**COURSE: STATISTICAL EXPERIMENTATION THEORY**

**DATACAMP ASSESMENT**

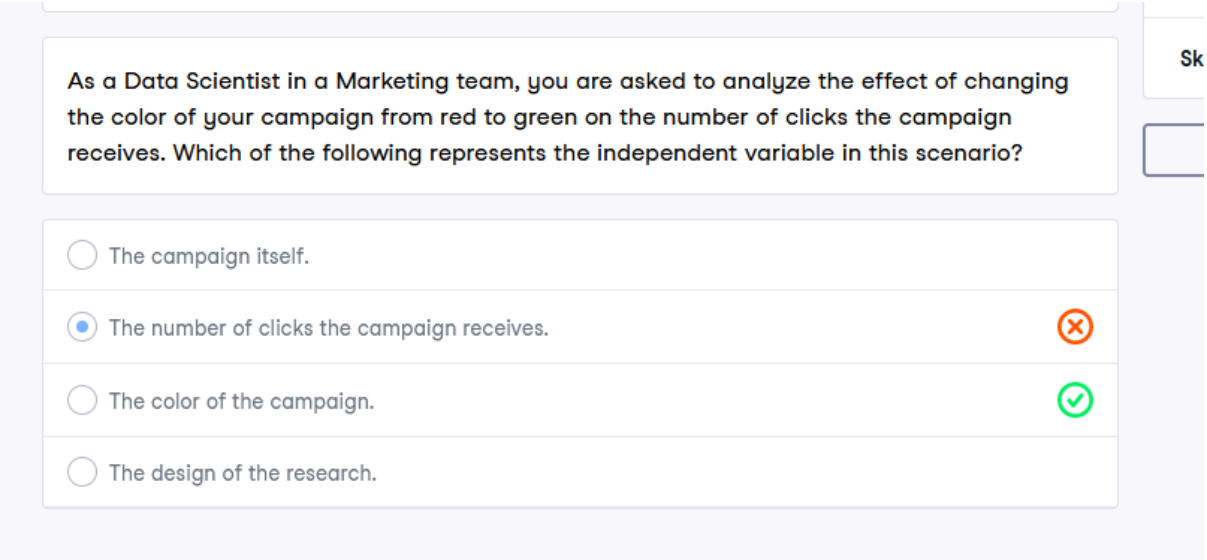
**MCQ'S ANSWERS**

**PART II**

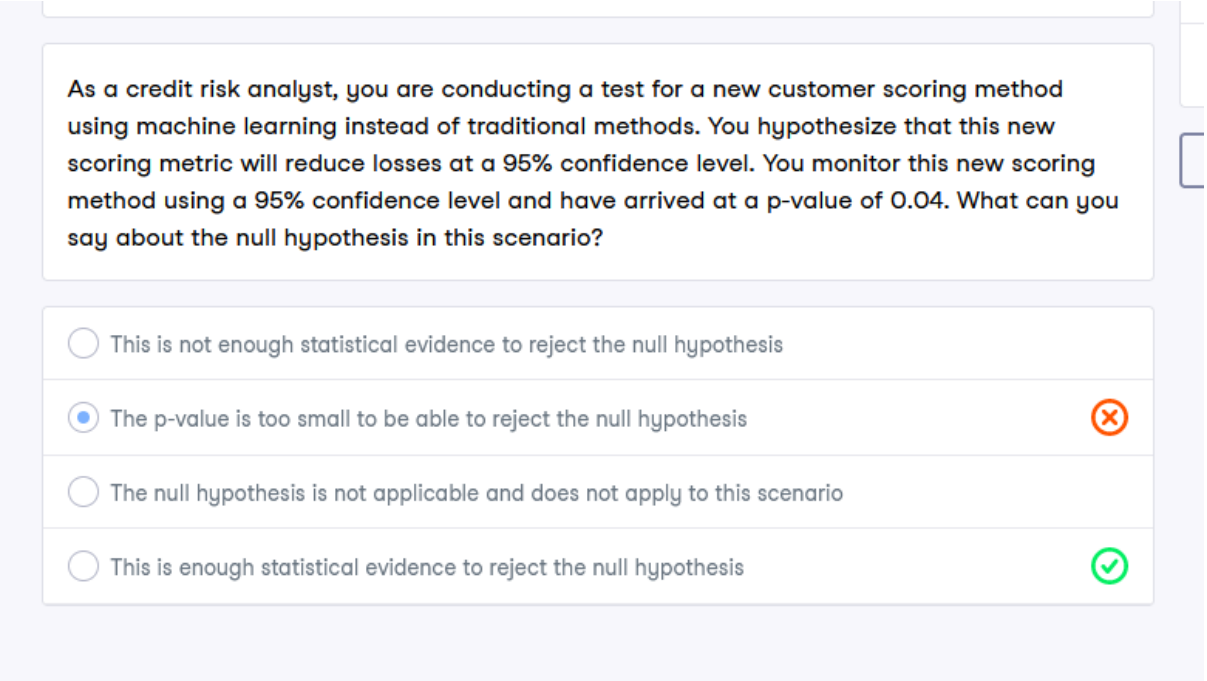
**TOTAL 15 QUESTIONS**

BELOW ATTACHED THE SCREEN SHOTS OF THE QUESTIONS AND ANSWERS.

