Assignment – 5.2

GIT URL: https://github.com/somas1986/dsc520/tree/master/completed/week5

Code:

```
# Assignment: ASSIGNMENT 5.2
# Name: Vayuvegula, Soma Shekar
# Date: 2022-07-09

#Library to read dplyr
library(dplyr)

#Read data from CSV file
survey<-
read.csv("/Users/somashekarvayuvegula/Documents/Workspace/dsc520/completed
/week5/acs-14-1yr-s0201.csv")

#select
survey %>% select(Id, Id2, Geography, PopGroupID, POPGROUP.display.label,
RacesReported, HSDegree, BachDegree)
survey

#Filter
survey %>% filter(HSDegree > 80)

#mutate
survey %>% mutate(Diff_HSD_BachD=HSDegree - BachDegree)

#summarize
survey %>% summarize(mean_HSDegree = mean(HSDegree))

#GroupBy
survey %>% group_by(Geography, HSDegree)

#Arrange
survey %>%  summarize(mean_HSDegree = mean(HSDegree),min_weight =
min(HSDegree)) %>% arrange(desc(mean_HSDegree))

library(purrr)

#Using the purrr package ,Äì perform 2 functions on your dataset.
#You could use zip_n, keep, discard, compact, etc.

survey %>% map(sample, 5) %>%  keep(~mean(survey$HSDegree) > 80)

survey %>% map(sample, 5) %>%  discard(~mean(survey$BachDegree) > 80)

#cbind
cbind_data<-
cbind(Geography=survey$Geography,HSDegree=survey$HSDegree,BachDegree=surve
y$BachDegree)
cbind_data
```

```
#rbind
rbind_data<-rbind(survey[1,],survey[2,],survey[3,],survey[4,],survey[5,])
rbind_data

#Split a string, then concatenate the results back together
library(stringr)

#Split
splitstring <- strsplit(as.character(survey$Geography), ",", fixed =
FALSE)
splitstring[[1]]
splitstring[[2]]
splitstring[[3]]
splitstring[[4]]
splitstring[[5]]
splitstring

#Bind
bindstring<-paste(splitstring)
bindstring[[1]]
bindstring[[2]]
bindstring[[3]]
bindstring[[4]]
bindstring[[5]]
bindstring
```

Output:

> # Assignment: ASSIGNMENT 5.2
> # Name: Vayuvegula, Soma Shekar
> # Date: 2022-07-09
>
> #Library to read dplyr
> library(dplyr)

Attaching package: 'dplyr'

The following objects are masked from 'package:stats':

   filter, lag

The following objects are masked from 'package:base':

   intersect, setdiff, setequal, union

>
> #Read data from CSV file

```
> survey<-
read.csv("/Users/somashekarvayuvegula/Documents/Workspace/dsc520/completed/week5/ac
s-14-1yr-s0201.csv")
>
> #select
> survey %>% select(Id, Id2, Geography, PopGroupID, POPGROUP.display.label, RacesReported,
HSDegree, BachDegree)
           Id  Id2                    Geography PopGroupID
1  0500000US01073  1073           Jefferson County, Alabama        1
2  0500000US04013  4013            Maricopa County, Arizona         1
3  0500000US04019  4019              Pima County, Arizona        1
4  0500000US06001  6001           Alameda County, California        1
5  0500000US06013  6013         Contra Costa County, California        1
6  0500000US06019  6019            Fresno County, California        1
7  0500000US06029  6029             Kern County, California        1
8  0500000US06037  6037         Los Angeles County, California        1
9  0500000US06059  6059            Orange County, California        1
10 0500000US06065  6065           Riverside County, California        1
11 0500000US06067  6067          Sacramento County, California         1
12 0500000US06071  6071       San Bernardino County, California         1
13 0500000US06073  6073           San Diego County, California        1
14 0500000US06075  6075         San Francisco County, California        1
15 0500000US06077  6077          San Joaquin County, California        1
16 0500000US06081  6081           San Mateo County, California        1
17 0500000US06085  6085          Santa Clara County, California        1
18 0500000US06097  6097            Sonoma County, California        1
19 0500000US06099  6099           Stanislaus County, California        1
20 0500000US06111  6111            Ventura County, California        1
21 0500000US08005  8005           Arapahoe County, Colorado         1
22 0500000US08031  8031             Denver County, Colorado         1
23 0500000US08041  8041            El Paso County, Colorado        1
24 0500000US08059  8059           Jefferson County, Colorado         1
25 0500000US09001  9001          Fairfield County, Connecticut        1
26 0500000US09003  9003           Hartford County, Connecticut         1
27 0500000US09009  9009          New Haven County, Connecticut          1
28 0500000US10003  10003           New Castle County, Delaware          1
29 0500000US11001  11001 District of Columbia, District of Columbia        1
30 0500000US12009  12009            Brevard County, Florida        1
31 0500000US12011  12011            Broward County, Florida        1
32 0500000US12031  12031             Duval County, Florida        1
33 0500000US12057  12057         Hillsborough County, Florida         1
34 0500000US12071  12071              Lee County, Florida        1
35 0500000US12086  12086          Miami-Dade County, Florida         1
36 0500000US12095  12095            Orange County, Florida         1
```

37	0500000US12099 12099	Palm Beach County, Florida	1
38	0500000US12103 12103	Pinellas County, Florida	1
39	0500000US12105 12105	Polk County, Florida	1
40	0500000US12127 12127	Volusia County, Florida	1
41	0500000US13067 13067	Cobb County, Georgia	1
42	0500000US13089 13089	DeKalb County, Georgia	1
43	0500000US13121 13121	Fulton County, Georgia	1
44	0500000US13135 13135	Gwinnett County, Georgia	1
45	0500000US15003 15003	Honolulu County, Hawaii	1
46	0500000US17031 17031	Cook County, Illinois	1
47	0500000US17043 17043	DuPage County, Illinois	1
48	0500000US17089 17089	Kane County, Illinois	1
49	0500000US17097 17097	Lake County, Illinois	1
50	0500000US17197 17197	Will County, Illinois	1
51	0500000US18097 18097	Marion County, Indiana	1
52	0500000US20091 20091	Johnson County, Kansas	1
53	0500000US20173 20173	Sedgwick County, Kansas	1
54	0500000US21111 21111	Jefferson County, Kentucky	1
55	0500000US24003 24003	Anne Arundel County, Maryland	1
56	0500000US24005 24005	Baltimore County, Maryland	1
57	0500000US24031 24031	Montgomery County, Maryland	1
58	0500000US24033 24033	Prince George's County, Maryland	1
59	0500000US24510 24510	Baltimore city, Maryland	1
60	0500000US25005 25005	Bristol County, Massachusetts	1
61	0500000US25009 25009	Essex County, Massachusetts	1
62	0500000US25017 25017	Middlesex County, Massachusetts	1
63	0500000US25021 25021	Norfolk County, Massachusetts	1
64	0500000US25023 25023	Plymouth County, Massachusetts	1
65	0500000US25025 25025	Suffolk County, Massachusetts	1
66	0500000US25027 25027	Worcester County, Massachusetts	1
67	0500000US26081 26081	Kent County, Michigan	1
68	0500000US26099 26099	Macomb County, Michigan	1
69	0500000US26125 26125	Oakland County, Michigan	1
70	0500000US26163 26163	Wayne County, Michigan	1
71	0500000US27053 27053	Hennepin County, Minnesota	1
72	0500000US27123 27123	Ramsey County, Minnesota	1
73	0500000US29095 29095	Jackson County, Missouri	1
74	0500000US29189 29189	St. Louis County, Missouri	1
75	0500000US31055 31055	Douglas County, Nebraska	1
76	0500000US32003 32003	Clark County, Nevada	1
77	0500000US34003 34003	Bergen County, New Jersey	1
78	0500000US34007 34007	Camden County, New Jersey	1
79	0500000US34013 34013	Essex County, New Jersey	1
80	0500000US34017 34017	Hudson County, New Jersey	1

81	0500000US34023 34023	Middlesex County, New Jersey	1
82	0500000US34025 34025	Monmouth County, New Jersey	1
83	0500000US34029 34029	Ocean County, New Jersey	1
84	0500000US34031 34031	Passaic County, New Jersey	1
85	0500000US34039 34039	Union County, New Jersey	1
86	0500000US35001 35001	Bernalillo County, New Mexico	1
87	0500000US36005 36005	Bronx County, New York	1
88	0500000US36029 36029	Erie County, New York	1
89	0500000US36047 36047	Kings County, New York	1
90	0500000US36055 36055	Monroe County, New York	1
91	0500000US36059 36059	Nassau County, New York	1
92	0500000US36061 36061	New York County, New York	1
93	0500000US36081 36081	Queens County, New York	1
94	0500000US36103 36103	Suffolk County, New York	1
95	0500000US36119 36119	Westchester County, New York	1
96	0500000US37081 37081	Guilford County, North Carolina	1
97	0500000US37119 37119	Mecklenburg County, North Carolina	1
98	0500000US37183 37183	Wake County, North Carolina	1
99	0500000US39035 39035	Cuyahoga County, Ohio	1
100	0500000US39049 39049	Franklin County, Ohio	1
101	0500000US39061 39061	Hamilton County, Ohio	1
102	0500000US39113 39113	Montgomery County, Ohio	1
103	0500000US39153 39153	Summit County, Ohio	1
104	0500000US40109 40109	Oklahoma County, Oklahoma	1
105	0500000US40143 40143	Tulsa County, Oklahoma	1
106	0500000US41051 41051	Multnomah County, Oregon	1
107	0500000US41067 41067	Washington County, Oregon	1
108	0500000US42003 42003	Allegheny County, Pennsylvania	1
109	0500000US42017 42017	Bucks County, Pennsylvania	1
110	0500000US42029 42029	Chester County, Pennsylvania	1
111	0500000US42045 42045	Delaware County, Pennsylvania	1
112	0500000US42071 42071	Lancaster County, Pennsylvania	1
113	0500000US42091 42091	Montgomery County, Pennsylvania	1
114	0500000US42101 42101	Philadelphia County, Pennsylvania	1
115	0500000US44007 44007	Providence County, Rhode Island	1
116	0500000US47037 47037	Davidson County, Tennessee	1
117	0500000US47157 47157	Shelby County, Tennessee	1
118	0500000US48029 48029	Bexar County, Texas	1
119	0500000US48085 48085	Collin County, Texas	1
120	0500000US48113 48113	Dallas County, Texas	1
121	0500000US48121 48121	Denton County, Texas	1
122	0500000US48141 48141	El Paso County, Texas	1
123	0500000US48157 48157	Fort Bend County, Texas	1
124	0500000US48201 48201	Harris County, Texas	1

