# Analysis

# Preprocessing

- experiment results.csv
- $\bullet \ \ task\_questionnaire\_results.csv$
- $\bullet \ \, {\rm final\_questionnaire\_results.csv}$
- $\bullet \ \ demographic\_data\_fixed.csv$

Dropping Task ID 0 (Training)

Asserting Absolute Distance Values!

```
Dataset Validation:
dict_items([('pid', True)])
```

Adding success column based on opt\_interactions == interactions in order to measure effectiveness.

Aggregating Task Groups

Using normality test: shapiro

# **Demographics**

```
age
```

```
count | 50.0 |
mean | 24.1 |
std | 2.90144228737 |
min | 20.0 |
25% | 22.0 |
50% | 24.0 |
75% | 25.0 |
max | 35.0 |

sex

('f', 29)
('m', 21)

job

('Agrarwissenschaften', 5)
('Agribusiness', 1)
('Betriebswirtschaftslehre', 1)
```

```
('Biochemie', 1)
('Biologie', 1)
('Ernährungs- und Verbraucherökonomie', 2)
('Finanzmathematik', 2)
('Informatik / Nachhilfelehrer', 1)
('Mathemathik / Chemie', 1)
('Mathemathik / Deutsch / Psychologie', 1)
('Mathemathik / Geologie', 1)
('Mathemathik / Geschichte', 1)
('Mathemathik / Philosophie', 1)
('Mathemathik / Physik', 1)
('Mathemathik / Sport', 1)
('Mathematik', 4)
('Mathematik / Informatik', 1)
('Mathematik / Spanisch', 1)
('Medizin', 1)
('Musikwissenschaft / Philosophie', 1)
('Physik', 1)
('Politikwissenschaft / Ur- und Frühgeschichte', 1)
('Psychologie', 4)
('Rechtswissenschaften', 1)
('Soziologie / Pädagogik', 1)
('Volkswirtschaftslehre', 3)
('Wirtschaftsinformatik', 6)
('Wirtschaftsingenieur', 2)
('Wirtschaftswissenschaften Profil: Handelslehrer', 1)
smartphone
('None', 1)
('android', 37)
('nodroid', 12)
comments
('Ich zweifle die Aussagekraft der Studie an, da die Navigation nur aus "Wischen
nach links" und "Wischen nach rechts" besteht.', 1)
('Menü-Steuerung: nur 5/7 Steine da: Menü zum Ausklappen. besser: dauerhaft
ausgeklappt - >1 Klick statt 2', 1)
('Samsung', 1)
('man könnte die Bedienung noch vereinfachen, indem man durch wischen von
Tür zu Tür kann', 1)
('schön kurz :)', 1)
```

# Efficiency by Tasks

```
Descriptions (time_ms)
```

### Global Descriptions (time\_ms)

# burger

```
count | 110.0 |
mean | 4638.11818182 |
std | 1251.30839042 |
min | 2974.8 |
25% | 3871.7 |
50% | 4375.3 |
75% | 5029.45 |
max | 11598.2 |
shapiro
(0.802947998046875, 7.877890007002009e-11)
```

## swipe

```
count | 140.0 |
mean | 5105.28428571 |
std | 1878.17462417 |
min | 1941.8 |
25% | 3672.2 |
50% | 4950.3 |
75% | 6415.4 |
max | 10211.0 |
shapiro
(0.9749319553375244, 0.011162536218762398)
```

### Repeated measures (time\_ms)

# burger

friedmanchisquare

 $\label{eq:first-statistic} Friedmanchisquare Result (statistic=32.6181818181824, pvalue=1.4299671878258814e-06)$ 

# $\mathbf{swipe}$

friedmanchisquare

 $\label{eq:final_statistic} Friedmanchisquare Result (statistic = 99.0, \ pvalue = 1.6058853045998598e-20)$ 

# Descriptions per tid (time\_ms)

```
('burger', 1)
count | 22.0 |
mean | 3882.02727273 |
std | 527.012396332 |
min | 2974.8 |
25\% | 3558.45 |
50% | 3802.0 |
75% | 4053.1
max | 5278.2 |
shapiro
(0.9460052847862244,\ 0.26264825463294983)
('burger', 2)
count | 22.0 |
mean | 4855.64545455 |
std | 1865.02294323 |
min | 3348.4 |
25\% \mid 3808.65 \mid
50% | 4359.2 |
75% | 4578.85 |
max | 11598.2 |
(0.7007542848587036, 2.0007397324661724e-05)
('burger', 3)
count | 22.0 |
mean | 4923.24545455 |
std | 1382.21854785 |
min | 3571.0 |
25% | 4064.05 |
50% | 4597.1 |
75% | 5142.0
max | 8840.8 |
shapiro
(0.7784804701805115, 0.00023477213107980788)
('burger', 4)
```

```
count | 22.0 |
mean | 4455.94545455 |
std | 905.444160792 |
min | 3286.4 |
25\% \mid 3905.6
50\% \mid 4331.4
75\% \mid 4714.1
max | 7063.4 |
shapiro
(0.9076412916183472, 0.042384739965200424)
('burger', 5)
count | 22.0 |
mean | 5073.72727273 |
std | 820.671220162 |
min | 3920.4 |
25% | 4413.7
50% | 5098.7
75% | 5444.1
max | 6927.6 |
shapiro
(0.9563226103782654, 0.41870200634002686)
('swipe', 1)
count | 28.0 |
mean | 2770.21428571 |
std | 883.229726299 |
min | 1941.8 |
25% | 2296.25 |
50% | 2554.1 |
75% | 2865.6
max | 6413.4 |
shapiro
(0.6596945524215698, 8.059980132202327e-07)
('swipe', 2)
count | 28.0 |
mean | 4204.86428571 |
std | 1330.36827878 |
min | 3202.4 |
25% | 3635.95 |
```

```
50% | 3765.6 |
75\% \mid 4341.1
max | 10211.0 |
shapiro
(0.5677787065505981, 6.146506592585865e-08)
('swipe', 3)
count | 28.0 |
mean | 5175.67857143 |
std | 889.237003511 |
min | 3899.8 |
25\% \mid 4701.9
50% | 4908.9 |
75% | 5396.35 |
max | 7508.4 |
shapiro
(0.8815559148788452, 0.004346329253166914)
('swipe', 4)
count | 28.0 |
mean | 6123.01428571 |
std | 1000.60964517 |
\min | 4474.6 |
25\% \ |\ 5388.2\ |
50% | 6092.4 |
75% | 6559.75 |
max | 9004.2 |
shapiro
(0.944583535194397,\, 0.1445537954568863)
('swipe', 5)
count | 28.0 |
mean | 7252.65 |
std | 1209.06568841 |
\min\mid 5476.8\mid
25% | 6350.65 |
50% | 7014.5 |
75% | 7972.85 |
max | 9742.0 |
shapiro
(0.9483340978622437, 0.17988574504852295)
```

