Analysis

Preprocessing

Namespace(demographics=[<_io.TextIOWrapper name='demographic_data_fixed.csv' mode='r' encoding='UTF-8'>], distance=False, file=[<_io.TextIOWrapper name='experiment_results.csv' mode='r' encoding='UTF-8'>], final_q=[<_io.TextIOWrapper name='final_questionnaire_results.csv' mode='r' encoding='UTF-8'>], norm_test='pearson', task_q=[<_io.TextIOWrapper name='task_questionnaire_results.csv' mode='r' encoding='UTF-8'>])

- experiment_results.csv
- task_questionnaire_results.csv
- final_questionnaire_results.csv
- demographic_data_fixed.csv

Dropping Task ID 0 (Training)

Asserting Absolute Distance Values!

Dataset Validation:
{'pid': True}

Adding success column based on
`opt_interactions == interactions`
in order to measure effectiveness.

Using normality test: normaltest

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 | 550.0 |
mean | 4638.11818182 |
std | 2276.28326918 |
min | 2379.0 |
25% | 3429.75 |
50% | 4086.5 |
75% | 5083.5 |
max | 35643.0 |

normaltest
NormaltestResult(statistic=695.92062379202275, pvalue=7.6340785142658078e-152)

swipe

count | 700.0 |
mean | 5105.28428571 |
std | 2660.31481955 |
min | 1453.0 |
25% | 3496.25 |
50% | 4796.0 |
75% | 6205.0 |
max | 36116.0 |

normaltest
NormaltestResult(statistic=635.35329966445772, pvalue=1.0833878190856989e-138)

Descriptions per tid [time_ms]

('burger', 1)

count | 110.0 |
mean | 3882.02727273 |

std | 1273.13599999 |
min | 2379.0 |
25% | 3038.0 |
50% | 3454.5 |
75% | 4136.5 |
max | 9626.0 |

normaltest
NormaltestResult(statistic=50.574051812516345, pvalue=1.0422794740977289e-11)

('burger', 2)

count | 110.0 |
mean | 4855.64545455 |
std | 3550.99032468 |
min | 2587.0 |
25% | 3419.0 |
50% | 4059.0 |
75% | 5109.25 |
max | 35643.0 |

normaltest
NormaltestResult(statistic=182.2710744255096, pvalue=2.6323224227546439e-40)

('burger', 3)

count | 110.0 |
mean | 4923.24545455 |
std | 2443.8345722 |
min | 2825.0 |
25% | 3495.0 |
50% | 4068.0 |
75% | 5331.5 |
max | 16458.0 |

normaltest
NormaltestResult(statistic=82.748673131955684, pvalue=1.0748650382831504e-18)

('burger', 4)

count | 110.0 |
mean | 4455.94545455 |
std | 1740.15099965 |
min | 2598.0 |

25% | 3363.5 |
50% | 3995.0 |
75% | 4903.25 |
max | 12386.0 |

normaltest
NormaltestResult(statistic=73.275470004374384, pvalue=1.2258401991129035e-16)

('burger', 5)

count | 110.0 |
mean | 5073.72727273 |
std | 1391.01089839 |
min | 3211.0 |
25% | 4127.0 |
50% | 4825.0 |
75% | 5579.25 |
max | 10924.0 |

normaltest
NormaltestResult(statistic=45.511742067693746, pvalue=1.3099381155952411e-10)

('swipe', 1)

count | 140.0 |
mean | 2770.21428571 |
std | 1949.56224485 |
min | 1453.0 |
25% | 1933.0 |
50% | 2410.5 |
75% | 3031.5 |
max | 21906.0 |

normaltest
NormaltestResult(statistic=233.02889653769526, pvalue=2.5027533700333242e-51)

('swipe', 2)

count | 140.0 |
mean | 4204.86428571 |
std | 2912.4724452 |
min | 2521.0 |
25% | 3322.25 |
50% | 3758.5 |

75% | 4416.25 |
max | 36116.0 |

normaltest
NormaltestResult(statistic=273.97444652098108, pvalue=3.2151767059582613e-60)

('swipe', 3)

count | 140.0 |
mean | 5175.67857143 |
std | 1434.32085184 |
min | 3146.0 |
25% | 4098.75 |
50% | 4834.0 |
75% | 5789.25 |
max | 11129.0 |

normaltest
NormaltestResult(statistic=54.208885869234592, pvalue=1.6931288052248813e-12)

