coreservlets.com – Hadoop Course
HBase Key Design

In this exercise, you will have a chance to develop code to retrieve data from Tall-Narrow and Flat-Wide data layouts within HBase tables.

Approx. Time: 45 minutes

Provided

Information about authors and the books they published are to be stored and accessed inside an HBase table. The implementations are provided for both Tall-Narrow and Flat-Wide solutions. Your job will be to implement `getBooks` methods.

Locate `hbase.tableDesign` package inside Exercises project. The package contains the following files:

- `Book` - Encapsulates authorId, title and publish date, the objects of type Book will be saved and retrieved

- `DataFacade` - Interface for persisting and retrieving Book objects

- `FlatAndWideTableDataFacade` - Concrete implementation of DataFacade for Flat-Wide HBase table strategy; You will need to implement `getBooks` method

- `TallAndNarrowTableDataFacade` - Concrete implementation of DataFacade for Tall-Narrow HBase table strategy; You will need to implement `getBooks` method

- `TableDesignDriver` – Driver class that will exercise persisting and retrieving Books; It constructs `FlatAndWideTableDataFacade` and `TallAndNarrowTableDataFacade` implementations and executes operations; You will need to run this class

Perform

Write Java code that will retrieve Book records from HBase for Tall-Narrow and Flat-Wide implementations of the DataFacade.

1. Start by executing `TableDesignDriver` and observing the result

   ```
   $ yarn jar Exercises.jar hbase.keyDesign.TableDesignDriver
   ```

   You should see the output with snippets as such:

   ```
   Selecting books for author [author1] between [1970.01.01
      01:10:22] and [1970.01.01 04:15:33]
    **Please implement getBooks method as it returned nothing**
   Selecting books for author [author3] between [1970.01.01
      10:25:55] and [1970.01.01 10:25:55]
    **Please implement getBooks method as it returned nothing**
   ```

2. Implement getBooks method in FlatAndWideTableDataFacade class
3. Implement getBooks method in TallAndNarrowTableDataFacade class

Expected Output

Your output should be similar to something like this:

```
----------------
Test set has [5] Books:
----------------
[Title1] by author with id [author1] published on [1969.12.31 10:05:11]
[Title2] by author with id [author1] published on [1970.01.01 01:10:22]
[Title3] by author with id [author1] published on [1970.01.01 04:15:33]
[Title4] by author with id [author2] published on [1970.01.01 07:20:44]
[Title5] by author with id [author2] published on [1970.01.01 10:25:55]
----------------
Running against facade: class hbase.tableDesign.FlatAndWideTableDataFacade
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Selecting books for author [author1] between [1970.01.01 01:10:22] and [1970.01.01
04:15:33]
   [Title3] by author with id [author1] published on [1970.01.01 04:15:33]
   [Title2] by author with id [author1] published on [1970.01.01 01:10:22]
Selecting books for author [author3] between [1970.01.01 10:25:55] and [1970.01.01
10:25:55]
   [Title5] by author with id [author3] published on [1970.01.01 10:25:55]
----------------
Running against facade: class hbase.tableDesign.TallAndNarrowTableDataFacade
----------------
Selecting books for author [author1] between [1970.01.01 01:10:22] and [1970.01.01
04:15:33]
   [Title3] by author with id [author1] published on [1970.01.01 04:15:33]
   [Title2] by author with id [author1] published on [1970.01.01 01:10:22]
Selecting books for author [author3] between [1970.01.01 10:25:55] and [1970.01.01
10:25:55]
   [Title5] by author with id [author3] published on [1970.01.01 10:25:55]
```

Hints/Suggestions

1. Refer to the slides. The Book exercise is similar to the Blog example in the slides.

Solution

2. The code can be found in the Solutions project:

   `hbase.keyDesign.TallAndNarrowTableDataFacade`

   `hbase.keyDesign.FlatAndWideTableDataFacade`

3. To run the example:

   `$ yarn jar $PLAY_AREA/Solutions.jar hbase.keyDesign.TableDesignDriver`