### Cross-compare Tests per tid (time\_ms)

### ('burger', 1) vs ('burger', 2)

MannwhitneyuResult(statistic=151.0, pvalue=0.016817419210219058)

### ('burger', 1) vs ('burger', 3)

MannwhitneyuResult(statistic=95.0, pvalue=0.00029221438038809819)

### ('burger', 1) vs ('burger', 4)

MannwhitneyuResult(statistic=139.0, pvalue=0.0080653641686478112)

### ('burger', 1) vs ('burger', 5)

 $\label{test_ind_Result} Ttest\_indResult(statistic = -5.7310272087258207, \quad pvalue = 1.619575495038546e-06)$ 

### ('burger', 1) vs ('swipe', 1)

MannwhitneyuResult(statistic=49.0, pvalue=2.1843898538621358e-07)

#### ('burger', 1) vs ('swipe', 2)

MannwhitneyuResult(statistic=282.0, pvalue=0.30911023670878912)

### ('burger', 1) vs ('swipe', 3)

MannwhitneyuResult(statistic=43.0, pvalue=1.1741801859588888e-07)

#### ('burger', 1) vs ('swipe', 4)

 $\label{test_indResult} Ttest\_indResult(statistic = -10.188148275652745, \quad pvalue = 5.439990089157802e-13)$ 

# ('burger', 1) vs ('swipe', 5)

 $\label{test_indResult} Ttest\_indResult(statistic=-13.237665385930107, \ pvalue=5.9225323858749191e-16)$ 

# ('burger', 2) vs ('burger', 3)

MannwhitneyuResult(statistic=195.0, pvalue=0.1375314960388796)

# ('burger', 2) vs ('burger', 4)

MannwhitneyuResult(statistic=240.0, pvalue=0.48595656697665318)

#### ('burger', 2) vs ('burger', 5)

MannwhitneyuResult(statistic=160.0, pvalue=0.02787280707345783)

# ('burger', 2) vs ('swipe', 1)

MannwhitneyuResult(statistic=35.0, pvalue=5.0265581070320699e-08)

# ('burger', 2) vs ('swipe', 2)

 $MannwhitneyuResult(statistic=221.0,\ pvalue=0.045460175439921736)$ 

## ('burger', 2) vs ('swipe', 3)

MannwhitneyuResult(statistic=173.0, pvalue=0.0042858685698253926)

# ('burger', 2) vs ('swipe', 4)

MannwhitneyuResult(statistic=114.0, pvalue=7.7855780297600262e-05)

#### ('burger', 2) vs ('swipe', 5)

MannwhitneyuResult(statistic=70.0, pvalue=1.7276174406690636e-06)

### ('burger', 3) vs ('burger', 4)

MannwhitneyuResult(statistic=190.0, pvalue=0.11336211114805772)

#### ('burger', 3) vs ('burger', 5)

MannwhitneyuResult(statistic=180.0, pvalue=0.074430474150163767)

### ('burger', 3) vs ('swipe', 1)

MannwhitneyuResult(statistic=30.0, pvalue=2.9224626895523775e-08)

### ('burger', 3) vs ('swipe', 2)

 $MannwhitneyuResult(statistic=152.0,\ pvalue=0.0011864143494592009)$ 

# ('burger', 3) vs ('swipe', 3)

MannwhitneyuResult(statistic=203.0, pvalue=0.020558109931233946)

### ('burger', 3) vs ('swipe', 4)

MannwhitneyuResult(statistic=105.0, pvalue=3.7841304344645438e-05)

# ('burger', 3) vs ('swipe', 5)

MannwhitneyuResult(statistic=62.0, pvalue=8.0100475146483783e-07)

## ('burger', 4) vs ('burger', 5)

MannwhitneyuResult(statistic=136.0, pvalue=0.0066364447880311464)

## ('burger', 4) vs ('swipe', 1)

MannwhitneyuResult(statistic=37.0, pvalue=6.2280507570442701e-08)

# ('burger', 4) vs ('swipe', 2)

MannwhitneyuResult(statistic=212.5, pvalue=0.031674649462165971)

#### ('burger', 4) vs ('swipe', 3)

MannwhitneyuResult(statistic=151.0, pvalue=0.0011116905748856589)

#### ('burger', 4) vs ('swipe', 4)

MannwhitneyuResult(statistic=58.0, pvalue=5.4061503445428946e-07)

#### ('burger', 4) vs ('swipe', 5)

MannwhitneyuResult(statistic=21.0, pvalue=1.0756098347672391e-08)

### ('burger', 5) vs ('swipe', 1)

MannwhitneyuResult(statistic=29.0, pvalue=2.6191554910060229e-08)

### ('burger', 5) vs ('swipe', 2)

MannwhitneyuResult(statistic = 93.0, pvalue = 1.381283064893737e-05)

# ('burger', 5) vs ('swipe', 3)

MannwhitneyuResult(statistic=306.0, pvalue=0.48830623668427992)

#### ('burger', 5) vs ('swipe', 4)

Ttest\_indResult(statistic=-4.0728963297471577, pvalue=0.00017339525839808439)

# ('burger', 5) vs ('swipe', 5)

 $\label{test_indResult} Ttest\_indResult(statistic = -7.5712623152822953, \ pvalue = 1.1021397421496496e-09)$ 

#### ('swipe', 1) vs ('swipe', 2)

MannwhitneyuResult(statistic=54.0, pvalue=1.5960698242093411e-08)

#### ('swipe', 1) vs ('swipe', 3)

MannwhitneyuResult(statistic=31.0, pvalue=1.7371643979876513e-09)

#### ('swipe', 1) vs ('swipe', 4)

MannwhitneyuResult(statistic=18.0, pvalue=4.66457628014128e-10)

### ('swipe', 1) vs ('swipe', 5)

MannwhitneyuResult(statistic=8.0, pvalue=1.6461154966355821e-10)

