

**Project(R,A)**

Create a new relation that retains only the attributes A taken from R.

Category:

Notes:

**Select(R,C)**

Create a new relation including only tuples from R that satisfy C

Category:

Notes:

**DupElim(R)**

Create a new relation from R by including each unique tuple exactly once

Category:

Notes:

**GroupMin(R,A,B)**

Create a new relation consisting of unique tuples of the attributes A and the minima of the attributes B over the corresponding grouped sets of tuples.

Category:

Notes:

**GroupMax(R,A,B)**

Create a new relation consisting of unique tuples of the attributes A and the maxima of the attributes B over the corresponding grouped sets of tuples.

Category:

Notes:

**GroupCount(R,A)**

Create a new relation consisting of unique tuples of the attributes A and counts of the sizes of corresponding grouped sets of tuples.

Category:

Notes:

**GroupSum(R,A,B)**

Create a new relation consisting of unique tuples of the attributes A and the sums of the attributes B over the corresponding grouped sets of tuples.

Category:

Notes:

**GroupAvg(R,A,B)**

Create a new relation consisting of unique tuples of the attributes A and the averages of the attributes B over the corresponding grouped sets of tuples.

Category:

Notes:

**SetUnion(R,S)**

Create a new relation containing each of the unique tuples found in either R or S.

Category:

Notes:

**BagUnion(R,S)**

Create a new relation containing each of the tuples found in either R or S (including duplicates).

Category:

Notes:

**SetIntersection(R,S)**

Create a new relation containing each of the unique tuples found in both R and S.

Category:

Notes:

**BagIntersection(R,S)**

Create a new relation containing each tuple found in both R and S, repeated the lesser of their number of occurrences in each.

Category:

Notes:

**SetDifference(R,S)**

Create a new relation containing each unique tuple found in R but not in S

Category:

Notes:

**BagDifference(R,S)**

Create a new relation containing each unique tuple found in R more often than S, as many times as there are excess appearances in R

Category:

Notes:

**Product(R,S)**

Create a new relation containing every possible concatenation of a tuple from R with a tuple from S.

Category:

Notes:

**NaturalJoin(R,S)**

Create a new relation containing concatenations of a tuple from R with a tuple from S, where the tuples match on shared attributes.

Category:

Notes:

**NestedLoopJoin(R,S)**

Create a new relation containing concatenations of a tuple from R with a tuple from S, where the tuples match on shared attributes.

Category:

Notes:

**Sort (R)**

Applies a two-phase multiway merge sort on R.

Category:

Notes:

**SortDupElim(R)**

Uses merge sort to eliminate duplicates in large relation R

Category:

Notes:

**SortGroupAgg(R,A,G)**

Uses merge sort to compute some aggregated property G of tuples from large relation R, as grouped by attributes A

Category:

Notes:

**SortUnion(R,S)**

Uses merge sort to take the union of large relations R and S

Category:

Notes:

**SortIntersection(R,S)**

Uses merge sort to take the intersection of large relations R and S

Category:

Notes:

**SortDifference(R,S)**

Uses merge sort to take the set difference of large relations R and S

Category:

Notes:

**SortJoin(R,S)**

Uses merge sort to produce a join of large relations R and S

Category:

Notes:

**HashDupElim(R)**

Uses hashing to eliminate duplicates in large relation R

Category:

Notes:

**HashGroupAgg(R,A,G)**

Uses hashing to compute some aggregated property G of tuples from large relation R, as grouped by attributes A

Category:

Notes:

**HashUnion(R,S)**

Uses hashing to take the union of large relations R and S

Category:

Notes:

**HashIntersection(R,S)**

Uses hashing to take the intersection of large relations R and S

Category:

Notes:

**HashDifference(R,S)**

Category:

Notes:

**HashJoin(R,S)**

Uses hashing to produce a join of large relations R and S

Category:

Notes:

**IndexSelect(R,A)**

Uses an index to select tuples from R matching condition C on A

Category:

Notes:

**SortedIndexJoin(R,S)**

Uses a sorted index to produce a join of large relations R and S

Category:

Notes: