An Empirical Study of Data Visualisation

Please note that the answers meant to be subjective, and that there are no 'correct' answers.
*Required

Demographic Information

(Optional)

1. Please enter your age

   _____

2. If you are a university student or past university graduate please specify your area of study.

   Mark only one oval.

   ◯ Science

   ◯ Technology

   ◯ Engineering

   ◯ Maths

   ◯ Arts

   ◯ Social Sciences

   ◯ Humanities

   ◯ Business

   ◯ N/A

How strongly do you agree with each of the three following statements?

3. I have good spatial awareness skills

   Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

4. I have good observational skills

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

5. I have good numerical skills

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

6. Are you colourblind?

Mark only one oval.

⬭ Yes

⬭ No

⬭ Prefer not to answer

⬭ Other: _____

7. Do you have any disorders that may affect visual processing? (this could be a general visual processing disorder or dyslexia, dyscalculia etc)
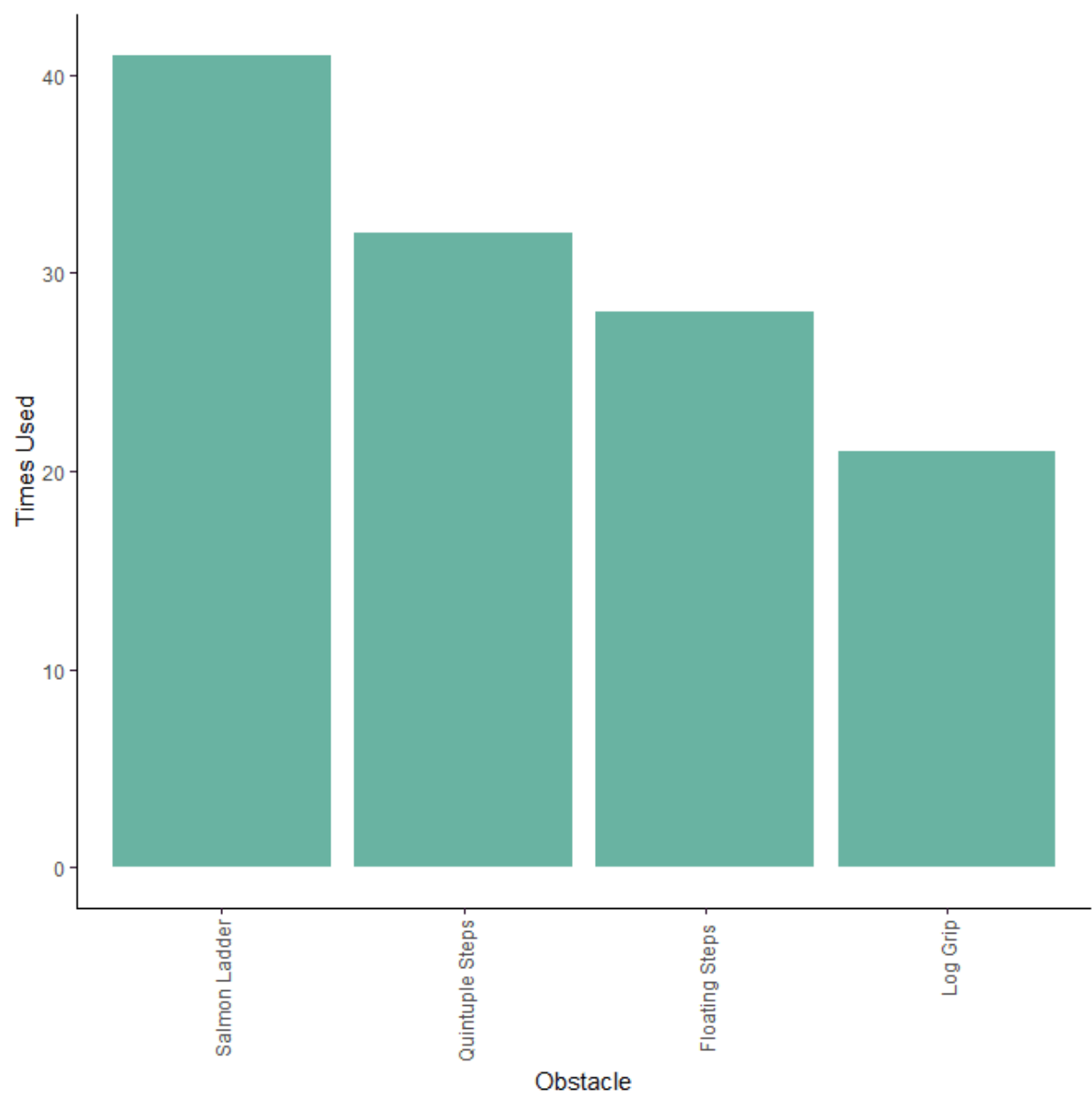
Mark only one oval.

