H34096160 hw5 report

課程名稱：網路最佳化管理

授課教授：王逸琳 博士

壹、 Environment

一、 CPU: Intel(R) Core i7-9750HF CPI @ 2.60GHz

二、 RAM size: 8 G

三、 HD size: 1 T

四、 OS type: Windows Computer, UNIX by Cygwin

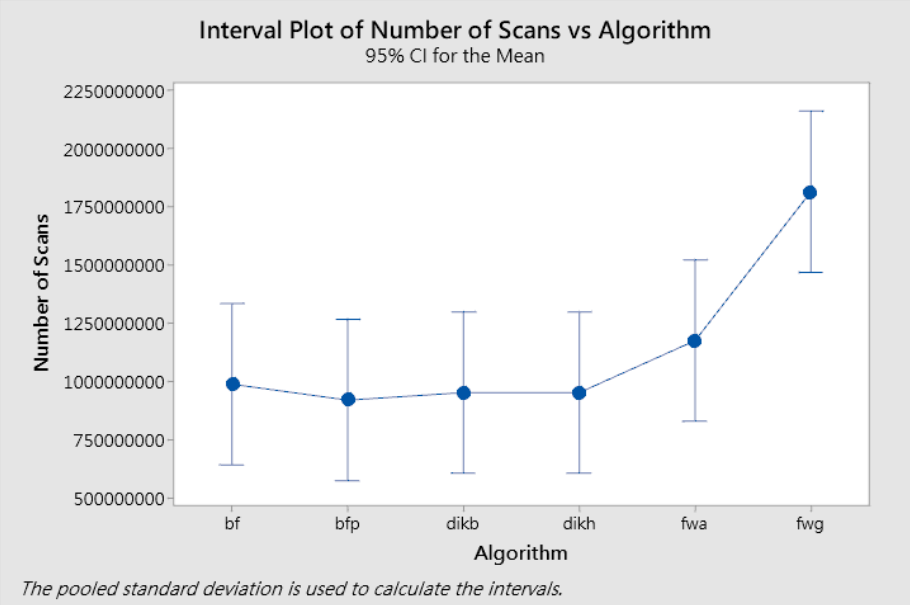
五、 Compiler version: g++ (MinGW.org GCC Build-2) 9.2.0

貳、 Times of compare

一、 Graph done by Minitab ANOVA imply significant difference between algorithms

Analysis of Variance

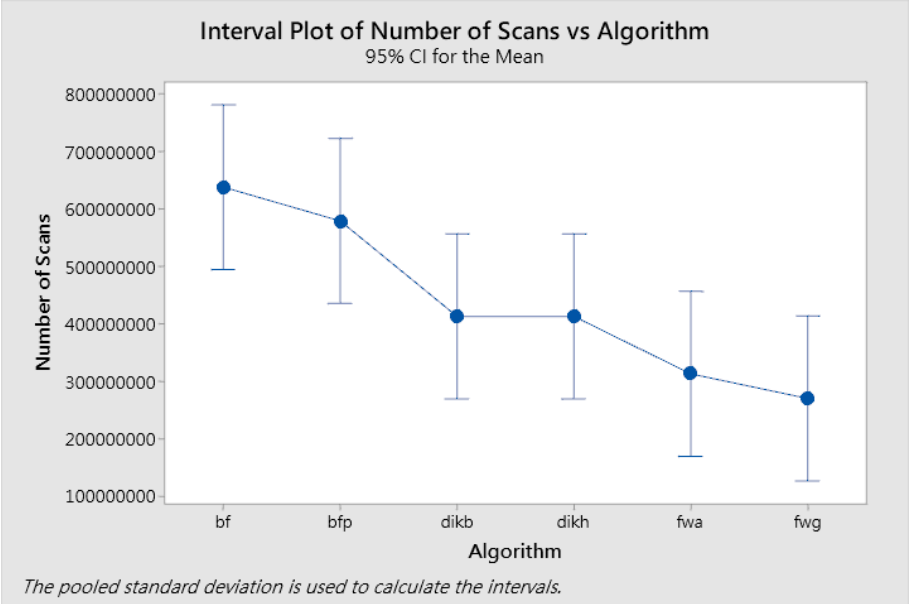
Source	DF	Adj SS	Adj MS	F-Value	P-Value
Algorithm	5	8.61323E+19	1.72265E+19	3.85	0.002
Error	858	3.84290E+21	4.47890E+18		
Total	863	3.92903E+21			



二、 There are overflow in some cases, I replace it by 1e10(the upper bound of long + 1)