('swipe', 4)

count | 140.0 |
mean | 6123.01428571 |
std | 1877.88245579 |
min | 3622.0 |
25% | 5070.0 |
50% | 5691.5 |
75% | 6742.0 |
max | 20070.0 |

normaltest
NormaltestResult(statistic=137.8311534028133, pvalue=1.17583212497471e-30)

('swipe', 5)

count | 140.0 |
mean | 7252.65 |
std | 2392.08935471 |
min | 4282.0 |
25% | 5917.75 |
50% | 6747.5 |
75% | 7843.5 |
max | 24822.0 |

normaltest
NormaltestResult(statistic=142.01649538662491, pvalue=1.4504736953102628e-31)

Cross-compare Tests per tid [time_ms]

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

MannwhitneyuResult(statistic=4084.0, pvalue=1.5658541604548195e-05)

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

MannwhitneyuResult(statistic=3859.0, pvalue=1.7395206547774697e-06)

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

MannwhitneyuResult(statistic=4510.0, pvalue=0.00055464375072409916)

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

MannwhitneyuResult(statistic=2461.0, pvalue=1.4603875579048891e-14)

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

MannwhitneyuResult(statistic=2545.5, pvalue=5.3739527354119754e-20)

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

MannwhitneyuResult(statistic=6426.0, pvalue=0.012421146700796878)

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

MannwhitneyuResult(statistic=3044.5, pvalue=1.1832340237823803e-16)

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

MannwhitneyuResult(statistic=1688.0, pvalue=1.6234943894088597e-26)

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

MannwhitneyuResult(statistic=879.5, pvalue=1.4551418512540368e-33)

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

MannwhitneyuResult(statistic=5763.5, pvalue=0.27230524102743087)

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

MannwhitneyuResult(statistic=5675.5, pvalue=0.2141010726328908)

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

MannwhitneyuResult(statistic=4089.5, pvalue=1.6477907306930181e-05)

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

MannwhitneyuResult(statistic=1517.0, pvalue=6.2046882486582092e-28)

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

MannwhitneyuResult(statistic=6141.5, pvalue=0.0030244034839489709)

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

MannwhitneyuResult(statistic=4963.5, pvalue=7.1526787854356572e-07)

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

MannwhitneyuResult(statistic=2883.5, pvalue=1.0733745632893838e-17)

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

MannwhitneyuResult(statistic=1655.5, pvalue=8.7897345573373952e-27)

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

MannwhitneyuResult(statistic=5391.5, pvalue=0.081675269997733058)

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

MannwhitneyuResult(statistic=4492.5, pvalue=0.00048634928385682863)

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

MannwhitneyuResult(statistic=1439.0, pvalue=1.3586702461712472e-28)

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

MannwhitneyuResult(statistic=5879.5, pvalue=0.00067121480094522003)

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

MannwhitneyuResult(statistic=5504.0, pvalue=5.4782820605463963e-05)

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

MannwhitneyuResult(statistic=3501.0, pvalue=6.9355700044163638e-14)

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

MannwhitneyuResult(statistic=2181.5, pvalue=1.209482241056887e-22)

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

MannwhitneyuResult(statistic=3771.5, pvalue=6.9773905569607094e-07)

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

MannwhitneyuResult(statistic=1729.5, pvalue=3.5365303681484993e-26)

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

MannwhitneyuResult(statistic=6683.5, pvalue=0.036715528361448695)

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

MannwhitneyuResult(statistic=4638.0, pvalue=3.4412289343765112e-08)

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

MannwhitneyuResult(statistic=2628.5, pvalue=2.0386245118994627e-19)

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

MannwhitneyuResult(statistic=1526.0, pvalue=7.3859731612301278e-28)

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

MannwhitneyuResult(statistic=840.0, pvalue=6.2536829317850368e-34)

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

MannwhitneyuResult(statistic=3444.0, pvalue=3.2402389481877241e-14)

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

MannwhitneyuResult(statistic=7337.5, pvalue=0.26179339474167185)

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

MannwhitneyuResult(statistic=4246.0, pvalue=5.8282442410782173e-10)

