|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Input size | IS | | MS | | QS | | HS | |
|  | CPU time(ms) | Memory  (KB) | CPU time(ms) | Memory  (KB) | CPU time(ms) | Memory  (KB) | CPU time(ms) | Memory  (KB) |
| 4000.case1 | 12.998 | 12500 | 1 | 12500 | 0 | 12500 | 1 | 12500 |
| 4000.case2 | 0 | 12500 | 0 | 12500 | 19.997 | 12612 | 0 | 12500 |
| 4000.case3 | 25.996 | 12500 | 0 | 12500 | 14.998 | 12520 | 1 | 12500 |
| |  | | --- | | 16000.case1 | | 201.969 | 12648 | 3 | 12648 | 2 | 12648 | 2 | 12648 |
| 16000.case2 | 0 | 12648 | 2 | 12648 | 322.95 | 13328 | 2 | 12648 |
| 16000.case3 | 402.939 | 12648 | 2 | 12648 | 239.964 | 12948 | 1.999 | 12648 |
| 32000.case1 | 787.88 | 12648 | 7.999 | 12696 | 4.999 | 12648 | 5.999 | 12648 |
| 32000.case2 | 1 | 12648 | 3.999 | 12704 | 1147.83 | 14076 | 5 | 12648 |
| 32000.case3 | 1336.8 | 12648 | 3 | 12704 | 830.874 | 13312 | 3.999 | 12648 |
| 1000000.case1 | 477965 | 18668 | 269.959 | 20456 | 174.974 | 18668 | 285.957 | 18668 |
| 1000000.case2 | 2 | 18668 | 156.976 | 20456 | 757440 | 63424 | 172.974 | 18668 |
| 1000000.case3 | 952864 | 18668 | 146.978 | 20456 | 399308 | 33828 | 168.975 | 18668 |

在case1，由圖片可知，IS的running time遠大於其餘三者。因為在average case的情況下，IS的running time是和n^2成正比，但是MS,QS,HS都是和nlgn成正比，所以IS最大，其他三個差不多。

在case2，由圖片可知，QS的running time最大，MS,HS次之，IS最小。因為在數據是遞增排列的情況下，QS的running time是和n^2成正比，HS,MS仍和nlgn成正比，而IS則是和n成正比，所以QS最大，HS,MS比較小而且差不多，IS最小。

在case3，由圖片可知，IS,QS的running time遠大於MS,HS。因為在數據是遞減排列的情況下，IS,QS的running time都是和n^2成正比，HS,MS仍和nlgn成正比，所以IS,QS最大且相差不遠，HS,MS比較小並且也差不多。