

Week 11-12: Prepare - Histograms, Box Plots, & Bullet Charts

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Exercises: Charts

You need to submit 3 histograms, 3 box plots, 3 bullet charts, and 3 additional charts of your choice (can be an existing chart type we've already done, but it must be done in a new way or it can be an entirely new chart type) using Tableau or PowerBI, Python and R using the data below (or your own datasets). You can also use D3. You can choose which library to use in Python or R, documentation is provided to help you decide and as you start to play around in the libraries, you will decide which you prefer.

Data source We are using dataset from [Data Source URL](#) file.

Country<fctr>	X1960<dbl>	X1961<dbl>	X1962<dbl>	X1963<dbl>	X1964<dbl>	X1965<dbl>	X1966<dbl>	X1967<dbl>
1 Aruba	36.40000	35.179	33.863	32.459	30.994	29.51300	28.069	26.721
2 Afghanistan	52.20100	52.206	52.208	52.204	52.192	52.16800	52.130	52.076
3 Angola	54.43200	54.394	54.317	54.199	54.040	53.83600	53.585	53.296
4 Albania	40.88600	40.312	39.604	38.792	37.913	37.00800	36.112	35.245
5 Netherlands Antilles	32.32100	30.987	29.618	28.229	26.849	25.51800	24.280	23.173
6 Arab World	47.61122	NA	NA	NA	NA	46.57288	NA	NA

6 rows | 1-10 of 51 columns

state<fctr>	murder<dbl>	forcible_rape<dbl>	robbery<dbl>	aggravated_assault<dbl>	burglary<dbl>	larceny_theft<dbl>
1 United States	5.6	31.7	140.7	291.1	726.7	2286.3
2 Alabama	8.2	34.3	141.4	247.8	953.8	2650.0
3 Alaska	4.8	81.1	80.9	465.1	622.5	2599.1
4 Arizona	7.5	33.8	144.4	327.4	948.4	2965.2
5 Arkansas	6.7	42.9	91.1	386.8	1084.6	2711.2
6 California	6.9	26.0	176.1	317.3	693.3	1916.5

6 rows | 1-8 of 9 columns

state<fctr>	reading<int>	m...<int>	writing<int>	percent_graduates_sat<int>	pupil_staff_ratio<dbl>	dropout_rate<dbl>
1 United States	501	515	493	46	7.9	4.4
2 Alabama	557	552	549	7	6.7	2.3
3 Alaska	520	516	492	46	7.9	7.3
4 Arizona	516	521	497	26	10.4	7.6
5 Arkansas	572	572	556	5	6.8	4.6
6 California	500	513	498	49	10.9	5.5