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

MannwhitneyuResult(statistic=2222.5, pvalue=2.4529114846074024e-22)

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

MannwhitneyuResult(statistic=2472.5, pvalue=1.4576933191791186e-27)

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

MannwhitneyuResult(statistic=1021.0, pvalue=1.0616997031420499e-38)

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

MannwhitneyuResult(statistic=570.0, pvalue=1.4519936452032371e-42)

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

MannwhitneyuResult(statistic=418.0, pvalue=6.5546742737482944e-44)

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

MannwhitneyuResult(statistic=4176.5, pvalue=5.2058578706528549e-17)

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

MannwhitneyuResult(statistic=1732.5, pvalue=5.4063782042061323e-33)

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

MannwhitneyuResult(statistic=832.0, pvalue=2.6916244230076441e-40)

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

MannwhitneyuResult(statistic=6099.0, pvalue=2.3509168964023139e-08)

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

MannwhitneyuResult(statistic=3160.5, pvalue=5.6464403753533496e-23)

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

MannwhitneyuResult(statistic=5782.5, pvalue=1.5200785567733307e-09)

Global Burger vs Swipe per tid Tests [time_ms]

burger vs swipe 1

MannwhitneyuResult(statistic=8071.0, pvalue=1.2418694358581137e-47)

burger vs swipe 2

MannwhitneyuResult(statistic=31122.5, pvalue=0.00022970344985717234)

burger vs swipe 3

MannwhitneyuResult(statistic=25487.5, pvalue=3.2160499055159418e-10)

burger vs swipe 4

MannwhitneyuResult(statistic=14947.0, pvalue=2.4092928040063919e-29)

burger vs swipe 5

MannwhitneyuResult(statistic=8465.0, pvalue=1.846617100608964e-46)

Global Burger vs Global Swipe Test [time_ms]

burger vs swipe

MannwhitneyuResult(statistic=163706.0, pvalue=2.7478174405275066e-06)

Effectiveness by Tasks

Descriptions [success]

Global Descriptions [success]

burger

count | 550 |
unique | 2 |
top | True |
freq | 538 |

normaltest
NormaltestResult(statistic=692.40990353665734, pvalue=4.4167197111877772e-151)

swipe

count | 700 |
unique | 2 |
top | True |
freq | 654 |

normaltest
NormaltestResult(statistic=514.62900970729629, pvalue=1.7771759539453255e-112)

Descriptions per tid [success]

('burger', 1)

count | 110 |
unique | 2 |
top | True |
freq | 109 |

normaltest
NormaltestResult(statistic=237.62633424276868, pvalue=2.5124483458445884e-52)

('burger', 2)

count | 110 |
unique | 2 |
top | True |
freq | 106 |

normaltest
NormaltestResult(statistic=143.47934980760007, pvalue=6.9799941035437554e-32)

('burger', 3)

count | 110 |
unique | 2 |
top | True |
freq | 106 |

normaltest
NormaltestResult(statistic=143.47934980760007, pvalue=6.9799941035437554e-32)

('burger', 4)

count | 110 |
unique | 2 |
top | True |
freq | 108 |

normaltest
NormaltestResult(statistic=190.15500685675292, pvalue=5.1093412263043164e-42)

('burger', 5)

count | 110 |
unique | 2 |
top | True |
freq | 109 |

normaltest
NormaltestResult(statistic=237.62633424276868, pvalue=2.5124483458445884e-52)

('swipe', 1)

count | 140 |
unique | 2 |
top | True |
freq | 137 |

normaltest
NormaltestResult(statistic=214.30244402343482, pvalue=2.9161882188752781e-47)

('swipe', 2)

count | 140 |
unique | 2 |

top | True |
freq | 131 |

normaltest
NormaltestResult(statistic=126.1985404755568, pvalue=3.9476180277006855e-28)

('swipe', 3)

count | 140 |
unique | 2 |
top | True |
freq | 125 |

normaltest
NormaltestResult(statistic=84.232538392747188, pvalue=5.1184290741309119e-19)

('swipe', 4)

count | 140 |
unique | 2 |
top | True |
freq | 132 |

normaltest
NormaltestResult(statistic=135.72565148808746, pvalue=3.3693742538649402e-30)

