Lesson 3 Quiz

4/5 points earned (80%)

Correct

1 / 1 points

1. Suppose a school collected some data on students' preference for hot dogs (HD) vs. hamburgers (HM). We have the following 2×2 contingency table summarizing the statistics. If lift is used to measure the correlation between HD and HM, what is the value for lift(HD, HM)?

	HD	¬HD	Σrow
HM	40	24	64
¬HM	210	126	336
Σcol	250	150	400

- -∞
- 1
- 0
- -1

Correct

1 / 1 points

2. Suppose Coursera collected statistics on the number of students who take courses on data mining (DM) and machine learning (ML). We have the following 2×2 contingency table summarizing the statistics. If χ^2 is used to measure the correlation between DM and ML, what is the χ^2 score?

	DM	¬DM	Σrow
ML	700	300	1000
¬ML	500	1500	2000
Σcol	1200	1800	3000

- 562.5
- -562.5
- -225

- 225

Correct

1 / 1 points

3. What is the value range of the lift measure?

- [-1, 1]
- [0, +∞)
- [0, 1]
- (-∞, +∞)

Correct

1 / 1 points

4. What is the value range of the Kulczynski measure?

- (-∞, +∞)
- [-1, 1]
- [0, 1]
- [0, +∞)

5. What is the value range of the χ^2 measure?

- (-∞, +∞)
- [-1, 1]
- [0, 1]
- [0, +∞)

Correct

1 / 1 points

6. Which of the following measures is NOT null invariant?

- Cosine

- Lift
- All confidence
- Kulcyzynski

1 point

7. Suppose we are interested in analyzing the transaction history of several supermarkets with respect to purchase of apples (A) and bananas (B). We have the following table summarizing the transactions.

Supermarket	AB	¬AB	A ¬B	¬A ¬B
S1	100,000	7,000	3,000	300
S2	100,000	7,000	3,000	90,000

Denote li as the lift measure and ki as the Kulcyzynski measure for supermarket Si (i = 1, 2). Which of the following is correct?

- $l_1 = l_2, k_1 = k_2$
- $l_1 \neq l_2, k_1 \neq k_2$
- $l_1 = l_2, k_1 \neq k_2$
- $l_1 \neq l_2, k_1 = k_2$

Correct

1 / 1 points

8. Suppose we are interested in analyzing the purchase of comics (CM) and fiction (FC) in the transaction history of a bookstore. We have the following 2 × 2 contingency table summarizing the transactions. If χ^2 is used to measure the correlation between CM and FC, what is the χ^2 score?

	CM	¬CM	Σrow
FC	300	700	1000

¬FC	1200	800	2000
Σcol	1500	1500	3000

- -240
- -80
- 80
- 240

1 point

9. What is the value range of the Kulczynski measure?

- [0, 1]
- (-∞, +∞)
- [-1, 1]
- [0, +∞)

Correct

1 / 1 points

10. Suppose we are interested in analyzing the purchase of comics (CM) and fiction (FC) in the transaction history of a bookstore. We have the following 2 × 2 contingency table summarizing the transactions. If lift is used to measure the correlation between CM and FC, what is the value for lift(CM, FC)?

	CM	¬CM	Σrow
FC	300	700	1000
¬FC	1200	800	2000
Σcol	1500	1500	3000

- -0.6
- 0.6
- -2e-4
- 2e-4

Correct

1 / 1 points

11. Suppose we are interested in analyzing the transaction history of several supermarkets with respect to purchase of apples (A) and bananas (B). We have the following table summarizing the transactions.

Supermarket	AB	¬AB	A ¬B	¬A ¬B
S1	100,000	1,000	1,000	100
S2	50,000	7,000	3,000	600,000
S3	700,000	10,000	400,000	100,000

Which of the following measures would you use to determine the correlation of purchases between apples and bananas across all these supermarkets?

- [ ] χ^2
- [x] Kulcyzynski
- [ ] Lift
- [x] Cosine

12. Suppose a school collected some data on students' preference for hot dogs (HD) vs. hamburgers (HM). We have the following 2×2 contingency table summarizing the statistics. If χ^2 is used to measure the correlation between HD and HM, what is the χ^2score?

	HD	¬HD	Σrow
HM	40	24	64
¬HM	210	126	336
Σcol	250	150	400

- ○ 0
- ◉ -1
- ○ -∞
- ○ 1

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