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 χ2 is used to measure the correlation between DM and ML, what is the χ2 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 χ2 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?

l1 = l2, k1 = k2

l1≠ l2, k1 ≠ k2

l1 = l2, k1 ≠ k2

l1 ≠ l2, k1 = k2

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 χ2 is used to measure the correlation between CM and FC, what is the χ2 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?

χ2

Kulcyzynski

Lift

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 χ2 is used to measure the correlation between HD and HM, what is the χ2score?

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

0

-1

-∞

1

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