Requirement 11

Does this project fully implement its concept?

No, the implementation done in project 2 is a prototype of Key/Value pair NoSQL Database. It has not implemented all the concepts developed in Operational concept document but it has fulfilled all the major requirements of Project 2.

In Project 2, we have implemented following requirements:

- Creating generic database which has metadata (name, description, timestamp, children) and payload, for testing this functionality we have implemented code to show how <int, string> and <string, List<string>> type of database can be handled in the system.
- Adding/Deleting/Editing key value pair
- On command persisting database in .xml file.
- On command, restoring/augmenting .xml file in current database.
- Set up a scheduler to persist database on positive time interval.
- System can handle following five queries
    - Finding value of specified key
    - Finding children of specified key
    - Finding set of all keys which matches regular expression
    - Finding set of keys that contain specified string as substring of metadata
    - Finding set of keys that are written in specified time interval
- System can also create immutable database from result sets of executed query.
- It also shows the current project structure in XML file.

Note: - For testing purpose, we have implemented the system which can handle <int, string> and <string, List< string>> type of database.

Was the original concept practical?

Yes, though we have not implemented all the functionalities, we can say that the original concept is practical as we have fulfilled all the major requirements except sharding and compound queries.

But, we have implemented this prototype such that we can expand the project in the direction to implement these remaining two concepts.

For compound queries, we have created DBFactory, which will store the intermediate data on which we can perform other queries of compound queries.

For sharding, we have implemented persisting function such that, we just need to pass lambda functions to check which data needs to be written on which xml file and based on that we can perform sharding.

Other functionalities such as Logger and authentication can be implemented in the next phase of the project.

Were there things you learned during the implementation that made the original concept less relevant?

No, by strictly following implementation style developed in Operational Concept Document, I found it easier to implement the system. Though there are few things which were modified in implementation.

- For testing of DBEngine, DBElement and DBFactory, we had to create new packages to handle circular dependency issue.
- We don't need ItemEditor and ItemFactory for the prototype of this system as this functionalities can be achieved byDBEngine module.