	POPGROUP.display.label	RacesReported	HSDegree	BachDegree
1	Total population	660793	89.1	30.5
2	Total population	4087191	86.8	30.2
3	Total population	1004516	88.0	30.8
4	Total population	1610921	86.9	42.8
5	Total population	1111339	88.8	39.7
6	Total population	965974	73.6	19.7
7	Total population	874589	74.5	15.4
8	Total population	10116705	77.5	30.3
9	Total population	3145515	84.6	38.0
10	Total population	2329271	80.6	20.7
11	Total population	1482026	86.8	28.9
12	Total population	2112619	78.6	18.9
13	Total population	3263431	86.6	37.1
14	Total population	852469	88.1	54.2
15	Total population	715597	77.6	18.3
16	Total population	758581	88.1	47.5
17	Total population	1894605	87.4	48.4
18	Total population	500292	87.6	34.8
19	Total population	531997	78.4	17.0
20	Total population	846178	83.6	31.6
21	Total population	618821	91.9	40.9
22	Total population	663862	85.5	44.3
23	Total population	663519	92.8	36.5
24	Total population	558503	94.1	42.0
25	Total population	945438	89.8	46.7
26	Total population	897985	89.3	36.8
27	Total population	861277	89.5	34.5
28	Total population	552778	90.1	35.8
29	Total population	658893	90.2	55.0
30	Total population	556885	91.6	27.2
31	Total population	1869235	88.4	30.5
32	Total population	897698	89.0	26.1
33	Total population	1316298	87.3	29.8
34	Total population	679513	86.3	26.5
35	Total population	2662874	80.9	26.6
36	Total population	1253001	87.9	31.4
37	Total population	1397710	87.7	33.0
38	Total population	938098	90.1	29.5
39	Total population	634638	84.9	19.7
40	Total population	507531	88.9	22.5
41	Total population	730981	90.3	43.7
42	Total population	722161	88.4	41.7

43	Total population	996319	91.3	49.2
44	Total population	877922	88.0	35.4
45	Total population	991788	91.8	32.6
46	Total population	5246456	85.5	36.2
47	Total population	932708	92.3	48.0
48	Total population	527306	82.9	32.6
49	Total population	705186	90.3	44.0
50	Total population	685419	90.7	33.1
51	Total population	934243	85.0	28.8
52	Total population	574272	95.5	52.8
53	Total population	508803	88.8	30.7
54	Total population	760026	88.5	31.6
55	Total population	560133	91.9	38.8
56	Total population	826925	90.4	37.2
57	Total population	1030447	90.9	58.5
58	Total population	904430	85.5	31.0
59	Total population	622793	84.4	30.0
60	Total population	554194	82.5	25.7
61	Total population	769091	89.1	38.9
62	Total population	1570315	92.3	52.3
63	Total population	692254	94.1	51.9
64	Total population	507022	92.2	34.1
65	Total population	767254	83.9	42.3
66	Total population	813475	90.1	34.6
67	Total population	629237	89.1	33.7
68	Total population	860112	89.3	23.9
69	Total population	1237868	93.6	44.8
70	Total population	1764804	84.9	22.1
71	Total population	1212064	93.2	47.3
72	Total population	532655	89.9	40.9
73	Total population	683191	90.0	29.5
74	Total population	1001876	93.2	42.8
75	Total population	543244	88.2	36.3
76	Total population	2069681	84.5	22.7
77	Total population	933572	91.5	46.2
78	Total population	511038	88.3	31.3
79	Total population	795723	85.5	32.7
80	Total population	669115	83.4	38.2
81	Total population	836297	89.1	41.0
82	Total population	629279	93.1	43.7
83	Total population	586301	91.7	28.6
84	Total population	508856	83.8	28.6
85	Total population	552939	86.2	33.0
86	Total population	675551	88.0	32.7

```
87      Total population    1438159    70.5    19.3
88      Total population     922835    90.6    31.3
89      Total population    2621793    80.0    34.3
90      Total population     749857    90.3    35.9
91      Total population    1358627    90.7    43.2
92      Total population    1636268    86.8    59.9
93      Total population    2321580    80.4    29.8
94      Total population    1502968    89.8    34.0
95      Total population     972634    87.4    47.1
96      Total population     512119    89.0    33.3
97      Total population    1012539    89.5    43.0
98      Total population     998691    92.4    49.2
99      Total population    1259828    88.1    31.0
100     Total population    1231393    90.0    38.0
101     Total population     806631    90.5    35.6
102     Total population     533116    89.7    25.7
103     Total population     541943    91.1    30.3
104     Total population     766215    86.8    30.6
105     Total population     629598    88.6    30.7
106     Total population     776712    91.1    41.6
107     Total population     562998    90.2    39.7
108     Total population    1231255    93.9    37.7
109     Total population     626685    93.9    37.7
110     Total population     512784    92.3    49.3
111     Total population     562960    91.5    36.3
112     Total population     533320    84.9    26.0
113     Total population     816857    93.7    47.3
114     Total population    1560297    82.6    26.0
115     Total population     631974    82.0    25.2
116     Total population     668347    86.7    37.3
117     Total population     938803    87.4    29.9
118     Total population    1855866    83.0    26.3
119     Total population     885241    93.7    50.0
120     Total population    2518638    77.6    29.1
121     Total population     753363    91.9    41.5
122     Total population     833487    75.8    21.1
123     Total population     685345    88.6    44.1
124     Total population    4441370    79.8    29.7
125     Total population     831073    62.2    17.9
[ reached 'max' / getOption("max.print") -- omitted 11 rows ]
> survey
        Id   Id2                    Geography PopGroupID
1   0500000US01073  1073    Jefferson County, Alabama      1
2   0500000US04013  4013     Maricopa County, Arizona      1
```

3	0500000US04019	4019	Pima County, Arizona	1
4	0500000US06001	6001	Alameda County, California	1
5	0500000US06013	6013	Contra Costa County, California	1
6	0500000US06019	6019	Fresno County, California	1
7	0500000US06029	6029	Kern County, California	1
8	0500000US06037	6037	Los Angeles County, California	1
9	0500000US06059	6059	Orange County, California	1
10	0500000US06065	6065	Riverside County, California	1
11	0500000US06067	6067	Sacramento County, California	1
12	0500000US06071	6071	San Bernardino County, California	1
13	0500000US06073	6073	San Diego County, California	1
14	0500000US06075	6075	San Francisco County, California	1
15	0500000US06077	6077	San Joaquin County, California	1
16	0500000US06081	6081	San Mateo County, California	1
17	0500000US06085	6085	Santa Clara County, California	1
18	0500000US06097	6097	Sonoma County, California	1
19	0500000US06099	6099	Stanislaus County, California	1
20	0500000US06111	6111	Ventura County, California	1
21	0500000US08005	8005	Arapahoe County, Colorado	1
22	0500000US08031	8031	Denver County, Colorado	1
23	0500000US08041	8041	El Paso County, Colorado	1
24	0500000US08059	8059	Jefferson County, Colorado	1
25	0500000US09001	9001	Fairfield County, Connecticut	1
26	0500000US09003	9003	Hartford County, Connecticut	1
27	0500000US09009	9009	New Haven County, Connecticut	1
28	0500000US10003	10003	New Castle County, Delaware	1
29	0500000US11001	11001	District of Columbia, District of Columbia	1
30	0500000US12009	12009	Brevard County, Florida	1
31	0500000US12011	12011	Broward County, Florida	1
32	0500000US12031	12031	Duval County, Florida	1
33	0500000US12057	12057	Hillsborough County, Florida	1
34	0500000US12071	12071	Lee County, Florida	1
35	0500000US12086	12086	Miami-Dade County, Florida	1
36	0500000US12095	12095	Orange County, Florida	1
37	0500000US12099	12099	Palm Beach County, Florida	1
38	0500000US12103	12103	Pinellas County, Florida	1
39	0500000US12105	12105	Polk County, Florida	1
40	0500000US12127	12127	Volusia County, Florida	1
41	0500000US13067	13067	Cobb County, Georgia	1
42	0500000US13089	13089	DeKalb County, Georgia	1
43	0500000US13121	13121	Fulton County, Georgia	1
44	0500000US13135	13135	Gwinnett County, Georgia	1
45	0500000US15003	15003	Honolulu County, Hawaii	1
46	0500000US17031	17031	Cook County, Illinois	1

47	0500000US17043 17043	DuPage County, Illinois	1
48	0500000US17089 17089	Kane County, Illinois	1
49	0500000US17097 17097	Lake County, Illinois	1
50	0500000US17197 17197	Will County, Illinois	1
51	0500000US18097 18097	Marion County, Indiana	1
52	0500000US20091 20091	Johnson County, Kansas	1
53	0500000US20173 20173	Sedgwick County, Kansas	1
54	0500000US21111 21111	Jefferson County, Kentucky	1
55	0500000US24003 24003	Anne Arundel County, Maryland	1
56	0500000US24005 24005	Baltimore County, Maryland	1
57	0500000US24031 24031	Montgomery County, Maryland	1
58	0500000US24033 24033	Prince George's County, Maryland	1
59	0500000US24510 24510	Baltimore city, Maryland	1
60	0500000US25005 25005	Bristol County, Massachusetts	1
61	0500000US25009 25009	Essex County, Massachusetts	1
62	0500000US25017 25017	Middlesex County, Massachusetts	1
63	0500000US25021 25021	Norfolk County, Massachusetts	1
64	0500000US25023 25023	Plymouth County, Massachusetts	1
65	0500000US25025 25025	Suffolk County, Massachusetts	1
66	0500000US25027 25027	Worcester County, Massachusetts	1
67	0500000US26081 26081	Kent County, Michigan	1
68	0500000US26099 26099	Macomb County, Michigan	1
69	0500000US26125 26125	Oakland County, Michigan	1
70	0500000US26163 26163	Wayne County, Michigan	1
71	0500000US27053 27053	Hennepin County, Minnesota	1
72	0500000US27123 27123	Ramsey County, Minnesota	1
73	0500000US29095 29095	Jackson County, Missouri	1
74	0500000US29189 29189	St. Louis County, Missouri	1
75	0500000US31055 31055	Douglas County, Nebraska	1
76	0500000US32003 32003	Clark County, Nevada	1
77	0500000US34003 34003	Bergen County, New Jersey	1
78	0500000US34007 34007	Camden County, New Jersey	1
79	0500000US34013 34013	Essex County, New Jersey	1
80	0500000US34017 34017	Hudson County, New Jersey	1
81	0500000US34023 34023	Middlesex County, New Jersey	1
82	0500000US34025 34025	Monmouth County, New Jersey	1
83	0500000US34029 34029	Ocean County, New Jersey	1
84	0500000US34031 34031	Passaic County, New Jersey	1
85	0500000US34039 34039	Union County, New Jersey	1
86	0500000US35001 35001	Bernalillo County, New Mexico	1
87	0500000US36005 36005	Bronx County, New York	1
88	0500000US36029 36029	Erie County, New York	1
89	0500000US36047 36047	Kings County, New York	1
90	0500000US36055 36055	Monroe County, New York	1

```
91  0500000US36059 36059         Nassau County, New York        1
92  0500000US36061 36061         New York County, New York      1
93  0500000US36081 36081         Queens County, New York        1
94  0500000US36103 36103         Suffolk County, New York       1
95  0500000US36119 36119         Westchester County, New York     1
96  0500000US37081 37081      Guilford County, North Carolina      1
97  0500000US37119 37119    Mecklenburg County, North Carolina       1
98  0500000US37183 37183       Wake County, North Carolina       1
99  0500000US39035 39035         Cuyahoga County, Ohio         1
100 0500000US39049 39049         Franklin County, Ohio         1
101 0500000US39061 39061         Hamilton County, Ohio         1
102 0500000US39113 39113        Montgomery County, Ohio         1
103 0500000US39153 39153          Summit County, Ohio         1
104 0500000US40109 40109       Oklahoma County, Oklahoma        1
105 0500000US40143 40143         Tulsa County, Oklahoma        1
106 0500000US41051 41051        Multnomah County, Oregon        1
107 0500000US41067 41067       Washington County, Oregon        1
108 0500000US42003 42003      Allegheny County, Pennsylvania      1
109 0500000US42017 42017        Bucks County, Pennsylvania       1
110 0500000US42029 42029       Chester County, Pennsylvania       1
111 0500000US42045 42045       Delaware County, Pennsylvania      1
112 0500000US42071 42071       Lancaster County, Pennsylvania      1
113 0500000US42091 42091     Montgomery County, Pennsylvania        1
114 0500000US42101 42101     Philadelphia County, Pennsylvania     1
115 0500000US44007 44007     Providence County, Rhode Island       1
116 0500000US47037 47037       Davidson County, Tennessee        1
117 0500000US47157 47157        Shelby County, Tennessee        1
118 0500000US48029 48029          Bexar County, Texas        1
119 0500000US48085 48085          Collin County, Texas        1
120 0500000US48113 48113          Dallas County, Texas        1
121 0500000US48121 48121          Denton County, Texas        1
122 0500000US48141 48141         El Paso County, Texas        1
123 0500000US48157 48157        Fort Bend County, Texas        1
124 0500000US48201 48201          Harris County, Texas        1
125 0500000US48215 48215         Hidalgo County, Texas        1
```

