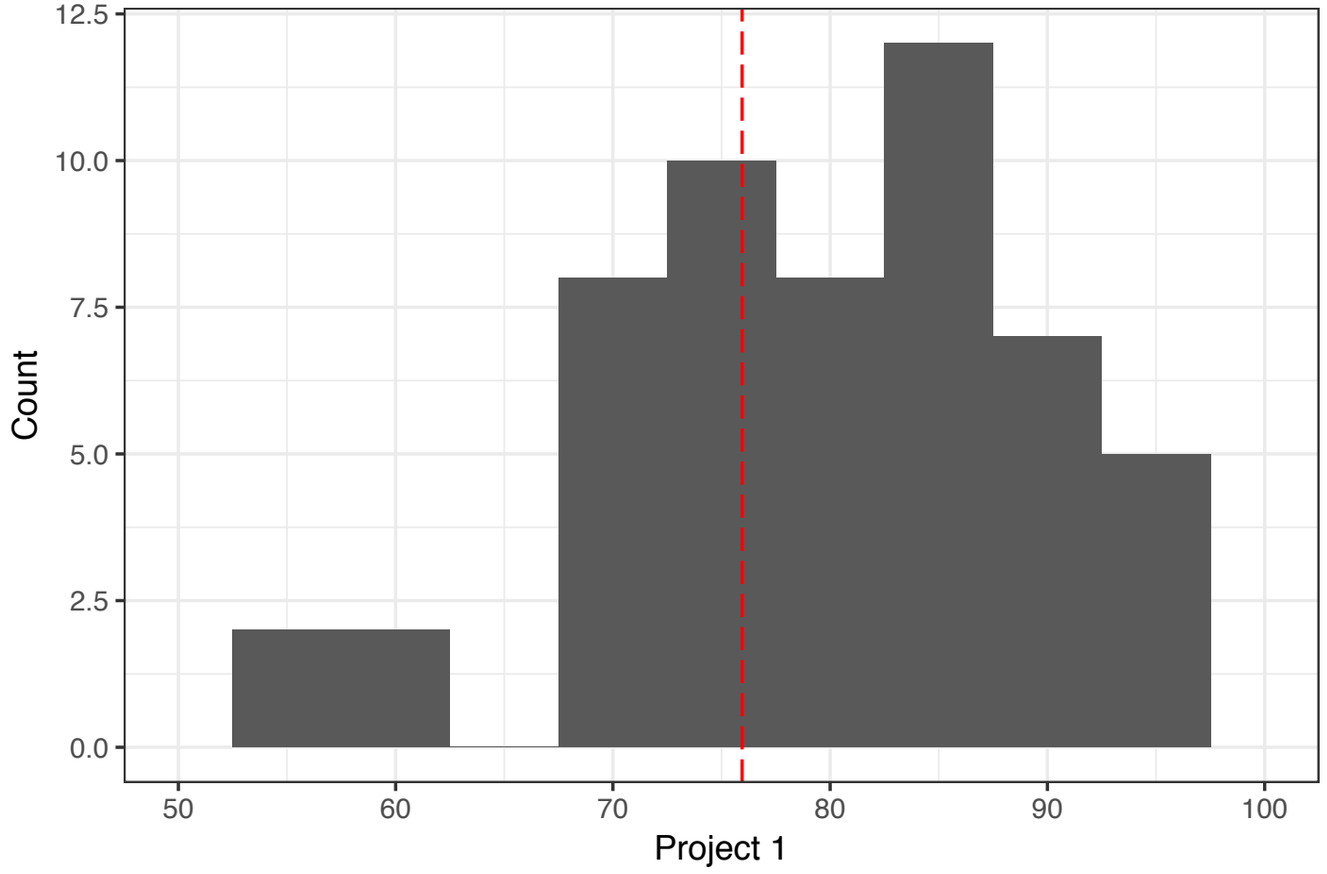
Project 1, Midterm, & Database Design Review

