

Optical Merge Pattern:

It is a method to merge the files with different sizes. Merging process will require reading the records from files and writing them in one common file. For example, if three files are of sizes 30,20,10 are to be merged, then total write operation for merging files of size 30 and 20 will be 50 and then merging 50 and 10 will be 60. Thus total write operations will be 110.

If the sequence is changed to 10,20,30; then to merge the file of size 10 and 20, total write operation will be 30 and then to merge the files of size 30 and 30, total write operation will be 60. In all total 90 write operations will be required.

Example on Optimal Merge Pattern:

Find out total write cycles required to merge the following files.

38, 42, 22, 15, 94, 63, 101, 43, 13, 21

Sort the files:

13, 15, 21, 22, 38, 42, 43, 63, 94, 101

Merge 13 and 15 = 28

28, 21, 22, 38, 42, 43, 63, 94, 101

Sort the files

21, 22, 28, 38, 42, 43, 63, 94, 101

Merge 21 and 22 = 43

43, 28, 38, 42, 43, 63, 94, 101

Sort the files

28, 38, 42, 43, 43, 63, 94, 101

Merge 28 and 38 = 66

66, 42, 43, 43, 63, 94, 101

Sort the files

42, 43, 43, 63, 66, 94, 101

Merge 42 and 43 = 85

85, 43, 63, 66, 94, 101

Sort the files

43, 63, 66, 85, 94, 101

Merge 43 and 63 = 106

106, 66, 85, 94, 101

Sort the files

66, 85, 94, 101, 106

Merge 66 and 85 = 151

151, 94, 101, 106

Sort the files

94, 101, 106, 151

Merge 94 and 101 = 195

195, 106, 151

Sort the files

106, 151, 195

Merge 106 and 151 = 257

257, 195

Sort the files 195 and 257

Merge files 195 and 257

452

Total number of WRITE OPERATIONS required for generating the single file

$452 + 257 + 195 + 151 + 106 + 85 + 66 + 43 + 28 = 1383$