	POPGROUP.display.label	RacesReported	HSDegree	BachDegree
1	Total population	660793	89.1	30.5
2	Total population	4087191	86.8	30.2
3	Total population	1004516	88.0	30.8
4	Total population	1610921	86.9	42.8
5	Total population	1111339	88.8	39.7
6	Total population	965974	73.6	19.7
7	Total population	874589	74.5	15.4
8	Total population	10116705	77.5	30.3

9	Total population	3145515	84.6	38.0
10	Total population	2329271	80.6	20.7
11	Total population	1482026	86.8	28.9
12	Total population	2112619	78.6	18.9
13	Total population	3263431	86.6	37.1
14	Total population	852469	88.1	54.2
15	Total population	715597	77.6	18.3
16	Total population	758581	88.1	47.5
17	Total population	1894605	87.4	48.4
18	Total population	500292	87.6	34.8
19	Total population	531997	78.4	17.0
20	Total population	846178	83.6	31.6
21	Total population	618821	91.9	40.9
22	Total population	663862	85.5	44.3
23	Total population	663519	92.8	36.5
24	Total population	558503	94.1	42.0
25	Total population	945438	89.8	46.7
26	Total population	897985	89.3	36.8
27	Total population	861277	89.5	34.5
28	Total population	552778	90.1	35.8
29	Total population	658893	90.2	55.0
30	Total population	556885	91.6	27.2
31	Total population	1869235	88.4	30.5
32	Total population	897698	89.0	26.1
33	Total population	1316298	87.3	29.8
34	Total population	679513	86.3	26.5
35	Total population	2662874	80.9	26.6
36	Total population	1253001	87.9	31.4
37	Total population	1397710	87.7	33.0
38	Total population	938098	90.1	29.5
39	Total population	634638	84.9	19.7
40	Total population	507531	88.9	22.5
41	Total population	730981	90.3	43.7
42	Total population	722161	88.4	41.7
43	Total population	996319	91.3	49.2
44	Total population	877922	88.0	35.4
45	Total population	991788	91.8	32.6
46	Total population	5246456	85.5	36.2
47	Total population	932708	92.3	48.0
48	Total population	527306	82.9	32.6
49	Total population	705186	90.3	44.0
50	Total population	685419	90.7	33.1
51	Total population	934243	85.0	28.8
52	Total population	574272	95.5	52.8

53	Total population	508803	88.8	30.7
54	Total population	760026	88.5	31.6
55	Total population	560133	91.9	38.8
56	Total population	826925	90.4	37.2
57	Total population	1030447	90.9	58.5
58	Total population	904430	85.5	31.0
59	Total population	622793	84.4	30.0
60	Total population	554194	82.5	25.7
61	Total population	769091	89.1	38.9
62	Total population	1570315	92.3	52.3
63	Total population	692254	94.1	51.9
64	Total population	507022	92.2	34.1
65	Total population	767254	83.9	42.3
66	Total population	813475	90.1	34.6
67	Total population	629237	89.1	33.7
68	Total population	860112	89.3	23.9
69	Total population	1237868	93.6	44.8
70	Total population	1764804	84.9	22.1
71	Total population	1212064	93.2	47.3
72	Total population	532655	89.9	40.9
73	Total population	683191	90.0	29.5
74	Total population	1001876	93.2	42.8
75	Total population	543244	88.2	36.3
76	Total population	2069681	84.5	22.7
77	Total population	933572	91.5	46.2
78	Total population	511038	88.3	31.3
79	Total population	795723	85.5	32.7
80	Total population	669115	83.4	38.2
81	Total population	836297	89.1	41.0
82	Total population	629279	93.1	43.7
83	Total population	586301	91.7	28.6
84	Total population	508856	83.8	28.6
85	Total population	552939	86.2	33.0
86	Total population	675551	88.0	32.7
87	Total population	1438159	70.5	19.3
88	Total population	922835	90.6	31.3
89	Total population	2621793	80.0	34.3
90	Total population	749857	90.3	35.9
91	Total population	1358627	90.7	43.2
92	Total population	1636268	86.8	59.9
93	Total population	2321580	80.4	29.8
94	Total population	1502968	89.8	34.0
95	Total population	972634	87.4	47.1
96	Total population	512119	89.0	33.3

```
97      Total population      1012539   89.5    43.0
98      Total population       998691   92.4    49.2
99      Total population      1259828   88.1    31.0
100     Total population      1231393   90.0    38.0
101     Total population       806631   90.5    35.6
102     Total population       533116   89.7    25.7
103     Total population       541943   91.1    30.3
104     Total population       766215   86.8    30.6
105     Total population       629598   88.6    30.7
106     Total population       776712   91.1    41.6
107     Total population       562998   90.2    39.7
108     Total population      1231255   93.9    37.7
109     Total population       626685   93.9    37.7
110     Total population       512784   92.3    49.3
111     Total population       562960   91.5    36.3
112     Total population       533320   84.9    26.0
113     Total population       816857   93.7    47.3
114     Total population      1560297   82.6    26.0
115     Total population       631974   82.0    25.2
116     Total population       668347   86.7    37.3
117     Total population       938803   87.4    29.9
118     Total population      1855866   83.0    26.3
119     Total population       885241   93.7    50.0
120     Total population      2518638   77.6    29.1
121     Total population       753363   91.9    41.5
122     Total population       833487   75.8    21.1
123     Total population       685345   88.6    44.1
124     Total population      4441370   79.8    29.7
125     Total population       831073   62.2    17.9
 [ reached 'max' / getOption("max.print") -- omitted 11 rows ]
>
> #Filter
> survey %>% filter(HSDegree > 80)
         Id   Id2                         Geography PopGroupID
1  0500000US01073  1073            Jefferson County, Alabama          1
2  0500000US04013  4013            Maricopa County, Arizona           1
3  0500000US04019  4019                Pima County, Arizona        1
4  0500000US06001  6001            Alameda County, California         1
5  0500000US06013  6013          Contra Costa County, California        1
6  0500000US06059  6059            Orange County, California          1
7  0500000US06065  6065           Riverside County, California         1
8  0500000US06067  6067          Sacramento County, California         1
9  0500000US06073  6073           San Diego County, California         1
10 0500000US06075  6075        San Francisco County, California          1
```

11	0500000US06081	6081	San Mateo County, California	1
12	0500000US06085	6085	Santa Clara County, California	1
13	0500000US06097	6097	Sonoma County, California	1
14	0500000US06111	6111	Ventura County, California	1
15	0500000US08005	8005	Arapahoe County, Colorado	1
16	0500000US08031	8031	Denver County, Colorado	1
17	0500000US08041	8041	El Paso County, Colorado	1
18	0500000US08059	8059	Jefferson County, Colorado	1
19	0500000US09001	9001	Fairfield County, Connecticut	1
20	0500000US09003	9003	Hartford County, Connecticut	1
21	0500000US09009	9009	New Haven County, Connecticut	1
22	0500000US10003	10003	New Castle County, Delaware	1
23	0500000US11001	11001	District of Columbia, District of Columbia	1
24	0500000US12009	12009	Brevard County, Florida	1
25	0500000US12011	12011	Broward County, Florida	1
26	0500000US12031	12031	Duval County, Florida	1
27	0500000US12057	12057	Hillsborough County, Florida	1
28	0500000US12071	12071	Lee County, Florida	1
29	0500000US12086	12086	Miami-Dade County, Florida	1
30	0500000US12095	12095	Orange County, Florida	1
31	0500000US12099	12099	Palm Beach County, Florida	1
32	0500000US12103	12103	Pinellas County, Florida	1
33	0500000US12105	12105	Polk County, Florida	1
34	0500000US12127	12127	Volusia County, Florida	1
35	0500000US13067	13067	Cobb County, Georgia	1
36	0500000US13089	13089	DeKalb County, Georgia	1
37	0500000US13121	13121	Fulton County, Georgia	1
38	0500000US13135	13135	Gwinnett County, Georgia	1
39	0500000US15003	15003	Honolulu County, Hawaii	1
40	0500000US17031	17031	Cook County, Illinois	1
41	0500000US17043	17043	DuPage County, Illinois	1
42	0500000US17089	17089	Kane County, Illinois	1
43	0500000US17097	17097	Lake County, Illinois	1
44	0500000US17197	17197	Will County, Illinois	1
45	0500000US18097	18097	Marion County, Indiana	1
46	0500000US20091	20091	Johnson County, Kansas	1
47	0500000US20173	20173	Sedgwick County, Kansas	1
48	0500000US21111	21111	Jefferson County, Kentucky	1
49	0500000US24003	24003	Anne Arundel County, Maryland	1
50	0500000US24005	24005	Baltimore County, Maryland	1
51	0500000US24031	24031	Montgomery County, Maryland	1
52	0500000US24033	24033	Prince George's County, Maryland	1
53	0500000US24510	24510	Baltimore city, Maryland	1
54	0500000US25005	25005	Bristol County, Massachusetts	1

