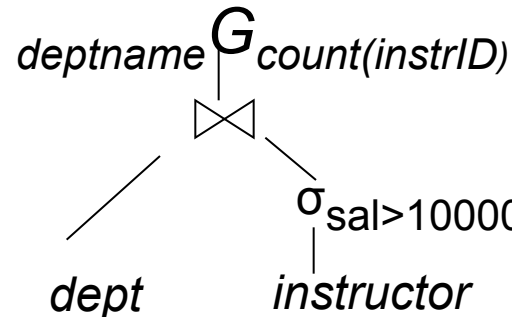# Generating Test Data for Killing SQL Mutants: A Constraint-based Approach
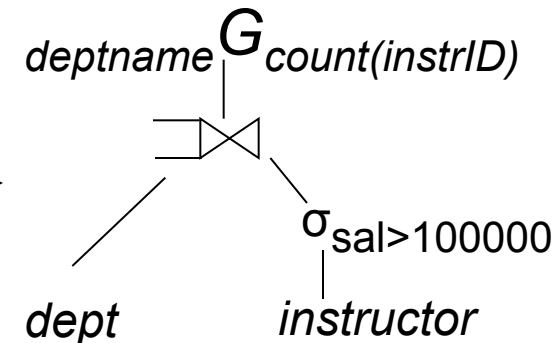
Shah, Sudarshan, Kajbaje, Patidar, Gupta and Vira, IIT Bombay

Goal: Find # of high paid instructors in each department

$_{deptname}G_{count(instrID)}$

⋈

$\sigma_{sal>100000}$

dept   instructor

mutation ←→

$_{deptname}G_{count(instrID)}$

⋈

$\sigma_{sal>100000}$

dept   instructor

Query Written by Programmer
(may omit some departments)

Correct (Intended) Query

◆ Queries validated by running on test data and manually checking results
◆ Test data typically generated manually and/or in query independent way
  ▪ misses errors (cannot differentiate some mutants)
◆ We provide a principled approach to generating data
  ▪ based on creating f.o. constraints from query, and solving them
  ▪ with guarantees of "killing" all mutants in a large class of mutations
  ▪ small number of datasets; each dataset small and intuitive
◆ For the gory details come to talk: (Last day, last show)

http://www.cse.iitb.ac.in/infolab/xdata