6 rows

Data structure:

```
## 'data.frame': 234 obs. of 50 variables:
## $ Country: Factor w/ 234 levels "Afghanistan",...: 10 1 5 2 156 7 221 8 9 4 ...
## $ 1960 : num 36.4 52.2 54.4 40.9 32.3 ...
## $ 1961 : num 35.2 52.2 54.4 40.3 31 ...
## $ 1962 : num 33.9 52.2 54.3 39.6 29.6 ...
## $ 1963 : num 32.5 52.2 54.2 38.8 28.2 ...
## $ 1964 : num 31 52.2 54 37.9 26.8 ...
## $ 1965 : num 29.5 52.2 53.8 37 25.5 ...
## $ 1966 : num 28.1 52.1 53.6 36.1 24.3 ...
## $ 1967 : num 26.7 52.1 53.3 35.2 23.2 ...
## $ 1968 : num 25.5 52 53 34.4 22.2 ...
## $ 1969 : num 24.5 51.9 52.7 33.7 21.5 ...
## $ 1970 : num 23.7 51.8 52.4 32.9 20.9 ...
## $ 1971 : num 23.1 51.7 52.1 32.3 20.6 ...
## $ 1972 : num 22.6 51.5 52 31.6 20.5 ...
## $ 1973 : num 22.3 51.4 51.9 31 20.5 ...
## $ 1974 : num 22.2 51.2 51.9 30.3 20.7 ...
## $ 1975 : num 22.1 51.1 51.9 29.7 20.9 ...
## $ 1976 : num 22.1 51 52 29.1 21.1 ...
## $ 1977 : num 22.2 50.9 52.2 28.6 21.2 ...
## $ 1978 : num 22.3 50.8 52.3 28.1 21.2 ...
## $ 1979 : num 22.4 50.8 52.4 27.7 21.2 ...
## $ 1980 : num 22.4 50.8 52.6 27.4 21 ...
## $ 1981 : num 22.4 50.8 52.6 27.1 20.7 ...
## $ 1982 : num 22.3 50.9 52.7 26.9 20.4 ...
## $ 1983 : num 22.2 51 52.8 26.6 20.1 ...
## $ 1984 : num 22 51 52.8 26.4 19.9 ...
## $ 1985 : num 21.7 51.1 52.9 26.2 19.6 ...
## $ 1986 : num 21.3 51.2 52.9 25.9 19.5 ...
## $ 1987 : num 20.9 51.2 52.9 25.6 19.5 ...
## $ 1988 : num 20.4 51.3 52.9 25.2 19.5 ...
## $ 1989 : num 19.9 51.4 52.8 24.8 19.6 ...
## $ 1990 : num 19.4 51.5 52.7 24.3 19.7 ...
## $ 1991 : num 18.8 51.6 52.5 23.8 19.6 ...
## $ 1992 : num 18.3 51.7 52.1 23.2 19.5 ...
## $ 1993 : num 17.8 51.8 51.7 22.6 19.2 ...
## $ 1994 : num 17.4 51.8 51.1 21.9 18.7 ...
## $ 1995 : num 16.9 51.8 50.5 21.2 18.2 ...