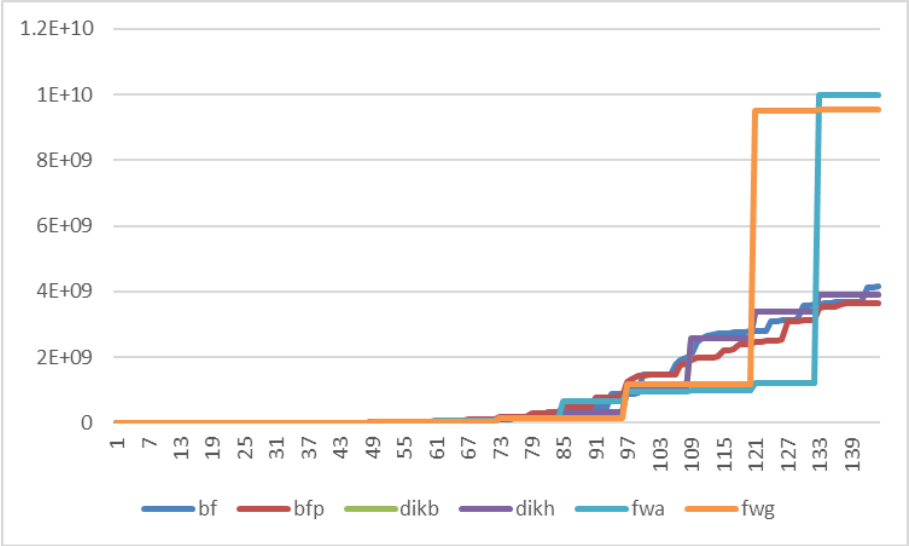
三、 I do not know why comparison time of fwg is largest, and

fwa is the second one, but the graph looks OK when n != 1600.



四、 So I think there may have some problem in large case of my fwg and fwa, but I do not know why.

五、 By plot, I think there have some problem in large case, or the graph looks ok.

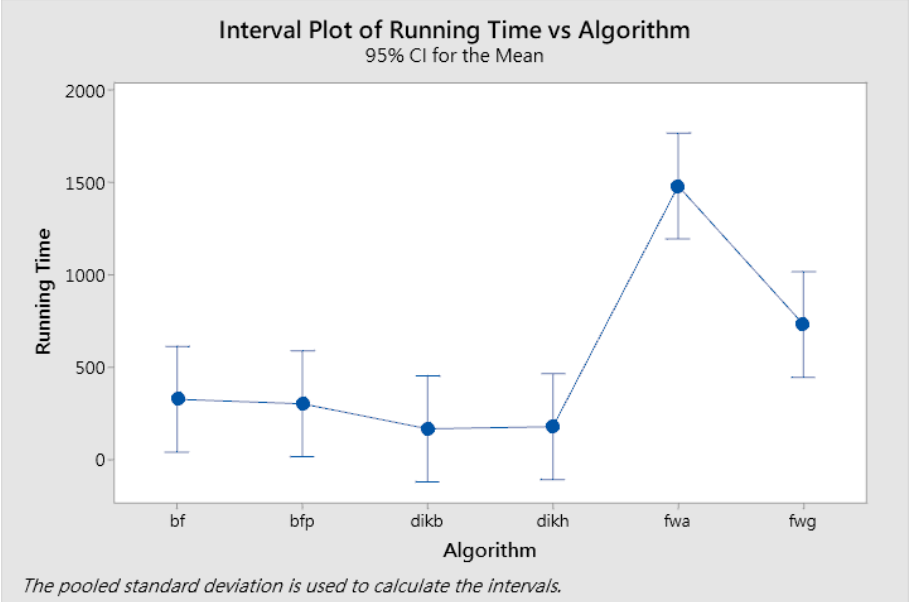


參、 Time

一、 Graph done by Minitab ANOVA imply significant difference between algorithms

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Algorithm	5	185530468	37106094	12.14	0.000
Error	858	2623448666	3057632		
Total	863	2808979134			



二、 In this graph, the run time of fwg is much smaller than fwa, this looks OK.

三、 However, 1-ALL algorithm run n times should be larger, but it is not.

四、 I think there are two reasons, one is the difference between C and C++, the other is my coding skill too poor.

肆、 Else

一、 Input file too large, so I delete it

二、 Use H34096160_hw5_gen.bat to generate it

(一)、 I do not use seed 1000 because that will make file 192 files, not 144 files

(二)、 It can run in Cygwin(UNIX), but I do not try in Windows

三、 Use H34096160_hw5_run.bat to run algorithm

四、 Python run on google colab