Ninja Warrior - Part 1

Approximately many times would you say the 'Salmon Ladder' was used?

Whole Population

	Control	Truncated	Logarithmic
N	70.0000000	70.0000000	6.700000e+01
Min.	40.0000000	40.0000000	9.000000e+00
1st Qu.	41.0000000	41.0000000	3.000000e+01
Median	41.0000000	41.0000000	3.500000e+01
Mean	41.2071429	41.3535714	1.492539e+13
3rd Qu.	42.0000000	42.0000000	4.050000e+01
Max.	45.0000000	45.0000000	1.000000e+15
Var	0.7427019	0.7527045	1.492537e+28

Language comparisons

Control - Language comparison

	Whole Pop	R	Python
N	70.0000000	38.0000000	32.0000000
Min.	40.0000000	40.0000000	40.0000000
1st Qu.	41.0000000	41.0000000	40.0000000
Median	41.0000000	41.0000000	41.0000000
Mean	41.2071429	41.4868421	40.8750000
3rd Qu.	42.0000000	42.0000000	41.0000000
Max.	45.0000000	43.0000000	45.0000000
Var	0.7427019	0.4119844	0.9516129

Truncated - Language comparison

	Whole Pop	R	Python
N	70.0000000	38.0000000	32.0000000

```
Min.    40.0000000 40.0000000 40.0000000
1st Qu. 41.0000000 41.0000000 41.0000000
Median  41.0000000 41.0000000 41.0000000
Mean    41.3535714 41.5657895 41.1015625
3rd Qu. 42.0000000 42.0000000 41.2500000
Max.    45.0000000 45.0000000 44.0000000
Var      0.7527045  0.7590683  0.6486265
```

Logarithmic - Language comparison

```
           Whole Pop         R       Python
N       6.700000e+01  38.00000 2.900000e+01
Min.    9.000000e+00  30.00000 9.000000e+00
1st Qu. 3.000000e+01  35.00000 1.200000e+01
Median  3.500000e+01  35.00000 1.500000e+01
Mean    1.492539e+13  39.73684 3.448279e+13
3rd Qu. 4.050000e+01  40.00000 5.000000e+01
Max.    1.000000e+15 120.00000 1.000000e+15
Var     1.492537e+28 206.95590 3.448276e+28
```

Control - Degree comparison

```
              STEM Humanities Social Sci  Arts   Business NA
N       29.0000000   3.000000 30.0000000  2.00  4.0000000  1
Min.    40.0000000  40.000000 40.0000000 41.00 40.0000000 41
1st Qu. 41.0000000  40.500000 41.0000000 41.25 40.7500000 41
Median  41.0000000  41.000000 41.0000000 41.50 41.5000000 41
Mean    41.1379310  41.333333 41.2333333 41.50 41.2500000 41
3rd Qu. 42.0000000  42.000000 41.0000000 41.75 42.0000000 41
Max.    42.0000000  43.000000 45.0000000 42.00 42.0000000 41
Var      0.5517241   2.333333  0.9436782  0.50  0.9166667 NA
```

Truncated - Degree comparison

```
              STEM Humanities Social Sci Arts   Business NA
N       29.0000000       3.00  31.000000    2  4.0000000  1
Min.    40.0000000      42.00  40.000000   42 40.0000000 41
1st Qu. 41.0000000      42.25  41.000000   42 40.7500000 41
Median  41.0000000      42.50  41.000000   42 41.5000000 41
Mean    41.0775862      42.50  41.483871   42 41.2500000 41
3rd Qu. 41.0000000      42.75  42.000000   42 42.0000000 41
Max.    42.0000000      43.00  45.000000   42 42.0000000 41
Var      0.2638547       0.25   1.120565    0  0.9166667 NA
```

Logarithmic - Degree comparison

	STEM	Humanities	Social Sci	Arts	Business	NA
N	28.00000	3.00000	3.000000e+01	2.00	4.0000	1
Min.	10.00000	9.00000	1.000000e+01	33.00	10.0000	NA
1st Qu.	26.25000	21.50000	3.400000e+01	34.75	10.3750	NA
Median	35.00000	34.00000	3.850000e+01	36.50	10.7500	NA
Mean	34.46429	26.33333	3.333337e+13	36.50	16.6250	NaN
3rd Qu.	40.00000	35.00000	5.375000e+01	38.25	17.0000	NA
Max.	120.00000	36.00000	1.000000e+15	40.00	35.0000	NA
NA's	10.00000	9.00000	1.000000e+01	33.00	10.0000	1
Var	422.10979	226.33333	3.333333e+28	24.50	150.2292	NA

