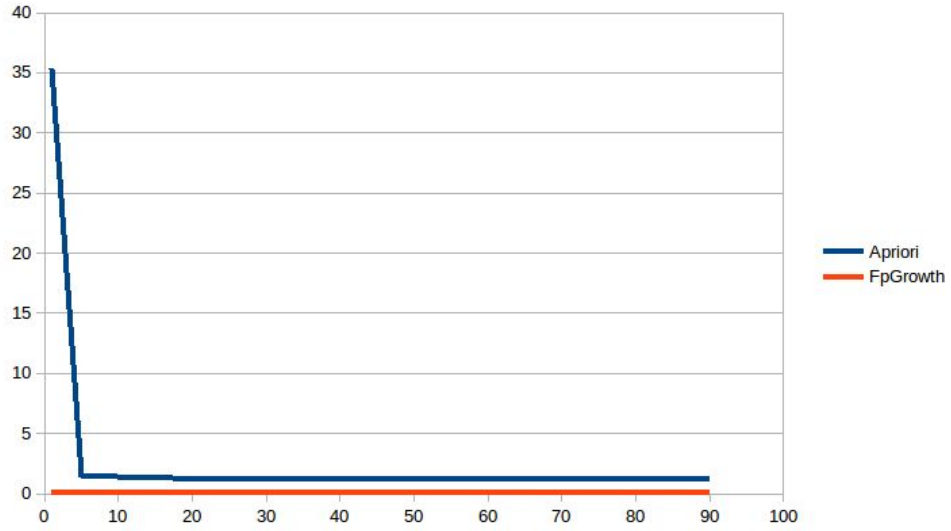
FPTree Library Used:

http://www.borgelt.net/fpgrowth.html **(Linux 64 bit version)**

Part B(i)

Support	Apriori(time in secs)	FpGrowth(time in secs)
1	35.347	0.119
5	1.502	0.109
10	1.371	0.107
25	1.219	0.103
50	1.149	0.102
90	1.152	0.087

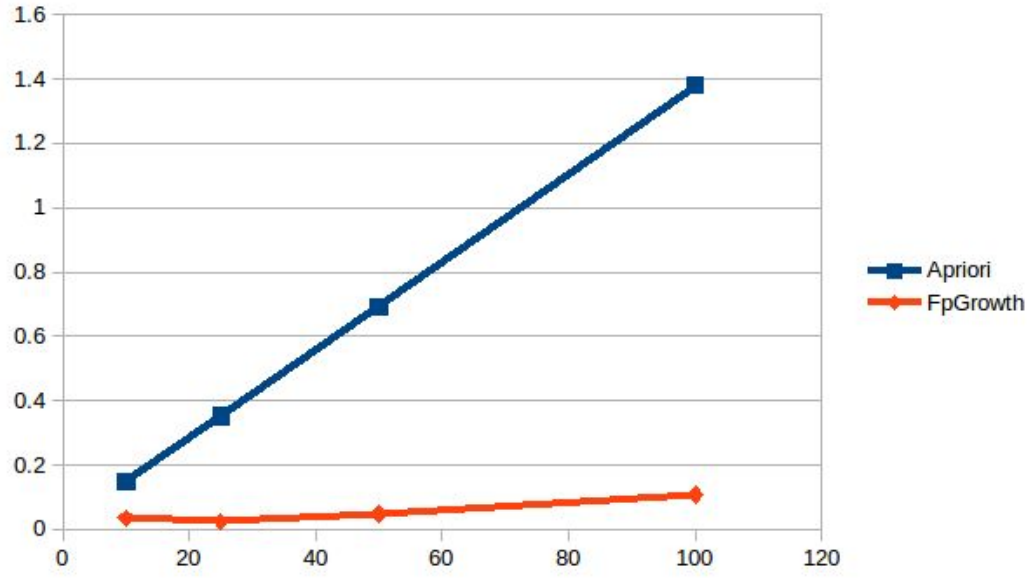


Time taken by Apriori increases exponentially as we decrease the support because now more and more candidate and frequent sets will be generated and hence number of database scans will also increase a lot. FP tree on the other hand is an order of magnitude faster than Apriori because it involves only counting. Fp growth stores a compact version of the database and its time increases linearly depending on number of transactions and items.

Part B(ii)

10% Support Threshold

Data Percent	Apriori	FpGrowth
10	0.15	0.035
25	0.353	0.024
50	0.693	0.049
100	1.38	0.107



As the Data increases, time taken by both the algorithms increase. Time for apriori increases at a much faster rate as number of unique elements increase and more scans of the database will be needed. FpGrowth on the other hand needs to scan the transactions only twice and hence rate of increase is slower. More data means more candidates and candidate generation is extremely slow and also we can generate duplicate candidates which need to be removed.