## $ 1996 : num 16.5 51.8 49.9 20.4 17.5 ...
## $ 1997 : num 16 51.6 49.4 19.5 16.9 ...
## $ 1998 : num 15.5 51.5 49 18.6 16.3 ...
## $ 1999 : num 15 51.2 48.7 17.7 15.8 ...
## $ 2000 : num 14.5 50.9 48.4 16.9 15.4 ...
## $ 2001 : num 14 50.5 48 16.1 15.1 ...
## $ 2002 : num 13.6 50 47.5 15.4 14.8 ...
## $ 2003 : num 13.2 49.4 46.9 15 14.6 ...
## $ 2004 : num 12.8 48.8 46.2 14.6 14.3 ...
## $ 2005 : num 12.4 48.2 45.3 14.5 14.1 ...
## $ 2006 : num 12.2 47.6 44.4 14.5 13.8 ...
## $ 2007 : num 11.9 47 43.6 14.5 13.5 ...
## $ 2008 : num 11.7 46.5 42.9 14.6 13.3 ...

## 'data.frame': 52 obs. of 8 variables:
## $ state : Factor w/ 52 levels "Alabama ","Alaska ",...: 45 1 2 3 4 5 6 7 8 9 ...
## $ murder : num 5.6 8.2 4.8 7.5 6.7 6.9 3.7 2.9 4.4 35.4 ...
## $ forcible_rape : num 31.7 34.3 81.1 33.8 42.9 26 43.4 20 44.7 30.2 ...
## $ robbery : num 140.7 141.4 80.9 144.4 91.1 ...
## $ aggravated_assault : num 291 248 465 327 387 ...
## $ burglary : num 727 954 622 948 1085 ...
## $ larceny_theft : num 2286 2650 2599 2965 2711 ...
## $ motor_vehicle_theft: num 417 288 391 924 262 ...

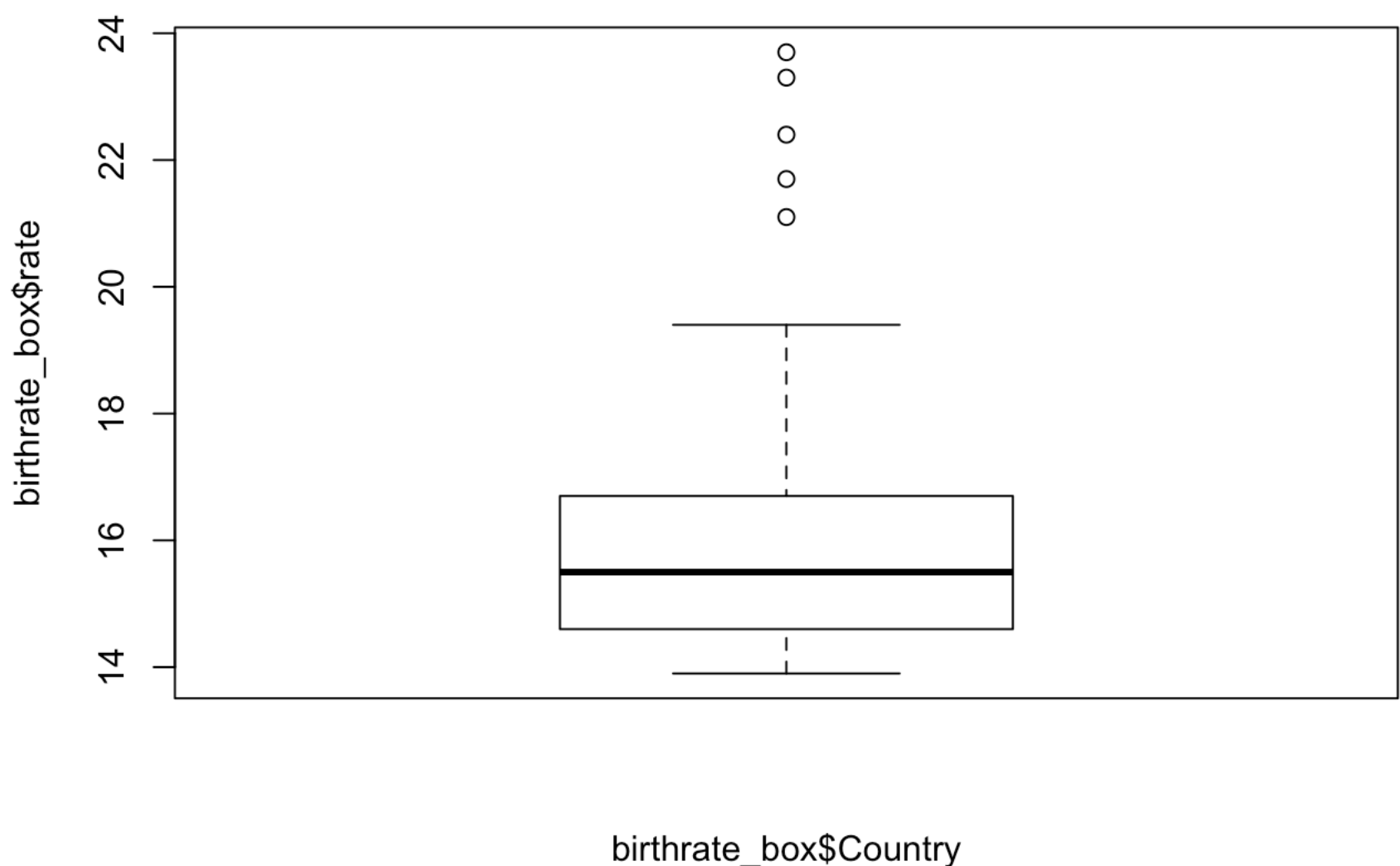
## 'data.frame': 52 obs. of 7 variables:
## $ state : Factor w/ 52 levels "Alabama","Alaska",...: 45 1 2 3 4 5 6 7 8 9 ...
## $ reading : int 501 557 520 516 572 500 568 509 495 466 ...
## $ math : int 515 552 516 521 572 513 575 513 498 451 ...
## $ writing : int 493 549 492 497 556 498 555 512 484 461 ...
## $ percent_graduates_sat: int 46 7 46 26 5 49 20 83 71 79 ...
## $ pupil_staff_ratio : num 7.9 6.7 7.9 10.4 6.8 10.9 8.1 6.6 7.9 6.3 ...
## $ dropout_rate : num 4.4 2.3 7.3 7.6 4.6 5.5 6.9 2.1 5.5 7.1 ...
```

Construct Charts:

Histogram



Box Plot



Bullet Chart