Num skills - log

	uni	sp_aware	obs_skl	num_skl	log_1	log_2	log_3	log_4
101	Technology	4	4	3	Don't know	4	2	0.5
121	None	4	3	3	Next to none.	1	1	5
102	Social Sciences	5	5	4	10^15	5	3	0.85
84	psychology	3	5	1	10^9	3	2	0.9

Shapiro Tests - Whole

```
    Shapiro-Wilk normality test

data:  control_1
W = 0.81359, p-value = 5.596e-08
```

```
    Shapiro-Wilk normality test

data:  truncated_1
W = 0.82679, p-value = 1.327e-07
```

```
    Shapiro-Wilk normality test

data:  logarithmic_1
W = 0.10138, p-value < 2.2e-16
```

Shapiro Tests - Language comp

```
    Shapiro-Wilk normality test

data:  control_1_r
W = 0.80497, p-value = 1.322e-05


    Shapiro-Wilk normality test

data:  truncated_1_r
W = 0.77542, p-value = 3.428e-06


    Shapiro-Wilk normality test

data:  logarithmic_1_r
W = 0.43931, p-value = 6.923e-11


    Shapiro-Wilk normality test

data:  control_1_py
W = 0.67942, p-value = 4.341e-07


    Shapiro-Wilk normality test

data:  truncated_1_py
W = 0.82735, p-value = 0.0001392


    Shapiro-Wilk normality test

data:  logarithmic_1_py
W = 0.18384, p-value = 1.315e-11
```

Shapiro Tests - Degree comp

```
    Shapiro-Wilk normality test

data:  control_1_stem
W = 0.80615, p-value = 0.0001079


    Shapiro-Wilk normality test
```

```
data:  control_1_hum
W = 0.96429, p-value = 0.6369


    Shapiro-Wilk normality test

data:  control_1_socsci
W = 0.71199, p-value = 2.343e-06


    Shapiro-Wilk normality test

data:  control_1_bus
W = 0.86337, p-value = 0.2725


    Shapiro-Wilk normality test

data:  truncated_1_stem
W = 0.76518, p-value = 2.107e-05


    Shapiro-Wilk normality test

data:  truncated_1_hum
W = 1, p-value = 1


    Shapiro-Wilk normality test

data:  truncated_1_socsci
W = 0.83208, p-value = 0.0002153


    Shapiro-Wilk normality test

data:  truncated_1_bus
W = 0.86337, p-value = 0.2725


    Shapiro-Wilk normality test

data:  logarithmic_1_stem
W = 0.70878, p-value = 3.801e-06
```

```
    Shapiro-Wilk normality test

data:  logarithmic_1_hum
W = 0.80523, p-value = 0.127


    Shapiro-Wilk normality test

data:  logarithmic_1_socsci
W = 0.17962, p-value = 7.766e-12


    Shapiro-Wilk normality test

data:  logarithmic_1_bus
W = 0.66137, p-value = 0.003736
```

Sign tests - Whole pop

```
    One-sample Sign-Test

data:  control_1
s = 22, p-value = 0.1214
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 41 41
sample estimates:
median of x
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9278     41     41
Interpolated CI       0.9500     41     41
Upper Achieved CI     0.9586     41     41


    One-sample Sign-Test

data:  truncated_1
s = 28, p-value = 0.002563
alternative hypothesis: true median is not equal to 41
```

```
95 percent confidence interval:
 41.00 41.25
sample estimates:
median of x
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9278     41  41.25
Interpolated CI       0.9500     41  41.25
Upper Achieved CI     0.9586     41  41.25


    One-sample Sign-Test

data:  logarithmic_1
s = 15, p-value = 1.572e-05
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 34.00546 40.00000
sample estimates:
median of x
         35

Achieved and Interpolated Confidence Intervals:

                  Conf.Level  L.E.pt U.E.pt
Lower Achieved CI     0.9136 35.0000     40
Interpolated CI       0.9500 34.0055     40
Upper Achieved CI     0.9502 34.0000     40
```