('swipe', 5)

count | 140 |
unique | 2 |
top | True |
freq | 129 |

normaltest
NormaltestResult(statistic=109.84833227332439, pvalue=1.4019667822221946e-24)

Cross-compare Tests per tid [success]

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

MannwhitneyuResult(statistic=5885.0, pvalue=0.088514338258674385)

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

MannwhitneyuResult(statistic=5885.0, pvalue=0.088514338258674385)

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

MannwhitneyuResult(statistic=5995.0, pvalue=0.28273628216749636)

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

MannwhitneyuResult(statistic=6050.0, pvalue=0.49742964452980454)

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

MannwhitneyuResult(statistic=7605.0, pvalue=0.22179890014407494)

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

MannwhitneyuResult(statistic=7275.0, pvalue=0.013774704590641996)

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

MannwhitneyuResult(statistic=6945.0, pvalue=0.0008566712200464943)

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

MannwhitneyuResult(statistic=7330.0, pvalue=0.021811891296381614)

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

MannwhitneyuResult(statistic=7165.0, pvalue=0.0054868348410904788)

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

MannwhitneyuResult(statistic=6050.0, pvalue=0.49869675597742219)

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

MannwhitneyuResult(statistic=5940.0, pvalue=0.20547426603584779)

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

MannwhitneyuResult(statistic=5885.0, pvalue=0.088514338258674385)

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

MannwhitneyuResult(statistic=7585.0, pvalue=0.24008500168511188)

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

MannwhitneyuResult(statistic=7485.0, pvalue=0.162860956968579)

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

MannwhitneyuResult(statistic=7155.0, pvalue=0.018300662296952975)

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

MannwhitneyuResult(statistic=7540.0, pvalue=0.22392151178117164)

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

MannwhitneyuResult(statistic=7375.0, pvalue=0.082269468781977884)

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

MannwhitneyuResult(statistic=5940.0, pvalue=0.20547426603584779)

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

MannwhitneyuResult(statistic=5885.0, pvalue=0.088514338258674385)

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

MannwhitneyuResult(statistic=7585.0, pvalue=0.24008500168511188)

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

MannwhitneyuResult(statistic=7485.0, pvalue=0.162860956968579)

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

MannwhitneyuResult(statistic=7155.0, pvalue=0.018300662296952975)

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

MannwhitneyuResult(statistic=7540.0, pvalue=0.22392151178117164)

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

MannwhitneyuResult(statistic=7375.0, pvalue=0.082269468781977884)

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

MannwhitneyuResult(statistic=5995.0, pvalue=0.28273628216749636)

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

MannwhitneyuResult(statistic=7675.0, pvalue=0.429353867493113)

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

MannwhitneyuResult(statistic=7345.0, pvalue=0.039349175524312156)

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

MannwhitneyuResult(statistic=7015.0, pvalue=0.0028380826908177329)

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

MannwhitneyuResult(statistic=7400.0, pvalue=0.060002832384090876)

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

MannwhitneyuResult(statistic=7235.0, pvalue=0.016660914589131787)

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

MannwhitneyuResult(statistic=7605.0, pvalue=0.22179890014407494)

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

MannwhitneyuResult(statistic=7275.0, pvalue=0.013774704590641996)

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

MannwhitneyuResult(statistic=6945.0, pvalue=0.0008566712200464943)

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

MannwhitneyuResult(statistic=7330.0, pvalue=0.021811891296381614)

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

MannwhitneyuResult(statistic=7165.0, pvalue=0.0054868348410904788)

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

MannwhitneyuResult(statistic=9380.0, pvalue=0.038770512393067807)

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

MannwhitneyuResult(statistic=8960.0, pvalue=0.0017670242686956415)

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

MannwhitneyuResult(statistic=9450.0, pvalue=0.062622010514240933)

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

MannwhitneyuResult(statistic=9240.0, pvalue=0.014343610809765796)

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

MannwhitneyuResult(statistic=9380.0, pvalue=0.10079098881755333)

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

MannwhitneyuResult(statistic=9730.0, pvalue=0.40205950418022463)

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

MannwhitneyuResult(statistic=9660.0, pvalue=0.32217998161712597)

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

MannwhitneyuResult(statistic=9310.0, pvalue=0.064351095787255674)