### ('swipe', 2) vs ('swipe', 3)

MannwhitneyuResult(statistic=105.0, pvalue=1.3341483772913665e-06)

#### ('swipe', 2) vs ('swipe', 4)

MannwhitneyuResult(statistic=45.0, pvalue=6.8123663028551721e-09)

# ('swipe', 2) vs ('swipe', 5)

MannwhitneyuResult(statistic=34.0, pvalue=2.3382222267736259e-09)

# ('swipe', 3) vs ('swipe', 4)

 $MannwhitneyuResult(statistic=163.0,\ pvalue=9.0415384769806993e-05)$ 

# ('swipe', 3) vs ('swipe', 5)

MannwhitneyuResult(statistic=54.0, pvalue=1.5960698242093411e-08)

### ('swipe', 4) vs ('swipe', 5)

Ttest\_indResult(statistic=-3.8087281736762768, pvalue=0.00036955600286607841)

# Global Burger vs Swipe per tid Tests (time\_ms)

#### burger vs swipe 1

MannwhitneyuResult(statistic=180.0, pvalue=3.0639459096717655e-13)

# burger vs swipe 2

 $MannwhitneyuResult(statistic=1012.5,\ pvalue=0.0026345778537083492)$ 

# burger vs swipe 3

MannwhitneyuResult(statistic=876.0, pvalue=0.00022173012779323569)

### burger vs swipe 4

MannwhitneyuResult(statistic=407.0, pvalue=1.0124366289475617e-09)

#### burger vs swipe 5

MannwhitneyuResult(statistic=186.0, pvalue=3.8655469327992148e-13)

# Global Burger vs Global Swipe Test (time\_ms)

### burger vs swipe

MannwhitneyuResult(statistic=6436.5, pvalue=0.013029103088263865)

# Effectiveness by Tasks

Descriptions (success)

Global Descriptions (success)

```
burger
```

```
count | 110.0 |
mean | 0.978181818182 |
std | 0.0626360071457 |
\min \mid 0.8 \mid
25% | 1.0 |
50% | 1.0 |
75% | 1.0 |
max | 1.0 |
shapiro
(0.3595287799835205, 8.873730593883483e-20)
\mathbf{swipe}
count | 140.0 |
mean | 0.934285714286 |
std | 0.105783427849 |
min | 0.6 |
25% | 0.8 |
50% | 1.0
75% | 1.0
max | 1.0 |
shapiro
(0.6147457361221313, 1.3754389831214409e-17)
Repeated measures (success)
```

# burger

friedmanchisquare

Friedmanchisquare Result (statistic = 5.111111111111109082, pvalue = 0.276085623834601)

## $\mathbf{swipe}$

fried manchisquare

Friedmanchis quare Result (statistic = 8.7192429022081477, pvalue = 0.068513251264267688)

# Descriptions per tid (success)

```
('burger', 1)
count | 22.0 |
mean | 0.990909090909 |
```

```
std | 0.0426401432711 |
\min \mid 0.8 \mid
25% | 1.0 |
50% | 1.0 |
75\% | 1.0
max | 1.0 |
shapiro
(0.22147256135940552, 7.41695094230721e-10)
('burger', 2)
count | 22.0 |
mean | 0.963636363636 |
std | 0.0789542033952 |
min | 0.8 |
25\% \mid 1.0 \mid
50% | 1.0
75% | 1.0 |
max | 1.0 |
shapiro
(0.4735521674156189, 7.489492048762258e-08)
('burger', 3)
count | 22.0 |
mean | 0.963636363636 |
std | 0.0789542033952 |
min | 0.8 |
25\% \mid 1.0
50% | 1.0
75% | 1.0 |
max | 1.0 |
shapiro
(0.4735521674156189, 7.489492048762258e-08)
('burger', 4)
count | 22.0 |
mean | 0.981818181818 |
std | 0.0588489886336 |
min | 0.8 |
25% | 1.0 |
50% | 1.0 |
```

```
75% | 1.0 |
max | 1.0 |
shapiro
(0.3322211503982544, 4.875188253095075e-09)
('burger', 5)
count | 22.0 |
mean \mid 0.990909090909 \mid
std | 0.0426401432711 |
\min \mid 0.8 \mid
25% | 1.0 |
50\% \mid 1.0
75% | 1.0 |
max | 1.0 |
shapiro
(0.22147256135940552, 7.41695094230721e-10)
('swipe', 1)
count | 28.0 |
mean | 0.978571428571 |
std | 0.0629940788349 |
\min \mid 0.8 \mid
25\% \mid 1.0 \mid
50% | 1.0 |
75% | 1.0 |
max | 1.0 |
shapiro
(0.36062484979629517, 5.463860475174442e-10)
('swipe', 2)
count | 28.0 |
mean | 0.935714285714 |
std | 0.0951189731211 |
min | 0.8 |
25% | 0.8 |
50% | 1.0
75% | 1.0
max | 1.0 |
shapiro
(0.5905900597572327, 1.1246834219491575e-07)
```

```
mean | 0.892857142857 |
std | 0.138586973437 |
min | 0.6 |
25% | 0.8 |
50% | 1.0 |
75% | 1.0 |
max | 1.0 |
shapiro
(0.7237528562545776, 6.2850517679180484e-06)
('swipe', 4)
count | 28.0 |
mean | 0.942857142857 |
std | 0.0920087412456 |
min | 0.8 |
25% | 0.8 |
50% | 1.0
75% | 1.0
max | 1.0 |
shapiro
(0.5682951211929321, 6.229736015939125e-08)
('swipe', 5)
count | 28.0 |
mean | 0.921428571429 |
std | 0.113389341903 |
min | 0.6 |
25\% \mid 0.8
50% | 1.0
75\% | 1.0
max | 1.0 |
shapiro
(0.6656765341758728, 9.664669278208748e-07)
Cross-compare Tests per tid (success)
('burger', 1) vs ('burger', 2)
MannwhitneyuResult(statistic=209.0,\ pvalue=0.082657036656833605)
```

('swipe', 3) count | 28.0 |

# ('burger', 1) vs ('burger', 3)

 $MannwhitneyuResult(statistic=209.0,\ pvalue=0.082657036656833605)$ 

#### ('burger', 1) vs ('burger', 4)

MannwhitneyuResult(statistic=231.0, pvalue=0.28624482430604659)

# ('burger', 1) vs ('burger', 5)

MannwhitneyuResult(statistic=242.0, pvalue=0.48702804541380829)

