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Basic Module (3 KP)
Datenbanktechnologie

Topic: Implementing Self Multiplication Inside MonetDB

The goal of the Basic Module is to use and extend the structures that are used in MonetDB during query processing and execution: relation tree, statement tree, MAL plan. The task is to implement a self multiplication of a one-attribute relation. Self multiplication takes a relation r with one numeric attribute and returns a relation with one numeric attribute where all values from r are multiplied with itself.

r

A
3
9
2

r'

A
9
81
4

Table 1: Applying self multiplication

Example 1 *Picture 1 illustrates how self multiplication is applied to relation r with numeric attribute A. Result relation r' also has one attribute A with self multiplied values.*

The module includes the following steps:

1. Implement a parser extension with the new command, where r is a relation with one numeric attribute A: "SELECT * FROM mul r;"
2. Extend the relational tree with the new node representing self multiplication.
3. Implement the translation from a self multiplication node of a relational tree to a statement tree.
4. Implement the translation of a statement tree of self multiplication to a MAL plan.

5. Write a report (approximately 5 pages) and hand it in before 24.06.2019.

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