

SP9 Comparison Study (Boruvka v/s Prim's Indexed Heaps)

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The following tables represent the comparison between the Boruvka and Prim's (Indexed Heaps) algorithm for finding MST. The comparison looks at the runtime with various number of nodes and edges for both of the algorithms.

- **Case 1: 10k nodes, 1 million edges**

Iteration	Boruvka	Prim's (IndexedHeaps)
	Time (mSec)	Time (mSec)
1	1023	328
2	1081	357
3	1032	313
4	1047	389
5	1096	312

- **Case 2: 100k nodes, 30 million edges**

Iteration	Boruvka	Prim's (IndexedHeaps)
	Time (mSec)	Time (mSec)
1	31453	6106

2	27816	5789
3	35672	7323
4	30187	4398
5	29470	4852

- **Case 3: 100k nodes, 300 million edges**

Iteration	Boruvka	Prim's (IndexedHeaps)
	Time (mSec)	Time (mSec)
1	265231	36225
2	255667	35987
3	271034	35995
4	257015	37210
5	262093	36520

- **Case 4: 1 million nodes, 300 million edges**

Iteration	Boruvka	Prim's (IndexedHeaps)
	Time (mSec)	Time (mSec)
1	313005	50523
2	325022	51783
3	312211	49098
4	327215	52492
5	319834	51819

Conclusion: As per the above comparison, it is clear that Prim's (Indexed Heaps) algorithm performs way better than Boruvka's algorithm in terms of runtime.