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EAIE
Esports as Accelerator for Social Inclusive Education

LESSON
QUANTITATIVE ANALYSIS OF PLAYER PERFOMANCE USING DESCRIPTIVE STATISTICS

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DESCRIPTIVE STATISTICS IN CS

In this exercise the students will use basic statistical descriptors to analyse ungrouped datasets from 10 Counter-Strike matches from two different players and compare the results. The students will work both with vizualisation tools in a CAS program and how to analyze and compare results.

Subject and level
Mathematics C-level. Secondary Education.

Connection to curriculum
This exercise focuses on descriptive statistics and how to analyze ungrouped datasets using statistical descriptors and basic visulization tools in a CAS-program.

Didactic and pedagogic considerations
This exercise is designed to increase student engagement by linking abstract mathematical concepts to a familiar and motivating context, namely player perfomances in gaming. It encourages collaborative learning, problem-solving and data intepretation using mathematical concepts and language.

Time estimate
1-2 hours

Group size
2-3 persons per group. There should be an even number of total groups.
Odd numbered groups work with data from player A and even numbered groups work with data from player B.

Overall introduction to exercise
Students are presented with performance data from two Counter-Strike players, each having played ten matches. Through calculation and visualization, students explore key statistical measures and compare the two datasets to determine which player performs best.

DESCRIPTIVE STATISTICS IN CS

Exercise as presented to the students

Two players (A and B) have each played 10 matches. You must analyse their performance using different statistical descriptors and visualisations. Finally, compare the players and asses who performed best and why.

Dataset for player A

Dataset for player B

PLAYER A:

Ex. 1

Here is a dataset showing ten matches played by player A.
Link

a) Calculate the K/D (kills/deaths ratio) for the 10 matches.

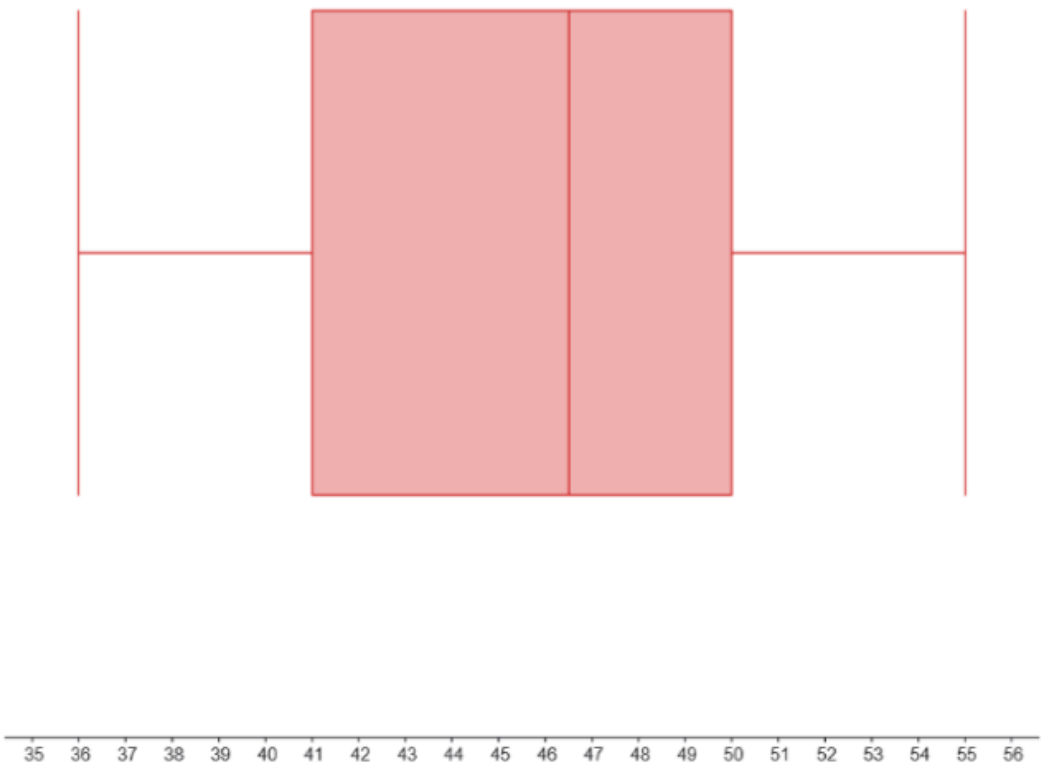
Match	K/D
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

b) Determine the fiver number summary for K/D
c) Draw a box plot in GeoGebra
d) Calculate the mean for K/D. Is the distribution right-skewed, left-skewed or symmetric?