Sign tests - Lang comp

```
    One-sample Sign-Test

data:  control_1_r
s = 18, p-value = 7.629e-05
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 41 42
sample estimates:
median of x
```

```
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9270     41     42
Interpolated CI       0.9500     41     42
Upper Achieved CI     0.9664     41     42


    One-sample Sign-Test

data:  truncated_1_r
s = 18, p-value = 0.0004025
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 41 42
sample estimates:
median of x
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9270     41     42
Interpolated CI       0.9500     41     42
Upper Achieved CI     0.9664     41     42


    One-sample Sign-Test

data:  logarithmic_1_r
s = 5, p-value = 1.291e-05
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 35 40
sample estimates:
median of x
         35

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9270     35     40
Interpolated CI       0.9500     35     40
```

```
Upper Achieved CI     0.9664     35     40


    One-sample Sign-Test

data:  control_1_py
s = 4, p-value = 0.1185
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 40 41
sample estimates:
median of x
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9499     40     41
Interpolated CI       0.9500     40     41
Upper Achieved CI     0.9799     40     41


    One-sample Sign-Test

data:  truncated_1_py
s = 10, p-value = 0.6291
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 41.00000 41.00085
sample estimates:
median of x
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt  U.E.pt
Lower Achieved CI     0.9499     41 41.0000
Interpolated CI       0.9500     41 41.0009
Upper Achieved CI     0.9799     41 41.2500


    One-sample Sign-Test

data:  logarithmic_1_py
s = 10, p-value = 0.136
```

```
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 13.00000 46.53159
sample estimates:
median of x
         15

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt  U.E.pt
Lower Achieved CI     0.9386     13 45.0000
Interpolated CI       0.9500     13 46.5316
Upper Achieved CI     0.9759     13 50.0000
```

Sign tests - Deg comp

```
    One-sample Sign-Test

data:  control_1_stem
s = 10, p-value = 0.4545
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 41 42
sample estimates:
median of x
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9386     41     42
Interpolated CI       0.9500     41     42
Upper Achieved CI     0.9759     41     42


    One-sample Sign-Test

data:  control_1_hum
s = 1, p-value = 1
alternative hypothesis: true median is not equal to 41
75 percent confidence interval:
 40 43
sample estimates:
```

```
median of x
         41


    One-sample Sign-Test

data:  control_1_socsci
s = 7, p-value = 0.5488
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 41 41
sample estimates:
median of x
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9013     41     41
Interpolated CI       0.9500     41     41
Upper Achieved CI     0.9572     41     41


    One-sample Sign-Test

data:  control_1_arts
s = 1, p-value = 1
alternative hypothesis: true median is not equal to 41
50 percent confidence interval:
 41 42
sample estimates:
median of x
       41.5


    One-sample Sign-Test

data:  control_1_bus
s = 2, p-value = 1
alternative hypothesis: true median is not equal to 41
87.5 percent confidence interval:
 40 42
sample estimates:
median of x
       41.5
```

```
    One-sample Sign-Test

data:  control_1_none
s = 0, p-value = 1
alternative hypothesis: true median is not equal to 41
0 percent confidence interval:
 41 41
sample estimates:
median of x
         41


    One-sample Sign-Test

data:  truncated_1_stem
s = 6, p-value = 0.7539
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 41 41
sample estimates:
median of x
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9386     41     41
Interpolated CI       0.9500     41     41
Upper Achieved CI     0.9759     41     41


    One-sample Sign-Test

data:  truncated_1_hum
s = 3, p-value = 0.25
alternative hypothesis: true median is not equal to 41
75 percent confidence interval:
 42 43
sample estimates:
median of x
       42.5


    One-sample Sign-Test
```

```
data:  truncated_1_socsci
s = 15, p-value = 0.01921
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 41 42
sample estimates:
median of x
         41

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9292     41     42
Interpolated CI       0.9500     41     42
Upper Achieved CI     0.9706     41     42


    One-sample Sign-Test

data:  truncated_1_arts
s = 2, p-value = 0.5
alternative hypothesis: true median is not equal to 41
50 percent confidence interval:
 42 42
sample estimates:
median of x
         42


    One-sample Sign-Test

data:  truncated_1_bus
s = 2, p-value = 1
alternative hypothesis: true median is not equal to 41
87.5 percent confidence interval:
 40 42
sample estimates:
median of x
       41.5


    One-sample Sign-Test

data:  truncated_1_none
```

```
s = 0, p-value = 1
alternative hypothesis: true median is not equal to 41
0 percent confidence interval:
 41 41
sample estimates:
median of x
         41


    One-sample Sign-Test

data:  logarithmic_1_stem
s = 4, p-value = 0.0005335
alternative hypothesis: true median is not equal to 41
95 percent confidence interval:
 30.55584 40.00000
sample estimates:
median of x
         35

Achieved and Interpolated Confidence Intervals:

                  Conf.Level  L.E.pt U.E.pt
Lower Achieved CI     0.9128 32.0000     40
Interpolated CI       0.9500 30.5558     40
Upper Achieved CI     0.9643 30.0000     40


    One-sample Sign-Test

data:  logarithmic_1_hum
s = 0, p-value = 0.25
alternative hypothesis: true median is not equal to 41
75 percent confidence interval:
  9 36
sample estimates:
median of x
         34


    One-sample Sign-Test

data:  logarithmic_1_socsci
s = 11, p-value = 0.2005
alternative hypothesis: true median is not equal to 41
```

```
95 percent confidence interval:
 35 50
sample estimates:
median of x
      38.5

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9013     35     50
Interpolated CI       0.9500     35     50
Upper Achieved CI     0.9572     35     50


    One-sample Sign-Test

data:  logarithmic_1_arts
s = 0, p-value = 0.5
alternative hypothesis: true median is not equal to 41
50 percent confidence interval:
 33 40
sample estimates:
median of x
      36.5


    One-sample Sign-Test

data:  logarithmic_1_bus
s = 0, p-value = 0.125
alternative hypothesis: true median is not equal to 41
87.5 percent confidence interval:
 10 35
sample estimates:
median of x
     10.75


    One-sample Sign-Test

data:  logarithmic_1_none
s = 0, p-value = 1
alternative hypothesis: true median is not equal to 41
-100 percent confidence interval:
 NA NA
```

```
sample estimates:
median of x
         NA
```

