ECS60 Programming Homework 1 Write Up

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Time for ADT for each File

File	ADT#	Time#1	Time#2	Time#3	mean
File1	1	0.060276	0.053819	0.053532	0.055875667
File2	1	73.9704	73.377	73.3614	73.5696
File3	1	0.041992	0.038394	0.037542	0.039309333
File4	1	48.4649	48.1956	48.211	48.2905
File1	2	0.039841	0.037563	0.03751	0.038304667
File2	2	342.878	342.126	342.818	342.6073333
File3	2	0.053573	0.048772	0.048758	0.050367667
File4	2	172.607	208.42	207.857	196.2946667
File1	3	0.032802	0.032232	0.03198	0.032338
File2	3	0.031091	0.030581	0.030425	0.030699
File3	3	0.032102	0.031483	0.030575	0.031386667
File4	3	0.035066	0.03411	0.032606	0.033927333
File1	4	0.045851	0.045568	0.045576	0.045665
File2	4	0.036368	0.036213	0.036305	0.036295333
File3	4	0.036665	0.036206	0.036199	0.036356667
File4	4	0.039455	0.038634	0.038752	0.038947
File1	5	0.033876	0.033224	0.032675	0.033258333
File2	5	0.033023	0.03238	0.032099	0.032500667
File3	5	0.033741	0.03297	0.032127	0.032946
File4	5	0.035637	0.034635	0.034414	0.034895333
File1	6	0.143875	0.146164	0.148562	0.146200333
File2	6	0.111638	0.109829	0.112652	0.111373
File3	6	0.128556	0.125547	0.126286	0.126796333
File4	6	0.317571	0.32901	0.33372	0.326767

Time complexity for ADT for each file

File	ADT#	individual insertion	individual deletion	entire insertions	entire deletions	entire file
File1	1	O(1)	NA	O(N)	NA	O(N)
File2	1	O(1)	O(N)	O(N)	O(N^2)	O(N^2)
File3	1	O(1)	O(1)	O(N)	O(N)	O(N)
File4	1	O(1)	O(N)	O(N)	O(N^2)	O(N^2)
File1	2	O(1)	NA	O(N)	NA	O(N)
File2	2	O(1)	O(N)	O(N)	O(N^2)	O(N^2)
File3	2	O(1)	O(1)	O(N)	O(N)	O(N)
File4	2	O(1)	O(N)	O(N)	O(N^2)	O(N^2)
File1	3	O(1)	NA	O(N)	NA	O(N)
File2	3	O(1)	O(1)	O(N)	O(N)	O(N)
File3	3	O(1)	O(1)	O(N)	O(N)	O(N)
File4	3	O(1)	O(1)	O(N)	O(N)	O(N)
File1	4	O(1)	NA	O(N)	NA	O(N)
File2	4	O(1)	O(1)	O(N)	O(N)	O(N)
File3	4	O(1)	O(1)	O(N)	O(N)	O(N)
File4	4	O(1)	O(1)	O(N)	O(N)	O(N)
File1	5	O(1)	NA	O(N)	NA	O(N)
File2	5	O(1)	O(1)	O(N)	O(N)	O(N)
File3	5	O(1)	O(1)	O(N)	O(N)	O(N)
File4	5	O(1)	O(1)	O(N)	O(N)	O(N)
File1	6	O(logN)	NA	O(NlogN)	NA	O(NlogN)
File2	6	O(logN)	O(logN)	O(NlogN)	O(NlogN)	O(NlogN)
File3	6	O(logN)	O(logN)	O(NlogN)	O(NlogN)	O(NlogN)
File4	6	O(logN)	O(logN)	O(NlogN)	O(NlogN)	O(NlogN)