DESCRIPTIVE STATISTICS IN CS

Exercise as presented to the students

Ex. 2



The figure shows a box plot of Accuracy (%) for player A.
Use the figure to determine whether the following statements are true or false.

a) In 75 % of the matches player A has an accuracy of 50 % or lower.
b) In 50 % of the matches player A has an accuracy between 36% and 41%.
c) In 50 % of the matches player A has an accuracy lower than 44%

DESCRIPTIVE STATISTICS IN CS

Exercise as presented to the students

PLAYER B:

Ex. 1

Here is a dataset showing ten matches played by player B.
Link

a) Calculate the K/D (kills/deaths ratio) for the 10 matches.

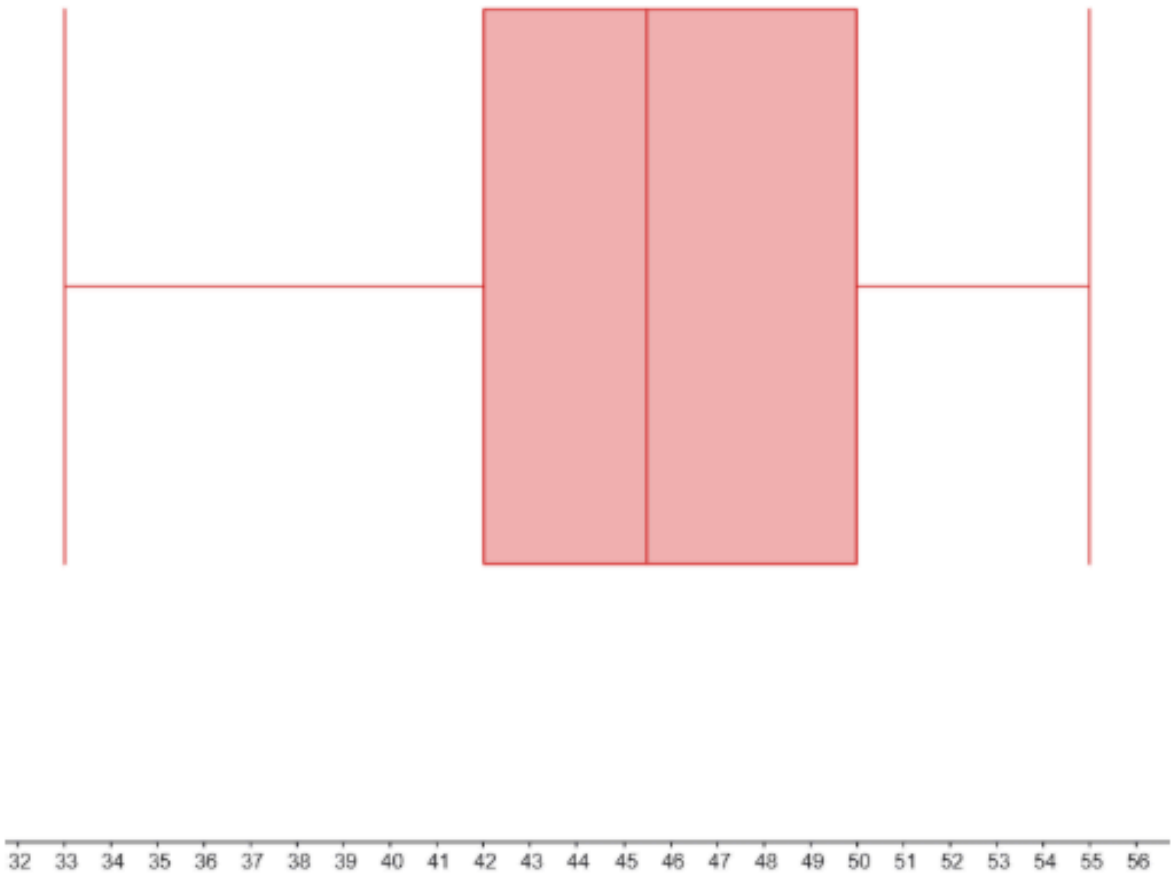
Match	K/D
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

b) Determine the fiver number summary for K/D
c) Draw a box plot in GeoGebra
d) Calculate the mean for K/D. Is the distribution right-skewed, left-skewed or symmetric?

