

PRACTICE 1 OPERATING SYSTEMS QUESTIONS

- Compare the first 10 numbers in the text file and the binary file. Are they the same? You may use hexdump to inspect the binary file, or write your own program to do so.

Yes, the first 10 numbers are the same.

The first 10 numbers of text (big and small) files are:
16807,282475249,1622650073,984943658,1144108930,470211272,101027544,1457850878,1458777923,2007237709.

And for the binary (big and small) are: 16807 282475249 1622650073 984943658 1144108930 470211272 101027544 1457850878 1458777923 2007237709

- What is the size of each file?

For int_text_small: 100 bytes

For int_text_big: 1048584 bytes

For test_small: 400 bytes

For test_big: 4000 bytes

This allows us to conclude that test_small has 100 numbers (each number is stored with 4 bytes), and test_big has 1000. For text files it is not that easy to see as the number of bytes per number may change depending on the digits per number.

- What happens if you read a binary file as text?

It happens that the binary file is interpreted as unreadable characters as they are stored in raw bytes and thus the numeric values are not properly interpreted. In our case the sum of small binary file as text give us 0, and with the big file 40, as a result of not being able to detect/read properly each number.

- What happens if you read a text file as binary?

The digits will be read using 4 bytes at a time so the data will be misinterpreted and treated as binary. In our case the computed sum gives us: 234556176 for the small file and 474383028 for the big one.

MEASUREMENT OF EXECUTION TIME

Buffer Size (bytes)	Format	Time of 1st run	Time of 2nd run	Time of 3rd run	Time of 4th run	Average
16	Binary (small)	0,037	0,046	0,042	0,042	0,042
16	Text (small)	0,164	0,086	0,136	0,08	0,117
16	Binary (big)	0,685	0,83	1,18	0,786	0,870
16	Text (big)	23,95	24,78	10,16	11,09	17,495
64	Binary (small)	0,033	0,023	0,03	0,027	0,028
64	Text (small)	0,186	0,177	0,104	0,097	0,141
64	Binary (big)	0,384	0,425	0,327	0,417	0,388
64	Text (big)	429,29	336,78	431,16	179,35	344,145
128	Binary (small)	0,025	0,027	0,024	0,03	0,027
128	Text (small)	0,236	0,099	0,194	0,186	0,179
128	Binary (big)	0,211	0,194	0,197	0,268	0,218
128	Text (big)	479,61	469,32	289,21	489,09	431,808
1024	Binary (small)	0,024	0,032	0,022	0,019	0,024
1024	Text (big)	0,102	0,101	0,172	0,129	0,126
1024	Binary (big)	0,058	0,074	0,056	0,048	0,059
1024	Text (big)	215,133	245,34	216,85	226,37	225,923