Approximately how much more than 'Log Grip' would you say 'Salmon Ladder' was was used?

```
[1] n (control) =  70

[1] n (truncated) =  70

[1] n (logarithmic) =  70

    control        truncated      logarithmic
 Min.   :3.000   Min.   :1.000   Min.   :1.000
 1st Qu.:4.250   1st Qu.:5.000   1st Qu.:2.250
 Median :5.000   Median :6.000   Median :3.500
 Mean   :5.357   Mean   :5.871   Mean   :3.671
 3rd Qu.:6.000   3rd Qu.:7.000   3rd Qu.:5.000
 Max.   :7.000   Max.   :7.000   Max.   :7.000
 Var    :1.334   Var    :1.998   Var    :2.746

[1] n (control) =  38

[1] n (truncated) =  38

[1] n (logarithmic) =  38

   control_r    truncated_r    logarithmic_r
 Min.   :3.0   Min.   :1.000   Min.   :1.000
 1st Qu.:5.0   1st Qu.:5.000   1st Qu.:3.000
 Median :6.0   Median :6.000   Median :5.000
 Mean   :5.5   Mean   :5.895   Mean   :4.263
 3rd Qu.:6.0   3rd Qu.:7.000   3rd Qu.:5.750
 Max.   :7.0   Max.   :7.000   Max.   :7.000
 Var    :1.284 Var    :1.772   Var    :2.523

[1] n (control) =  32

[1] n (truncated) =  32

[1] n (logarithmic) =  32

   control_py     truncated_py   logarithmic_py
 Min.   :3.000   Min.   :1.000   Min.   :1.000
 1st Qu.:4.000   1st Qu.:5.750   1st Qu.:2.000
 Median :5.000   Median :6.000   Median :3.000
```

```
 Mean   :5.188   Mean   :5.844   Mean   :2.969
 3rd Qu.:6.000   3rd Qu.:7.000   3rd Qu.:4.000
 Max.   :7.000   Max.   :7.000   Max.   :7.000
 Var    :1.383   Var    :2.33    Var    :2.16
```

Approximately how much more than 'Quintuple Steps' would you say 'Salmon Ladder' was used?

```
    control       logarithmic      truncated
 Min.   :1.000   Min.   :1.000   Min.   :2.000
 1st Qu.:2.000   1st Qu.:1.000   1st Qu.:3.000
 Median :3.000   Median :2.000   Median :4.000
 Mean   :3.129   Mean   :2.229   Mean   :3.771
 3rd Qu.:4.000   3rd Qu.:3.000   3rd Qu.:4.750
 Max.   :7.000   Max.   :6.000   Max.   :7.000
```

