

Midterm Results

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Programming Languages – Spring 2024

Recall: Questions

Q1 – Matching, concepts/definitions

Q2 – Programming, binary tree height

Q3 – Short answer, concepts/definitions

Q4 – Reading Code

Q5 – True or False, functors, monads

Q6 – Programming, isPalindrome

Q7 – Programming, mapIf

Overall Statistics

Median/Mean both ~ 76/100

Max 93/100

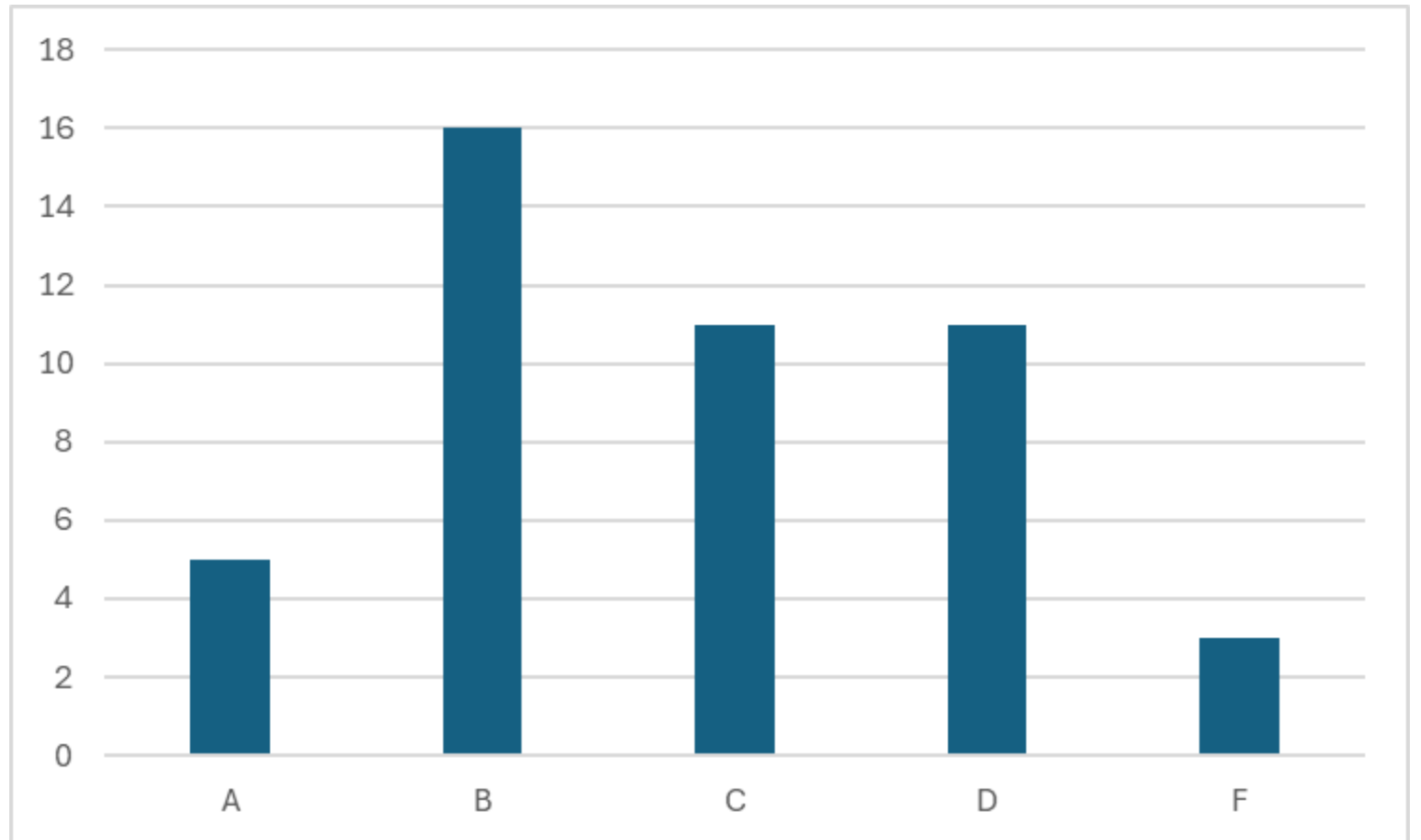
A – 5

B – 16

C – 11

D – 11

F – 3



Observations

Strengths:

- Programming with familiar concepts (tree height, isPalindrome)
- Concepts/Definitions

Proficient:

- Working with data types (tree)
- Reading Code

Needs improvement:

- Programming with novel concepts (mapIf)
- Functors, Applicatives, Monads

Question Analysis

	Possible	Mean	Pct
Q1 – Matching, concepts/definitions	10	9.0	90%
Q2 – Programming, binary tree height	12	9.0	75%
Q3 – Short answer, concepts/definitions	20	17.6	88%
Q4 – Reading Code	20	14.8	74%
Q5 – True or False, functors, monads	20	12.5	63%
Q6 – Programming, isPalindrome	8	7.7	96%
Q7 – Programming, mapIf	10	5.6	56%

Pearson Correlation

- Two factors are *correlated* when they move together
- Question: Which test questions are strongly correlated with overall performance on the test?
 - Strongly correlated questions are good measures of performance
 - Weakly correlated questions:
 - may be misleading or written poorly
 - students may not have learned the topics
 - may be simply unrelated to overall performance
 - Negatively correlated questions may be incorrect- students learned the concepts and consistently gave the same answer, but that answer was scored incorrectly

Correlation Analysis

	Pearson Cor. Scale (-1.0 - +1.0)	
Q1 – Matching, concepts/definitions	Weak	(<0.3)
Q2 – Programming, binary tree height	High	(>0.5)
Q3 – Short answer, concepts/definitions	Medium	(0.4-0.5)
Q4 – Reading Code	Medium	(0.4-0.5)
Q5 – True or False, functors, monads	Weak	(<0.3)
Q6 – Programming, isPalindrome	Weak	(<0.3)
Q7 – Programming, mapIf	High	(>0.5)

Correlation Analysis

Class hypothesis? Why were these questions weakly correlated?

Q1 – Matching, concepts/definitions

Q5 – True or False, functors, monads

Q6 – Programming, isPalindrome

Correlation Analysis

My hypothesis:

Q1 – Matching, concepts/definitions

- On study guide, definitional

Q5 – True or False, functors, monads

- Difficult topic, T/F is known to be tricky as assessment tool
- Mean/Median is close to random chance (12/20) vs. (10/20)

Q6 – Programming, isPalindrome

- On study guide

Strong Correlates

- Question: Would you pass a programming interview in Haskell?
- Writing trees in GHCi and programming mapIf are strong overall predictors of success
- Everything is important, but those two tasks are probably the strongest predictors of whether or not you're becoming functional as a Haskell programmer

Final Thoughts

- Adding a curve of 8 points to the midterm on Canvas
- Consider your final score to be what is written +8