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

MannwhitneyuResult(statistic=9520.0, pvalue=0.20590971152770549)

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

MannwhitneyuResult(statistic=9590.0, pvalue=0.23888618804868444)

Global Burger vs Swipe per tid Tests [success]

burger vs swipe 1

MannwhitneyuResult(statistic=38485.0, pvalue=0.48912520694291894)

burger vs swipe 2

MannwhitneyuResult(statistic=36865.0, pvalue=0.0045417664593209763)

burger vs swipe 3

MannwhitneyuResult(statistic=35215.0, pvalue=1.7057508017866935e-06)

burger vs swipe 4

MannwhitneyuResult(statistic=37140.0, pvalue=0.013145629148188419)

burger vs swipe 5

MannwhitneyuResult(statistic=36315.0, pvalue=0.00042387011906782973)

Global Burger vs Global Swipe Test [success]

burger vs swipe

MannwhitneyuResult(statistic=184050.0, pvalue=0.00012578178491001905)

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 |

normaltest
NormaltestResult(statistic=153.41323829366706, pvalue=4.861145039338043e-34)

swipe

count | 140.0 |
mean | 6.83571428571 |
std | 0.458504203722 |
min | 5.0 |
25% | 7.0 |
50% | 7.0 |
75% | 7.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=101.53235210749389, pvalue=8.9645784582099588e-23)

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 |

normaltest
NormaltestResult(statistic=1.0828149152562685, pvalue=0.58192863582398746)

('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 |

normaltest
NormaltestResult(statistic=32.977747192506648, pvalue=6.901971860763698e-08)

('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 |

normaltest
NormaltestResult(statistic=37.132620570418851, pvalue=8.6447789726675352e-09)

('burger', 4)

count | 22.0 |
mean | 6.90909090909 |
std | 0.294244943168 |
min | 6.0 |
25% | 7.0 |
50% | 7.0 |
75% | 7.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=32.977747192506648, pvalue=6.901971860763698e-08)

('burger', 5)

count | 22.0 |
mean | 6.95454545455 |
std | 0.213200716356 |
min | 6.0 |
25% | 7.0 |
50% | 7.0 |
75% | 7.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=55.867295667147516, pvalue=7.3887485384492e-13)

('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 |

normaltest
NormaltestResult(statistic=43.18815831051505, pvalue=4.1861094680904202e-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 |

normaltest
NormaltestResult(statistic=44.203532340976452, pvalue=2.5195612001886847e-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 |

normaltest
NormaltestResult(statistic=34.427175981240801, pvalue=3.3437494037083985e-08)

('swipe', 4)

count | 28.0 |
mean | 6.82142857143 |
std | 0.475594865606 |
min | 5.0 |
25% | 7.0 |
50% | 7.0 |
75% | 7.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=34.427175981240801, pvalue=3.3437494037083985e-08)

('swipe', 5)

count | 28.0 |
mean | 6.75 |
std | 0.585314097381 |
min | 5.0 |
25% | 7.0 |
50% | 7.0 |
75% | 7.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=24.938342419703677, pvalue=3.843330652607647e-06)

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 |

normaltest
NormaltestResult(statistic=41.10183363779808, pvalue=1.1880924265582291e-09)

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 |

normaltest
NormaltestResult(statistic=18.788553344848623, pvalue=8.3198879945244137e-05)

Descriptions per tid [result]

('burger', 1)

count | 22.0 |
mean | 1.95454545455 |
std | 2.01133153544 |
min | 1.0 |
25% | 1.0 |

50% | 1.0 |
75% | 1.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=14.852104558574464, pvalue=0.00059553387888821891)

('burger', 2)

count | 22.0 |
mean | 1.77272727273 |
std | 1.87545088374 |
min | 1.0 |
25% | 1.0 |
50% | 1.0 |
75% | 1.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=20.210686165265589,   pvalue=4.08606491047461e-05)

('burger', 3)

count | 22.0 |
mean | 2.0 |
std | 1.74574312189 |
min | 1.0 |
25% | 1.0 |
50% | 1.0 |
75% | 2.0 |
max | 6.0 |

normaltest
NormaltestResult(statistic=9.2076296409072071, pvalue=0.010013562844574659)