Ninja Warrior - Part 2

How large would you say the difference between 'Jumping spider' and 'Salmon Ladder' is?

```
[1] n (default) =  70

[1] n (narrower) =  70

[1] n (wider) =  70

    default          wider          narrower
 Min.   :4.000   Min.   :2.000   Min.   :3.000
 1st Qu.:5.000   1st Qu.:5.000   1st Qu.:6.000
 Median :6.000   Median :6.000   Median :6.000
 Mean   :5.914   Mean   :5.357   Mean   :6.129
 3rd Qu.:7.000   3rd Qu.:6.000   3rd Qu.:7.000
 Max.   :7.000   Max.   :7.000   Max.   :7.000
 Var    :0.775   Var    :1.363   Var    :0.867

[1] n (default) =  70

[1] n (narrower) =  67

[1] n (wider) =  64

    default          wider          narrower
 Min.   :4.000   Min.   :4.000   Min.   :5.000
 1st Qu.:5.000   1st Qu.:5.000   1st Qu.:6.000
 Median :6.000   Median :6.000   Median :6.000
 Mean   :5.914   Mean   :5.543   Mean   :6.257
```

```
 3rd Qu.:7.000   3rd Qu.:6.000   3rd Qu.:7.000
 Max.   :7.000   Max.   :7.000   Max.   :7.000
 Var    :0.775   Var    :0.816   Var    :0.526
```

How large would you say the difference between 'Log Grip' and 'Floating Steps' is?

```
[1] n (default) =  70

[1] n (narrower) =  70

[1] n (wider) =  70

    default          wider          narrower
 Min.   :2.000   Min.   :1.000   Min.   :1.000
 1st Qu.:2.000   1st Qu.:2.000   1st Qu.:2.000
 Median :3.000   Median :3.000   Median :3.000
 Mean   :3.057   Mean   :3.057   Mean   :3.214
 3rd Qu.:4.000   3rd Qu.:4.000   3rd Qu.:4.000
 Max.   :7.000   Max.   :5.000   Max.   :7.000
 Var    :1.301   Var    :0.866   Var    :1.214
```

How many times would you say 'Floating Steps' were used?

```
[1] n (default) =  70

[1] n (narrower) =  70

[1] n (wider) =  70

    default          wider          narrower
 Min.   :26.00   Min.   :24.00   Min.   :23.00
 1st Qu.:27.12   1st Qu.:27.00   1st Qu.:27.00
 Median :28.00   Median :28.00   Median :28.00
 Mean   :27.97   Mean   :28.04   Mean   :27.39
 3rd Qu.:28.00   3rd Qu.:29.00   3rd Qu.:28.00
 Max.   :33.00   Max.   :30.00   Max.   :29.00
 Var    :0.977   Var    :1.93    Var    :0.871

[1] n (default) =  65

[1] n (narrower) =  67

[1] n (wider) =  70

    default          wider          narrower
 Min.   :26.00   Min.   :24.00   Min.   :26.00
```

```
 1st Qu.:27.00   1st Qu.:27.00   1st Qu.:27.00
 Median :28.00   Median :28.00   Median :28.00
 Mean   :27.76   Mean   :28.04   Mean   :27.53
 3rd Qu.:28.00   3rd Qu.:29.00   3rd Qu.:28.00
 Max.   :29.00   Max.   :30.00   Max.   :29.00
 Var    :0.36    Var    :1.93    Var    :0.336
```

Comparisons

Ninja Warrior - Part 3

How many times would you say 'Floating Steps' were used in the Finals (Regional/City) round?

```
[1] n (stacked) =  70
```

```
[1] n (grouped) =  70
```

```
 Stacked         Grouped
 Min.   : 9.00   Min.   :10.0
 1st Qu.:10.00   1st Qu.:11.0
 Median :11.00   Median :11.0
 Mean   :14.33   Mean   :11.8
 3rd Qu.:14.00   3rd Qu.:12.0
 Max.   :35.00   Max.   :40.0
 Var    :54.83   Var    :13.15
```

```
[1] Number of outliers (stacked): 12
```

```
[1] Number of outliers (grouped): 1
```

```
        Stacked          Grouped
Min.    9                10
1st Qu. 10               11
Median  10               11
Mean    11.1206896551724 11.3913043478261
3rd Qu. 12               12
Max.    20               17
        Var    :3.862    Var    :1.477
```

