Report XQ

Task 5.

This report is mainly about the performance against different queries. In this case, 4 situations are considered which are SQL, XQuery in one XML, XQuery in multi-XML with attribute and XQuery in multi XML.

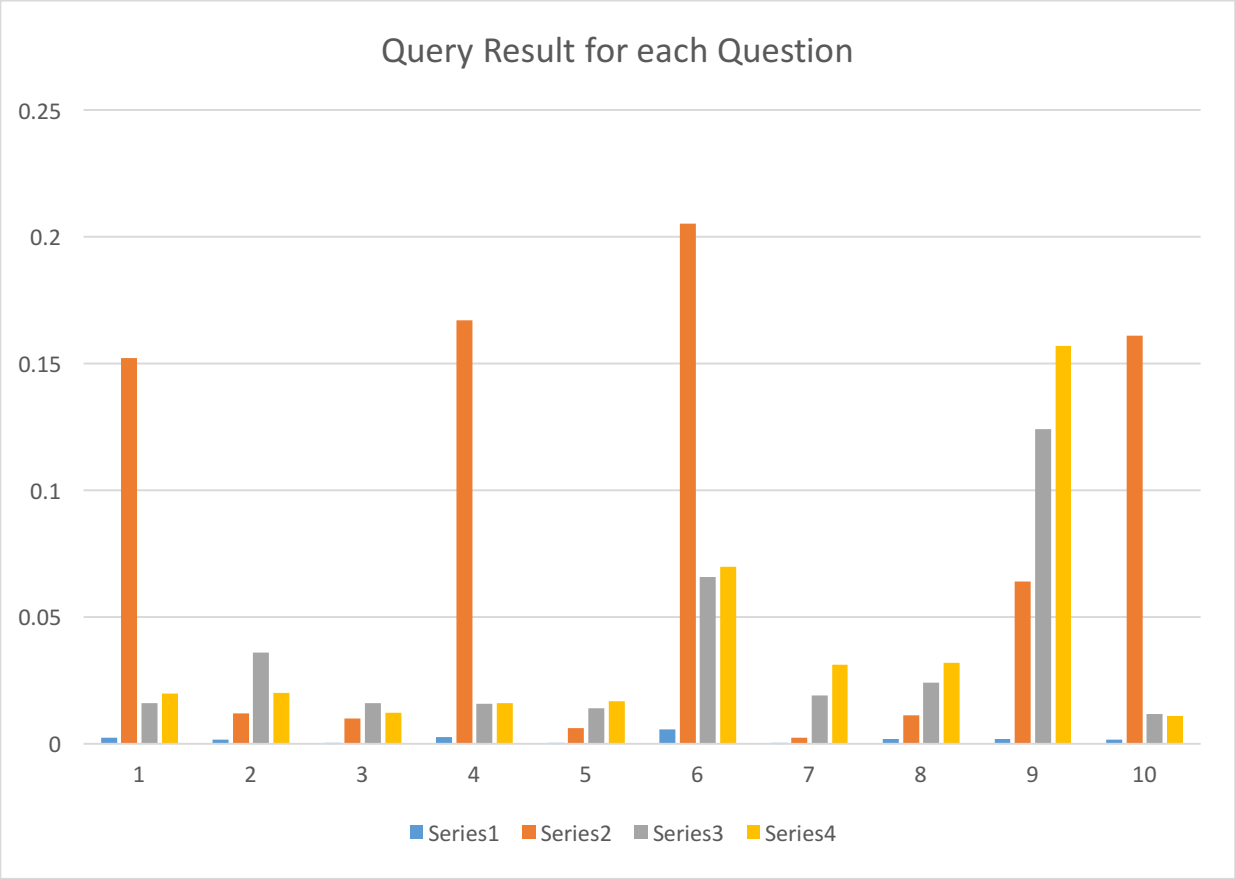

Figure1. Query Performance Chart.

According to the chart above, discussions against performance issue could be divided in to 3 categories which are SQL vs. XQuery, XQuery in one xml vs. XQuery in multi-xml and XQuery in multi-xml with attribute.

Comparison 1. SQL vs. XQuery

SQLite is a relational database management system contained in a C programming library. According to the Figure1, result from SQLite is significantly faster than XQuery. Due to different query engine, it can not be summarized accordance to the runtime only. By comparing with the runtime difference among each queries, runtime for query 6 and 9 are significantly increase in XQuery. In this case, for normal structure data, SQL has a better performance than XQuery. On contrary, XQuery may have better performance in nest structure data.

Comparison 2. XQuery with one XML vs. XQuery with multi-XML

In this case, the performance depends on query and corresponding scenario. If it requires to iterate the whole xml or self-joined situation, then XQuery with one XML costs much more like in Q1, Q4, Q6 and Q10 than XQuery with multi-XML. For UNION operation, aggregation function and single looping without joined structure, XQuery with one XML is faster. It is because for those operations, operations need to be applied only once in single XML instead of multiple times in multiple XMLs.

Comparison 3. Multi-XML XQuery with attribute vs. Multi-XML XQuery.

After investigation, in most cases, multi-XML XQuery with attribute is faster than Multi-XML XQuery in searching particular value. It is because only attribute is checked instead of XML node. Nevertheless, it cost a little bit higher when applying some operations like UNION and aggregation function.