55	0500000US25009 25009	Essex County, Massachusetts	1
56	0500000US25017 25017	Middlesex County, Massachusetts	1
57	0500000US25021 25021	Norfolk County, Massachusetts	1
58	0500000US25023 25023	Plymouth County, Massachusetts	1
59	0500000US25025 25025	Suffolk County, Massachusetts	1
60	0500000US25027 25027	Worcester County, Massachusetts	1
61	0500000US26081 26081	Kent County, Michigan	1
62	0500000US26099 26099	Macomb County, Michigan	1
63	0500000US26125 26125	Oakland County, Michigan	1
64	0500000US26163 26163	Wayne County, Michigan	1
65	0500000US27053 27053	Hennepin County, Minnesota	1
66	0500000US27123 27123	Ramsey County, Minnesota	1
67	0500000US29095 29095	Jackson County, Missouri	1
68	0500000US29189 29189	St. Louis County, Missouri	1
69	0500000US31055 31055	Douglas County, Nebraska	1
70	0500000US32003 32003	Clark County, Nevada	1
71	0500000US34003 34003	Bergen County, New Jersey	1
72	0500000US34007 34007	Camden County, New Jersey	1
73	0500000US34013 34013	Essex County, New Jersey	1
74	0500000US34017 34017	Hudson County, New Jersey	1
75	0500000US34023 34023	Middlesex County, New Jersey	1
76	0500000US34025 34025	Monmouth County, New Jersey	1
77	0500000US34029 34029	Ocean County, New Jersey	1
78	0500000US34031 34031	Passaic County, New Jersey	1
79	0500000US34039 34039	Union County, New Jersey	1
80	0500000US35001 35001	Bernalillo County, New Mexico	1
81	0500000US36029 36029	Erie County, New York	1
82	0500000US36055 36055	Monroe County, New York	1
83	0500000US36059 36059	Nassau County, New York	1
84	0500000US36061 36061	New York County, New York	1
85	0500000US36081 36081	Queens County, New York	1
86	0500000US36103 36103	Suffolk County, New York	1
87	0500000US36119 36119	Westchester County, New York	1
88	0500000US37081 37081	Guilford County, North Carolina	1
89	0500000US37119 37119	Mecklenburg County, North Carolina	1
90	0500000US37183 37183	Wake County, North Carolina	1
91	0500000US39035 39035	Cuyahoga County, Ohio	1
92	0500000US39049 39049	Franklin County, Ohio	1
93	0500000US39061 39061	Hamilton County, Ohio	1
94	0500000US39113 39113	Montgomery County, Ohio	1
95	0500000US39153 39153	Summit County, Ohio	1
96	0500000US40109 40109	Oklahoma County, Oklahoma	1
97	0500000US40143 40143	Tulsa County, Oklahoma	1
98	0500000US41051 41051	Multnomah County, Oregon	1

99	0500000US41067	41067	Washington County, Oregon	1	
100	0500000US42003	42003	Allegheny County, Pennsylvania	1	
101	0500000US42017	42017	Bucks County, Pennsylvania	1	
102	0500000US42029	42029	Chester County, Pennsylvania	1	
103	0500000US42045	42045	Delaware County, Pennsylvania	1	
104	0500000US42071	42071	Lancaster County, Pennsylvania	1	
105	0500000US42091	42091	Montgomery County, Pennsylvania	1	
106	0500000US42101	42101	Philadelphia County, Pennsylvania	1	
107	0500000US44007	44007	Providence County, Rhode Island	1	
108	0500000US47037	47037	Davidson County, Tennessee	1	
109	0500000US47157	47157	Shelby County, Tennessee	1	
110	0500000US48029	48029	Bexar County, Texas	1	
111	0500000US48085	48085	Collin County, Texas	1	
112	0500000US48121	48121	Denton County, Texas	1	
113	0500000US48157	48157	Fort Bend County, Texas	1	
114	0500000US48339	48339	Montgomery County, Texas	1	
115	0500000US48439	48439	Tarrant County, Texas	1	
116	0500000US48453	48453	Travis County, Texas	1	
117	0500000US49035	49035	Salt Lake County, Utah	1	
118	0500000US49049	49049	Utah County, Utah	1	
119	0500000US51059	51059	Fairfax County, Virginia	1	
120	0500000US53033	53033	King County, Washington	1	
121	0500000US53053	53053	Pierce County, Washington	1	
122	0500000US53061	53061	Snohomish County, Washington	1	
123	0500000US55025	55025	Dane County, Wisconsin	1	
124	0500000US55079	55079	Milwaukee County, Wisconsin	1	

	POPGROUP.display.label	RacesReported	HSDegree	BachDegree
1	Total population	660793	89.1	30.5
2	Total population	4087191	86.8	30.2
3	Total population	1004516	88.0	30.8
4	Total population	1610921	86.9	42.8
5	Total population	1111339	88.8	39.7
6	Total population	3145515	84.6	38.0
7	Total population	2329271	80.6	20.7
8	Total population	1482026	86.8	28.9
9	Total population	3263431	86.6	37.1
10	Total population	852469	88.1	54.2
11	Total population	758581	88.1	47.5
12	Total population	1894605	87.4	48.4
13	Total population	500292	87.6	34.8
14	Total population	846178	83.6	31.6
15	Total population	618821	91.9	40.9
16	Total population	663862	85.5	44.3
17	Total population	663519	92.8	36.5

18	Total population	558503	94.1	42.0
19	Total population	945438	89.8	46.7
20	Total population	897985	89.3	36.8
21	Total population	861277	89.5	34.5
22	Total population	552778	90.1	35.8
23	Total population	658893	90.2	55.0
24	Total population	556885	91.6	27.2
25	Total population	1869235	88.4	30.5
26	Total population	897698	89.0	26.1
27	Total population	1316298	87.3	29.8
28	Total population	679513	86.3	26.5
29	Total population	2662874	80.9	26.6
30	Total population	1253001	87.9	31.4
31	Total population	1397710	87.7	33.0
32	Total population	938098	90.1	29.5
33	Total population	634638	84.9	19.7
34	Total population	507531	88.9	22.5
35	Total population	730981	90.3	43.7
36	Total population	722161	88.4	41.7
37	Total population	996319	91.3	49.2
38	Total population	877922	88.0	35.4
39	Total population	991788	91.8	32.6
40	Total population	5246456	85.5	36.2
41	Total population	932708	92.3	48.0
42	Total population	527306	82.9	32.6
43	Total population	705186	90.3	44.0
44	Total population	685419	90.7	33.1
45	Total population	934243	85.0	28.8
46	Total population	574272	95.5	52.8
47	Total population	508803	88.8	30.7
48	Total population	760026	88.5	31.6
49	Total population	560133	91.9	38.8
50	Total population	826925	90.4	37.2
51	Total population	1030447	90.9	58.5
52	Total population	904430	85.5	31.0
53	Total population	622793	84.4	30.0
54	Total population	554194	82.5	25.7
55	Total population	769091	89.1	38.9
56	Total population	1570315	92.3	52.3
57	Total population	692254	94.1	51.9
58	Total population	507022	92.2	34.1
59	Total population	767254	83.9	42.3
60	Total population	813475	90.1	34.6
61	Total population	629237	89.1	33.7

62	Total population	860112	89.3	23.9
63	Total population	1237868	93.6	44.8
64	Total population	1764804	84.9	22.1
65	Total population	1212064	93.2	47.3
66	Total population	532655	89.9	40.9
67	Total population	683191	90.0	29.5
68	Total population	1001876	93.2	42.8
69	Total population	543244	88.2	36.3
70	Total population	2069681	84.5	22.7
71	Total population	933572	91.5	46.2
72	Total population	511038	88.3	31.3
73	Total population	795723	85.5	32.7
74	Total population	669115	83.4	38.2
75	Total population	836297	89.1	41.0
76	Total population	629279	93.1	43.7
77	Total population	586301	91.7	28.6
78	Total population	508856	83.8	28.6
79	Total population	552939	86.2	33.0
80	Total population	675551	88.0	32.7
81	Total population	922835	90.6	31.3
82	Total population	749857	90.3	35.9
83	Total population	1358627	90.7	43.2
84	Total population	1636268	86.8	59.9
85	Total population	2321580	80.4	29.8
86	Total population	1502968	89.8	34.0
87	Total population	972634	87.4	47.1
88	Total population	512119	89.0	33.3
89	Total population	1012539	89.5	43.0
90	Total population	998691	92.4	49.2
91	Total population	1259828	88.1	31.0
92	Total population	1231393	90.0	38.0
93	Total population	806631	90.5	35.6
94	Total population	533116	89.7	25.7
95	Total population	541943	91.1	30.3
96	Total population	766215	86.8	30.6
97	Total population	629598	88.6	30.7
98	Total population	776712	91.1	41.6
99	Total population	562998	90.2	39.7
100	Total population	1231255	93.9	37.7
101	Total population	626685	93.9	37.7
102	Total population	512784	92.3	49.3
103	Total population	562960	91.5	36.3
104	Total population	533320	84.9	26.0
105	Total population	816857	93.7	47.3

106	Total population	1560297	82.6	26.0
107	Total population	631974	82.0	25.2
108	Total population	668347	86.7	37.3
109	Total population	938803	87.4	29.9
110	Total population	1855866	83.0	26.3
111	Total population	885241	93.7	50.0
112	Total population	753363	91.9	41.5
113	Total population	685345	88.6	44.1
114	Total population	518947	85.9	34.1
115	Total population	1945360	84.9	30.0
116	Total population	1151145	88.6	45.6
117	Total population	1091742	89.5	31.9
118	Total population	560974	93.7	37.5
119	Total population	1137538	91.5	60.3
120	Total population	2079967	92.3	48.6
121	Total population	831928	90.3	24.6
122	Total population	759583	92.0	29.1
123	Total population	516284	94.9	49.8
124	Total population	956406	86.9	29.5

```
> 
> #mutate
> survey %>% mutate(Diff_HSD_BachD=HSDegree - BachDegree)
          Id   Id2                  Geography PopGroupID
1  0500000US01073 1073        Jefferson County, Alabama          1
2  0500000US04013 4013         Maricopa County, Arizona          1
3  0500000US04019 4019            Pima County, Arizona          1
4  0500000US06001 6001        Alameda County, California          1
5  0500000US06013 6013     Contra Costa County, California          1
6  0500000US06019 6019         Fresno County, California          1
7  0500000US06029 6029           Kern County, California          1
8  0500000US06037 6037      Los Angeles County, California          1
9  0500000US06059 6059         Orange County, California          1
10 0500000US06065 6065        Riverside County, California          1
11 0500000US06067 6067       Sacramento County, California          1
12 0500000US06071 6071    San Bernardino County, California          1
13 0500000US06073 6073        San Diego County, California          1
14 0500000US06075 6075     San Francisco County, California          1
15 0500000US06077 6077       San Joaquin County, California          1
16 0500000US06081 6081         San Mateo County, California          1
17 0500000US06085 6085        Santa Clara County, California          1
18 0500000US06097 6097         Sonoma County, California          1
19 0500000US06099 6099       Stanislaus County, California          1
20 0500000US06111 6111         Ventura County, California          1
21 0500000US08005 8005        Arapahoe County, Colorado          1
```

