Weighted Query Workload

```
Q1: SELECT SUM(l.LO_EXTENDEDPRICE * l.LO_DISCOUNT)
FROM LINEORDER l, DDATE d WHERE ...
AND l.LO_DISCOUNT IN (1, 4, 5) AND l.LO_QUANTITY <= 30
Q2: SELECT c.C_NATION, SUM(l.LO_REVENUE)
FROM CUSTOMER c, LINEORDER l
WHERE ... l.LO_DISCOUNT >= 7 AND
l.LO_QUANTITY >= 25 AND
l.LO_QUANTITY <= 35 ...
```

MLPPI wizard

Preprocessing Phase
(Simplifying queries, extracting ranges, building distinct ranges, etc.)

Most Granular Partitioning (MGP)

Initial Phase
(Merging partitions until their counts fall under a limit)

Initial MLPPI

Optimized Phase
(Further reducing the partitions for enhanced management)

Final MLPPI

Call explain with a query q in the workload

Extract the **predicates** of q

Call explain with the *scan query* on q

Obtain the **scan cost** of q (*estimated block counts*)

Call explain with the *shadow query* on q

Receive the **query cost** of q (*estimated processing time*)

Query Optimizer

DBMS Server

```
ALTER TABLE LINEORDER MODIFY PRIMARY INDEX
PARTITION BY (
CASE_N( LO_DISCOUNT ≥ 1 AND LO_DISCOUNT ≤ 5,
  LO_DISCOUNT ≥ 7, NO CASE OR UNKNOWN),
CASE_N(LO_QUANTITY < 25, LO_QUANTITY ≥ 25 AND
     LO_QUANTITY ≤ 35, NO CASE OR UNKNOWN) );
```