

# Cisc 235 Assignment 1

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*I confirm that this submission is my own work and is consistent with the Queen's regulations on Academic Integrity.*

1) After several runs of the program, it is clear that the binary algorithms runs faster. At small sizes, it makes a very little difference, however once you get a larger n, you notice an increasing difference between the two. For me, it was not until 500 000 + where I saw a significant change. It does appear that searching for values that are not present takes longer each time. However I noticed with searching for values not present, there was a smaller difference between binary and trinary.

2) My experiments do indeed represent the growth of  $O(\log n)$ . This can be seen in the table of results below.

Input Value (EXP 1)	Binary Time	Trinary Time
n=10000	0.0131	0.0312
n=25000	0.0367	0.0885
n=50000	0.0806	0.192
n=100000	0.175	0.418
n=500000	1.05	2.52

Input Value (EXP 2)	Binary Time	Trinary Time
n=10000	0.0437	0.0451
n=25000	0.115	0.119
n=50000	0.242	0.243
n=100000	0.514	0.531
n=500000	2.87	2.89