22	0500000US08031	8031	Denver County, Colorado	1
23	0500000US08041	8041	El Paso County, Colorado	1
24	0500000US08059	8059	Jefferson County, Colorado	1
25	0500000US09001	9001	Fairfield County, Connecticut	1
26	0500000US09003	9003	Hartford County, Connecticut	1
27	0500000US09009	9009	New Haven County, Connecticut	1
28	0500000US10003	10003	New Castle County, Delaware	1
29	0500000US11001	11001	District of Columbia, District of Columbia	1
30	0500000US12009	12009	Brevard County, Florida	1
31	0500000US12011	12011	Broward County, Florida	1
32	0500000US12031	12031	Duval County, Florida	1
33	0500000US12057	12057	Hillsborough County, Florida	1
34	0500000US12071	12071	Lee County, Florida	1
35	0500000US12086	12086	Miami-Dade County, Florida	1
36	0500000US12095	12095	Orange County, Florida	1
37	0500000US12099	12099	Palm Beach County, Florida	1
38	0500000US12103	12103	Pinellas County, Florida	1
39	0500000US12105	12105	Polk County, Florida	1
40	0500000US12127	12127	Volusia County, Florida	1
41	0500000US13067	13067	Cobb County, Georgia	1
42	0500000US13089	13089	DeKalb County, Georgia	1
43	0500000US13121	13121	Fulton County, Georgia	1
44	0500000US13135	13135	Gwinnett County, Georgia	1
45	0500000US15003	15003	Honolulu County, Hawaii	1
46	0500000US17031	17031	Cook County, Illinois	1
47	0500000US17043	17043	DuPage County, Illinois	1
48	0500000US17089	17089	Kane County, Illinois	1
49	0500000US17097	17097	Lake County, Illinois	1
50	0500000US17197	17197	Will County, Illinois	1
51	0500000US18097	18097	Marion County, Indiana	1
52	0500000US20091	20091	Johnson County, Kansas	1
53	0500000US20173	20173	Sedgwick County, Kansas	1
54	0500000US21111	21111	Jefferson County, Kentucky	1
55	0500000US24003	24003	Anne Arundel County, Maryland	1
56	0500000US24005	24005	Baltimore County, Maryland	1
57	0500000US24031	24031	Montgomery County, Maryland	1
58	0500000US24033	24033	Prince George's County, Maryland	1
59	0500000US24510	24510	Baltimore city, Maryland	1
60	0500000US25005	25005	Bristol County, Massachusetts	1
61	0500000US25009	25009	Essex County, Massachusetts	1
62	0500000US25017	25017	Middlesex County, Massachusetts	1
63	0500000US25021	25021	Norfolk County, Massachusetts	1
64	0500000US25023	25023	Plymouth County, Massachusetts	1
65	0500000US25025	25025	Suffolk County, Massachusetts	1

66	0500000US25027 25027	Worcester County, Massachusetts	1
67	0500000US26081 26081	Kent County, Michigan	1
68	0500000US26099 26099	Macomb County, Michigan	1
69	0500000US26125 26125	Oakland County, Michigan	1
70	0500000US26163 26163	Wayne County, Michigan	1
71	0500000US27053 27053	Hennepin County, Minnesota	1
72	0500000US27123 27123	Ramsey County, Minnesota	1
73	0500000US29095 29095	Jackson County, Missouri	1
74	0500000US29189 29189	St. Louis County, Missouri	1
75	0500000US31055 31055	Douglas County, Nebraska	1
76	0500000US32003 32003	Clark County, Nevada	1
77	0500000US34003 34003	Bergen County, New Jersey	1
78	0500000US34007 34007	Camden County, New Jersey	1
79	0500000US34013 34013	Essex County, New Jersey	1
80	0500000US34017 34017	Hudson County, New Jersey	1
81	0500000US34023 34023	Middlesex County, New Jersey	1
82	0500000US34025 34025	Monmouth County, New Jersey	1
83	0500000US34029 34029	Ocean County, New Jersey	1
84	0500000US34031 34031	Passaic County, New Jersey	1
85	0500000US34039 34039	Union County, New Jersey	1
86	0500000US35001 35001	Bernalillo County, New Mexico	1
87	0500000US36005 36005	Bronx County, New York	1
88	0500000US36029 36029	Erie County, New York	1
89	0500000US36047 36047	Kings County, New York	1
90	0500000US36055 36055	Monroe County, New York	1
91	0500000US36059 36059	Nassau County, New York	1
92	0500000US36061 36061	New York County, New York	1
93	0500000US36081 36081	Queens County, New York	1
94	0500000US36103 36103	Suffolk County, New York	1
95	0500000US36119 36119	Westchester County, New York	1
96	0500000US37081 37081	Guilford County, North Carolina	1
97	0500000US37119 37119	Mecklenburg County, North Carolina	1
98	0500000US37183 37183	Wake County, North Carolina	1
99	0500000US39035 39035	Cuyahoga County, Ohio	1
100	0500000US39049 39049	Franklin County, Ohio	1
101	0500000US39061 39061	Hamilton County, Ohio	1
102	0500000US39113 39113	Montgomery County, Ohio	1
103	0500000US39153 39153	Summit County, Ohio	1
104	0500000US40109 40109	Oklahoma County, Oklahoma	1
105	0500000US40143 40143	Tulsa County, Oklahoma	1
106	0500000US41051 41051	Multnomah County, Oregon	1
107	0500000US41067 41067	Washington County, Oregon	1
108	0500000US42003 42003	Allegheny County, Pennsylvania	1
109	0500000US42017 42017	Bucks County, Pennsylvania	1

```
110 0500000US42029 42029        Chester County, Pennsylvania      1
111 0500000US42045 42045        Delaware County, Pennsylvania     1
```

	POPGROUP.display.label	RacesReported	HSDegree	BachDegree	Diff_HSD_BachD
1	Total population	660793	89.1	30.5	58.6
2	Total population	4087191	86.8	30.2	56.6
3	Total population	1004516	88.0	30.8	57.2
4	Total population	1610921	86.9	42.8	44.1
5	Total population	1111339	88.8	39.7	49.1
6	Total population	965974	73.6	19.7	53.9
7	Total population	874589	74.5	15.4	59.1
8	Total population	10116705	77.5	30.3	47.2
9	Total population	3145515	84.6	38.0	46.6
10	Total population	2329271	80.6	20.7	59.9
11	Total population	1482026	86.8	28.9	57.9
12	Total population	2112619	78.6	18.9	59.7
13	Total population	3263431	86.6	37.1	49.5
14	Total population	852469	88.1	54.2	33.9
15	Total population	715597	77.6	18.3	59.3
16	Total population	758581	88.1	47.5	40.6
17	Total population	1894605	87.4	48.4	39.0
18	Total population	500292	87.6	34.8	52.8
19	Total population	531997	78.4	17.0	61.4
20	Total population	846178	83.6	31.6	52.0
21	Total population	618821	91.9	40.9	51.0
22	Total population	663862	85.5	44.3	41.2
23	Total population	663519	92.8	36.5	56.3
24	Total population	558503	94.1	42.0	52.1
25	Total population	945438	89.8	46.7	43.1
26	Total population	897985	89.3	36.8	52.5
27	Total population	861277	89.5	34.5	55.0
28	Total population	552778	90.1	35.8	54.3
29	Total population	658893	90.2	55.0	35.2
30	Total population	556885	91.6	27.2	64.4
31	Total population	1869235	88.4	30.5	57.9
32	Total population	897698	89.0	26.1	62.9
33	Total population	1316298	87.3	29.8	57.5
34	Total population	679513	86.3	26.5	59.8
35	Total population	2662874	80.9	26.6	54.3
36	Total population	1253001	87.9	31.4	56.5
37	Total population	1397710	87.7	33.0	54.7
38	Total population	938098	90.1	29.5	60.6
39	Total population	634638	84.9	19.7	65.2
40	Total population	507531	88.9	22.5	66.4
41	Total population	730981	90.3	43.7	46.6

42	Total population	722161	88.4	41.7	46.7
43	Total population	996319	91.3	49.2	42.1
44	Total population	877922	88.0	35.4	52.6
45	Total population	991788	91.8	32.6	59.2
46	Total population	5246456	85.5	36.2	49.3
47	Total population	932708	92.3	48.0	44.3
48	Total population	527306	82.9	32.6	50.3
49	Total population	705186	90.3	44.0	46.3
50	Total population	685419	90.7	33.1	57.6
51	Total population	934243	85.0	28.8	56.2
52	Total population	574272	95.5	52.8	42.7
53	Total population	508803	88.8	30.7	58.1
54	Total population	760026	88.5	31.6	56.9
55	Total population	560133	91.9	38.8	53.1
56	Total population	826925	90.4	37.2	53.2
57	Total population	1030447	90.9	58.5	32.4
58	Total population	904430	85.5	31.0	54.5
59	Total population	622793	84.4	30.0	54.4
60	Total population	554194	82.5	25.7	56.8
61	Total population	769091	89.1	38.9	50.2
62	Total population	1570315	92.3	52.3	40.0
63	Total population	692254	94.1	51.9	42.2
64	Total population	507022	92.2	34.1	58.1
65	Total population	767254	83.9	42.3	41.6
66	Total population	813475	90.1	34.6	55.5
67	Total population	629237	89.1	33.7	55.4
68	Total population	860112	89.3	23.9	65.4
69	Total population	1237868	93.6	44.8	48.8
70	Total population	1764804	84.9	22.1	62.8
71	Total population	1212064	93.2	47.3	45.9
72	Total population	532655	89.9	40.9	49.0
73	Total population	683191	90.0	29.5	60.5
74	Total population	1001876	93.2	42.8	50.4
75	Total population	543244	88.2	36.3	51.9
76	Total population	2069681	84.5	22.7	61.8
77	Total population	933572	91.5	46.2	45.3
78	Total population	511038	88.3	31.3	57.0
79	Total population	795723	85.5	32.7	52.8
80	Total population	669115	83.4	38.2	45.2
81	Total population	836297	89.1	41.0	48.1
82	Total population	629279	93.1	43.7	49.4
83	Total population	586301	91.7	28.6	63.1
84	Total population	508856	83.8	28.6	55.2
85	Total population	552939	86.2	33.0	53.2

