

للله آ

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Lar					
Stocks	Sell-In	Price	Gain	Which stocks	
AAPL	1 day	192.52	?	do I buy and	The proble
AAPL	2 days	192.52	?	sell them?	With mWith m
•••	•••	•••			CV
MSFT	1 day	429.46	?		- Key Idea: R
MSFT	2 days	429.46	?		SUM
•••	•••	•••			
Gain	Gain	Gain	Gain		EXPECTE
-0.34	0.59	1.59	-0.34		If V = -10, the
-0.67	1.36	2.18	-0.67	The uncertainty	 Search f Convert A CVaR cons
•••	•••	•••	•••	generating lots	regardless o
2.59	-5.67	3.21	2.59	of scenarios, i.e.,	Stocha
1.27	-3.78	4.12	1.27	possible worlds	Key Idea: Di
	•••	•••			
					•
Deci	sion Ma	aking via	SQL-	Like Queries	
The Stoch					
SELECT PA FROM STOC SUCH THAT SUM(Pri					
SUM(Gai EXPECTE					

MAXIMIZE EXPECTED SUM(Gain)







DATA SYSTEMS RESEARCH FOR EXPLORATION NALYTICS, AND MODELIN

DistPartition: Partitioning Stochastic Data

Key Idea: Recursively partition the data based on the farthest tuple



b. Perform size-based partitioning from the farthest tuple



d. Get the final Partitions

Theoretical Guarantees

Under highly probable assumptions, for maximization problems, the objective value of the resulting package will be within:

 $(1-\epsilon)O_{opt} - (2-\epsilon)d_{max} * t$

- O_{opt} is the objective value of the optimal package
- d_{max} is the highest distance between two tuples in the same partition t is the number of distinct tuples in the package

Experimental Results

Stochastic SketchRefine generates packages of comparable quality in orders of magnitude lower runtime than existing methods

	Runt	time Compa	risons			
		SummarySe	arch •• CVaRi	fication – Sto	chastic SketchRe	ine
		10000				
	spuo	1000				
	Sec	100				
50000 100000 er of tuples		10 1000	10000	100000	1000000	
			Nu	mber of tup	les	