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  27.00   27.75   30.00   29.83   30.00   35.00
```

Shapiro test for the responses for the stacked bar plot

```
    Shapiro-Wilk normality test
```

```
data:  stacked_1
W = 0.70313, p-value = 1.566e-09
```

Shapiro test for the responses for the stacked bar plot

```
    Shapiro-Wilk normality test

data:  grouped_1
W = 0.29757, p-value < 2.2e-16
```

Sign test for the responses for the stacked bar plot

```
    One-sample Sign-Test

data:  stacked_1
s = 16, p-value = 0.01535
alternative hypothesis: true median is not equal to 11
95 percent confidence interval:
 10 11
sample estimates:
median of x
         10

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9131     10     11
Interpolated CI       0.9500     10     11
Upper Achieved CI     0.9521     10     11
```

Sign test for the responses for the grouped bar plot

```
    One-sample Sign-Test

data:  grouped_1
s = 28, p-value = 0.009475
alternative hypothesis: true median is not equal to 11
95 percent confidence interval:
 11 12
sample estimates:
median of x
         11
```

```
Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9278     11     12
Interpolated CI       0.9500     11     12
Upper Achieved CI     0.9586     11     12
```

T-test on samples from the distribution of responses for the stacked bar plot

```
    One Sample t-test

data:  means
t = 5.3818, df = 99, p-value = 4.957e-07
alternative hypothesis: true mean is not equal to 11
95 percent confidence interval:
 11.06325 11.13712
sample estimates:
mean of x
 11.10018
```

T-test on samples from the distribution of responses for the grouped bar plot

```
    One Sample t-test

data:  means
t = 22.6, df = 99, p-value < 2.2e-16
alternative hypothesis: true mean is not equal to 11
95 percent confidence interval:
 11.73563 11.87724
sample estimates:
mean of x
 11.80644
```

Running t-tests on the means, however, we see both sets of responses differ statistically significantly from the true value.

How many times would you say 'Log Grip' was used in the Finals (Regional/City) round?

```
[1] n (stacked) =  70
```

```
[1] n (grouped) =  70
```

```
 Stacked         Grouped
 Min.   : 6.00   Min.   : 2.000
 1st Qu.: 8.00   1st Qu.: 8.000
 Median : 9.00   Median : 9.000
 Mean   :10.57   Mean   : 9.057
 3rd Qu.:10.00   3rd Qu.:10.000
 Max.   :25.00   Max.   :15.000
 Var    :23.93   Var    :1.968
```

```
[1] Number of outliers (stacked): 11
```

```
[1] Number of outliers (grouped): 1
```

	Stacked	Grouped
Min.	6	2
1st Qu.	8	8
Median	8	9
Mean	8.54237288135593	9.05714285714286
3rd Qu.	10	10
Max.	11	15
	Var :1.39	Var :1.968

Shapiro test for the responses for the stacked bar plot

```
    Shapiro-Wilk normality test

data:  stacked_2
W = 0.91294, p-value = 0.0004528
```

```
    m-out-of-n bootstrap symmetry test by Miao, Gel, and Gastwirth (2006)

data:  stacked_2
Test statistic = 4.4756, p-value < 2.2e-16
alternative hypothesis: the distribution is asymmetric.
sample estimates:
bootstrap optimal m
                 16
```

Shapiro test for the responses for the stacked bar plot

```
    Shapiro-Wilk normality test

data:  grouped_2
```

```
W = 0.7287, p-value = 4.611e-10


    m-out-of-n bootstrap symmetry test by Miao, Gel, and Gastwirth (2006)

data:  grouped_2
Test statistic = 0.63113, p-value = 0.678
alternative hypothesis: the distribution is asymmetric.
sample estimates:
bootstrap optimal m
                 62
```

Sign test for the responses for the stacked bar plot

```
    One-sample Sign-Test

data:  stacked_2
s = 16, p-value = 0.03999
alternative hypothesis: true median is not equal to 9
95 percent confidence interval:
 8 9
sample estimates:
median of x
          8

