Software Engineering

Online Examination Portal

Empirical Research

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Index

1. Research Question 1

a. Participant Details

b. Independent variables

c. dependent Variables

d. Testing condition

e. experiment

f. Satistical significance Testing

2.

Research Question 1:

How many clicks would it take user to complete an examination?

Participant Detail :

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr no. | Name | Age | Gender | Category |
| 1 | Rahul Kumar | 20 | Male | Expert |
| 2 | Priyesh Damor | 45 | Male | expert |
| 3 | Yash Khatri | 19 | Male | intermediate |
| 4 | Ayush Singh | 20 | Male | novice |

Independent variable : age , expertise level , no. of questions , Hours of examination .

Dependent variable : No . of click , No. of question solved by participant , click per no of questions .

Test Condition :

\*Assuming that student can finish 60 to 90 question in 2 to 3 hours

|  |  |  |
| --- | --- | --- |
| Factor | levels | |
| No . of questions | Less than 60 | Between 60 and 90 |
| Hours of examination | Less than 2 hours | Greater than 3 hours |

Total number of test condition = 4

“2\*2 repeated measures Design”

We construct a 4\*4 latin square arrangement .

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Participant  number | Test condition  number | Test condition  number | Test condition  number | Test condition  Number |
| P1 | TC1 | TC2 | TC3 | TC4 |
| P2 | TC2 | TC3 | TC4 | TC1 |
| P3 | TC3 | TC4 | TC1 | TC2 |
| P4 | TC4 | TC1 | TC2 | TC3 |

Experiment : Every user is allowed to go through the test case and the observation are written in the table .

Xij = number of click done by user to perform the task .

Yij = number of question solved by the participant in given time .

TC1 = time less than 120 min , taken 100 and Question less than 60 taken 50

TC2 = time less than 120 min , taken 100 and Question greater than 90 taken 100

TC3 = time more than 180 min , taken 200 and Question less than 60 taken 50

TC4 = time more than 180 min , taken 200 and Question grater than 90 taken 100

For TC1(test condition 1):

X11 = 184 , Y11 = 49

X21 = 175 , Y21 = 46

X31 = 237 , Y31 = 50

X41 = 260 , Y41 = 48

For TC2(test condition 2):

X12 = 217 ,Y12= 69

X22= 254 , Y22= 78

X32= 291 , Y32= 70

X42= 303 ,Y42= 58

For TC3 (test condition 3):

X13= 162 ,Y13 =50

X23= 170 ,Y23 =50

X33= 212 ,Y33 =48

X43= 210 ,Y43 = 49

For TC4(test condition 4):

X14= 304 , Y14= 98

X24= 321 , Y24= 100

X34=396 , Y34= 95

X44= 398 , Y44= 93

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | TC1 | TC2 | TC3 | TC4 |
| Participant1 | X11 , Y11 | X12 , Y12 | X13 , Y13 | X14 , Y14 |
| Participant2 | X21 , Y21 | X22, Y22 | X23 , Y23 | X24, X24 |
| Participant3 | X31 , Y31 | X32 , Y32 | X33 , Y33 | X34 ,Y34 |
| Participant4 | X41 , Y41 | X42 , Y42 | X43 , Y43 | X44 , Y44 |
| Mean | 214,48.25 | 266.25,68.75 | 188.5,49.25 | 354.7,96.5 |
| Standard derivation | 35.58,1.48 | 33.68,7.12 | 22.68,0.82 | 42.68,2.7 |
| Variance | 1266.5,2.18 | 1134.69,50.69 | 514.75,0.68 | 1821.68, 7.25 |

Statistical Significance Testing :

Research Question 2:

How many courses are available and how many Courses student can select at a particular time as compared to other available apps ?

Measurements :