

RESULTS

HEAP SIZE: 1000

	FIRST	BEST	WORST
Small	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 991:9 - 99.1% No. of Free Holes: 1 Av. Size of Free Holes: 9 No. Allocated Chunks: 27	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 991:9 - 99.1% No. of Free Holes: 1 Av. Size of Free Holes: 9 No. Allocated Chunks: 27	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 991:9 - 99.1% No. of Free Holes: 1 Av. Size of Free Holes: 9 No. Allocated Chunks: 27
Medium	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 991:9 - 99.1% No. of Free Holes: 1 Av. Size of Free Holes: 9 No. Allocated Chunks: 27	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 991:9 - 99.1% No. of Free Holes: 1 Av. Size of Free Holes: 9 No. Allocated Chunks: 27	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 991:9 - 99.1% No. of Free Holes: 1 Av. Size of Free Holes: 9 No. Allocated Chunks: 27
Large	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 991:9 - 99.1% No. of Free Holes: 1 Av. Size of Free Holes: 9 No. Allocated Chunks: 27	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 991:9 - 99.1% No. of Free Holes: 1 Av. Size of Free Holes: 9 No. Allocated Chunks: 27	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 991:9 - 99.1% No. of Free Holes: 1 Av. Size of Free Holes: 9 No. Allocated Chunks: 27

With a heap size of 1000, the heap ran out of space with all three text files with all three methods of allocation. There are no differences in the results obtained with each text file over all allocation methods. 99.1% of the Heap is used before the program terminates due to the heap being too full to allocate anything more, there is only one free hole and it is of size 9. There are 27 chunks of memory allocated on the heap when the program terminates.

HEAP SIZE: 16000

	FIRST	BEST	WORST
Small	Ratio of heap - Used:Free - 14313:1687 - 89.5% No. of Free Holes: 2 Av. Size of Free Holes: 843 No. Allocated Chunks: 384	Ratio of heap - Used:Free - 14313:1687 - 89.5% No. of Free Holes: 2 Av. Size of Free Holes: 843 No. Allocated Chunks: 384	Ratio of heap - Used:Free - 14313:1687 - 89.5% No. of Free Holes: 2 Av. Size of Free Holes: 843 No. Allocated Chunks: 384
Medium	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 15960:40 - 99.8% No. of Free Holes: 3 Av. Size of Free Holes: 13 No. Allocated Chunks: 426	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 15960:40 - 99.8% No. of Free Holes: 3 Av. Size of Free Holes: 13 No. Allocated Chunks: 426	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 15960:40 - 99.8% No. of Free Holes: 2 Av. Size of Free Holes: 20 No. Allocated Chunks: 426
Large	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 15960:40 - 99.8% No. of Free Holes: 3 Av. Size of Free Holes: 13 No. Allocated Chunks: 426	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 15960:40 - 99.8% No. of Free Holes: 3 Av. Size of Free Holes: 13 No. Allocated Chunks: 426	RAN OUT OF HEAP SPACE Ratio of heap - Used:Free - 15960:40 - 99.8% No. of Free Holes: 2 Av. Size of Free Holes: 20 No. Allocated Chunks: 426

With a heap size of 16000, the small text file is able to run to completion, and by the end, 89.5% of the heap is full (14313 of the 16000 is allocated). The stats are the same across all three methods, there are 2 free holes, the average size of each hole is 843 and there are 384 allocated chunks. The medium text file does not run to completion as the heap runs out of space. The output from First Fit and Best Fit are identical where 99.8% of the heap gets used up (15960 out of 16000 is allocated), there are 3 free holes and the average size of each of these is 13. There are 426 allocated chunk. Worst Fit has slightly different output than First and Best Fit. Instead of 3 holes, there are only 2 holes free and therefore the average size of each hole is larger: 20. The number of allocated chunks remains the same.

HEAP SIZE: 128000

	FIRST	BEST	WORST
Small	Ratio of heap - Used:Free - 14313:113687 - 11.2% No. of Free Holes: 2 Av. Size of Free Holes: 56843 No. Allocated Chunks: 384	Ratio of heap - Used:Free - 14313:113687 - 11.2% No. of Free Holes: 2 Av. Size of Free Holes: 56843 No. Allocated Chunks: 384	Ratio of heap - Used:Free - 14313:113687 11.2% No. of Free Holes: 2 Av. Size of Free Holes: 56843 No. Allocated Chunks: 384
Medium	Ratio of heap - Used:Free - 24997:103003 - 19.5% No. of Free Holes: 5 Av. Size of Free Holes: 20600 No. Allocated Chunks: 618	Ratio of heap - Used:Free - 24997:103003 - 19.5% No. of Free Holes: 5 Av. Size of Free Holes: 20600 No. Allocated Chunks: 618	Ratio of heap - Used:Free - 24997:103003 - 19.5% No. of Free Holes: 3 Av. Size of Free Holes: 34334 No. Allocated Chunks: 618
Large	Ratio of heap - Used:Free - 0:128000 - 0.0% No. of Free Holes: 1 Av. Size of Free Holes: 128000 No. Allocated Chunks: 0	Ratio of heap - Used:Free - 0:128000 - 0.0% No. of Free Holes: 1 Av. Size of Free Holes: 128000 No. Allocated Chunks: 0	Ratio of heap - Used:Free - 0:128000 - 0.0% No. of Free Holes: 1 Av. Size of Free Holes: 128000 No. Allocated Chunks: 0

With a heap size of 128000 is where we saw the largest amount of variance in the results across the three text files. With the small text file, the output stats were the same regardless of the allocation method. 11.2% of the heap was filled (14313 out of 128000) and there were 2 free holes, which were an average size of 56843 each. There were 384 allocated chunks. With the medium text file, we did not run out heap space this time and we only used up 19.5% of the heap (24997 out of 128000). For Best and First Fit there were 5 free holes with an average size of 20600 each and 618 chunks were allocated. With Worst Fit there were only 3 holes with an average size of 34334 each. The large text file also did not run out of heap space. In this file there were 10000 additions and 10000 deletions so after completion, the heap is completely free. As a result there is 1 free hole of size 128000 and there are no allocated chunks. This is of course the same across all three allocation methods.

Overall First Fit and Best Fit resulted in identical statistics in the end and Worst Fit differed slightly but not too greatly. This would be because First Fit and Best Fit are fairly similar in their methods of allocation whereas Worst Fit is a bit different since it tries to find the largest free chunk to place the data.