DESCRIPTIVE STATISTICS IN CS

Exercise as presented to the students

Ex. 2



The figure shows a box plot of Accuracy (%) for player B.
Use the figure to determine whether the following statements are true or false.

a) In 75% of the matches player B has an accuracy of 75% or lower.
b) In 50% of the matches player B has an accuracy between 42% and 50%.
c) In 50% of the matches player B has an accuracy lower than 44%

DESCRIPTIVE STATISTICS IN CS

Exercise as presented to the students

COMPARISON

Now you must compare the performance of player A and player B.

Ex. 1

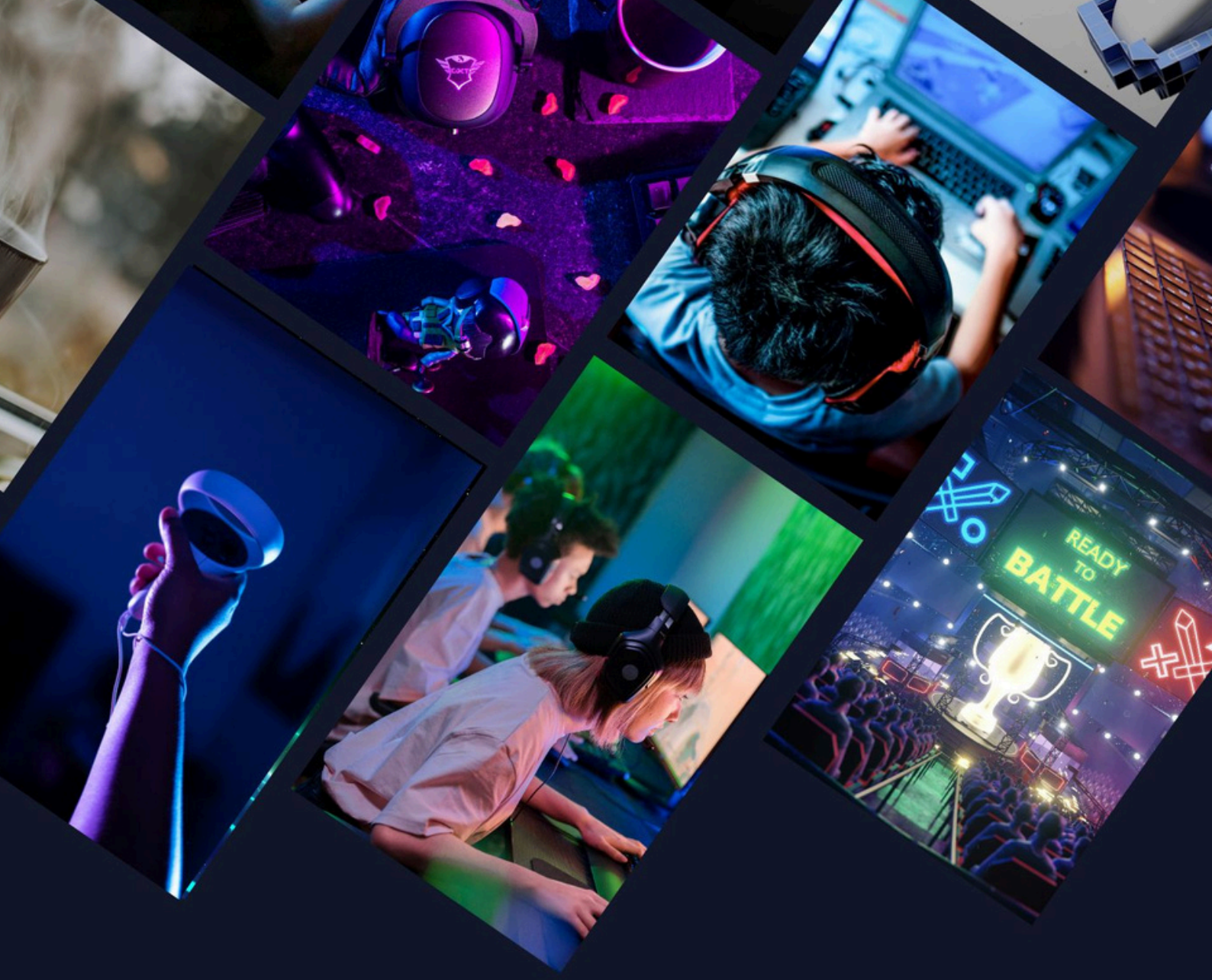
a) Which player has the highest average K/D?
b) Which player has the largest interquartile range?
c) Which player has the largest range?

Ex. 2

a) Create a box plot of K/D for both player A and player B in the same GeoGebra window.
b) Create a bar chart of accuracy (%) for both player A and player B in the same GeoGebra window.

Ex. 3

a) Based on your comparisons, can you determine which player performs better and why?



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