**Introduction**

Picasso[1] is a graphical tool for visualizing the behavior of modern database query optimizers.

Picasso takes as input a 'query template' that defines a relational selectivity space, and an optimizer, and generates a suite of diagrams that characterize the behavior of the optimizer over this space.

The diagrams produced on decision support query templates have provided a variety of interesting insights, often challenging the conventional wisdom.

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**Three Tier Architecture of Picasso**

- **Developers**
  - Analysis, Debugging, Redesign
- **Researchers**
  - Optimization testbed
- **Instructors, Students**
  - Teaching and Learning aid

**Supported Engines**
- IBM DB2
- Oracle
- MS SQL Server
- Sybase
- PostgreSQL

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**Picasso Diagrams**

- **Compiled Cost Diagram**: Visualization of the estimated plan execution costs
- **Compiled Cardinality Diagram**: Visualization of the estimated query result cardinalities
- **Schematic Plan-tree Diagram**: A tree visualization of a selected plan in the plan diagram annotated with the cost and cardinality information.
- **Plan-Diff Diagram**: Highlights the schematic differences between a selected pair of plans in the plan diagram.

**Plan Diagram**: Pictorial enumeration of the execution plan choices.

**Reduced Plan Diagram**: Shows the extent to which a plan diagram can be simplified (by replacing some of the plans with their siblings) without increasing the cost of any individual query by more than a threshold value.

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**Project Website**: [http://dsl.serc.iisc.ernet.in/PICASSO/picasso.html](http://dsl.serc.iisc.ernet.in/PICASSO/picasso.html)

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**Publications**


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All diagrams shown here are for 2D templates, but Picasso supports arbitrary number of dimensions. The diagrams for such case are drawn for each 2D slice.