**1)**




**2)**



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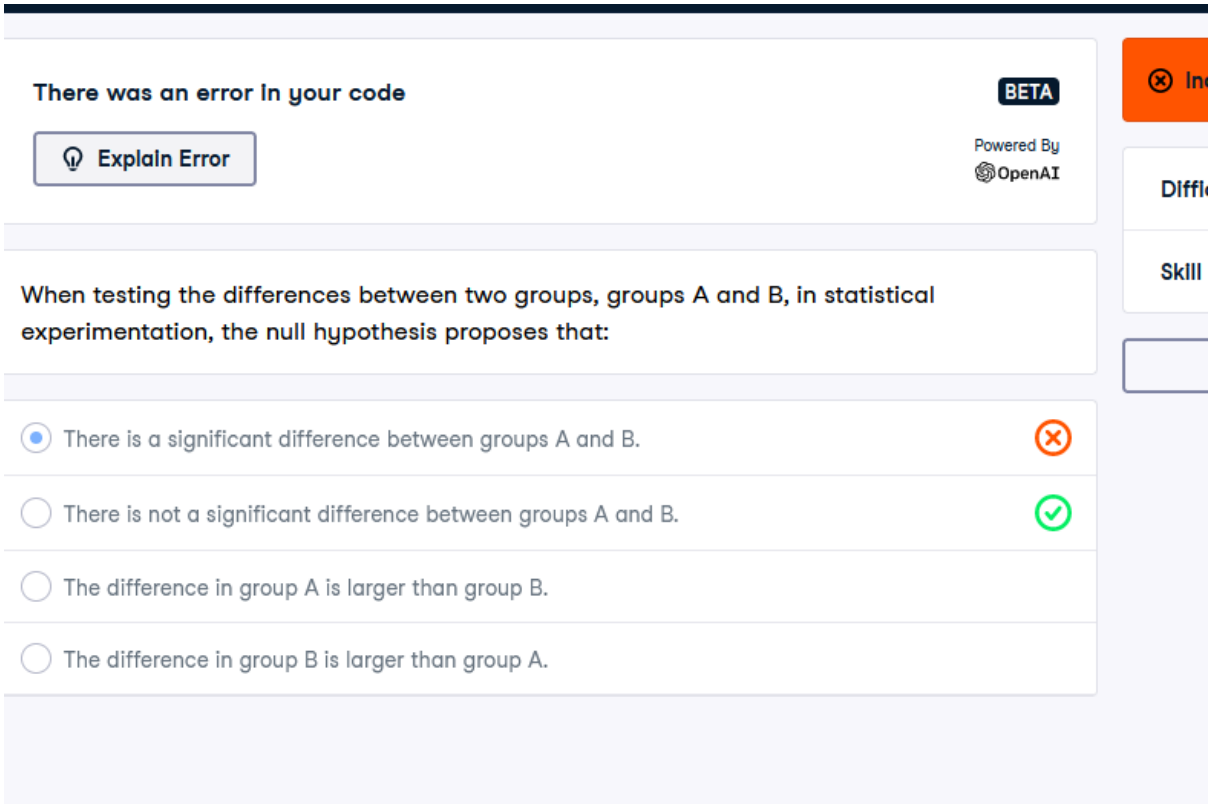
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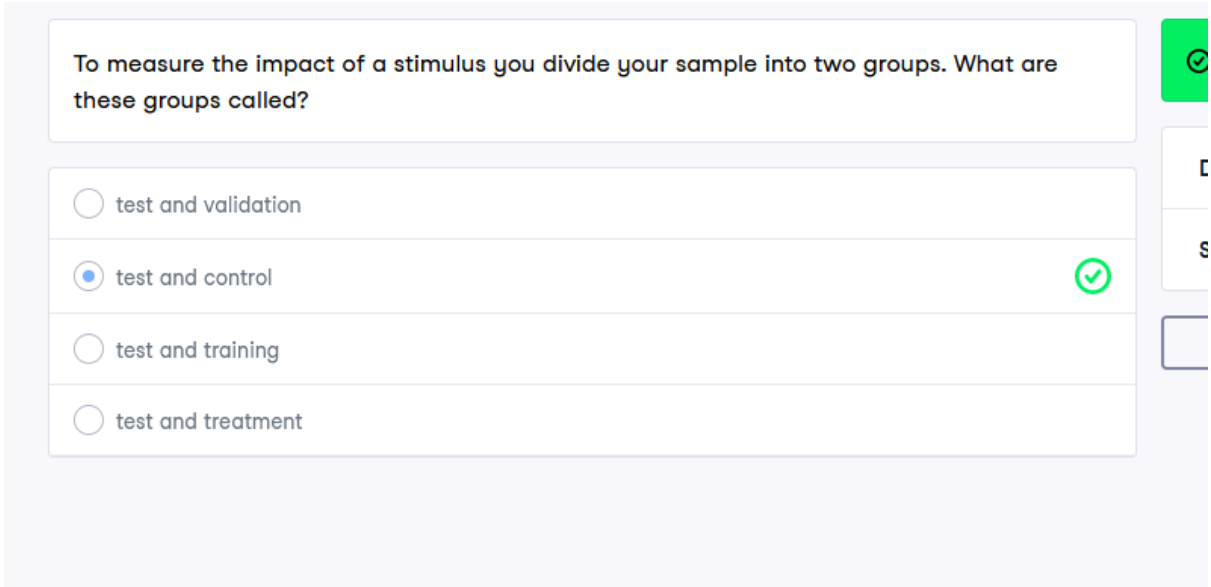
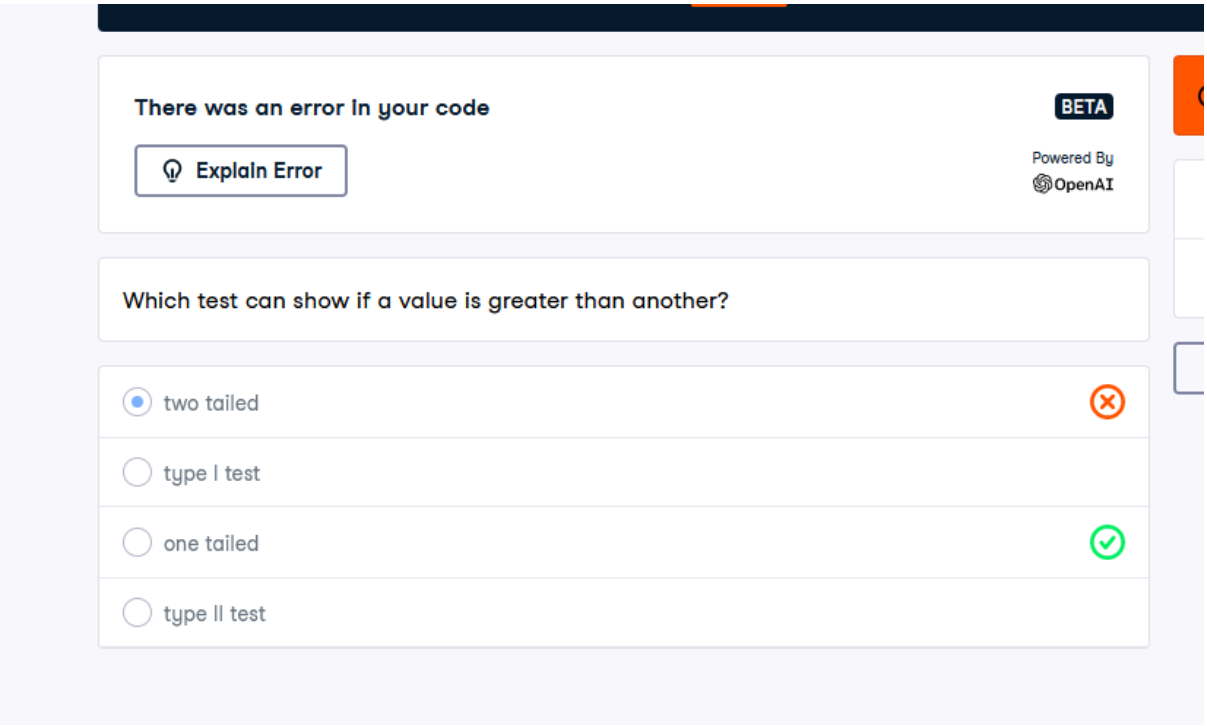
When testing the differences between two groups, groups A and B, in statistical experimentation, the null hypothesis proposes that:
There is a significant difference between groups A and B.
There is not a significant difference between groups A and B.
The difference in group A is larger than group B.
The difference in group B is larger than group A.