86	Total population	675551	88.0	32.7	55.3
87	Total population	1438159	70.5	19.3	51.2
88	Total population	922835	90.6	31.3	59.3
89	Total population	2621793	80.0	34.3	45.7
90	Total population	749857	90.3	35.9	54.4
91	Total population	1358627	90.7	43.2	47.5
92	Total population	1636268	86.8	59.9	26.9
93	Total population	2321580	80.4	29.8	50.6
94	Total population	1502968	89.8	34.0	55.8
95	Total population	972634	87.4	47.1	40.3
96	Total population	512119	89.0	33.3	55.7
97	Total population	1012539	89.5	43.0	46.5
98	Total population	998691	92.4	49.2	43.2
99	Total population	1259828	88.1	31.0	57.1
100	Total population	1231393	90.0	38.0	52.0
101	Total population	806631	90.5	35.6	54.9
102	Total population	533116	89.7	25.7	64.0
103	Total population	541943	91.1	30.3	60.8
104	Total population	766215	86.8	30.6	56.2
105	Total population	629598	88.6	30.7	57.9
106	Total population	776712	91.1	41.6	49.5
107	Total population	562998	90.2	39.7	50.5
108	Total population	1231255	93.9	37.7	56.2
109	Total population	626685	93.9	37.7	56.2
110	Total population	512784	92.3	49.3	43.0
111	Total population	562960	91.5	36.3	55.2

```
 [ reached 'max' / getOption("max.print") -- omitted 25 rows ]
>
> #summarize
> survey %>% summarize(mean_HSDegree = mean(HSDegree))
  mean_HSDegree
1     87.63235
>
> #GroupBy
> survey %>% group_by(Geography, HSDegree)
# A tibble: 136 × 8
# Groups:   Geography, HSDegree [136]
  Id          Id2 Geography    PopGroupID POPGROUP.displa… RacesReported HSDegree
BachDegree
  <chr>       <int> <chr>          <int> <chr>                  <int>   <dbl>   <dbl>
 1 0500000US01073  1073 Jefferson C…       1 Total population      660793    89.1    30.5
 2 0500000US04013  4013 Maricopa Co…       1 Total population     4087191    86.8    30.2
 3 0500000US04019  4019 Pima County…       1 Total population     1004516    88      30.8
 4 0500000US06001  6001 Alameda Cou…       1 Total population     1610921    86.9    42.8
```

```
 5 0500000US06013  6013 Contra Cost...      1 Total population    1111339   88.8   39.7
 6 0500000US06019  6019 Fresno Coun...       1 Total population     965974   73.6   19.7
 7 0500000US06029  6029 Kern County...       1 Total population     874589   74.5   15.4
 8 0500000US06037  6037 Los Angeles...       1 Total population   10116705   77.5   30.3
 9 0500000US06059  6059 Orange Coun...        1 Total population    3145515   84.6   38
10 0500000US06065  6065 Riverside C...       1 Total population    2329271   80.6   20.7
# ... with 126 more rows
>
> #Arrange
> survey %>% summarize(mean_HSDegree = mean(HSDegree),min_weight = min(HSDegree))
%>% arrange(desc(mean_HSDegree))
  mean_HSDegree min_weight
1     87.63235      62.2
>
> library(purrr)
>
> #Using the purrr package – perform 2 functions on your dataset.
> #You could use zip_n, keep, discard, compact, etc.
>
> survey %>% map(sample, 5) %>%  keep(~mean(survey$HSDegree) > 80)
$Id
[1] "0500000US39061" "0500000US20091" "0500000US12127" "0500000US53061"
"0500000US12103"

$Id2
[1] 37183  4019  6001 20173 25009

$Geography
[1] "Fresno County, California"    "Dane County, Wisconsin"
[3] "Honolulu County, Hawaii"      "Delaware County, Pennsylvania"
[5] "Hillsborough County, Florida"

$PopGroupID
[1] 1 1 1 1 1

$POPGROUP.display.label
[1] "Total population" "Total population" "Total population" "Total population" "Total
population"

$RacesReported
[1] 1151145 1012539 1111339  996319 1945360

$HSDegree
[1] 91.9 62.2 90.6 83.9 84.9
```

```
$BachDegree
[1] 31.9 43.0 38.0 42.0 19.7

>
> survey %>% map(sample, 5) %>%  discard(~mean(survey$BachDegree) > 80)
$Id
[1] "0500000US36081" "0500000US26163" "0500000US40143" "0500000US39035"
"0500000US06059"

$Id2
[1] 37183 48029 34023 12127 27123

$Geography
[1] "Stanislaus County, California" "Ramsey County, Minnesota"
[3] "Wayne County, Michigan"        "Hidalgo County, Texas"
[5] "Hartford County, Connecticut"

$PopGroupID
[1] 1 1 1 1 1

$POPGROUP.display.label
[1] "Total population" "Total population" "Total population" "Total population" "Total
population"

$RacesReported
[1] 922835 897698 629279 767254 998691

$HSDegree
[1] 62.2 89.1 70.5 88.5 91.1

$BachDegree
[1] 32.7 25.7 33.1 22.5 49.2

>
> #cbind
> cbind_data<-
cbind(Geography=survey$Geography,HSDegree=survey$HSDegree,BachDegree=survey$BachDe
gree)
> cbind_data
     Geography                  HSDegree BachDegree
 [1,] "Jefferson County, Alabama"    "89.1"  "30.5"
 [2,] "Maricopa County, Arizona"     "86.8"  "30.2"
 [3,] "Pima County, Arizona"         "88"    "30.8"
```

```
 [4,] "Alameda County, California"                    "86.9"  "42.8"
 [5,] "Contra Costa County, California"               "88.8"  "39.7"
 [6,] "Fresno County, California"                     "73.6"  "19.7"
 [7,] "Kern County, California"                       "74.5"  "15.4"
 [8,] "Los Angeles County, California"                "77.5"  "30.3"
 [9,] "Orange County, California"                      "84.6"  "38"
[10,] "Riverside County, California"                  "80.6"  "20.7"
[11,] "Sacramento County, California"                 "86.8"  "28.9"
[12,] "San Bernardino County, California"             "78.6"  "18.9"
[13,] "San Diego County, California"                  "86.6"  "37.1"
[14,] "San Francisco County, California"              "88.1"  "54.2"
[15,] "San Joaquin County, California"                "77.6"  "18.3"
[16,] "San Mateo County, California"                  "88.1"  "47.5"
[17,] "Santa Clara County, California"                "87.4"  "48.4"
[18,] "Sonoma County, California"                     "87.6"  "34.8"
[19,] "Stanislaus County, California"                 "78.4"  "17"
[20,] "Ventura County, California"                    "83.6"  "31.6"
[21,] "Arapahoe County, Colorado"                     "91.9"  "40.9"
[22,] "Denver County, Colorado"                       "85.5"  "44.3"
[23,] "El Paso County, Colorado"                      "92.8"  "36.5"
[24,] "Jefferson County, Colorado"                    "94.1"  "42"
[25,] "Fairfield County, Connecticut"                 "89.8"  "46.7"
[26,] "Hartford County, Connecticut"                  "89.3"  "36.8"
[27,] "New Haven County, Connecticut"                 "89.5"  "34.5"
[28,] "New Castle County, Delaware"                   "90.1"  "35.8"
[29,] "District of Columbia, District of Columbia" "90.2"  "55"
[30,] "Brevard County, Florida"                       "91.6"  "27.2"
[31,] "Broward County, Florida"                       "88.4"  "30.5"
[32,] "Duval County, Florida"                         "89"    "26.1"
[33,] "Hillsborough County, Florida"                  "87.3"  "29.8"
[34,] "Lee County, Florida"                           "86.3"  "26.5"
[35,] "Miami-Dade County, Florida"                    "80.9"  "26.6"
[36,] "Orange County, Florida"                        "87.9"  "31.4"
[37,] "Palm Beach County, Florida"                    "87.7"  "33"
[38,] "Pinellas County, Florida"                      "90.1"  "29.5"
[39,] "Polk County, Florida"                          "84.9"  "19.7"
[40,] "Volusia County, Florida"                       "88.9"  "22.5"
[41,] "Cobb County, Georgia"                          "90.3"  "43.7"
[42,] "DeKalb County, Georgia"                        "88.4"  "41.7"
[43,] "Fulton County, Georgia"                        "91.3"  "49.2"
[44,] "Gwinnett County, Georgia"                      "88"    "35.4"
[45,] "Honolulu County, Hawaii"                       "91.8"  "32.6"
[46,] "Cook County, Illinois"                         "85.5"  "36.2"
[47,] "DuPage County, Illinois"                       "92.3"  "48"
```

```
[48,] "Kane County, Illinois"                "82.9"  "32.6"
[49,] "Lake County, Illinois"                "90.3"  "44"
[50,] "Will County, Illinois"                "90.7"  "33.1"
[51,] "Marion County, Indiana"               "85"    "28.8"
[52,] "Johnson County, Kansas"               "95.5"  "52.8"
[53,] "Sedgwick County, Kansas"              "88.8"  "30.7"
[54,] "Jefferson County, Kentucky"           "88.5"  "31.6"
[55,] "Anne Arundel County, Maryland"        "91.9"  "38.8"
[56,] "Baltimore County, Maryland"           "90.4"  "37.2"
[57,] "Montgomery County, Maryland"          "90.9"  "58.5"
[58,] "Prince George's County, Maryland"     "85.5"  "31"
[59,] "Baltimore city, Maryland"             "84.4"  "30"
[60,] "Bristol County, Massachusetts"        "82.5"  "25.7"
[61,] "Essex County, Massachusetts"          "89.1"  "38.9"
[62,] "Middlesex County, Massachusetts"      "92.3"  "52.3"
[63,] "Norfolk County, Massachusetts"        "94.1"  "51.9"
[64,] "Plymouth County, Massachusetts"       "92.2"  "34.1"
[65,] "Suffolk County, Massachusetts"        "83.9"  "42.3"
[66,] "Worcester County, Massachusetts"      "90.1"  "34.6"
[67,] "Kent County, Michigan"                "89.1"  "33.7"
[68,] "Macomb County, Michigan"              "89.3"  "23.9"
[69,] "Oakland County, Michigan"             "93.6"  "44.8"
[70,] "Wayne County, Michigan"               "84.9"  "22.1"
[71,] "Hennepin County, Minnesota"           "93.2"  "47.3"
[72,] "Ramsey County, Minnesota"             "89.9"  "40.9"
[73,] "Jackson County, Missouri"             "90"    "29.5"
[74,] "St. Louis County, Missouri"           "93.2"  "42.8"
[75,] "Douglas County, Nebraska"             "88.2"  "36.3"
[76,] "Clark County, Nevada"                 "84.5"  "22.7"
[77,] "Bergen County, New Jersey"            "91.5"  "46.2"
[78,] "Camden County, New Jersey"            "88.3"  "31.3"
[79,] "Essex County, New Jersey"             "85.5"  "32.7"
[80,] "Hudson County, New Jersey"            "83.4"  "38.2"
[81,] "Middlesex County, New Jersey"         "89.1"  "41"
[82,] "Monmouth County, New Jersey"          "93.1"  "43.7"
[83,] "Ocean County, New Jersey"             "91.7"  "28.6"
[84,] "Passaic County, New Jersey"           "83.8"  "28.6"
[85,] "Union County, New Jersey"             "86.2"  "33"
[86,] "Bernalillo County, New Mexico"        "88"    "32.7"
[87,] "Bronx County, New York"               "70.5"  "19.3"
[88,] "Erie County, New York"                "90.6"  "31.3"
[89,] "Kings County, New York"               "80"    "34.3"
[90,] "Monroe County, New York"              "90.3"  "35.9"
[91,] "Nassau County, New York"              "90.7"  "43.2"
```

```
 [92,] "New York County, New York"              "86.8"  "59.9"
 [93,] "Queens County, New York"                "80.4"  "29.8"
 [94,] "Suffolk County, New York"               "89.8"  "34"
 [95,] "Westchester County, New York"           "87.4"  "47.1"
 [96,] "Guilford County, North Carolina"        "89"    "33.3"
 [97,] "Mecklenburg County, North Carolina"     "89.5"  "43"
 [98,] "Wake County, North Carolina"            "92.4"  "49.2"
 [99,] "Cuyahoga County, Ohio"                  "88.1"  "31"
[100,] "Franklin County, Ohio"                  "90"    "38"
[101,] "Hamilton County, Ohio"                  "90.5"  "35.6"
[102,] "Montgomery County, Ohio"                "89.7"  "25.7"
[103,] "Summit County, Ohio"                    "91.1"  "30.3"
[104,] "Oklahoma County, Oklahoma"              "86.8"  "30.6"
[105,] "Tulsa County, Oklahoma"                 "88.6"  "30.7"
[106,] "Multnomah County, Oregon"               "91.1"  "41.6"
[107,] "Washington County, Oregon"              "90.2"  "39.7"
[108,] "Allegheny County, Pennsylvania"         "93.9"  "37.7"
[109,] "Bucks County, Pennsylvania"             "93.9"  "37.7"
[110,] "Chester County, Pennsylvania"           "92.3"  "49.3"
[111,] "Delaware County, Pennsylvania"          "91.5"  "36.3"
[112,] "Lancaster County, Pennsylvania"         "84.9"  "26"
[113,] "Montgomery County, Pennsylvania"        "93.7"  "47.3"
[114,] "Philadelphia County, Pennsylvania"      "82.6"  "26"
[115,] "Providence County, Rhode Island"        "82"    "25.2"
[116,] "Davidson County, Tennessee"             "86.7"  "37.3"
[117,] "Shelby County, Tennessee"               "87.4"  "29.9"
[118,] "Bexar County, Texas"                    "83"    "26.3"
[119,] "Collin County, Texas"                   "93.7"  "50"
[120,] "Dallas County, Texas"                   "77.6"  "29.1"
[121,] "Denton County, Texas"                   "91.9"  "41.5"
[122,] "El Paso County, Texas"                  "75.8"  "21.1"
[123,] "Fort Bend County, Texas"               "88.6"  "44.1"
[124,] "Harris County, Texas"                   "79.8"  "29.7"
[125,] "Hidalgo County, Texas"                  "62.2"  "17.9"
[126,] "Montgomery County, Texas"               "85.9"  "34.1"
[127,] "Tarrant County, Texas"                  "84.9"  "30"
[128,] "Travis County, Texas"                   "88.6"  "45.6"
[129,] "Salt Lake County, Utah"                 "89.5"  "31.9"
[130,] "Utah County, Utah"                      "93.7"  "37.5"
[131,] "Fairfax County, Virginia"               "91.5"  "60.3"
[132,] "King County, Washington"                "92.3"  "48.6"
[133,] "Pierce County, Washington"              "90.3"  "24.6"
[134,] "Snohomish County, Washington"           "92"    "29.1"
[135,] "Dane County, Wisconsin"                 "94.9"  "49.8"
```

```
[136,] "Milwaukee County, Wisconsin"            "86.9"  "29.5"
>
> #rbind
> rbind_data<-rbind(survey[1,],survey[2,],survey[3,],survey[4,],survey[5,])
> rbind_data
          Id  Id2              Geography PopGroupID POPGROUP.display.label
1 0500000US01073 1073     Jefferson County, Alabama         1     Total population
2 0500000US04013 4013      Maricopa County, Arizona         1     Total population
3 0500000US04019 4019         Pima County, Arizona         1     Total population
4 0500000US06001 6001     Alameda County, California         1     Total population
5 0500000US06013 6013 Contra Costa County, California         1      Total population
  RacesReported HSDegree BachDegree
1      660793    89.1     30.5
2     4087191    86.8     30.2
3     1004516    88.0     30.8
4     1610921    86.9     42.8
5     1111339    88.8     39.7
>
> #Split a string, then concatenate the results back together
> library(stringr)
>
> #Split
> splitstring <- strsplit(as.character(survey$Geography), ",", fixed = FALSE)
> splitstring[[1]]
[1] "Jefferson County" " Alabama"
> splitstring[[2]]
[1] "Maricopa County" " Arizona"
> splitstring[[3]]
[1] "Pima County" " Arizona"
> splitstring[[4]]
[1] "Alameda County" " California"
> splitstring[[5]]
[1] "Contra Costa County" " California"
> splitstring
[[1]]
[1] "Jefferson County" " Alabama"

[[2]]
[1] "Maricopa County" " Arizona"

[[3]]
[1] "Pima County" " Arizona"

[[4]]
```