# ('burger', 1) vs ('swipe', 1)

 $MannwhitneyuResult(statistic=289.0,\ pvalue=0.22085511431458626)$ 

## ('burger', 1) vs ('swipe', 2)

MannwhitneyuResult(statistic=223.0, pvalue=0.0085809342731982628)

# ('burger', 1) vs ('swipe', 3)

MannwhitneyuResult(statistic=188.5, pvalue=0.0011982167922993706)

#### ('burger', 1) vs ('swipe', 4)

MannwhitneyuResult(statistic=234.0, pvalue=0.015452252565939647)

#### ('burger', 1) vs ('swipe', 5)

MannwhitneyuResult(statistic=211.5, pvalue=0.0045566881958452573)

# ('burger', 2) vs ('burger', 3) $\,$

MannwhitneyuResult(statistic=242.0, pvalue=0.49299346911620229)

### ('burger', 2) vs ('burger', 4)

MannwhitneyuResult(statistic=220.0, pvalue=0.1979923748749125)

### ('burger', 2) vs ('burger', 5)

 $MannwhitneyuResult(statistic=209.0,\ pvalue=0.082657036656833605)$ 

# ('burger', 2) vs ('swipe', 1)

MannwhitneyuResult(statistic=285.0, pvalue=0.23222527082050248)

#### ('burger', 2) vs ('swipe', 2)

MannwhitneyuResult(statistic=265.0, pvalue=0.13717816505985114)

# ('burger', 2) vs ('swipe', 3)

MannwhitneyuResult(statistic=226.0, pvalue=0.025658789178159933)

# ('burger', 2) vs ('swipe', 4)

 $MannwhitneyuResult(statistic=276.0,\ pvalue=0.20268150101021792)$ 

## ('burger', 2) vs ('swipe', 5)

MannwhitneyuResult(statistic=252.0, pvalue=0.082343202897603662)

# ('burger', 3) vs ('burger', 4)

MannwhitneyuResult(statistic=220.0, pvalue=0.1979923748749125)

#### ('burger', 3) vs ('burger', 5)

MannwhitneyuResult(statistic=209.0, pvalue=0.082657036656833605)

#### ('burger', 3) vs ('swipe', 1)

MannwhitneyuResult(statistic=285.0, pvalue=0.23222527082050248)

#### ('burger', 3) vs ('swipe', 2)

MannwhitneyuResult(statistic=265.0, pvalue=0.13717816505985114)

### ('burger', 3) vs ('swipe', 3)

MannwhitneyuResult(statistic=226.0, pvalue=0.025658789178159933)

### ('burger', 3) vs ('swipe', 4)

 $MannwhitneyuResult(statistic=276.0,\ pvalue=0.20268150101021792)$ 

# ('burger', 3) vs ('swipe', 5)

 $MannwhitneyuResult(statistic=252.0,\ pvalue=0.082343202897603662)$ 

### ('burger', 4) vs ('burger', 5)

MannwhitneyuResult(statistic=231.0, pvalue=0.28624482430604659)

# ('burger', 4) vs ('swipe', 1)

MannwhitneyuResult(statistic=303.0, pvalue=0.43281068947535356)

## ('burger', 4) vs ('swipe', 2)

MannwhitneyuResult(statistic=237.0, pvalue=0.027429809187369383)

## ('burger', 4) vs ('swipe', 3)

MannwhitneyuResult(statistic=201.0, pvalue=0.0040041913682163349)

# ('burger', 4) vs ('swipe', 4)

MannwhitneyuResult(statistic=248.0, pvalue=0.046661220530755103)

#### ('burger', 4) vs ('swipe', 5)

MannwhitneyuResult(statistic=225.0, pvalue=0.014890923602395365)

#### ('burger', 5) vs ('swipe', 1)

MannwhitneyuResult(statistic=289.0, pvalue=0.22085511431458626)

#### ('burger', 5) vs ('swipe', 2)

MannwhitneyuResult(statistic=223.0, pvalue=0.0085809342731982628)

### ('burger', 5) vs ('swipe', 3)

MannwhitneyuResult(statistic=188.5, pvalue=0.0011982167922993706)

### ('burger', 5) vs ('swipe', 4)

 $MannwhitneyuResult(statistic=234.0,\ pvalue=0.015452252565939647)$ 

# ('burger', 5) vs ('swipe', 5)

MannwhitneyuResult(statistic=211.5, pvalue=0.0045566881958452573)

### ('swipe', 1) vs ('swipe', 2)

MannwhitneyuResult(statistic=308.0, pvalue=0.027116872472542033)

### ('swipe', 1) vs ('swipe', 3)

MannwhitneyuResult(statistic=261.5, pvalue=0.0029312417003149235)

## ('swipe', 1) vs ('swipe', 4)

MannwhitneyuResult(statistic=322.0, pvalue=0.048986402150609308)

## ('swipe', 1) vs ('swipe', 5)

MannwhitneyuResult(statistic=292.5, pvalue=0.013462573580567237)

## ('swipe', 2) vs ('swipe', 3)

MannwhitneyuResult(statistic=336.5, pvalue=0.14453634210230498)

#### ('swipe', 2) vs ('swipe', 4)

MannwhitneyuResult(statistic=378.0, pvalue=0.39060796901685718)

#### ('swipe', 2) vs ('swipe', 5)

MannwhitneyuResult(statistic=373.5, pvalue=0.36014486364075388)

# ('swipe', 3) vs ('swipe', 4)

MannwhitneyuResult(statistic=324.0, pvalue=0.094081951374916539)

### ('swipe', 3) vs ('swipe', 5)

MannwhitneyuResult(statistic=355.0, pvalue=0.24385317707370369)

### ('swipe', 4) vs ('swipe', 5)

MannwhitneyuResult(statistic=360.0, pvalue=0.26255479890207617)

# Global Burger vs Swipe per tid Tests (success)

### burger vs swipe 1

MannwhitneyuResult(statistic=1537.0, pvalue=0.49020683242704011)

### burger vs swipe 2

 $MannwhitneyuResult(statistic=1213.0,\ pvalue=0.0027313254754476467)$ 

#### burger vs swipe 3

MannwhitneyuResult(statistic=1030.0, pvalue=2.0615949541882224e-05)

### burger vs swipe 4

MannwhitneyuResult(statistic=1268.0, pvalue=0.0092023144768541426)