⬭ Yes

⬭ No

⬭ Prefer not to answer

⬭ Other: _____

American Ninja Warrior - Part 1

The following bar charts present information regarding how many times 4 of the most frequently used obstacles obstacles were used over the course of 10 seasons of the TV show 'American Ninja Warrior'.

The first three questions refer to this bar chart, bar chart A.

According to bar chart A:

8.   Approximately many times would you say the 'Salmon Ladder' was used? *

9. Approximately how much more than 'Log Grip' would you say 'Salmon Ladder' was used? *

Mark only one oval.

	1	2	3	4	5	6	7	
Not much more	⬭	⬭	⬭	⬭	⬭	⬭	⬭	A lot more

10. Approximately how much more than 'Quintuple Steps' would you say 'Salmon Ladder' was used? *

Mark only one oval.

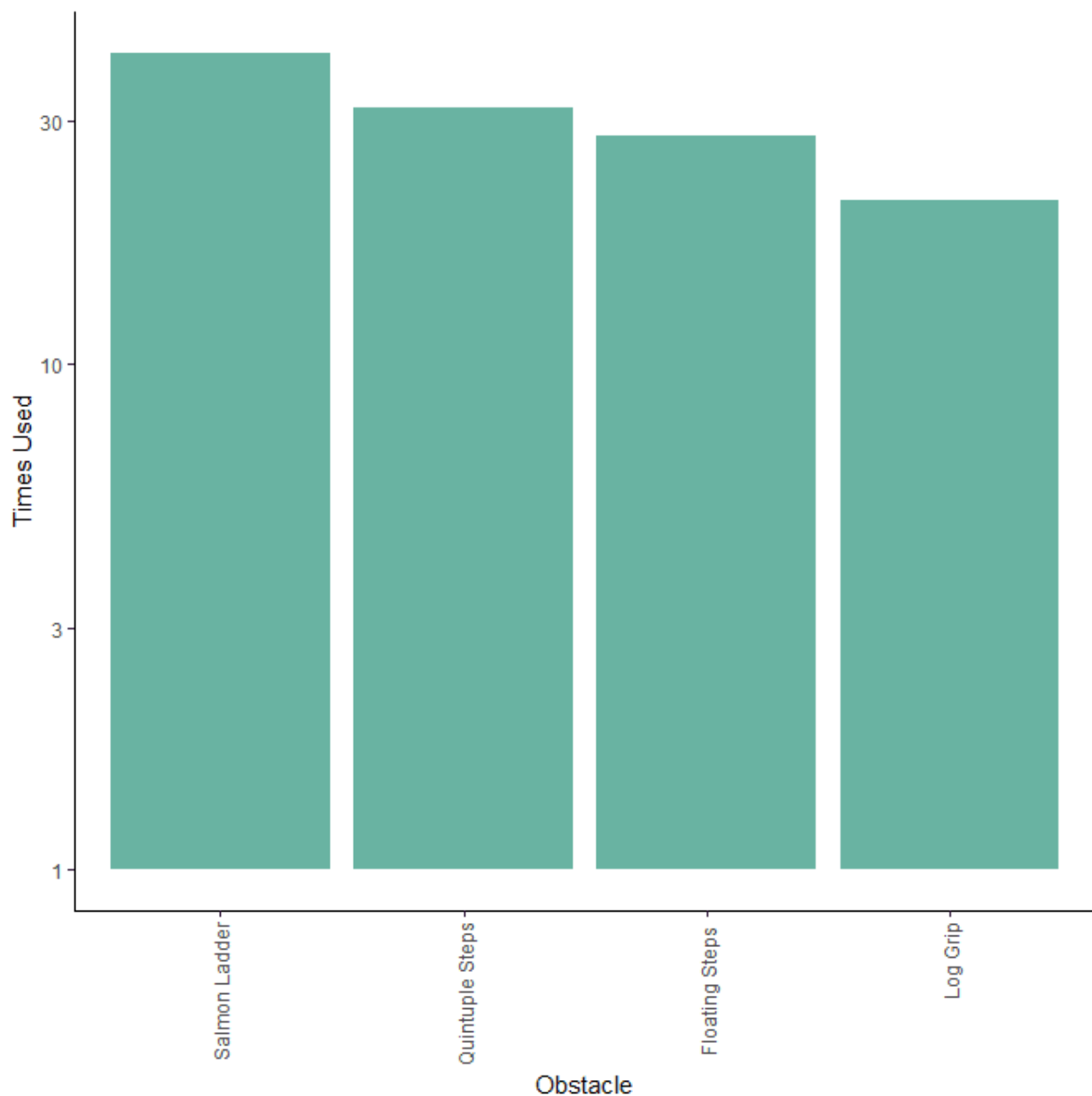|	1	2	3	4	5	6	7	
Not much more	⬭	⬭	⬭	⬭	⬭	⬭	⬭	A lot more