CS377: Database Systems

Project #1: Statistics

- Median: 80.00
- Mean: 75.95
- SD: 18.25



Project #1: Grading Distribution

- Problem 1 —> Camilo
- Problem 2 A - D —> Camilo
- Problem 2 E - M —> Henry

Project #1: Notes

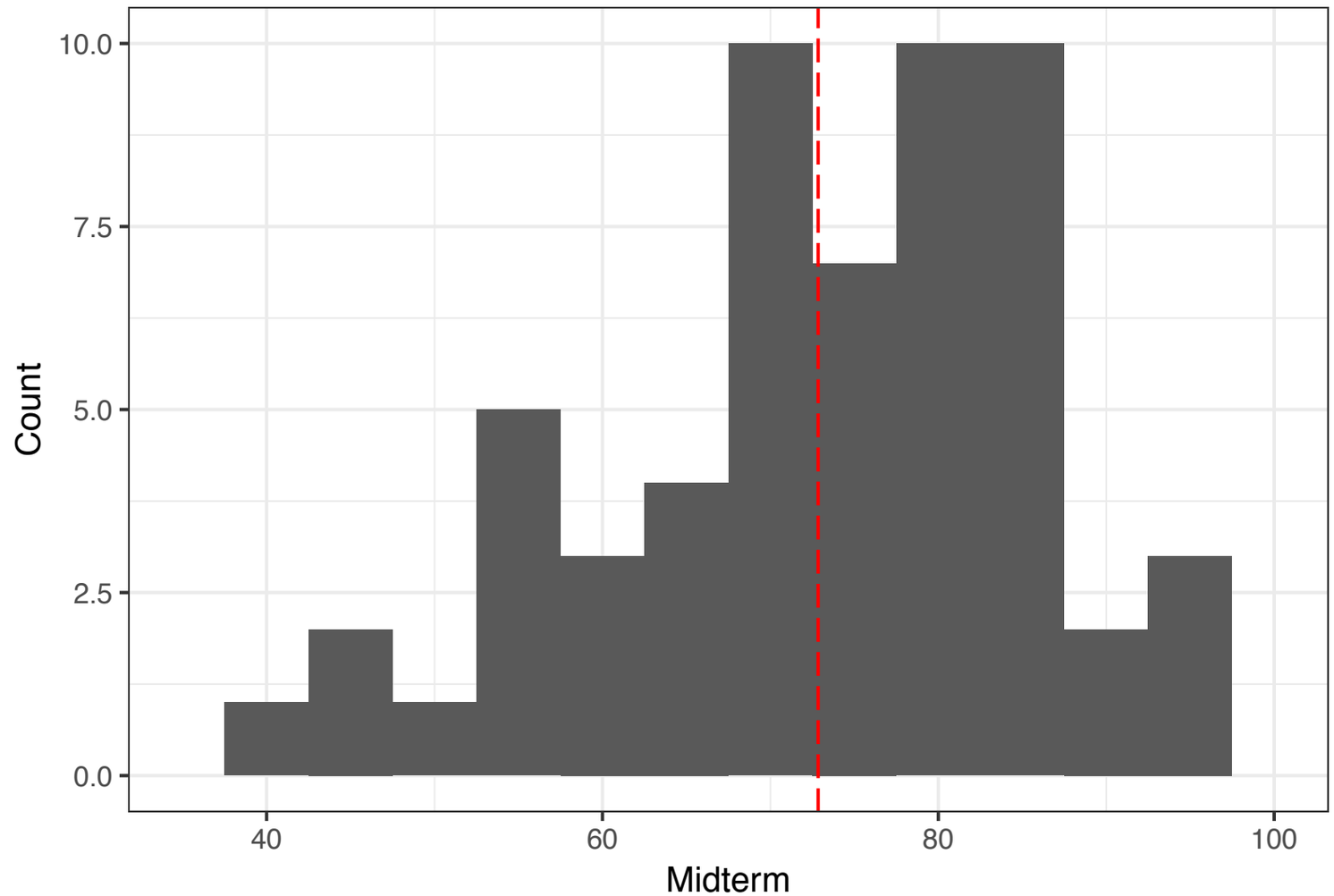
- Failure to include README.txt file resulted in the deduction of a late day
    - Email me if you want to know how many late days you've used to this point
- Contact the TA via email to ask for a regrade — same policy as Gradescope applies
    - Query timeout - if you show the TA that your query returns the correct result in person you can get credit back

Midterm: Logistics

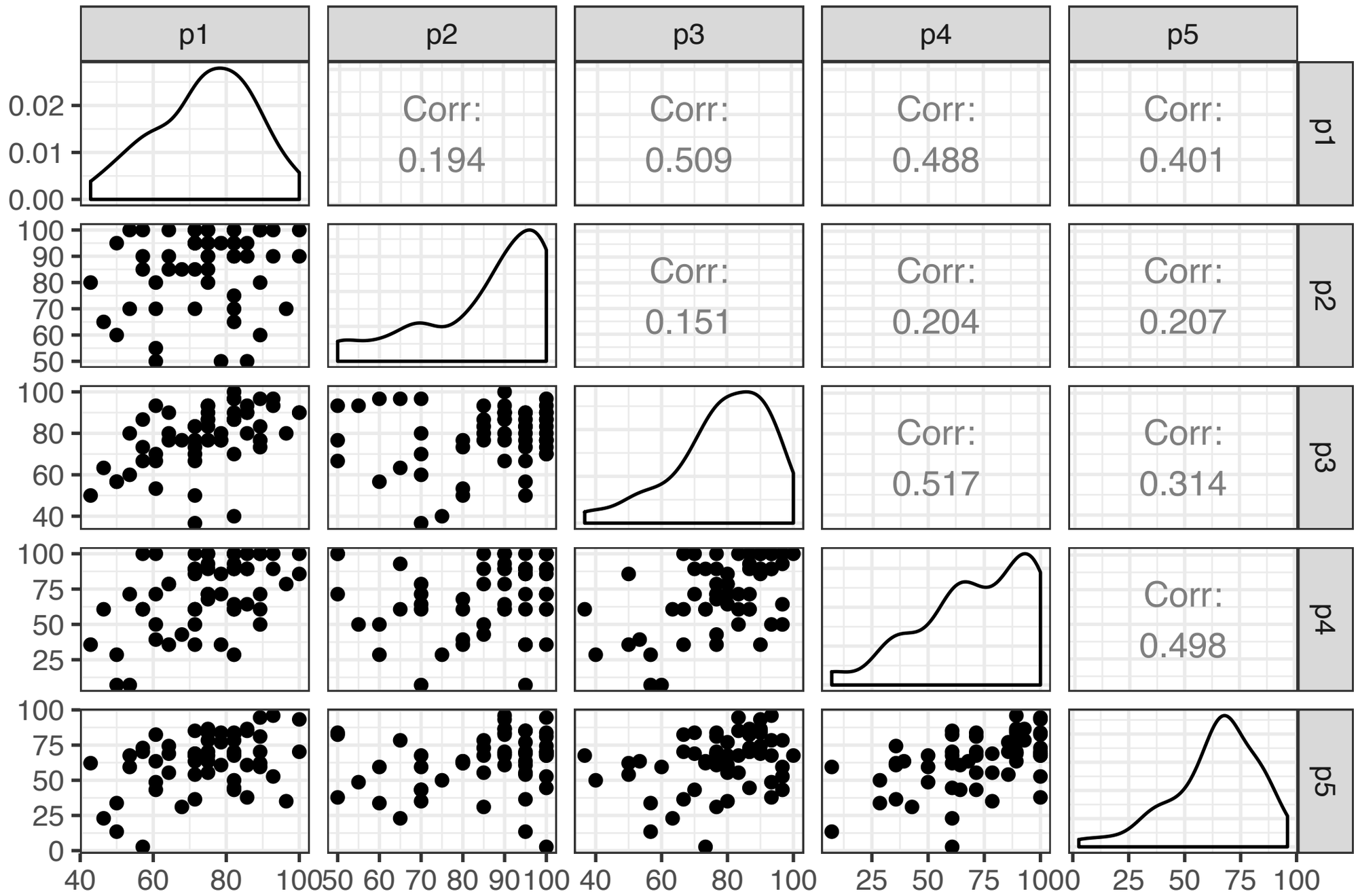
- Original exams can be picked up (no markings on them)
- Submit a written request (through Gradescope) indicating which subproblem you would like regraded
- Subject to the same rules as assignment regrades
- Open until next Tuesday March 21st, 2:00 PM

