Lab 6

According to the data table in the excel, we found that :

| Open Hashing | 100000 | 200000 | 300000 | 400000 | 500000 |
|---|---|---|---|---|---|
| Build | 0.0193214 | 0.0382754 | 0.0572492 | 0.077338 | 0.103329 |
| Found | 0.000048 | 0.0001416 | 0.0002816 | 0.0004862 | 0.000747 |
| Not Found | 0.0013614 | 0.0027988 | 0.0712174 | 0.0059156 | 0.007506 |

| Quadratic Probin | 100000 | 200000 | 300000 | 400000 | 500000 |
|---|---|---|---|---|---|
| Build | 0.010101 | 0.0246916 | 0.0363556 | 0.0507204 | 0.064593 |
| Found | 0.0000256 | 0.0000874 | 0.0001868 | 0.000305 | 0.000452 |
| Not Found | 0.0012608 | 0.0025574 | 0.003942 | 0.0054022 | 0.006819 |

| Double Hashing | 100000 | 200000 | 300000 | 400000 | 500000 |
|---|---|---|---|---|---|
| Build | 0.0114484 | 0.0275362 | 0.039982 | 0.057881 | 0.074846 |
| Found | 0.0000262 | 0.000084 | 0.0001922 | 0.0003278 | 0.000487 |
| Not Found | 0.001435 | 0.002931 | 0.004536 | 0.006217 | 0.00799 |

The more inputs the longer it takes for all these three hash tables (Open hashing, quadratic probing, and double hashing).
As for building, quadratic probing is faster than the others, and the double hashing is the second fast.
As for finding, quadratic probing is the fastest, and double hashing is the second fast.
Thus, for different seed and different size of inputs, quadratic probing is the most efficient hash table, and open hashing is the last.