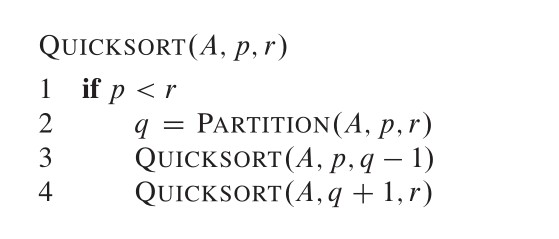
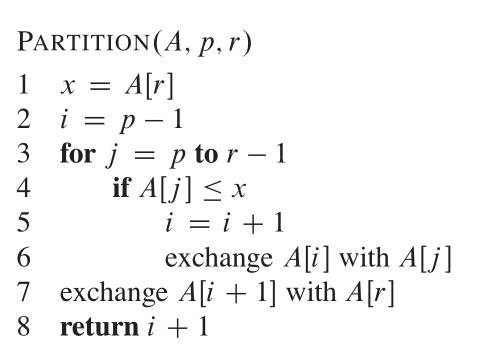
1. Introduction
2. Aim and objectives
3. Materials and Method





[clrs.3]

Materials and

Method

Data

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| StdOrder | RunOrder | Size | Languages | OS | Y1 | Y2 |
| 1 | 3 | 1.00E+08 | cpp | win | 302 | 355 |
| 2 | 2 | 1.00E+07 | cpp | win | 56 | 67 |
| 3 | 1 | 1.00E+08 | cs | win | 340 | 412 |
| 4 | 4 | 1.00E+07 | cs | win | 78 | 82 |
| 5 | 5 | 1.00E+08 | cpp | lin | 289 | 311 |
| 6 | 8 | 1.00E+07 | cpp | lin | 43 | 65 |
| 7 | 7 | 1.00E+08 | cs | lin | 387 | 416 |
| 8 | 6 | 1.00E+07 | cs | lin | 78 | 89 |

Plots:









Based on the normal probability plot of effects and the Pareto chats above, it can be seen that term A, i.e. Data Size is the only significant term.

[Engineering meaning..]



From the main effects plots , it can be found that Factor Size is the most influential factor that affects Y (because it has the highest mean change of Y, in other words the highest slope), followed by factors Languages. Factor OS has no practically important effect.

[Engineering meaning..]





**No interaction seems to be influential interactions, as no interaction plots are very un-parallel.**

[Engineering meaning..]







**Factorial Regression: Y1 versus Size, Languages, OS**

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Model 4 146624 36656 82.54 0.002

Linear 3 145957 48652 109.55 0.001

Size 1 141246 141246 318.03 0.000

Languages 1 4656 4656 10.48 0.048

OS 1 55 55 0.12 0.748

2-Way Interactions 1 666 666 1.50 0.308

Languages\*OS 1 666 666 1.50 0.308

Error 3 1332 444

Total 7 147956

Model Summary

S R-sq R-sq(adj) R-sq(pred)

21.0743 99.10% 97.90% 93.60%

Coded Coefficients

Term Effect Coef SE Coef T-Value P-Value VIF

Constant 196.63 7.45 26.39 0.000

Size 265.75 132.88 7.45 17.83 0.000 1.00

Languages -48.25 -24.12 7.45 -3.24 0.048 1.00

OS 5.25 2.62 7.45 0.35 0.748 1.00

Languages\*OS -18.25 -9.12 7.45 -1.22 0.308 1.00

Regression Equation in Uncoded Units

Y1 = 34.2 + 0.000003 Size - 24.12 Languages + 2.62 OS - 9.12 Languages\*OS

Alias Structure

Factor Name

A Size

B Languages

C OS

Aliases

I

A

B

C

BC

**Factorial Regression: Y2 versus Size, Languages, OS**

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Model 4 182920 45730 58.77 0.004

Linear 3 182513 60838 78.19 0.002

Size 1 177310 177310 227.87 0.001

Languages 1 5050 5050 6.49 0.084

OS 1 153 153 0.20 0.687

2-Way Interactions 1 406 406 0.52 0.522

Languages\*OS 1 406 406 0.52 0.522

Error 3 2334 778

Total 7 185254

Model Summary

S R-sq R-sq(adj) R-sq(pred)

27.8949 98.74% 97.06% 91.04%

Coded Coefficients

Term Effect Coef SE Coef T-Value P-Value VIF

Constant 224.63 9.86 22.78 0.000

Size 297.75 148.88 9.86 15.10 0.001 1.00

Languages -50.25 -25.12 9.86 -2.55 0.084 1.00

OS -8.75 -4.37 9.86 -0.44 0.687 1.00

Languages\*OS -14.25 -7.12 9.86 -0.72 0.522 1.00

Regression Equation in Uncoded Units

Y2 = 42.7 + 0.000003 Size - 25.12 Languages - 4.37 OS - 7.12 Languages\*OS

Alias Structure

Factor Name

A Size

B Languages

C OS

Aliases

I

A

B

C

BC