edX   **UTAustinX:** UT.7.20x Foundations of Data Analysis - Part 2

Week 5: Hypothesis Testing (More Than Two Group Means) > Problem Set > Question 1

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Question 1

Do low-budget movies make a different percentage of their profits domestically than movies with medium- or high-budgets?

1. Suppose films with a budget less than $100 Million are considered "low-budget"; films with a budget of $100-150 Million are considered "medium-budget", and those with a budget of $150 million or more are "high-budget."

2. Create a new categorical variable in the dataset that defines each film under these criteria.

3. Use this data to answer the following questions.

*Use the "FilmData.csv" dataset to answer the following questions. Instructions for installing "FilmData.csv" can be found under the **Examine the Data** unit in this week's **Pre-Lab** section.*

(1/1 point)
1a. How many films fall into each of the budget categories?

High-Budget Films

42

✔

Answer: 42

42

You have used 1 of 1 submissions

(1 point possible)
Medium-Budget Films

67

✘

Answer: 41

67

You have used 1 of 1 submissions

Lab due May 03, 2016 at 17:00
UTC

Problem Set

Problem Set due May 03, 2016
at 17:00 UTC

(1/1 point)

Low-Budget Films

67   ✔

Answer: 67

67

You have used 1 of 1 submissions

(1/1 point)

1b. Calculate the **mean percent domestic** for each group and enter them below. *(Report answers as percentages rounded to one decimal place.)*

High-Budget Films

37.6   ✔

Answer: 37.6

37.6

You have used 1 of 1 submissions

(1/1 point)

Medium-Budget Films

38.6 ✔

Answer: 38.6

38.6

You have used 1 of 1 submissions

(1/1 point)
Low-Budget Films

44.6 ✔

Answer: 44.6

44.6

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Create a boxplot to check the assumptions of ANOVA. Then run an ANOVA and report your findings below.

(1/1 point)
1c. What is the **F-statistic** for this test? *(Round to 1 decimal place.)*

7.6 ✔

Answer: 7.6

7.6

You have used 1 of 1 submissions

(1/1 point)

1d. What are the **degrees of freedom**?

Numerator Degree of Freedom

2 ✔

Answer: 2

2

You have used 1 of 1 submissions

(1/1 point)

Denominator Degree of Freedom

147 ✔

Answer: 147

147

You have used 1 of 1 submissions

(1/1 point)
1e. What is the **p-value** of the test? *(Round to 3 decimal places.)*

0.001 ✔

Answer: 0.001

0.001

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(1/1 point)
1f. What is the appropriate conclusion for this test?

○ The mean percent gross earned domestically is equal across all budget groups.

⊙   The mean percent gross earned domestically is NOT equal across all budget groups.
     ✔

You have used 1 of 1 submissions

(1/1 point)

1g. Run a **Tukey HSD post-hoc** analysis and chose the correct adjusted p-values for each pairwise comparison listed below.

Low vs. High

[0.002 ▾]   ✔   **Answer:** 0.002

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(1/1 point)

Low vs. Medium

[0.010 ▾]   ✔   **Answer:** 0.010

You have used 1 of 1 submissions

(1/1 point)
Medium vs. High

0.898 ▾   ✔   **Answer:** 0.898

You have used 1 of 1 submissions

(1/1 point)
1h. What is the appropriate conclusion for the post-hoc analysis?

○ Both low-budget and medium-budget films earn a greater percentage of their profit domestically than high-budget films.

○ High-budget films earn a greater percentage of their profit domestically than either low-budget or high-budget films.

○ Medium-budget films earn the most percentage of their profit domestically.

◉ Low-budget films earn a greater percentage of their profit domestically than either medium-budget or high-budget films.   ✔

You have used 1 of 1 submissions

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