

# Chapter 10 quiz

⚠ This is a preview of the published version of the quiz

Started: 1 Dec at 23:13

## Quiz instructions

Your best attempt for the quiz, based on the due date and late penalty conditions, will be used for your final mark.

You have unlimited attempts at this quiz but be aware that the questions will change for each attempt.

Note that each attempt must be genuine i.e., you must attempt to answer each question, selecting or writing answers you genuinely think are correct, and should not leave any answers blank or unanswered.



Question 1 1 pts

Media reports about German soccer players competing in the first and second leagues were used to estimate risks of different types of injuries.

The two-way table of counts below provides data comparing players who did or did not sustain a muscle-fiber rupture by whether they played in the first or second league.

	muscle-fiber rupture	no muscle-fiber rupture	total
first league	16	145	161
second league	2	92	94
Total	18	237	255

Use this table of counts and proportional reasoning to decide if each of the following three statements are TRUE or FALSE.

Around 63.1% (1 d.p.) of these players competed in the second league. [ Select ]

Around 7.1% (1 d.p.) of these players did not sustain a muscle-fiber rupture. [ Select ]

Second league players were about 0.2 times as likely to sustain a muscle-fiber rupture as first league players. [ Select ]



Question 2 2 pts

Random samples of *golfclub* drawings were taken from the game *Quick, Draw!* and used to create a data set with the variable `day_sketched` (the day the drawing was made in the game).

Load the dataset into iNZight Lite using [this link \(https://lite.docker.stat.auckland.ac.nz/?url=https://csv.monster/temp/tdmo65601533376f7.csv&land=visualize\)](https://lite.docker.stat.auckland.ac.nz/?url=https://csv.monster/temp/tdmo65601533376f7.csv&land=visualize) and use it to answer the questions below.

What proportion of the drawings were made on a **Tue**?  
(round your answer to one decimal place)

%

Carry out a Chi-square test for equal proportions. Remember, this test involves just one categorical variable.

At the 5% level of significance, is there evidence that for *golfclub* drawings that the underlying proportion of drawings made in the game is higher or lower on any of the days of the week?

(enter yes or no)



Question 3 5 pts

Random samples of *yoga* and *canoe* drawings were taken from the game *Quick, Draw!* and used to create a data set with the variables `sports_item` and `day_sketched` (the day the drawing was made in the game).

Load the dataset into iNZight Lite using [this link \(https://lite.docker.stat.auckland.ac.nz/?url=https://csv.monster/temp/rdta6560073b270eb.csv&land=visualize\)](https://lite.docker.stat.auckland.ac.nz/?url=https://csv.monster/temp/rdta6560073b270eb.csv&land=visualize) and use it to answer the questions below.

Carry out a Chi-square test for independence, using `day_sketched` as the response variable (first variable) and `sports_item` as the explanatory variable (second variable).

Under the null hypothesis, what proportion of the *canoe* drawings would be **expected** to be made on a **Thu**?  
(round your answer to one decimal place)

 %

What proportion of the *canoe* drawings in your data were actually made on a **Thu**?  
(round your answer to one decimal place)

 %

On which **day of the week** is there the biggest difference between the proportion of *yoga* drawings made on this day and the proportion of *canoe* drawings made on this day?

Write your answer exactly as the day is written in the data.

What is the **p-value** for your test?  
(round your answer to four decimal places)

There is  (enter no, weak, some, strong, very strong) evidence that `day_sketched` is dependent on `sports_item`

