We added two test cases: insert\_student.sql and join\_stuent.sql.

- 1. Test case insert\_student.sql is used to test the correctness of functions inset() and select(). We first added two tuples to the relation DA created by datamation.sql. These two tuples will cause duplication in our later test on function join(). Then we tried to create an index for each attribute of relation DB. Apparently there should be an error report when we try to create an index for filler. Then we insert two tuples to DB, and try several select queries that include different kinds of operators and different data types. After this we dropped all the indices we created for DB and repeat those previous select queries, and the function that is chosen for some of these queries may get changed. During index creating and dropping phase, there are some repeated operations which should cause error reports.
- 2. Test case **join\_student.sql** is used to check the correctness of function join(). We firstly create an index on DA(ikey), which will cause the following select queries to use INL. Then we drop that index, and operate the same queries, which should be run with SMJ this time. Conditions like comparisons between two different data types and comparisons with different operators are included in those queries. Finally we add a query that should be run with SNL, and there is an non-equal-join where the two arguments are of different datatypes.

For the pager, we just need to re run all the test case and compare the result with the result above.