# burger vs swipe 5

MannwhitneyuResult(statistic=1152.0, pvalue=0.00061159598135044442)

### Global Burger vs Global Swipe Test (success)

# burger vs swipe

MannwhitneyuResult(statistic=6206.0, pvalue=0.00011462735661581992)

# Task Questionnaires

# Task Question 0

Descriptions (result)

### Global Descriptions (result)

```
burger
```

```
count | 110.0 |
mean | 6.90909090909 |
std | 0.395976427467 |
min | 4.0 |
25% | 7.0 |
50% | 7.0 |
75% | 7.0 |
max | 7.0 |
```

```
shapiro
(0.24518823623657227,\ 2.9252628439826945\text{e-}21)
swipe
count | 140.0 |
mean | 6.83571428571 |
std | 0.458504203722 |
min | 5.0 |
25\% \mid 7.0 \mid
50% | 7.0
75\% \mid 7.0
\max | 7.0 |
shapiro
(0.39919018745422363, 1.5329055243220379e-21)
Repeated measures (result)
burger
friedmanchisquare
FriedmanchisquareResult(statistic=3.3103448275862144, pvalue=0.50729488262873967)
swipe
friedmanchisquare
Friedmanchis quare Result (statistic = 5.0958904109588801, pvalue = 0.27759929640181424)
Descriptions per tid (result)
('burger', 1)
count | 22.0 |
mean | 7.0 |
std | 0.0 |
min | 7.0 |
25% | 7.0 |
50% | 7.0
75% | 7.0
max | 7.0 |
shapiro
(1.0, 1.0)
('burger', 2)
count | 22.0 |
mean | 6.90909090909 |
std | 0.294244943168 |
min | 6.0 |
```

```
25% | 7.0 |
50% | 7.0 |
75% | 7.0 |
max | 7.0 |
shapiro
(0.3322211503982544, 4.875188253095075e-09)
('burger', 3)
count | 22.0 |
mean | 6.77272727273 |
std | 0.751621623515 |
min | 4.0 |
25% | 7.0 |
50% | 7.0
75% | 7.0 |
max | 7.0 |
shapiro
(0.3419651389122009, 5.8100124711302215e-09)
('burger', 4)
count | 22.0 |
mean | 6.90909090909 |
std | 0.294244943168 |
\min \mid 6.0 \mid
25\% \mid 7.0
50% | 7.0 |
75% | 7.0 |
max | 7.0 |
shapiro
(0.3322211503982544,\,4.875188253095075\text{e-}09)
('burger', 5)
count | 22.0 |
mean | 6.95454545455 |
std | 0.213200716356 |
min | 6.0 |
25\% \mid 7.0
50% | 7.0
75% | 7.0 |
max | 7.0 |
shapiro
(0.22147256135940552, 7.41695094230721e-10)
('swipe', 1)
```

```
count | 28.0 |
mean | 6.85714285714 |
std | 0.448395139423 |
min | 5.0 |
25% | 7.0
50% | 7.0
75% | 7.0 |
max | 7.0 |
shapiro
(0.365678608417511, 6.050620560138498e-10)
('swipe', 2)
count | 28.0 |
mean | 6.92857142857 |
std | 0.262265264156 |
min | 6.0 |
25% | 7.0
50% | 7.0
75% | 7.0 |
max | 7.0 |
shapiro
(0.2873581051826477, 1.3197647141804936e-10)
('swipe', 3)
count | 28.0 |
mean | 6.82142857143 |
std | 0.475594865606 |
min | 5.0 |
25% | 7.0 |
50% | 7.0 |
75% | 7.0
max | 7.0 |
(0.43253177404403687, 2.463778070449507e-09)
('swipe', 4)
count | 28.0 |
mean | 6.82142857143 |
std | 0.475594865606 |
min | 5.0 |
25\% \mid 7.0 \mid
50% | 7.0 |
75% | 7.0 |
max | 7.0 |
```

```
shapiro
(0.43253177404403687, 2.463778070449507e-09)
('swipe', 5)
count | 28.0
mean | 6.75
std | 0.585314097381 |
min | 5.0 |
25\% | 7.0
50% | 7.0
75% | 7.0
\max \mid 7.0 \mid
shapiro
(0.48425883054733276, 7.892020370547925e-09)
Cross-compare Tests per tid (result)
('burger', 1) vs ('burger', 2)
MannwhitneyuResult(statistic=220.0, pvalue=0.080992169841587358)
('burger', 1) vs ('burger', 3)
MannwhitneyuResult(statistic=220.0, pvalue=0.08104893779987532)
('burger', 1) vs ('burger', 4)
MannwhitneyuResult(statistic=220.0, pvalue=0.080992169841587358)
('burger', 1) vs ('burger', 5)
MannwhitneyuResult(statistic=231.0, pvalue=0.16990380614234185)
('burger', 1) vs ('swipe', 1)
MannwhitneyuResult(statistic=275.0, pvalue=0.061389171314485569)
('burger', 1) vs ('swipe', 2)
MannwhitneyuResult(statistic=286.0, pvalue=0.10790037602663682)
('burger', 1) vs ('swipe', 3)
MannwhitneyuResult(statistic=264.0, pvalue=0.035323810007342034)
```

# ('burger', 1) vs ('swipe', 4)

MannwhitneyuResult(statistic=264.0, pvalue=0.035323810007342034)

#### ('burger', 1) vs ('swipe', 5)

MannwhitneyuResult(statistic=253.0, pvalue=0.020341356769343476)

# ('burger', 2) vs ('burger', 3)

MannwhitneyuResult(statistic=240.0, pvalue=0.47185717461959964)

# ('burger', 2) vs ('burger', 4)

MannwhitneyuResult(statistic=242.0, pvalue=0.49060013900586225)

## ('burger', 2) vs ('burger', 5)

MannwhitneyuResult(statistic=231.0, pvalue=0.28624482430604659)

### ('burger', 2) vs ('swipe', 1)

MannwhitneyuResult(statistic=302.0, pvalue=0.41814383343092509)

#### ('burger', 2) vs ('swipe', 2)

MannwhitneyuResult(statistic=302.0, pvalue=0.40954587077471732)

#### ('burger', 2) vs ('swipe', 3)

MannwhitneyuResult(statistic=291.0, pvalue=0.28360268156813595)

#### ('burger', 2) vs ('swipe', 4)

MannwhitneyuResult(statistic=291.0, pvalue=0.28360268156813595)