4)


To measure the impact of a stimulus you divide your sample into two groups. What are these groups called?
test and validation
test and control
test and training
test and treatment

5)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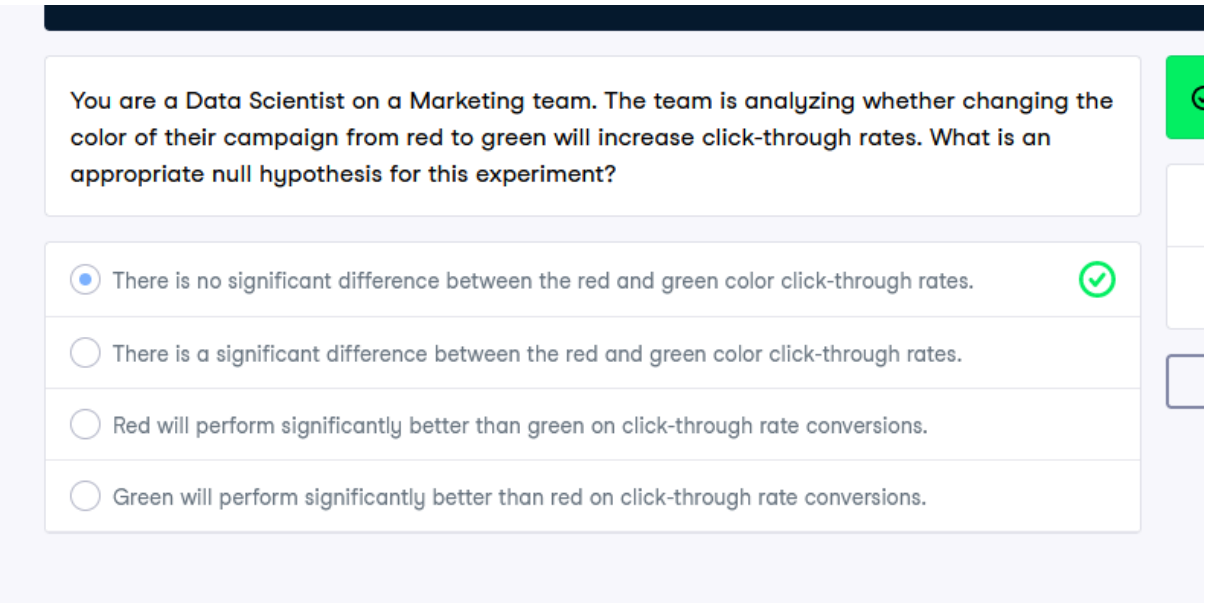
Which test can show if a value is greater than another?
two tailed
type I test
one tailed
type II test