Midterm: Statistics

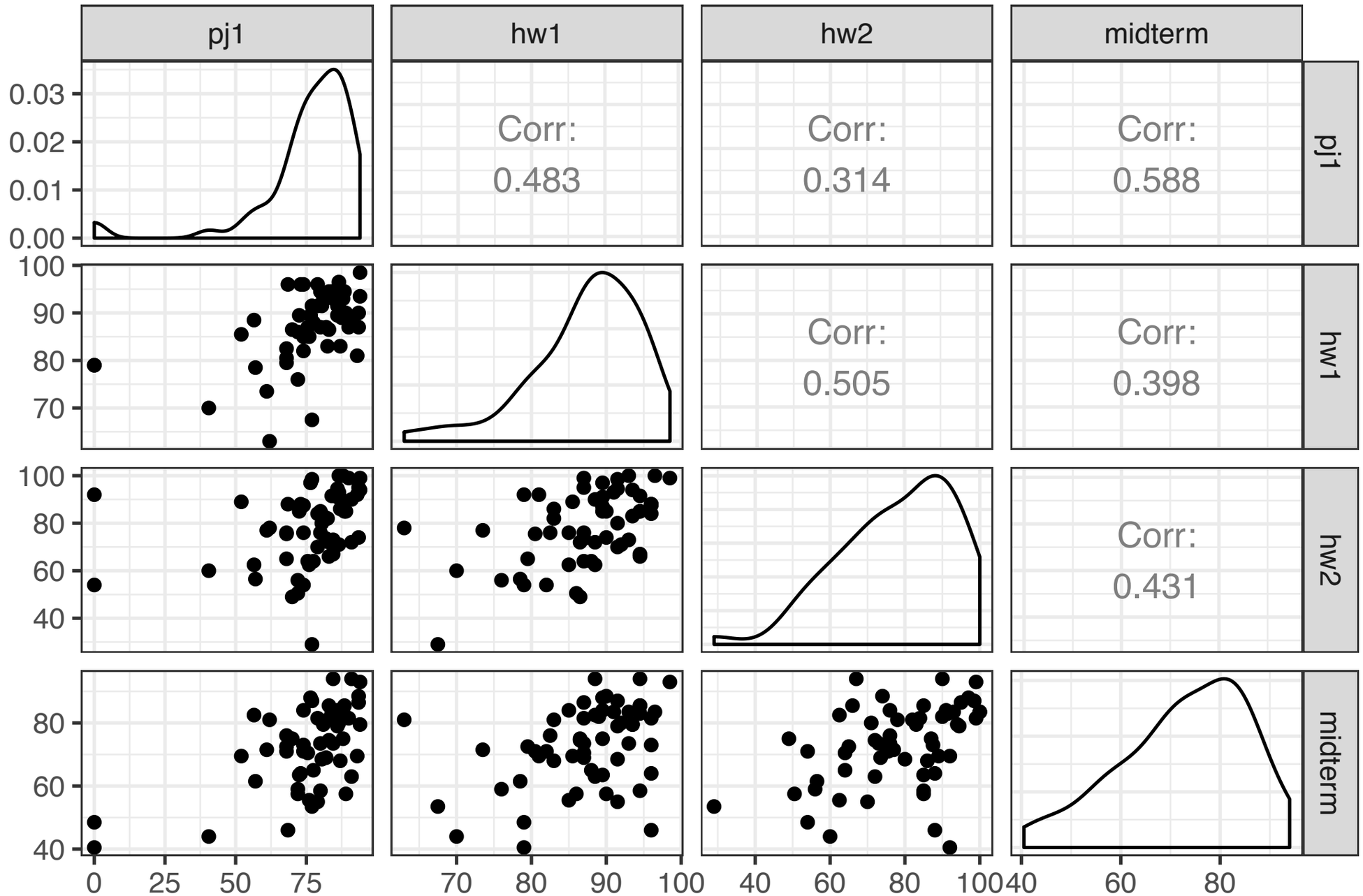
- Median: 74.00
- Mean: 72.84
- SD: 12.86



