

# Software Engineering

Online Examination Portal

Empirical Research

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## 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 .

$X_{ij}$  = number of click done by user to perform the task .

$Y_{ij}$  = 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):

$$X_{11} = 184, Y_{11} = 49$$

$$X_{21} = 175, Y_{21} = 46$$

$$X_{31} = 237, Y_{31} = 50$$

$$X_{41} = 260, Y_{41} = 48$$

For TC2(test condition 2):

$$X_{12} = 217, Y_{12} = 69$$

$$X_{22} = 254, Y_{22} = 78$$

$$X_{32} = 291, Y_{32} = 70$$

$$X_{42} = 303, Y_{42} = 58$$

For TC3 (test condition 3):

$$X_{13} = 162, Y_{13} = 50$$

$$X_{23} = 170, Y_{23} = 50$$

$$X_{33} = 212, Y_{33} = 48$$

$$X_{43} = 210, Y_{43} = 49$$

For TC4(test condition 4):

$$X_{14} = 304, Y_{14} = 98$$

$$X_{24} = 321, Y_{24} = 100$$

$$X_{34} = 396, Y_{34} = 95$$

$$X_{44} = 398, Y_{44} = 93$$

	TC1	TC2	TC3	TC4
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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				
Standard derivation				
Variance				