('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 |

normaltest
NormaltestResult(statistic=13.258524513028126, pvalue=0.0013211373870855303)

('burger', 5)

count | 22.0 |
mean | 1.95454545455 |
std | 1.98751514465 |
min | 1.0 |
25% | 1.0 |
50% | 1.0 |
75% | 1.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=13.11454314032791, pvalue=0.0014197541301194895)

('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 |

normaltest
NormaltestResult(statistic=5.6255405651946386, pvalue=0.060038438357067736)

('swipe', 2)

count | 28.0 |
mean | 2.67857142857 |
std | 2.21198036674 |
min | 1.0 |
25% | 1.0 |
50% | 1.0 |
75% | 4.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=4.9857181545995557, pvalue=0.082673259115518136)

('swipe', 3)

count | 28.0 |
mean | 2.82142857143 |
std | 2.16116517662 |
min | 1.0 |
25% | 1.0 |
50% | 2.0 |
75% | 4.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=4.8948691150333712, pvalue=0.086515251945615837)

('swipe', 4)

count | 28.0 |
mean | 2.85714285714 |
std | 1.87999774851 |
min | 1.0 |
25% | 1.0 |
50% | 3.0 |
75% | 4.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=3.2631829602951457, pvalue=0.19561800409388738)

('swipe', 5)

count | 28.0 |
mean | 3.21428571429 |
std | 2.11445015806 |
min | 1.0 |
25% | 1.0 |
50% | 3.0 |
75% | 4.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=2.7864677335567007, pvalue=0.24827112927752484)

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)

Ttest_indResult(statistic=0.11667176816723937, pvalue=0.90755497563889476)

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

Ttest_indResult(statistic=-0.11792698212695876, pvalue=0.90656666165487043)

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

Ttest_indResult(statistic=-0.18756785365546197, pvalue=0.85195435322794189)

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

Ttest_indResult(statistic=-0.77408790290137819, pvalue=0.44229719902179665)

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

Ttest_indResult(statistic=-0.24444025311801382, pvalue=0.80781680136158207)

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

Ttest_indResult(statistic=-0.32549781971440689, pvalue=0.74609483697056533)

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

Ttest_indResult(statistic=-0.92637576511926945, pvalue=0.35838094161896383)

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

Ttest_indResult(statistic=-0.065975241937917109, pvalue=0.94764585285887681)

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

Ttest_indResult(statistic=-0.68754973774649286, pvalue=0.49468042451910721)

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

Ttest_indResult(statistic=-0.66793226421816831, pvalue=0.50706047845662638)

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 |

normaltest
NormaltestResult(statistic=26.197588687579557, pvalue=2.0476979566055249e-06)

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 |

normaltest
NormaltestResult(statistic=43.488260518740518, pvalue=3.6028336850503621e-10)

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% | 3.5 |
max | 6.0 |

normaltest
NormaltestResult(statistic=4.9137570390411183, pvalue=0.085702051156163167)

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 |

normaltest
NormaltestResult(statistic=28.457743224410187, pvalue=6.6142342997665578e-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% | 1.0 |
max | 2.0 |

normaltest
NormaltestResult(statistic=7.0141044989524168, pvalue=0.029985173100470022)

swipe

count | 28.0 |
mean | 1.75 |
std | 1.37773297418 |
min | 1.0 |
25% | 1.0 |
50% | 1.0 |
75% | 2.0 |
max | 7.0 |

normaltest
NormaltestResult(statistic=30.833945386464563, pvalue=2.0160153368124402e-07)

Global Burger vs Global Swipe Test [result]

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 | 2.0 |
25% | 3.25 |
50% | 5.5 |
75% | 6.75 |
max | 7.0 |

normaltest
NormaltestResult(statistic=4.4344935502051488, pvalue=0.1089085461474571)

swipe

count | 28.0 |
mean | 4.5 |
std | 1.45296631451 |
min | 1.0 |
25% | 4.0 |
50% | 4.0 |
75% | 5.25 |
max | 7.0 |

normaltest
NormaltestResult(statistic=0.29622233841262957, pvalue=0.86233524448851595)

Global Burger vs Global Swipe Test [result]

burger vs swipe

Ttest_indResult(statistic=1.4151306918873736, pvalue=0.16442349507017537)