

PBench - VLDB'25 Time aggregated windows

**Stage 1: Synthesizer
Data Preparation**

Workload
Component
Preparation

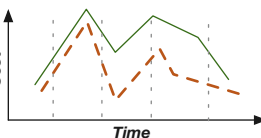
Stage 2: Workload Synthesis

Workload
Component
Selection

Timestamp
Assignment

Synthesized Workload

Execution
Cost



Workload
Replay

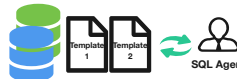
SQLBarber - SIGMOD'26 Cost range aggregated windows

**Stage 1: SQL Template
Generation**

Constraints
Selection

Cost Distribution
Preparation

Query Template Generation



LLM Generated Templates

Stage 2: Cost-Aware Query Generation

Cost Distribution

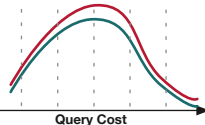


Template
Profile, Refine,
Prune

BO-Based
Predicate
Exploration

Synthesized Workload

Number of Queries



Query Level Workload Synthesis

RQGen

**Generator Data
Preperation**

Workload Trace
Preparation

Test Data
Preparation

**Data-Aware Search Space
Bounding**

Scan Data
Space
Bounding

Realistic
Cost Aware
Space
Bounding

Temporary
Query Graph

Execution-Aware Predicate Search

Query Graph
Translation

Predicate
Selection

Execution-Aware
Predicate
Search

Synthesized Workload

