

# Personalized Assessment Reports to Inform and Motivate Students within Introductory Statistics Courses using R and Akindi

Immanuel Williams Ph.D.

California Polytechnic State University

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# Traditional Assessment Reporting

**Imagine a 10-question paper & pencil multiple choice quiz**

## **Traditional Feedback**

- Score
- Quiz and Score
- Late

## **What about?**

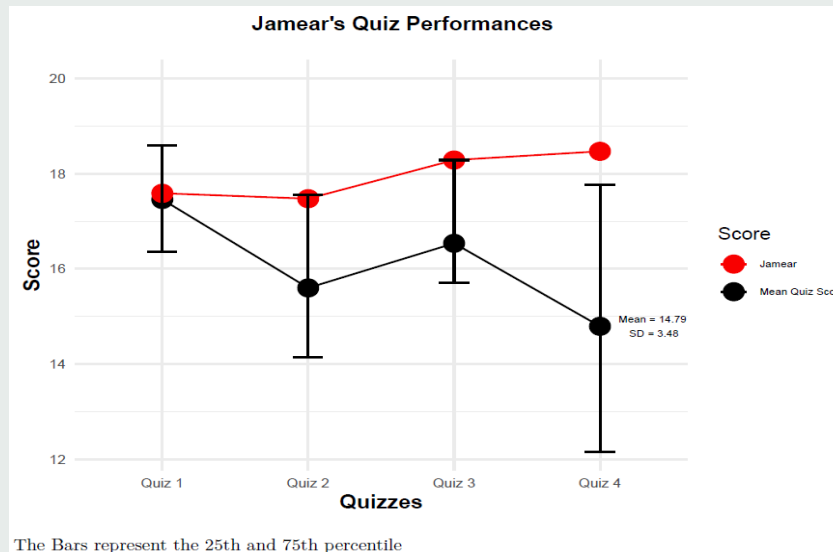
- Students Improvements
- In-person Interactions
- Missed concepts by the class

## **An Alternative Reporting Technique**

1. Students Performance Plot
2. Concept Table
3. The quiz back with answers

# An Alternative: A Student Report

## 1. Comparison of Performance Plot



# An Alternative: A Student Report

## 2. Concepts Table

Breakdown of Quiz 4's Major Concepts

Major Concepts	Student Total	Max Total
implications of method	2	3
method detection	2	2
statistical process	0	1
variable specification	1	4

- Implications of Method is being able to make conclusions after the statistical process has been implemented
- Method Detection is being able to specify which inferential technique should be used
- Statistical Process is being able to recognize the general concepts within statistics such as the population, observational unit, and stating the statistical question
- Variable specification is being able to specify if a variable is categorical, categorical binary, or quantitative

# An Alternative: A Student Report

## 3. Question, Response, Answer, & Concept

### Original Quiz 4

**Question 4\_b\_1** A fitness trainer was interested in whether a strength development increased her trainees' maximum lift (in pounds) on the bench press exercise. She asked twenty-five of her trainees to participate in a study. The amount of weight they could each lift was recorded before they took the strength development class. After completing the class, the amount of weight they could each lift was again measured. Which statistical inference method should be implemented in this situation?

**Question 1** What are the the explanatory and response variables.

Your Response: A. Explanatory variable: average weight lost before training. Response variable: average weight lost after training

Correct Response: B. Explanatory Variable: When Training was done, Response Variable: Amount of weight lifted

This question is about: variable detection

Total Points: 0 (Incorrect)

# Elements to create reports in R

## 1. Concept data excel sheet

- Quiz Number, Question Name, Question Choices, Major Concept

## 2. Akindi Quiz excel sheet

- What is Akindi?
  - Print Bubble Sheets
  - Scan & Grade Bubble Sheets

Student Name	Student ID	Section	Grade	Mark (out of 10)	Q1	Q2	Q3	Q4	Q5
Key and average	NA	NA	0.6943	6.94	B	A	B	A	E
Weight	NA	NA	NA	10.00	1	1	1	1	1
Common Answer	NA	NA	NA	NA	B	A	A	A	E
Correct Students (out of 20)	NA	NA	NA	NA	15	10	12	9	19
Williams, Jamear	123456789	NA	0.7000	7.00	B	A	(A)	A	E

## 3. Past Performance excel sheet

- Student ID, Quiz Number, Graded Question

# Student Engagement & Motivation

- Office Hours have directed conversations
- Studying for comprehensive exams are easier
- Quotes:
  - "Review content more efficiently"
  - "Pinpoints the exact location for studying"
  - "feel like I can actually learn from my mistakes and improve myself since I actually know what specifically I'm doing right and wrong."

# Conclusion & Next Steps

- Improve their understanding of content
- Drawbacks
- R assessoR availability on GitHub this summer