### ('burger', 2) vs ('swipe', 5)

MannwhitneyuResult(statistic=279.0, pvalue=0.1776214834950835)

### ('burger', 3) vs ('burger', 4)

 $MannwhitneyuResult(statistic=240.0,\ pvalue=0.47185717461959964)$ 

# ('burger', 3) vs ('burger', 5)

MannwhitneyuResult(statistic=230.0, pvalue=0.26839195888913986)

### ('burger', 3) vs ('swipe', 1)

MannwhitneyuResult(statistic=305.5, pvalue=0.47007151426311133)

# ('burger', 3) vs ('swipe', 2)

MannwhitneyuResult(statistic=300.0, pvalue=0.37768095297605236)

# ('burger', 3) vs ('swipe', 3)

MannwhitneyuResult(statistic=295.5, pvalue=0.3388315325050939)

## ('burger', 3) vs ('swipe', 4)

MannwhitneyuResult(statistic=295.5, pvalue=0.3388315325050939)

# ('burger', 3) vs ('swipe', 5)

MannwhitneyuResult(statistic=285.0, pvalue=0.23293475501797717)

#### ('burger', 4) vs ('burger', 5)

MannwhitneyuResult(statistic=231.0, pvalue=0.28624482430604659)

#### ('burger', 4) vs ('swipe', 1)

MannwhitneyuResult(statistic=302.0, pvalue=0.41814383343092509)

#### ('burger', 4) vs ('swipe', 2)

MannwhitneyuResult(statistic=302.0, pvalue=0.40954587077471732)

### ('burger', 4) vs ('swipe', 3)

MannwhitneyuResult(statistic=291.0, pvalue=0.28360268156813595)

### ('burger', 4) vs ('swipe', 4)

MannwhitneyuResult(statistic = 291.0, pvalue = 0.28360268156813595)

# ('burger', 4) vs ('swipe', 5)

MannwhitneyuResult(statistic=279.0, pvalue=0.1776214834950835)

### ('burger', 5) vs ('swipe', 1)

MannwhitneyuResult(statistic=288.5, pvalue=0.21488485789583234)

# ('burger', 5) vs ('swipe', 2)

MannwhitneyuResult(statistic=300.0, pvalue=0.36081607462259746)

## ('burger', 5) vs ('swipe', 3)

MannwhitneyuResult(statistic=277.5, pvalue=0.12983938884427548)

## ('burger', 5) vs ('swipe', 4)

MannwhitneyuResult(statistic=277.5, pvalue=0.12983938884427548)

# ('burger', 5) vs ('swipe', 5)

MannwhitneyuResult(statistic=266.0, pvalue=0.07519977300947886)

#### ('swipe', 1) vs ('swipe', 2)

MannwhitneyuResult(statistic=377.0, pvalue=0.31537541448498552)

### ('swipe', 1) vs ('swipe', 3)

MannwhitneyuResult(statistic=378.5, pvalue=0.35525965271351878)

# ('swipe', 1) vs ('swipe', 4)

MannwhitneyuResult(statistic=378.5, pvalue=0.35525965271351878)

### ('swipe', 1) vs ('swipe', 5)

MannwhitneyuResult(statistic=363.5, pvalue=0.22518165687821007)

### ('swipe', 2) vs ('swipe', 3)

MannwhitneyuResult(statistic=363.0, pvalue=0.19191432446450229)

### ('swipe', 2) vs ('swipe', 4)

MannwhitneyuResult(statistic=363.0, pvalue=0.19191432446450229)

### ('swipe', 2) vs ('swipe', 5)

MannwhitneyuResult(statistic=348.0, pvalue=0.10712672456029038)

### ('swipe', 3) vs ('swipe', 4)

MannwhitneyuResult(statistic=392.0, pvalue=0.49461993710800994)

# ('swipe', 3) vs ('swipe', 5)

MannwhitneyuResult(statistic=376.5, pvalue=0.3501076533991746)

## ('swipe', 4) vs ('swipe', 5)

MannwhitneyuResult(statistic=376.5, pvalue=0.3501076533991746)

## Global Burger vs Swipe per tid Tests (result)

### burger vs swipe 1

MannwhitneyuResult(statistic=1473.0, pvalue=0.21665236926243431)

### burger vs swipe 2

MannwhitneyuResult(statistic=1530.0, pvalue=0.45320928415997419)

### burger vs swipe 3

MannwhitneyuResult(statistic=1419.0, pvalue=0.087083010808927386)

### burger vs swipe 4

MannwhitneyuResult(statistic=1419.0, pvalue=0.087083010808927386)

## burger vs swipe 5

MannwhitneyuResult(statistic=1362.0, pvalue=0.027199345369874211)

#### Global Burger vs Global Swipe Test (result)

# burger vs swipe

MannwhitneyuResult(statistic=7203.0, pvalue=0.046318608676750285)

### Task Question 1

Descriptions (result)

### Global Descriptions (result)

```
burger
count | 110.0 |
mean | 1.89090909091 |
std | 1.80897585981 |
min | 1.0 |
25% | 1.0
50% | 1.0
75% | 1.0
max | 7.0 |
shapiro
(0.5440710783004761, 6.783648646543276e-17)
swipe
count | 140.0 |
mean | 2.86428571429 |
std | 2.12964925773 |
min | 1.0 |
25% | 1.0 |
50% | 2.0 |
75% | 4.0
max | 7.0 |
shapiro
(0.799676775932312, 1.4816165872302833e-12)
```

### Repeated measures (result)

burger

friedmanchisquare

Friedmanchis quare Result (statistic = 2.75757575757575757125, pvalue = 0.59917784877228941)

swipe

fried manchi square

Friedmanchis quare Result (statistic = 5.4968553459119409, pvalue = 0.24000603548291879)

