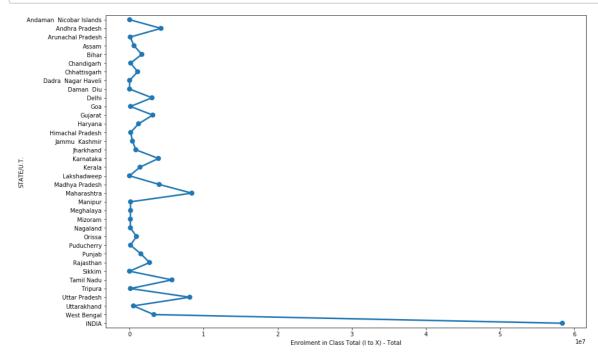
warnings.warn("The 'normed' kwarg is deprecated, and has been "

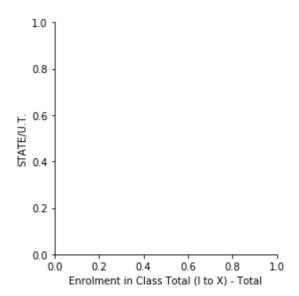


Again the number of enrollment of girls is way more in urban areas.

#### In [21]:

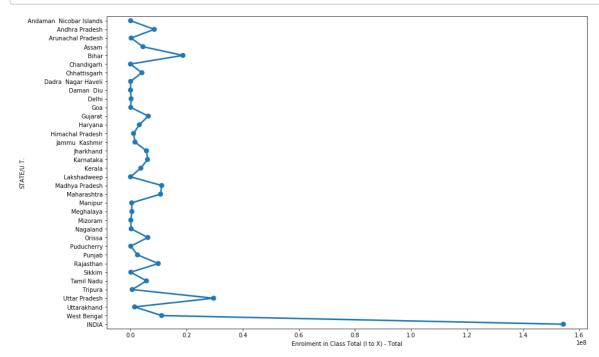
fig, ax = plt.subplots(figsize=(15,10))
ax = sns.factorplot('Enrolment in Class Total (I to X) - Total', 'STATE/U.T.', data=df
, ax=ax)

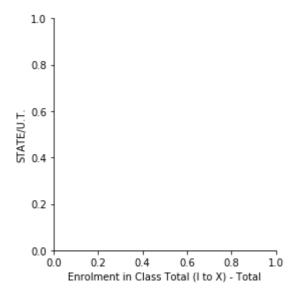




#### In [22]:

```
fig,ax = plt.subplots(figsize=(15,10))
ax = sns.factorplot('Enrolment in Class Total (I to X) - Total', 'STATE/U.T.', data=df
2, ax=ax)
```





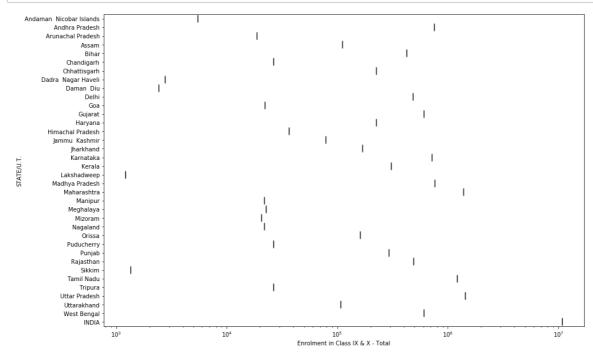
# From above two plots one of the most important insight can be derived.

That is the highest number of enrollment factor in rural areas is 0.4 which is even less than the average of urban areas.

### So, significant amount of resources are needed to be

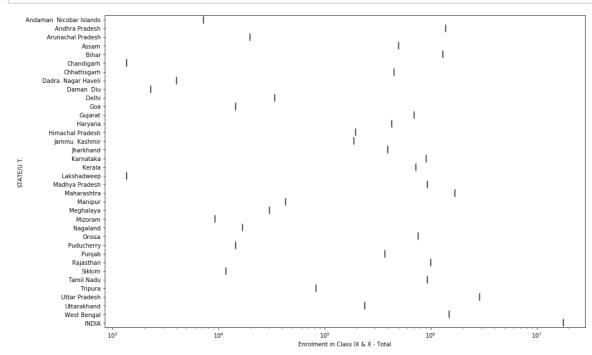
In [23]:

```
fig, ax = plt.subplots(figsize=(15,10))
ax = sns.boxplot( x="Enrolment in Class IX & X - Total",y="STATE/U.T.", data=df)
ax.set_xscale('log')
```