6)


You are a Data Scientist on a Marketing team. The team is analyzing whether changing the color of their campaign from red to green will increase click-through rates. What is an appropriate null hypothesis for this experiment?
There is no significant difference between the red and green color click-through rates.
There is a significant difference between the red and green color click-through rates.
Red will perform significantly better than green on click-through rate conversions.
Green will perform significantly better than red on click-through rate conversions.

**7)**

Difficulty

Skill

You want to test the regrowth of hair in people who eat spinach on a daily basis vs. people who don't. You conduct an experiment and find that eating spinach daily has no effect on hair regrowth. What can you say about the null hypothesis?

- It can be rejected because spinach had no effect on hair regrowth
- It cannot be rejected because hair regrowth was the same between the groups ✓
- It cannot be rejected because people who don't eat spinach had less hair loss
- It can be rejected because eating spinach and hair loss are not correlated ✗

**8)**

Skill

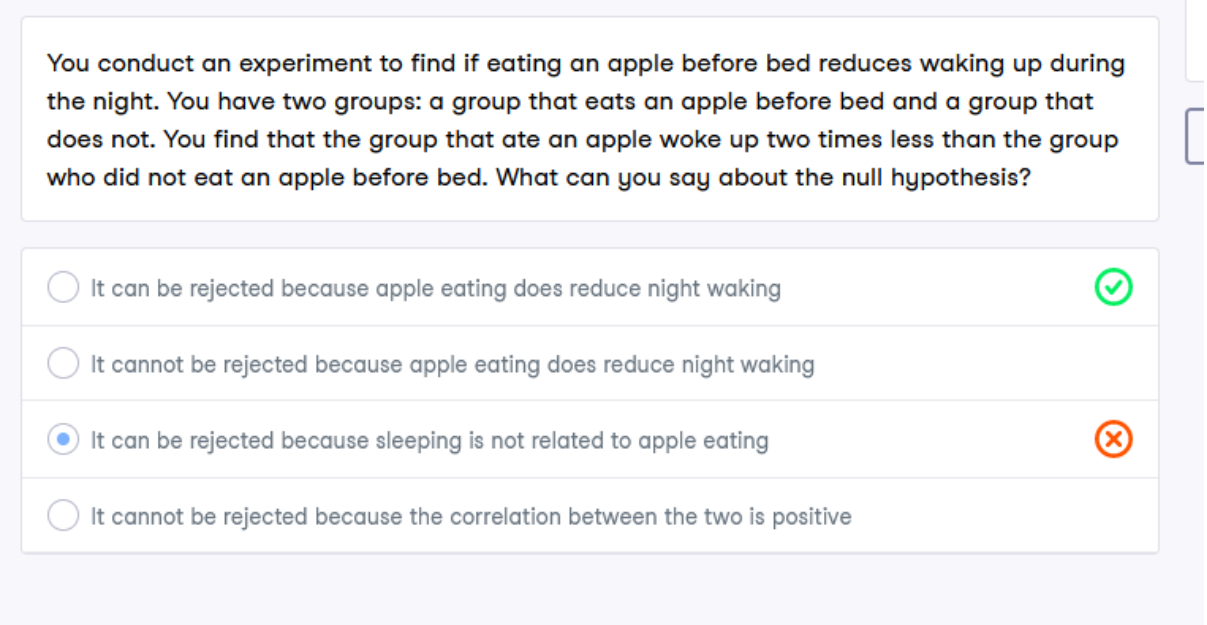
You conduct a survey to compare student study habits between two countries.