[1] "Alameda County" " California"

[[5]]
[1] "Contra Costa County" " California"

[[6]]
[1] "Fresno County" " California"

[[7]]
[1] "Kern County" " California"

[[8]]
[1] "Los Angeles County" " California"

[[9]]
[1] "Orange County" " California"

[[10]]
[1] "Riverside County" " California"

[[11]]
[1] "Sacramento County" " California"

[[12]]
[1] "San Bernardino County" " California"

[[13]]
[1] "San Diego County" " California"

[[14]]
[1] "San Francisco County" " California"

[[15]]
[1] "San Joaquin County" " California"

[[16]]
[1] "San Mateo County" " California"

[[17]]
[1] "Santa Clara County" " California"

[[18]]
[1] "Sonoma County" " California"

[[19]]
[1] "Stanislaus County" " California"

[[20]]
[1] "Ventura County" " California"

[[21]]
[1] "Arapahoe County" " Colorado"

[[22]]
[1] "Denver County" " Colorado"

[[23]]
[1] "El Paso County" " Colorado"

[[24]]
[1] "Jefferson County" " Colorado"

[[25]]
[1] "Fairfield County" " Connecticut"

[[26]]
[1] "Hartford County" " Connecticut"

[[27]]
[1] "New Haven County" " Connecticut"

[[28]]
[1] "New Castle County" " Delaware"

[[29]]
[1] "District of Columbia" " District of Columbia"

[[30]]
[1] "Brevard County" " Florida"

[[31]]
[1] "Broward County" " Florida"

[[32]]
[1] "Duval County" " Florida"

[[33]]
[1] "Hillsborough County" " Florida"

[[34]]
[1] "Lee County" " Florida"

[[35]]
[1] "Miami-Dade County" " Florida"

[[36]]
[1] "Orange County" " Florida"

[[37]]
[1] "Palm Beach County" " Florida"

[[38]]
[1] "Pinellas County" " Florida"

[[39]]
[1] "Polk County" " Florida"

[[40]]
[1] "Volusia County" " Florida"

[[41]]
[1] "Cobb County" " Georgia"

[[42]]
[1] "DeKalb County" " Georgia"

[[43]]
[1] "Fulton County" " Georgia"

[[44]]
[1] "Gwinnett County" " Georgia"

[[45]]
[1] "Honolulu County" " Hawaii"

[[46]]
[1] "Cook County" " Illinois"

[[47]]
[1] "DuPage County" " Illinois"

[[48]]

[1] "Kane County" " Illinois"

[[49]]
[1] "Lake County" " Illinois"

[[50]]
[1] "Will County" " Illinois"

[[51]]
[1] "Marion County" " Indiana"

[[52]]
[1] "Johnson County" " Kansas"

[[53]]
[1] "Sedgwick County" " Kansas"

[[54]]
[1] "Jefferson County" " Kentucky"

[[55]]
[1] "Anne Arundel County" " Maryland"

[[56]]
[1] "Baltimore County" " Maryland"

[[57]]
[1] "Montgomery County" " Maryland"

[[58]]
[1] "Prince George's County" " Maryland"

[[59]]
[1] "Baltimore city" " Maryland"

[[60]]
[1] "Bristol County" " Massachusetts"

[[61]]
[1] "Essex County"   " Massachusetts"

[[62]]
[1] "Middlesex County" " Massachusetts"

[[63]]
[1] "Norfolk County" " Massachusetts"

[[64]]
[1] "Plymouth County" " Massachusetts"

[[65]]
[1] "Suffolk County" " Massachusetts"

[[66]]
[1] "Worcester County" " Massachusetts"

[[67]]
[1] "Kent County" " Michigan"

[[68]]
[1] "Macomb County" " Michigan"

[[69]]
[1] "Oakland County" " Michigan"

[[70]]
[1] "Wayne County" " Michigan"

[[71]]
[1] "Hennepin County" " Minnesota"

[[72]]
[1] "Ramsey County" " Minnesota"

[[73]]
[1] "Jackson County" " Missouri"

[[74]]
[1] "St. Louis County" " Missouri"

[[75]]
[1] "Douglas County" " Nebraska"

[[76]]
[1] "Clark County" " Nevada"

[[77]]
[1] "Bergen County" " New Jersey"

[[78]]
[1] "Camden County" " New Jersey"

[[79]]
[1] "Essex County" " New Jersey"

[[80]]
[1] "Hudson County" " New Jersey"

[[81]]
[1] "Middlesex County" " New Jersey"

[[82]]
[1] "Monmouth County" " New Jersey"

[[83]]
[1] "Ocean County" " New Jersey"

[[84]]
[1] "Passaic County" " New Jersey"

[[85]]
[1] "Union County" " New Jersey"

[[86]]
[1] "Bernalillo County" " New Mexico"

[[87]]
[1] "Bronx County" " New York"

[[88]]
[1] "Erie County" " New York"

[[89]]
[1] "Kings County" " New York"

[[90]]
[1] "Monroe County" " New York"

[[91]]
[1] "Nassau County" " New York"

[[92]]

[1] "New York County" " New York"

[[93]]
[1] "Queens County" " New York"

[[94]]
[1] "Suffolk County" " New York"

[[95]]
[1] "Westchester County" " New York"

[[96]]
[1] "Guilford County" " North Carolina"

[[97]]
[1] "Mecklenburg County" " North Carolina"

[[98]]
[1] "Wake County"   " North Carolina"

[[99]]
[1] "Cuyahoga County" " Ohio"

[[100]]
[1] "Franklin County" " Ohio"

[[101]]
[1] "Hamilton County" " Ohio"

[[102]]
[1] "Montgomery County" " Ohio"

[[103]]
[1] "Summit County" " Ohio"

[[104]]
[1] "Oklahoma County" " Oklahoma"

[[105]]
[1] "Tulsa County" " Oklahoma"