# Descriptions per tid (result)

```
('burger', 1)
count | 22.0 |
mean | 1.9545454545 |
std | 2.01133153544 |
min | 1.0 |
25\% \mid 1.0
50% | 1.0 |
75% | 1.0 |
max | 7.0 |
shapiro
(0.5299234390258789,\ 2.541320327509311e\text{-}07)
('burger', 2)
count | 22.0 |
mean | 1.77272727273 |
std | 1.87545088374 |
min | 1.0 |
25\% \mid 1.0
50\% \mid 1.0
75% | 1.0 |
max | 7.0 |
shapiro
(0.4611632227897644, 5.790687396256544e-08)
('burger', 3)
count | 22.0 |
mean | 2.0 |
std | 1.74574312189 |
min | 1.0 |
25% | 1.0 |
50% | 1.0
75\% \mid 2.0
max | 6.0 |
shapiro
(0.6260440349578857, 2.5660463052190607e-06)
('burger', 4)
count | 22.0 |
mean | 1.77272727273 |
std | 1.54092792643 |
min | 1.0 |
25% | 1.0 |
50% | 1.0 |
```

```
75% | 1.0 |
max | 6.0 |
shapiro
(0.5682213306427002, 6.146745477053628e-07)
('burger', 5)
count | 22.0 |
mean | 1.9545454545 |
std | 1.98751514465 |
min | 1.0 |
25\% \mid 1.0
50\% \mid 1.0
75% | 1.0 |
max | 7.0 |
shapiro
(0.5327657461166382, 2.7092326604361006e-07)
('swipe', 1)
count | 28.0 |
mean | 2.75 |
std | 2.36682315602 |
min | 1.0 |
25% | 1.0 |
50% | 1.0 |
75% | 4.25 |
max | 7.0 |
shapiro
(0.7217938303947449, 5.8795612858375534e-06)
('swipe', 2)
count | 28.0 |
mean | 2.67857142857 |
std | 2.21198036674 |
min | 1.0 |
25% | 1.0 |
50% | 1.0
75\% \mid 4.0
max | 7.0 |
shapiro
(0.7506808042526245, 1.617231646378059e-05)
('swipe', 3)
count | 28.0 |
mean | 2.82142857143 |
std | 2.16116517662 |
```

```
min | 1.0 |
25\% \mid 1.0
50\% \mid 2.0
75% | 4.0 |
\max \mid 7.0 \mid
shapiro
(0.7865198850631714,\,6.232791929505765\text{e-}05)
('swipe', 4)
count | 28.0 |
mean | 2.85714285714 |
std | 1.87999774851 |
min | 1.0 |
25\% \mid 1.0 \mid
50\% \mid 3.0 \mid
75\% \mid 4.0
max | 7.0 |
shapiro
(0.8642818927764893, 0.0018409639596939087)
('swipe', 5)
count | 28.0 |
mean | 3.21428571429 |
std | 2.11445015806 |
min | 1.0 |
25\% \mid 1.0
50% | 3.0
75\% \mid 4.0
max | 7.0 |
shapiro
(0.8491970896720886, 0.0009006079635582864)
Cross-compare Tests per tid (result)
('burger', 1) vs ('burger', 2)
MannwhitneyuResult(statistic=231.5, pvalue=0.36950062145736295)
('burger', 1) vs ('burger', 3)
MannwhitneyuResult(statistic=226.5, pvalue=0.32669163862815576)
```

# ('burger', 1) vs ('burger', 4)

MannwhitneyuResult(statistic=237.5, pvalue=0.44908793706778233)

### ('burger', 1) vs ('burger', 5)

MannwhitneyuResult(statistic=242.0, pvalue=0.4936172195955259)

# ('burger', 1) vs ('swipe', 1)

MannwhitneyuResult(statistic=247.5, pvalue=0.082098002975044604)

## ('burger', 1) vs ('swipe', 2)

MannwhitneyuResult(statistic=241.5, pvalue=0.066396878662638464)

## ('burger', 1) vs ('swipe', 3)

MannwhitneyuResult(statistic=213.5, pvalue=0.020092875062028004)

## ('burger', 1) vs ('swipe', 4)

MannwhitneyuResult(statistic=198.5, pvalue=0.010019521264436585)

#### ('burger', 1) vs ('swipe', 5)

MannwhitneyuResult(statistic=192.0, pvalue=0.0068101408106697112)

### ('burger', 2) vs ('burger', 3)

MannwhitneyuResult(statistic=215.0, pvalue=0.20647583790178142)

#### ('burger', 2) vs ('burger', 4)

MannwhitneyuResult(statistic=235.0, pvalue=0.41428583227671284)

### ('burger', 2) vs ('burger', 5)

MannwhitneyuResult(statistic=232.0, pvalue=0.37576224110670875)

### ('burger', 2) vs ('swipe', 1)

 $MannwhitneyuResult(statistic=232.5,\ pvalue=0.038182542965196922)$ 

# ('burger', 2) vs ('swipe', 2)

MannwhitneyuResult(statistic=225.5, pvalue=0.028699028147674787)

### ('burger', 2) vs ('swipe', 3)

MannwhitneyuResult(statistic=194.5, pvalue=0.0062373933525989578)

# ('burger', 2) vs ('swipe', 4)

MannwhitneyuResult(statistic=179.5, pvalue=0.0028888514521789059)

# ('burger', 2) vs ('swipe', 5)

MannwhitneyuResult(statistic=173.0, pvalue=0.001845925801493757)

## ('burger', 3) vs ('burger', 4)

MannwhitneyuResult(statistic=221.0, pvalue=0.26964038824961989)

## ('burger', 3) vs ('burger', 5)

MannwhitneyuResult(statistic=227.0, pvalue=0.33206339086194925)

#### ('burger', 3) vs ('swipe', 1)

MannwhitneyuResult(statistic=260.5, pvalue=0.14603135541294709)

### ('burger', 3) vs ('swipe', 2)

MannwhitneyuResult(statistic=256.0, pvalue=0.12750985422970523)

#### ('burger', 3) vs ('swipe', 3)

MannwhitneyuResult(statistic=230.0, pvalue=0.049115891184390158)

### ('burger', 3) vs ('swipe', 4)

MannwhitneyuResult(statistic=215.0, pvalue=0.026326679220802538)

### ('burger', 3) vs ('swipe', 5)

 $MannwhitneyuResult(statistic=203.5,\ pvalue=0.014613622667340618)$ 

# ('burger', 4) vs ('burger', 5)

MannwhitneyuResult(statistic=237.0, pvalue=0.44276533380129457)

### ('burger', 4) vs ('swipe', 1)

MannwhitneyuResult(statistic=238.5, pvalue=0.054909704407618581)

# ('burger', 4) vs ('swipe', 2)

MannwhitneyuResult(statistic=233.0, pvalue=0.044870412680933683)

## ('burger', 4) vs ('swipe', 3)

MannwhitneyuResult(statistic=209.0, pvalue=0.015775210433546256)