Canada's data has a standard deviation of 10 and Mexico's has a standard deviation of 6.

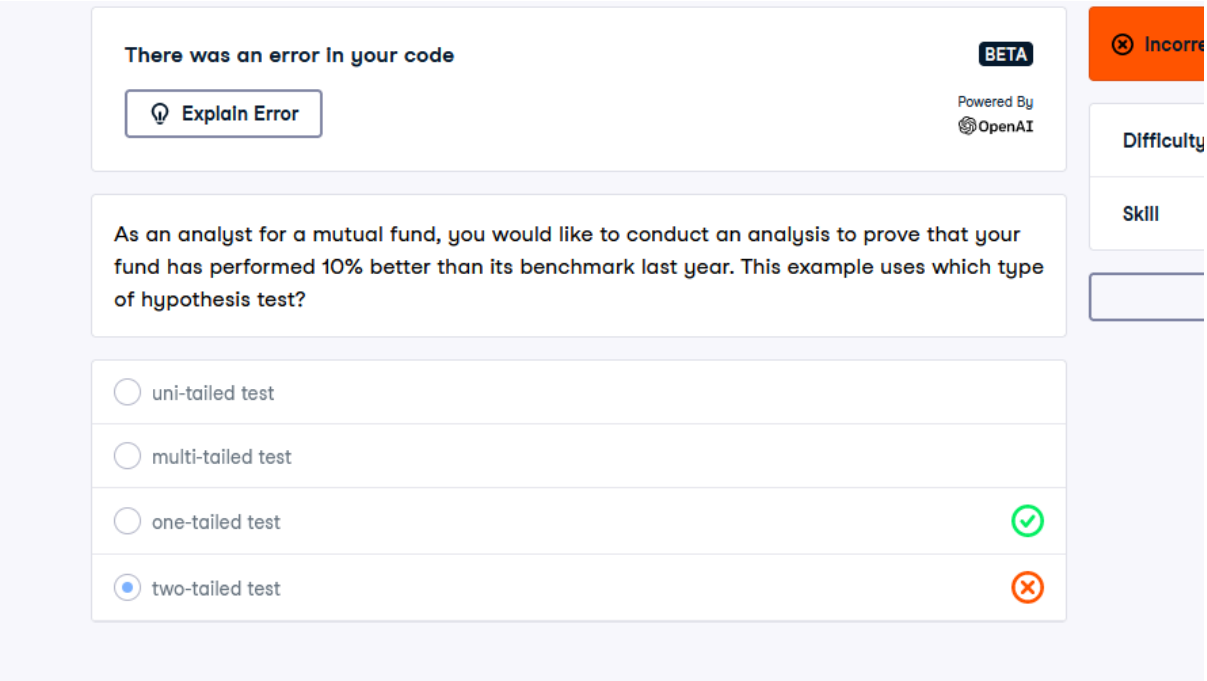
How can you describe the confidence interval for the Canadian students' study habits vs Mexican students'?

- skewed ✗
- longer
- wider ✓
- narrower

**9)**


You conduct an experiment to find if eating an apple before bed reduces waking up during the night. You have two groups: a group that eats an apple before bed and a group that does not. You find that the group that ate an apple woke up two times less than the group who did not eat an apple before bed. What can you say about the null hypothesis?
It can be rejected because apple eating does reduce night waking
It cannot be rejected because apple eating does reduce night waking
It can be rejected because sleeping is not related to apple eating
It cannot be rejected because the correlation between the two is positive

**10)**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Difficulty
Skill
As an analyst for a mutual fund, you would like to conduct an analysis to prove that your fund has performed 10% better than its benchmark last year. This example uses which type of hypothesis test?
uni-tailed test
multi-tailed test
one-tailed test
two-tailed test

**11)**

Skill

What is a difference between a normal distribution and a Poisson distribution?