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9326      8      9
Interpolated CI       0.9500      8      9
Upper Achieved CI     0.9637      8      9
```

Sign test for the responses for the grouped bar plot

```
    One-sample Sign-Test

data:  grouped_2
s = 23, p-value = 0.644
alternative hypothesis: true median is not equal to 9
95 percent confidence interval:
 9 9
sample estimates:
median of x
```

```
          9

Achieved and Interpolated Confidence Intervals:

                  Conf.Level L.E.pt U.E.pt
Lower Achieved CI     0.9278      9      9
Interpolated CI       0.9500      9      9
Upper Achieved CI     0.9586      9      9
```

T-test on samples from the distribution of responses for the stacked bar plot

```
    One Sample t-test

data:  means
t = -38.491, df = 99, p-value < 2.2e-16
alternative hypothesis: true mean is not equal to 9
95 percent confidence interval:
 8.525401 8.571934
sample estimates:
mean of x
 8.548668
```

T-test on samples from the distribution of responses for the grouped bar plot

```
    One Sample t-test

data:  means
t = 5.0349, df = 99, p-value = 2.147e-06
alternative hypothesis: true mean is not equal to 9
95 percent confidence interval:
 9.04145 9.09537
sample estimates:
mean of x
  9.06841
```

Please select the statement you feel applies to the bar chart above.

```
        Equal Less More
Stacked    27   31   11
Grouped    60    5    2
```

Which obstacle do you think was used MORE in Finals (Regional/City) rounds, 'Log Grip' or 'Floating Steps'?

```
         Floating Steps Log Grip Both the same
Stacked              56        2            12
Grouped              57        4             9
```

Which bar chart do you feel is easiest to read and interpret?

```
Grouped Stacked
     59      11
```

```
       Grouped Stacked
Set A      10       3
Set B      11       1
Set C       9       1
Set D      11       1
Set E       8       3
Set F      10       2
```

Which colour scheme do you find most aesthetically pleasing?

Pairing ID	Main Colour Palette	Secondary Colour Pallette
A	Viridis	Default
B	Default	Viridis
C	Default	Greyscale
D	Greyscale	Default
E	Viridis	Greyscale
F	Greyscale	Viridis

```
       A  B
Set A  7  6
Set B  6  6
Set C  9  1
Set D  3  9
Set E 11  0
Set F  1 11
```

Do you feel that one of the colour schemes makes it easier to read and interpret? If so, please select which one.

```
      A  B None
[1,]  7  0    6
[2,] 11  0    1
[3,]  9  1    0
[4,]  2 10    0
[5,] 11  0    0
[6,]  2  9    1
```

Sales - Part 1

How much would you say sales of each company increased between January and December? [Company A]

```
        Separate Truncated   Zeroed
Min.    1.000000  1.000000 1.000000
1st Qu. 2.000000  2.000000 1.000000
Median  3.000000  2.000000 1.000000
Mean    3.043478  2.414286 1.371429
3rd Qu. 4.000000  3.000000 1.750000
Max.    7.000000  7.000000 3.000000
```

How much would you say sales of each company increased between January and December? [Company B]

```
        Separate Truncated   Zeroed
Min.    1.000000  1.000000 1.000000
1st Qu. 4.000000  4.000000 2.000000
Median  5.000000  6.000000 2.000000
Mean    4.826087  5.144928 2.478261
3rd Qu. 6.000000  7.000000 3.000000
Max.    7.000000  7.000000 6.000000
```

How large would you say the drop in sales between April and July of Company A is?

```
        Separate Truncated   Zeroed
Min.    1.000000  1.000000 1.000000
1st Qu. 3.000000  2.000000 1.000000
Median  4.000000  3.000000 1.000000
Mean    4.028571  2.814286 1.571429
3rd Qu. 5.000000  3.000000 2.000000
Max.    7.000000  7.000000 6.000000
```

Sales - Part 2

Based on the above graph, how large would you say the difference is between the number of sales Company C makes and the number of sales Company D makes?

```
        Truncated Zeroed
Min.     2.000000    1.0
1st Qu.  4.000000    2.0
Median   4.000000    3.0
Mean     4.271429    2.7
3rd Qu.  5.000000    3.0
```

```
Max.      7.000000    5.0
```

30*APPROXIMATELY MANY TIMES WOULD YOU SAY THE 'SALMON LADDER' WAS USED?*