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CS 351 Assignment #4
WAH Compression (32/64)

Files:

bitmapUnsorted.txt (1,661 KB): A bitmap created from the file animals.txt.

bitmapSorted.txt (1,661 KB): A bitmap that was created from the file animals.txt after it had been sorted lexicographically.

compressed32.txt (1,612 KB): This is a compressed bitmap of the file animals.txt, using a word size of 32.

compressed32_sorted.txt (113 KB): This is a compressed bitmap of the file animals.txt that had been sorted lexicographically, and compressed using a word size of 32.

compressed64.txt (1,588 KB): This is a compressed bitmap of the file animals.txt using a word size of 64.

compressed64_sorted.txt (220 KB): This is a compressed bitmap of the file animals.txt which has been sorted lexicographically, using a word size of 64.

README.txt : A file containing basic instructions on how to run WAHcompress.py

WAHcompress.py : A python file that creates bitmaps and compressed bitmaps from the file animals.txt.

SIZE COMPARISON/ANALYSIS:
Comparing the sizes of the bitmap files above, there is a stark difference in the sorted file sizes. The sorted file compressed down to 7% of its former size with 32 bit word size, and 13% of its former size with 64 bit word size. This difference in compression ratios could be due to a compressed 64 bit word, still being as long as 2 32 bit literals. There were also fewer runs detected when using a word size of 64, leading to less overall fill words.

RUN COUNTS:

animals_compressed_32-- Total Runs: 1260 | One Runs: 0 | Zero Runs: 1260 | Literals: 50356

animals_compressed_32_sorted-- Total Runs: 49840 | One Runs: 8795 | Zero Runs: 41045 | Literals: 1776

animals_compressed_64-- Total Runs: 18 | One Runs: 0 | Zero Runs: 18 | Literals: 25390

animals_compressed_64_sorted-- Total Runs: 23610 | One Runs: 3870 | Zero Runs: 19740 | Literals: 1798