Midterm: Problem Statistics

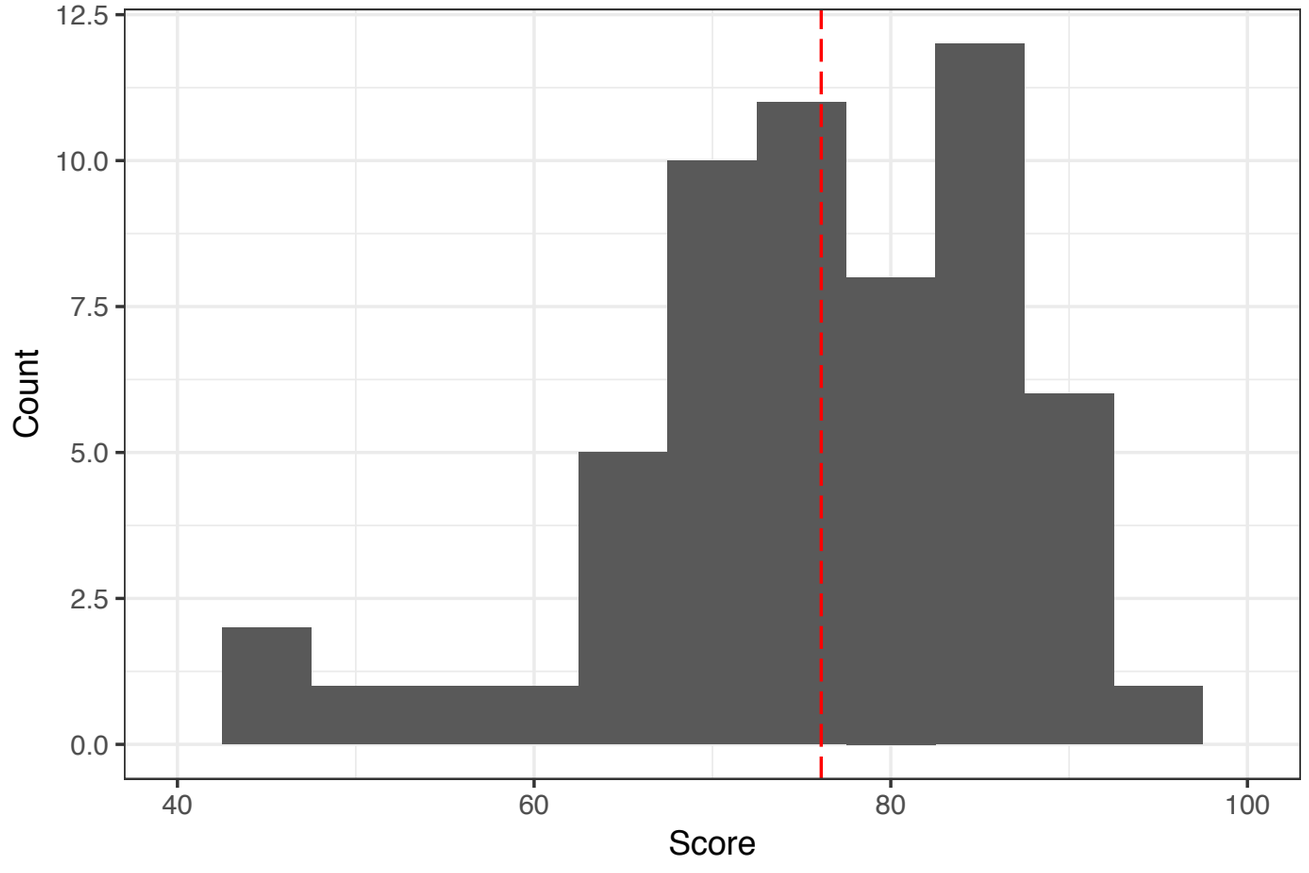


Midterm & Assignments



Grades: Thus Far (37.5%)

