a2report

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Table 1: All PIDs

Trial #	Size (bytes)	Run Time (s)
Binary Output		
1	72985	0.056
2	72984	0.053
3	72984	0.054
4	72985	0.054
5	72984	0.057
TXT Output		
1	86831	0.057
2	86831	0.057
3	86831	0.062
4	86831	0.053
5	86831	0.053

Average:
binary with size of 72984.5 bytes and runtime of 0.0548s
txt with size of 86831 bytes and runtime of 0.0564s

Table 2: One PID

Output Type	**Trial #**	**Size (bytes)**	**Real Time (s)**
TXT	1	1664	0.005
	2	1664	0.006
	3	1664	0.005
	4	1664	0.005
	5	1664	0.004
Binary	1	1332	0.005
	2	1332	0.005
	3	1332	0.005
	4	1332	0.005
	5	1332	0.005

Average:
binary with size of 1332 bytes and runtime of 0.004s
txt with size of 1664 bytes and runtime of 0.005s

Using the shell command `time` along with the arguments `--output_TXT` and `--output_binary`, observations indicate that binary files typically require less space and are created faster than text files in ASCII format. ASCII encoding, which maps each character in the English language to a unique 7-bit number, restricts the character set to 128 unique characters. In contrast, binary files utilize a denser data representation with sequences of 0s and 1s, often leading to smaller file sizes. This compact binary format not only minimizes the storage footprint but also accelerates the read and write operations, as evidenced by comparative analyses of file creation times and sizes. While binary encoding demonstrates benefits in terms of speed and space efficiency for smaller data volumes, such as a single PID, ASCII encoding emerges as the preferable choice for managing larger data sets.