- A normal distribution is discrete while a Poisson distribution is continuous
- A normal distribution is continuous while a Poisson distribution is always discrete ✓
- Unlike a normal distribution a Poisson distribution is always symmetric ✗
- Poisson distribution are equally distributed around the mean while a normal distribution is not

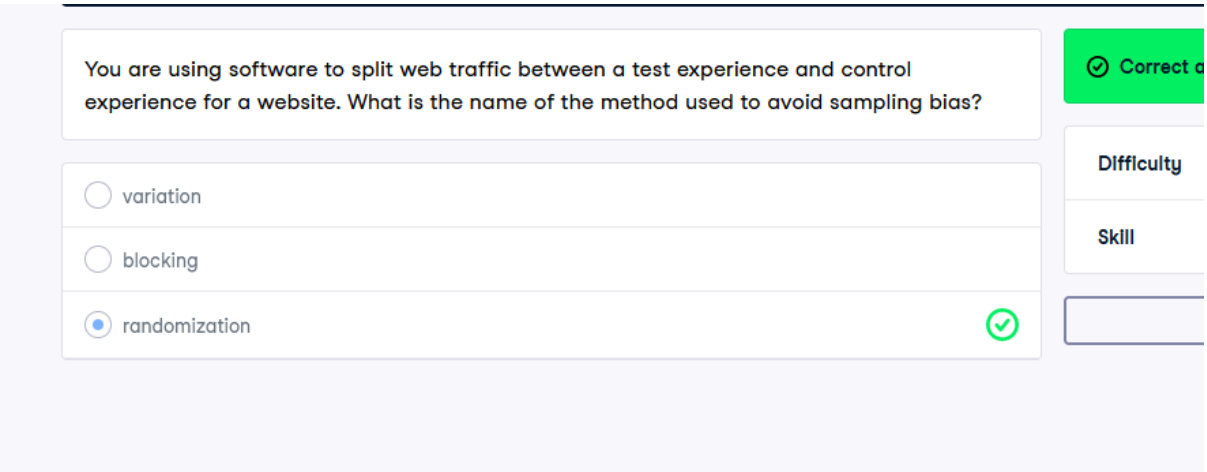
**12)**

Skill

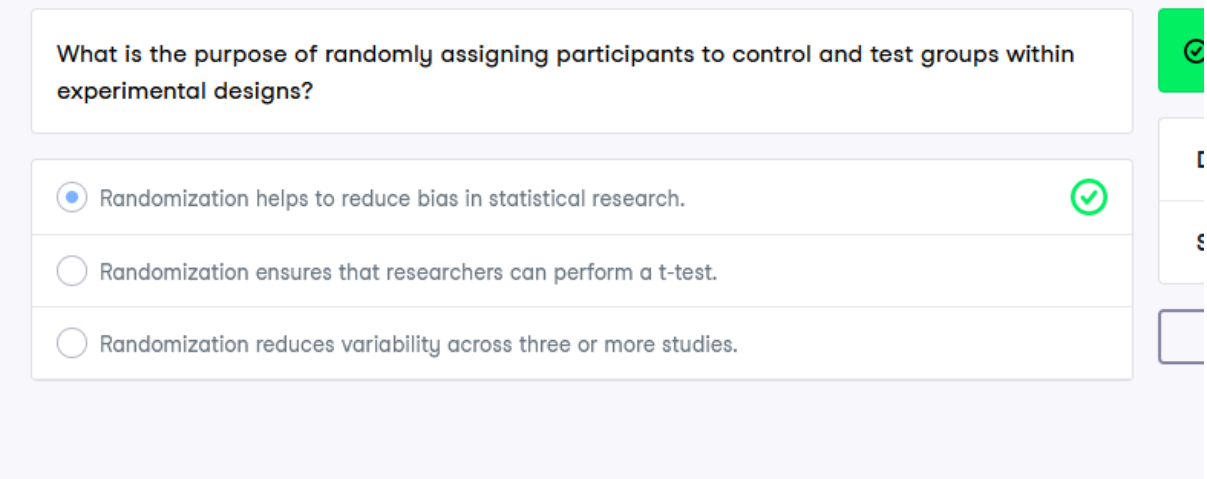
You conducted a telephone survey on an election candidate and after analyzing your data concluded that there is a 95% chance that she would capture between 26.5% and 33.5% of the vote given the margin of error of 3.5%. What can you say about the remaining 5% chance?