- Each homework is worth 5%
- Project is worth 7.5%
- Midterm is worth 20%



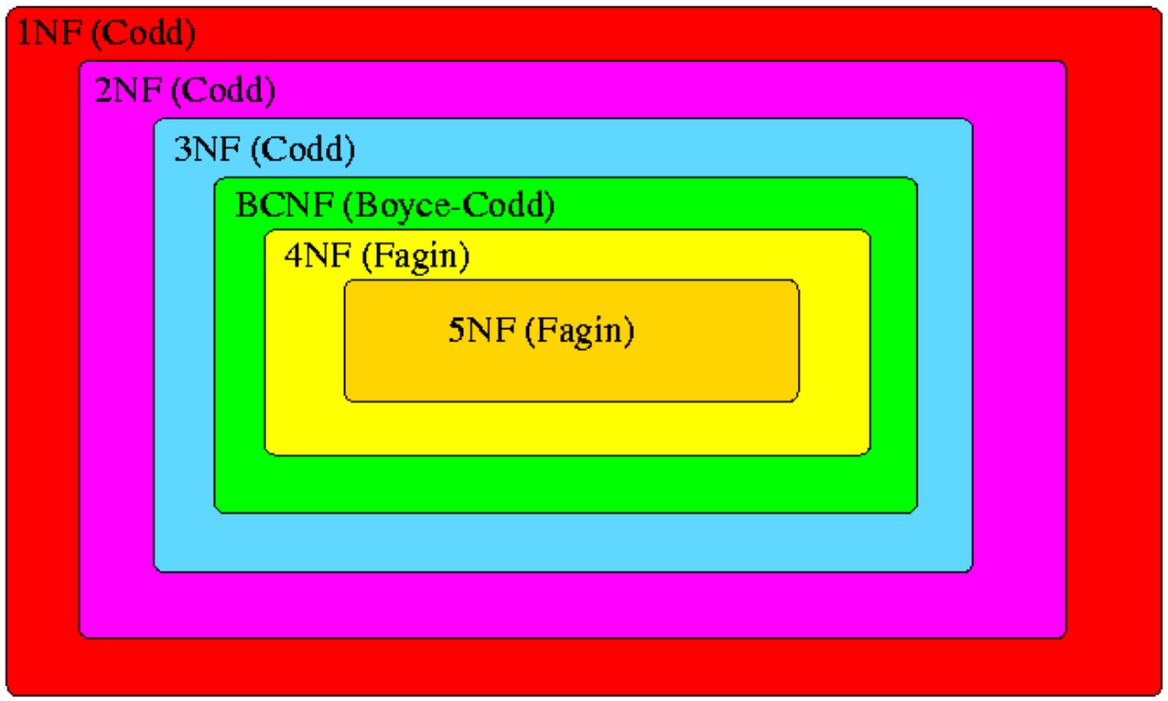
$$\text{Score} = \frac{10}{37.5}(\text{HW1} + \text{HW2})/2 + \frac{7.5}{37.5}(\text{PJ1}) + \frac{20}{37.5}(\text{MIDTERM})$$

Rest of Semester Logistics

- Homework #3: Database Design
  - Out: 3/16
  - Due: 3/31
- Project #3 & 4: Web Application Design
  - Out: 3/28
  - Due: 4/24
- Homework #4: Indexing, Query Optimization, and Transactions
  - Out: 4/11
  - Due: 4/21
- Final Exam
  - May 3rd, 3:00 - 5:00 PM

Normal Form

- Normal form: set of properties that relations must satisfy
- Relations exhibit less anomalies
- Successively higher degrees of stringency



Functional Dependencies

- Functional dependencies: X —> Y
  - Constraint between two sets of attributes
  - “Bad” FDs cause anomalies
  - “Good” FDs are keys
- Want to find keys for relation R — NP-hard problem

Attribute Closure Set

- If X is an attribute set, the closure X^+ is the set of all attributes B such that X —> B
  - X is subset of X^+ since X —> X
  - X^+ includes all attributes that are functionally determined from X
- Importance: If $X^+ = R$, then X is a superkey
  - Closure can tell us if set of attributes X is a superkey

Find Key via Closures

- Closure algorithm finds the closure sets of all the functional dependencies

- Heuristic #1: Increase/decrease the elements until you find the set