

# **Optimization**

## www.gams.com

Support

Sales

**Solvers** 

**Documentation** 

**Model Library** 

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### **High-Level Modeling**

The General Algebraic Modeling System (GAMS) is a high-level modeling system for mathematical programming problems. GAMS is tailored for complex, large-scale modeling applications, and allows you to build large maintainable models that can be adapted quickly to new situations. Models are fully portable from one computer platform to another.

## Wide Range of Model Types

GAMS allows the formulation of models in many different problem classes, including

- Linear (LP) and Mixed Integer Linear (MIP)
- Quadratic Programming (QCP) and Mixed Integer QCP (MIQCP)
- . Nonlinear (NLP) and Mixed Integer NLP (MINLP)
- Constrained Nonlinear Systems (CNS)
- Mixed Complementary (MCP)
- Programs with Equilibrium Constraints (MPEC)
- **Conic Programming Problems**
- Stochastic Linear Problems

## c(i,j) transport cost in the c(i,j) = f \* d(i,j) / 1000; ables x(i,j) shipment quantities in case total transportation costs z === sum((i,j), c(i,j)\*x(i,j)); sum(j, x(i,j)) === a(i); sum(i, x(i,j)) === b(j); lve transport using lp minimizing z :

**GAMS Integrated Developer Environment for editing,** debugging and solving models and viewing data.

Optimal solution found, Objective: 153.675000

153.675000 x(san-diego.topeka) demand(topeka) s 153.675000 x(san-diego.new-york) supply(seattle) s

#### State-of-the-Art Solvers

GAMS incorporates all major commercial and academic state-of-the-art solution technologies for a broad range of problem types, including global nonlinear optimization solvers.

## DemandTec Leverages GAMS to Drive Innovation in Retail and **CPG Industries**

DemandTec uses sophisticated econometric and optimization models to help retailers and manufacturers make merchandising and marketing decisions based on a quantified understanding of consumer demand. DemandTec's applications are used to:

· Model price elasticity, cross-price elasticity, and other merchandising causals to predict and influence demand given different merchandising conditions and strategies.

- · Optimize prices and promotions to maximize sales, volume, or profit, while operating within the constraints of competitive pricing and other business rules.
- · Accurately forecast the impact of merchandising strategies and tactics, taking into account cannibalization, halo effects, seasonality, trend, and other factors.



