EECS 3311 – Section E

LAB 2 - Report

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Explain how the Iterator Pattern is implemented in the model cluster.

- The Iterator Design Pattern is implemented by primarily making the ***REPOSITORY*** class iterable, by inheriting from ***ITERABLE[G]***, which itself is a deferred class.

- While inheriting from ***ITERABLE[G]***, the ***REPOSITORY*** class is also inheriting its deferred feature: ***new_cursor***. As a result, the ***REPOSITORY*** is required to provide an effective implementation of the ***new_cursor*** feature.

- Since ***REPOSITORY*** includes three separate linear iterable structures, we cannot return cursors to all three inner data structures. The implementation of ***new_cursor*** is therefore done through the creation of a new class ***TUPLE_ITERATION_CURSOR[G]***, which itself inherits from the class ***ITERATION_CURSOR[G]***, therefore required to provide effective implementations of each of the three deferred features: ***item***, ***after***, and ***forth***.

- Therefore, based on the implementations inside ***TUPLE_ITERATION_CURSOR[G]***, we are able to return an item to the client in the form of a ***TUPLE***.

Explain how you implement the feature another cursor in the REPOSITORY class.

- The feature ***another_cursor*** in ***REPOSITORY*** has a return type of ***ITERATION_CURSOR[G]***.

- Since the client requires the return type of iterable to be in the form of a data set, we implement ***another_cursor*** through the creation of another new class, ***DATA_SET_ITERATION_CURSOR[G]***.

- ***DATA_SET_ITERATION_CURSOR[G]*** also inherits from ***ITERATION_CURSOR[G]***, therefore required to provide effective implementations of the deferred features: ***item***, ***after***, and ***forth***.

- But this implementation differs from that of ***new_cursor,*** because it initializes, in the ***item*** feature, the data values in the class ***DATA_SET[V1, V2, K]***, thereby returning an item of type ***DATA_SET***, fulfilling the specific requirements of the clients.