- there is a 2.5% chance that she'll capture less than 26.5% and a 2.5% chance more than 33.5% ✓
- there is a 5% chance that the residual 5% of voters will vote for the other candidate
- the distribution will have a standard deviation of 5% given the 95% confidence interval
- given the confidence interval of 95%, there is a 5% chance that she will get 0 votes ✗

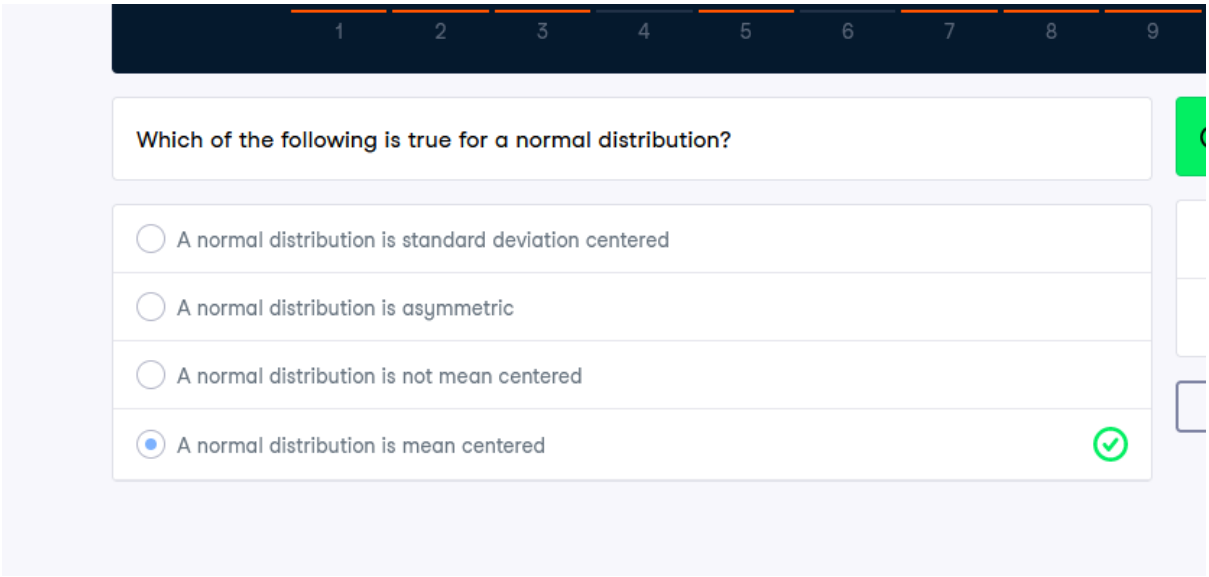
**13)**


You are using software to split web traffic between a test experience and control experience for a website. What is the name of the method used to avoid sampling bias?
variation
blocking
randomization
Correct a
Difficulty
Skill

**14)**


What is the purpose of randomly assigning participants to control and test groups within experimental designs?
Randomization helps to reduce bias in statistical research.
Randomization ensures that researchers can perform a t-test.
Randomization reduces variability across three or more studies.

**15)**


1 2 3 4 5 6 7 8 9
Which of the following is true for a normal distribution?
A normal distribution is standard deviation centered
A normal distribution is asymmetric
A normal distribution is not mean centered
A normal distribution is mean centered