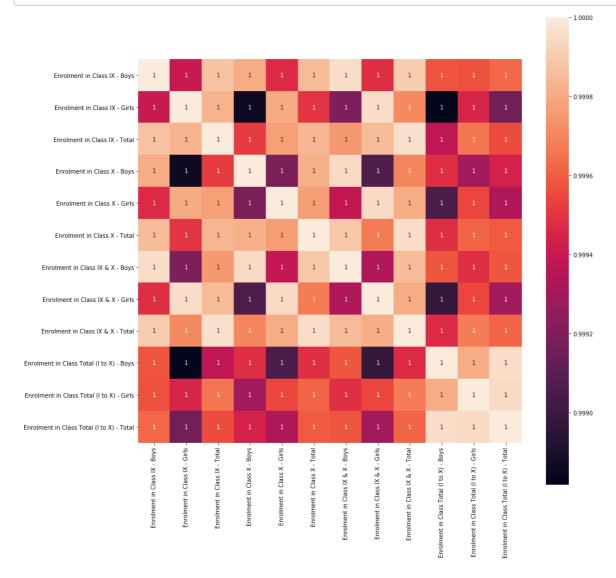
#### In [24]:

```
fig, ax = plt.subplots(figsize=(15,10))
ax = sns.boxplot( x="Enrolment in Class IX & X - Total",y="STATE/U.T.", data=df2)
ax.set_xscale('log')
```



In [25]:

plt.figure(figsize=(15, 15))
corrmap = sns.heatmap(df.corr(),square=True, annot=True)

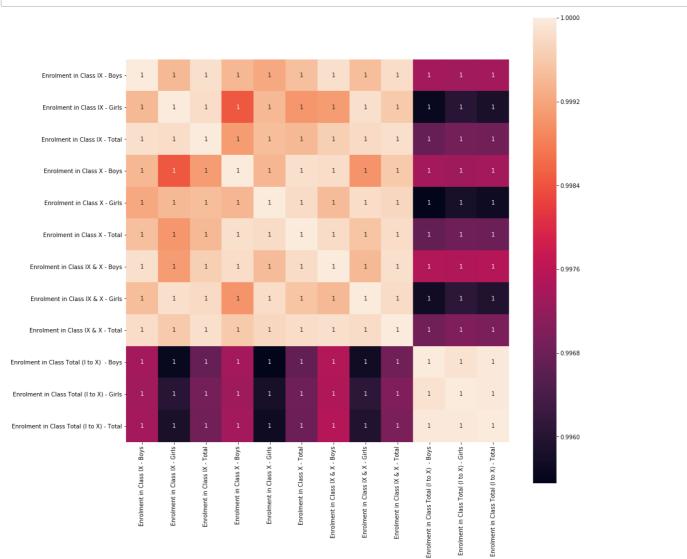


## LOOKING AT THE HEAT MAP OF URBAN EDUCATION:

- 1- THE NUMBER OF BOYS ENROLLMENT IN 10 CLASS DOESNOT EFFECT TOTAL BOYS ENROLLMENT MUCH.IT SHOWS THAT IN URBAN AREAS BOYS GET EDUCATION FROM SMALL AGE ITSELF.
- 2- THE NUMBER OF GIRLS ENROLLMENT IN 10 CLASS DOESNOT EFFECT TOTAL GIRLS ENROLLMENT MUCH.IT SHOWS THAT IN URBAN AREAS GIRLS ALSO GET EDUCATION FROM SMALL AGE ITSELF.
- 3-THE NUMBER OF ENROLLMENTS IN 9 CLASS IS VERY HIGH COMPARE TO 10 ENROLLMENTS.

#### In [26]:

plt.figure(figsize=(15, 15))
corrmap = sns.heatmap(df2.corr(), square=True, annot=True)



# THE RESULTS FROM THE HEATMAP PF RURAL AREA IS REALLY SURPRISING

1-THE NUMBER OF ENROLLMENTS OF GIRLS IN CLASS 10 DOES NOT EFFECT THE TOTAL GIRLS ENROLLMENT AT ALL.

IT MEANS THAT THE NUMBER OF ENROLLMENTS IN CLASS 10 ARE SIGNIFICANTLY LOW

2- THE NUMBER OF ENROLLMENTS OF GIRLS IN CLASS 9,10, AND (9+10) DOES NOT EFFECT THE TOTAL ENROLLMENTS(BOYS+GIRLS) AT ALL.

IT MEANS THAT THE NUMBER OF ENROLLMENTS OF GIRLS IN ALL THE CLASSES ARE SIGNIFICANTLY LOW AS COMPARED TO BOYS.

AFTER PERFORMING THIS RIGROUS ANALYSIS ON THE DATA, FEW CONCLUSIONS CAN BE MADE WHICH CAN BE USED FOR MAKING FURTHER GOVERNMENT POLICIES:

1-IN URBAN CITIES, THE CONDITION OF EDUCATION IS AT PAR FOR THE GIRLS. IT NEEDS TO BE IMPROVED BUT OVERALL. NO SPECIFIC RESOURCE ALLOCATION FOR GIRL EDUCATION IS REQUIRED.

2-IN RURAL AREAS/VILLAGES, THE OVERALL EDUCATION IS NOT AT PAR WITH URABAN.. BUT THE MOST DISASTEROUS POINT IS THAT THERE IS A STRONG DISCRIMINATION IN GIRLS AND BOYS WITH REGARDS TO EDUCATION. HENCE GOVERNMENT POLICIES IN VILLAGES SHOULD FOCUS MORE ON GIRLS EDUCATION PRIOR TO OVERALL EDUCATION.