[[106]]
[1] "Multnomah County" " Oregon"

[[107]]
[1] "Washington County" " Oregon"

[[108]]
[1] "Allegheny County" " Pennsylvania"

[[109]]
[1] "Bucks County" " Pennsylvania"

[[110]]
[1] "Chester County" " Pennsylvania"

[[111]]
[1] "Delaware County" " Pennsylvania"

[[112]]
[1] "Lancaster County" " Pennsylvania"

[[113]]
[1] "Montgomery County" " Pennsylvania"

[[114]]
[1] "Philadelphia County" " Pennsylvania"

[[115]]
[1] "Providence County" " Rhode Island"

[[116]]
[1] "Davidson County" " Tennessee"

[[117]]
[1] "Shelby County" " Tennessee"

[[118]]
[1] "Bexar County" " Texas"

[[119]]
[1] "Collin County" " Texas"

[[120]]
[1] "Dallas County" " Texas"

[[121]]
[1] "Denton County" " Texas"

[[122]]
[1] "El Paso County" " Texas"

[[123]]
[1] "Fort Bend County" " Texas"

[[124]]
[1] "Harris County" " Texas"

[[125]]
[1] "Hidalgo County" " Texas"

[[126]]
[1] "Montgomery County" " Texas"

[[127]]
[1] "Tarrant County" " Texas"

[[128]]
[1] "Travis County" " Texas"

[[129]]
[1] "Salt Lake County" " Utah"

[[130]]
[1] "Utah County" " Utah"

[[131]]
[1] "Fairfax County" " Virginia"

[[132]]
[1] "King County" " Washington"

[[133]]
[1] "Pierce County" " Washington"

[[134]]
[1] "Snohomish County" " Washington"

[[135]]
[1] "Dane County" " Wisconsin"

[[136]]

```
 [1] "Milwaukee County" " Wisconsin"

>
> #Bind
> bindstring<-paste(splitstring)
> bindstring[[1]]
 [1] "c(\"Jefferson County\", \" Alabama\")"
> bindstring[[2]]
 [1] "c(\"Maricopa County\", \" Arizona\")"
> bindstring[[3]]
 [1] "c(\"Pima County\", \" Arizona\")"
> bindstring[[4]]
 [1] "c(\"Alameda County\", \" California\")"
> bindstring[[5]]
 [1] "c(\"Contra Costa County\", \" California\")"
> bindstring
  [1] "c(\"Jefferson County\", \" Alabama\")"
  [2] "c(\"Maricopa County\", \" Arizona\")"
  [3] "c(\"Pima County\", \" Arizona\")"
  [4] "c(\"Alameda County\", \" California\")"
  [5] "c(\"Contra Costa County\", \" California\")"
  [6] "c(\"Fresno County\", \" California\")"
  [7] "c(\"Kern County\", \" California\")"
  [8] "c(\"Los Angeles County\", \" California\")"
  [9] "c(\"Orange County\", \" California\")"
 [10] "c(\"Riverside County\", \" California\")"
 [11] "c(\"Sacramento County\", \" California\")"
 [12] "c(\"San Bernardino County\", \" California\")"
 [13] "c(\"San Diego County\", \" California\")"
 [14] "c(\"San Francisco County\", \" California\")"
 [15] "c(\"San Joaquin County\", \" California\")"
 [16] "c(\"San Mateo County\", \" California\")"
 [17] "c(\"Santa Clara County\", \" California\")"
 [18] "c(\"Sonoma County\", \" California\")"
 [19] "c(\"Stanislaus County\", \" California\")"
 [20] "c(\"Ventura County\", \" California\")"
 [21] "c(\"Arapahoe County\", \" Colorado\")"
 [22] "c(\"Denver County\", \" Colorado\")"
 [23] "c(\"El Paso County\", \" Colorado\")"
 [24] "c(\"Jefferson County\", \" Colorado\")"
 [25] "c(\"Fairfield County\", \" Connecticut\")"
 [26] "c(\"Hartford County\", \" Connecticut\")"
 [27] "c(\"New Haven County\", \" Connecticut\")"
 [28] "c(\"New Castle County\", \" Delaware\")"
```

[29] "c(\"District of Columbia\", \" District of Columbia\")"
[30] "c(\"Brevard County\", \" Florida\")"
[31] "c(\"Broward County\", \" Florida\")"
[32] "c(\"Duval County\", \" Florida\")"
[33] "c(\"Hillsborough County\", \" Florida\")"
[34] "c(\"Lee County\", \" Florida\")"
[35] "c(\"Miami-Dade County\", \" Florida\")"
[36] "c(\"Orange County\", \" Florida\")"
[37] "c(\"Palm Beach County\", \" Florida\")"
[38] "c(\"Pinellas County\", \" Florida\")"
[39] "c(\"Polk County\", \" Florida\")"
[40] "c(\"Volusia County\", \" Florida\")"
[41] "c(\"Cobb County\", \" Georgia\")"
[42] "c(\"DeKalb County\", \" Georgia\")"
[43] "c(\"Fulton County\", \" Georgia\")"
[44] "c(\"Gwinnett County\", \" Georgia\")"
[45] "c(\"Honolulu County\", \" Hawaii\")"
[46] "c(\"Cook County\", \" Illinois\")"
[47] "c(\"DuPage County\", \" Illinois\")"
[48] "c(\"Kane County\", \" Illinois\")"
[49] "c(\"Lake County\", \" Illinois\")"
[50] "c(\"Will County\", \" Illinois\")"
[51] "c(\"Marion County\", \" Indiana\")"
[52] "c(\"Johnson County\", \" Kansas\")"
[53] "c(\"Sedgwick County\", \" Kansas\")"
[54] "c(\"Jefferson County\", \" Kentucky\")"
[55] "c(\"Anne Arundel County\", \" Maryland\")"
[56] "c(\"Baltimore County\", \" Maryland\")"
[57] "c(\"Montgomery County\", \" Maryland\")"
[58] "c(\"Prince George's County\", \" Maryland\")"
[59] "c(\"Baltimore city\", \" Maryland\")"
[60] "c(\"Bristol County\", \" Massachusetts\")"
[61] "c(\"Essex County\", \" Massachusetts\")"
[62] "c(\"Middlesex County\", \" Massachusetts\")"
[63] "c(\"Norfolk County\", \" Massachusetts\")"
[64] "c(\"Plymouth County\", \" Massachusetts\")"
[65] "c(\"Suffolk County\", \" Massachusetts\")"
[66] "c(\"Worcester County\", \" Massachusetts\")"
[67] "c(\"Kent County\", \" Michigan\")"
[68] "c(\"Macomb County\", \" Michigan\")"
[69] "c(\"Oakland County\", \" Michigan\")"
[70] "c(\"Wayne County\", \" Michigan\")"
[71] "c(\"Hennepin County\", \" Minnesota\")"
[72] "c(\"Ramsey County\", \" Minnesota\")"

```
 [73] "c(\"Jackson County\", \" Missouri\")"
 [74] "c(\"St. Louis County\", \" Missouri\")"
 [75] "c(\"Douglas County\", \" Nebraska\")"
 [76] "c(\"Clark County\", \" Nevada\")"
 [77] "c(\"Bergen County\", \" New Jersey\")"
 [78] "c(\"Camden County\", \" New Jersey\")"
 [79] "c(\"Essex County\", \" New Jersey\")"
 [80] "c(\"Hudson County\", \" New Jersey\")"
 [81] "c(\"Middlesex County\", \" New Jersey\")"
 [82] "c(\"Monmouth County\", \" New Jersey\")"
 [83] "c(\"Ocean County\", \" New Jersey\")"
 [84] "c(\"Passaic County\", \" New Jersey\")"
 [85] "c(\"Union County\", \" New Jersey\")"
 [86] "c(\"Bernalillo County\", \" New Mexico\")"
 [87] "c(\"Bronx County\", \" New York\")"
 [88] "c(\"Erie County\", \" New York\")"
 [89] "c(\"Kings County\", \" New York\")"
 [90] "c(\"Monroe County\", \" New York\")"
 [91] "c(\"Nassau County\", \" New York\")"
 [92] "c(\"New York County\", \" New York\")"
 [93] "c(\"Queens County\", \" New York\")"
 [94] "c(\"Suffolk County\", \" New York\")"
 [95] "c(\"Westchester County\", \" New York\")"
 [96] "c(\"Guilford County\", \" North Carolina\")"
 [97] "c(\"Mecklenburg County\", \" North Carolina\")"
 [98] "c(\"Wake County\", \" North Carolina\")"
 [99] "c(\"Cuyahoga County\", \" Ohio\")"
[100] "c(\"Franklin County\", \" Ohio\")"
[101] "c(\"Hamilton County\", \" Ohio\")"
[102] "c(\"Montgomery County\", \" Ohio\")"
[103] "c(\"Summit County\", \" Ohio\")"
[104] "c(\"Oklahoma County\", \" Oklahoma\")"
[105] "c(\"Tulsa County\", \" Oklahoma\")"
[106] "c(\"Multnomah County\", \" Oregon\")"
[107] "c(\"Washington County\", \" Oregon\")"
[108] "c(\"Allegheny County\", \" Pennsylvania\")"
[109] "c(\"Bucks County\", \" Pennsylvania\")"
[110] "c(\"Chester County\", \" Pennsylvania\")"
[111] "c(\"Delaware County\", \" Pennsylvania\")"
[112] "c(\"Lancaster County\", \" Pennsylvania\")"
[113] "c(\"Montgomery County\", \" Pennsylvania\")"
[114] "c(\"Philadelphia County\", \" Pennsylvania\")"
[115] "c(\"Providence County\", \" Rhode Island\")"
[116] "c(\"Davidson County\", \" Tennessee\")"
```

```
[117] "c(\"Shelby County\", \" Tennessee\")"
[118] "c(\"Bexar County\", \" Texas\")"
[119] "c(\"Collin County\", \" Texas\")"
[120] "c(\"Dallas County\", \" Texas\")"
[121] "c(\"Denton County\", \" Texas\")"
[122] "c(\"El Paso County\", \" Texas\")"
[123] "c(\"Fort Bend County\", \" Texas\")"
[124] "c(\"Harris County\", \" Texas\")"
[125] "c(\"Hidalgo County\", \" Texas\")"
[126] "c(\"Montgomery County\", \" Texas\")"
[127] "c(\"Tarrant County\", \" Texas\")"
[128] "c(\"Travis County\", \" Texas\")"
[129] "c(\"Salt Lake County\", \" Utah\")"
[130] "c(\"Utah County\", \" Utah\")"
[131] "c(\"Fairfax County\", \" Virginia\")"
[132] "c(\"King County\", \" Washington\")"
[133] "c(\"Pierce County\", \" Washington\")"
[134] "c(\"Snohomish County\", \" Washington\")"
[135] "c(\"Dane County\", \" Wisconsin\")"
[136] "c(\"Milwaukee County\", \" Wisconsin\")"
>
```