## ('burger', 4) vs ('swipe', 4)

MannwhitneyuResult(statistic=192.5, pvalue=0.0070352388832014452)

### ('burger', 4) vs ('swipe', 5)

MannwhitneyuResult(statistic=183.5, pvalue=0.0040067153811422793)

#### ('burger', 5) vs ('swipe', 1)

MannwhitneyuResult(statistic=246.0, pvalue=0.077014874525015403)

#### ('burger', 5) vs ('swipe', 2)

MannwhitneyuResult(statistic=240.5, pvalue=0.063535812872022673)

#### ('burger', 5) vs ('swipe', 3)

MannwhitneyuResult(statistic=211.5, pvalue=0.01809715117525822)

### ('burger', 5) vs ('swipe', 4)

MannwhitneyuResult(statistic=198.5, pvalue=0.010033737896491264)

### ('burger', 5) vs ('swipe', 5)

 $MannwhitneyuResult(statistic=190.5,\ pvalue=0.0062419441538161761)$ 

# ('swipe', 1) vs ('swipe', 2)

MannwhitneyuResult(statistic=389.5, pvalue=0.48562593257900771)

### ('swipe', 1) vs ('swipe', 3)

MannwhitneyuResult(statistic=361.5, pvalue=0.29899029746393557)

### ('swipe', 1) vs ('swipe', 4)

MannwhitneyuResult(statistic=348.5, pvalue=0.22808362379240826)

## ('swipe', 1) vs ('swipe', 5)

MannwhitneyuResult(statistic=329.5, pvalue=0.14088538659882688)

## ('swipe', 2) vs ('swipe', 3)

MannwhitneyuResult(statistic=364.5, pvalue=0.31879870403142863)

## ('swipe', 2) vs ('swipe', 4)

MannwhitneyuResult(statistic=349.0, pvalue=0.23202420226563208)

#### ('swipe', 2) vs ('swipe', 5)

MannwhitneyuResult(statistic=328.0, pvalue=0.13662614652941502)

#### ('swipe', 3) vs ('swipe', 4)

MannwhitneyuResult(statistic=371.0, pvalue=0.36362070040972327)

# ('swipe', 3) vs ('swipe', 5)

MannwhitneyuResult(statistic=343.5, pvalue=0.20657252218094635)

### ('swipe', 4) vs ('swipe', 5)

MannwhitneyuResult(statistic=359.5, pvalue=0.29395572379615725)

# Global Burger vs Swipe per tid Tests (result)

#### burger vs swipe 1

MannwhitneyuResult(statistic=1225.0, pvalue=0.017143625211004959)

# burger vs swipe 2

MannwhitneyuResult(statistic=1196.5, pvalue=0.011075983661422355)

### burger vs swipe 3

MannwhitneyuResult(statistic=1058.5, pvalue=0.00087828638876744818)

### burger vs swipe 4

MannwhitneyuResult(statistic=984.0, pvalue=0.00018652482417813029)

# burger vs swipe 5

 $MannwhitneyuResult(statistic=942.5,\ pvalue=6.5526352124271008e-05)$ 

# Global Burger vs Global Swipe Test (result)

### burger vs swipe

MannwhitneyuResult(statistic=5406.5, pvalue=2.9062055593999374e-06)

# Final Questionnaires

### Final Question 0

Descriptions (result)

# Global Descriptions (result)

```
burger

count | 22.0 |

mean | 1.5 |

std | 1.05785047102 |

min | 1.0 |

25% | 1.0 |

50% | 1.0 |

75% | 1.75 |

max | 5.0 |

shapiro

(0.5448707342147827, 3.567666624348931e-07)

swipe
```

```
count | 28.0 | mean | 1.53571428571 | std | 1.29048204766 | min | 1.0 | 25% | 1.0 | 50% | 1.0 | 75% | 1.25 | max | 7.0 | shapiro (0.4864434003829956, 8.3034956688266e-09)
```

# Global Burger vs Global Swipe Test (result)

### burger vs swipe

MannwhitneyuResult(statistic=302.5, pvalue=0.44941800310214225)

### Final Question 1

#### Descriptions (result)

# Global Descriptions (result)

```
burger
count | 22.0 |
mean | 2.22727272727 |
std | 1.79766563398 |
min | 1.0 |
25% | 1.0
50% | 1.0
75\% \mid 3.5
\max \mid 6.0 \mid
shapiro
(0.6886584758758545, 1.4087103409110568e-05)
swipe
count | 28.0 |
mean | 1.67857142857 |
std | 1.18801332542 |
min | 1.0 |
25% | 1.0 |
50% | 1.0 |
```

```
75% | 2.0 |
max | 6.0 |
shapiro
(0.6186860203742981, 2.4386196173509234e-07)
Global Burger vs Global Swipe Test (result)
burger vs swipe
MannwhitneyuResult(statistic=281.0, pvalue=0.27788843237866634)
Final Question 2
Descriptions (result)
Global Descriptions (result)
burger
count | 22.0 |
mean | 1.22727272727 |
std | 0.428932027229 |
min | 1.0 |
25% | 1.0 |
50% | 1.0
75\% \mid 1.0
max | 2.0 |
shapiro
(0.5222699642181396, 2.1416671813767607e-07)
swipe
count | 28.0 |
mean | 1.75
std | 1.37773297418 |
min | 1.0 |
25\% \mid 1.0 \mid
50\% \mid 1.0
75\% \mid 2.0
max | 7.0 |
shapiro
```

# Global Burger vs Global Swipe Test (result)

(0.6172786951065063, 2.343947329563889e-07)

# burger vs swipe

MannwhitneyuResult(statistic=255.5, pvalue=0.10358134878107761)

### Final Question 3

Descriptions (result)

### Global Descriptions (result)

```
burger
count | 22.0 |
mean | 5.13636363636 |
std | 1.67034226733 |
\min \mid 2.0 \mid
25% | 3.25 |
50% | 5.5 |
75% | 6.75 |
max | 7.0 |
shapiro
(0.8708899021148682, 0.008132589980959892)
swipe
count | 28.0 |
mean | 4.5 |
std | 1.45296631451 |
min | 1.0 |
25% | 4.0 |
50% | 4.0 |
75% | 5.25 |
\max\mid 7.0\mid
shapiro
(0.9325721859931946, 0.07159832864999771)
```

# Global Burger vs Global Swipe Test (result)

# burger vs swipe

MannwhitneyuResult(statistic=238.5, pvalue=0.084899251911718931)