

# Payal Sharma - Assignment 3 (Public Housing Inspection Data)

## 1) Facts (what is measured)

a) Number of facts: 2 (Inspection cost; Inspection score).

b) Identified facts:

- COST\_OF\_INSPECTION\_IN\_DOLLARS (cost to perform the inspection)

- INSPECTION\_SCORE (0-100 score for the inspected development)

c) Fact types:

- Cost: additive (can be summed across time, PHA, or development to get total spend).

- Score: non-additive (summing scores has no meaning; meaningful rollups use averages/percentiles).

## 2) Dimensions (who/what/when/where context)

a) Number of dimensions: 3.

b) Identified dimensions:

- PHA dimension (PUBLIC\_HOUSING\_AGENCY\_NAME).

- Development/Location dimension (development name + address + city + state).

- Date dimension (INSPECTION\_DATE).

## 3) Fact table type(s) for management reporting

- Transaction fact table at the inspection grain (one row per inspection) to preserve detailed history (date, PHA, development, cost, score).

- Periodic snapshot fact table at the month/PHA level (monthly inspection cost totals) to support the requested monthly cost summaries efficiently.

## 4) Slowly Changing Dimension (PHA name/address changes)

- Use SCD Type 2 for the PHA dimension: when a PHA is renamed or merged, insert a new PHA dimension row with a new surrogate key and update effective start/end dates (and a current flag). This preserves historical reporting (what the PHA was called at the time of each inspection) while still allowing a 'current' view for operational use.