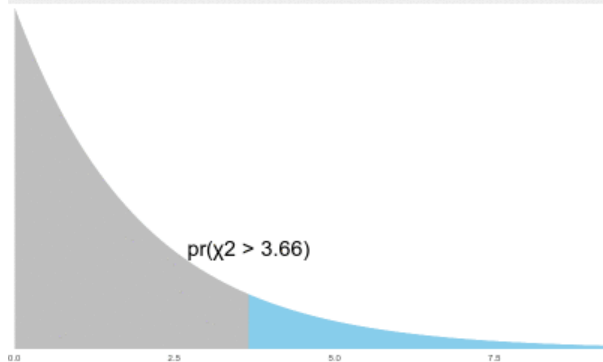
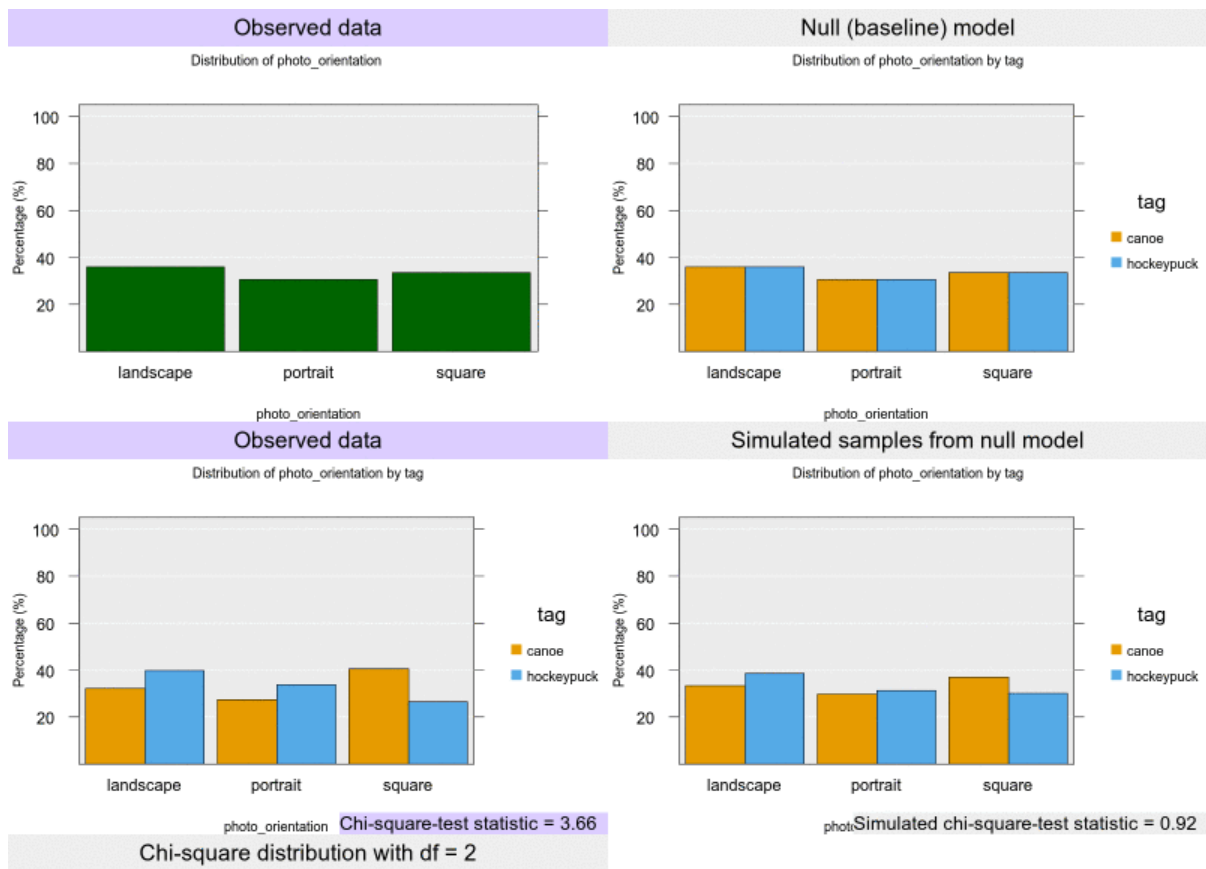


Question 4 2 pts

Random samples of photos tagged with either the word *canoe* or *hockeypuck* were taken from the unsplash.com website and used to create a data set with the variables `tag` and `photo_orientation` (landscape, portrait, square).

A chi-square test for independence was conducted using the data, to answer the research question 'Does photo orientation depend on tag?'

The observed data and results of the chi-square test has been visualised in the animation shown below.



Use this animation to answer the following questions.

The shaded blue area on the chi-square distribution represents a p-value for this test of around  .

The chi-square-test statistic is relatively  , indicating a relatively  discrepancy between what we see in the data and what we would expect to see if the null hypothesis were true.

This makes sense, as the observed data  to be compatible with the null model (at the 5% level of significance).

Saved at 23:25

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