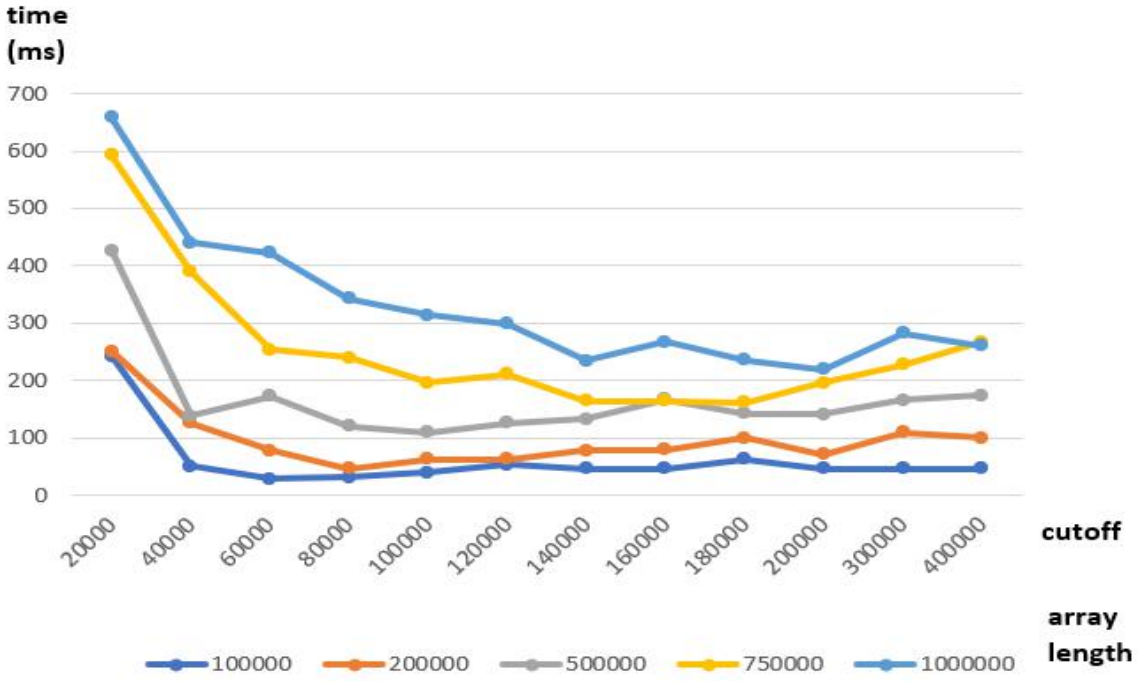
Assignment 4

1. Decide cutoff

		cutoff											
		20000	40000	60000	80000	100000	120000	140000	160000	180000	200000	300000	400000
array length	100000	243	51	28	32	40	54	46	47	63	47	47	47
	200000	251	126	78	47	63	63	78	80	100	71	109	100
	500000	426	139	173	121	109	126	133	167	142	141	166	174
	750000	592	389	253	240	196	211	165	164	162	196	228	267
	1000000	659	440	423	343	314	299	235	267	236	220	282	261

The row shows different array lengths, and the column shows different numbers of cutoff.

I set the thread count as 16.



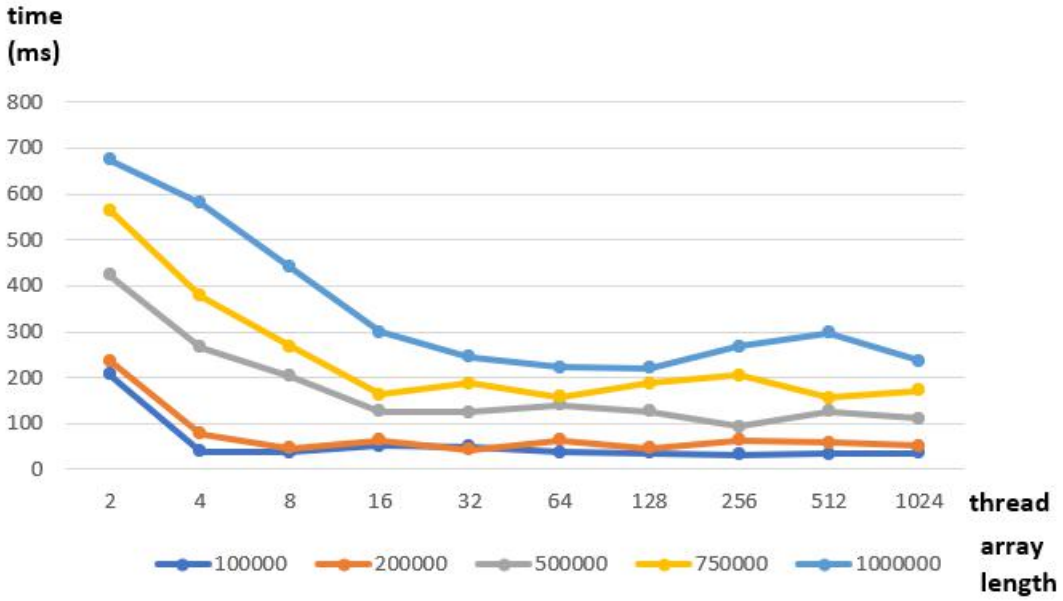
The data show that the time consumed dropped greatly at the beginning, and it reached a low level around 100000 cutoff. But we know that the results can be different under different thread.

2. Choose ideal thread count

	thread									
		2	4	8	16	32	64	128	256	512	1024
array length	100000	206	40	37	51	49	37	36	33	34	35
	200000	236	78	47	63	42	63	47	63	58	52
	500000	424	266	204	126	125	141	126	94	126	110
	750000	565	377	267	164	187	158	188	205	157	172
	1000000	675	581	440	299	245	222	220	267	298	236

The row shows different array lengths, and the column shows different thread.

I set cutoff as 100000.



We can see that the time consumed dropped when the thread was bigger. But after 32, it changed a little. So I choose 32 as my ideal thread.

3. Conclusion

I will choose 100000 cutoff and 32 thread.