11. In your opinion, approximately how many times would you say 'Log Grip' was used, as a percentage of the number of times 'Salmon Ladder' was used? *

For example, if you think 'Log Grip' was used half as much as 'Salmon Ladder', enter 50%. If you think 'Log Grip' was used a quarter as much as 'Salmon Ladder', enter 25%, and so on.

_____

The same three questions will now be asked, but in reference to this bar chart, bar chart B.

According to bar chart B:

12. Approximately many times would you say the 'Salmon Ladder' was used? *

_____

13. Approximately how much more than 'Log Grip' would you say 'Salmon Ladder' was used? *

Mark only one oval.

	1	2	3	4	5	6	7	
Not much more	◯	◯	◯	◯	◯	◯	◯	A lot more

14. Approximately how much more than 'Quintuple Steps' would you say 'Salmon Ladder' was used? *

Mark only one oval.

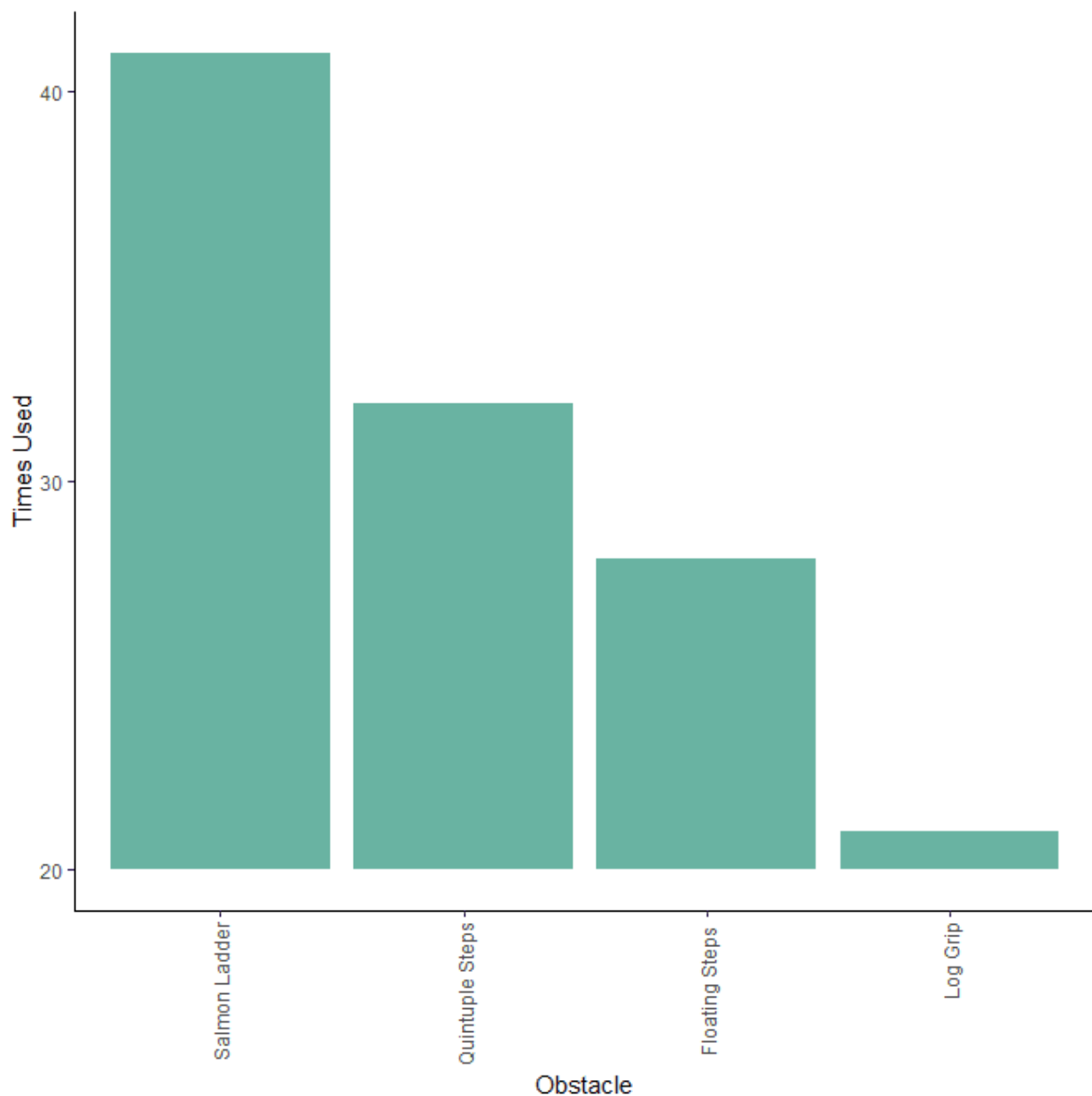|	1	2	3	4	5	6	7	
Not much more	◯	◯	◯	◯	◯	◯	◯	A lot more

15. In your opinion, approximately how many times would you say 'Log Grip' was used, as a percentage of the number of times 'Salmon Ladder' was used? *

For example, if you think 'Log Grip' was used half as much as 'Salmon Ladder', enter 50%. If you think 'Log Grip' was used a quarter as much as 'Salmon Ladder', enter 25%, and so on.

_____

Please once again answer the same questions, but now for the bar chart below, bar chart C.

According to bar chart C:

16.   Approximately many times would you say the 'Salmon Ladder' was used? *

_____

17. Approximately how much more than 'Log Grip' would you say 'Salmon Ladder' was used? *

Mark only one oval.

	1	2	3	4	5	6	7	
Not much more	◯	◯	◯	◯	◯	◯	◯	A lot more

18. Approximately how much more than 'Quintuple Steps' would you say 'Salmon Ladder' was used? *

Mark only one oval.

	1	2	3	4	5	6	7	
Not much more	◯	◯	◯	◯	◯	◯	◯	A lot more

19. In your opinion, approximately how many times would you say 'Log Grip' was used, as a percentage of the number of times 'Salmon Ladder' was used? *

For example, if you think 'Log Grip' was used half as much as 'Salmon Ladder', enter 50%. If you think 'Log Grip' was used a quarter as much as 'Salmon Ladder', enter 25%, and so on.

_____

American Ninja Warrior - Part 2

The next set of questions will ask similar questions, but about three different bar charts. This set of charts shows data regarding how many times 7 of the most frequently used obstacles were used over the course of the 10 seasons.

Bar Chart A
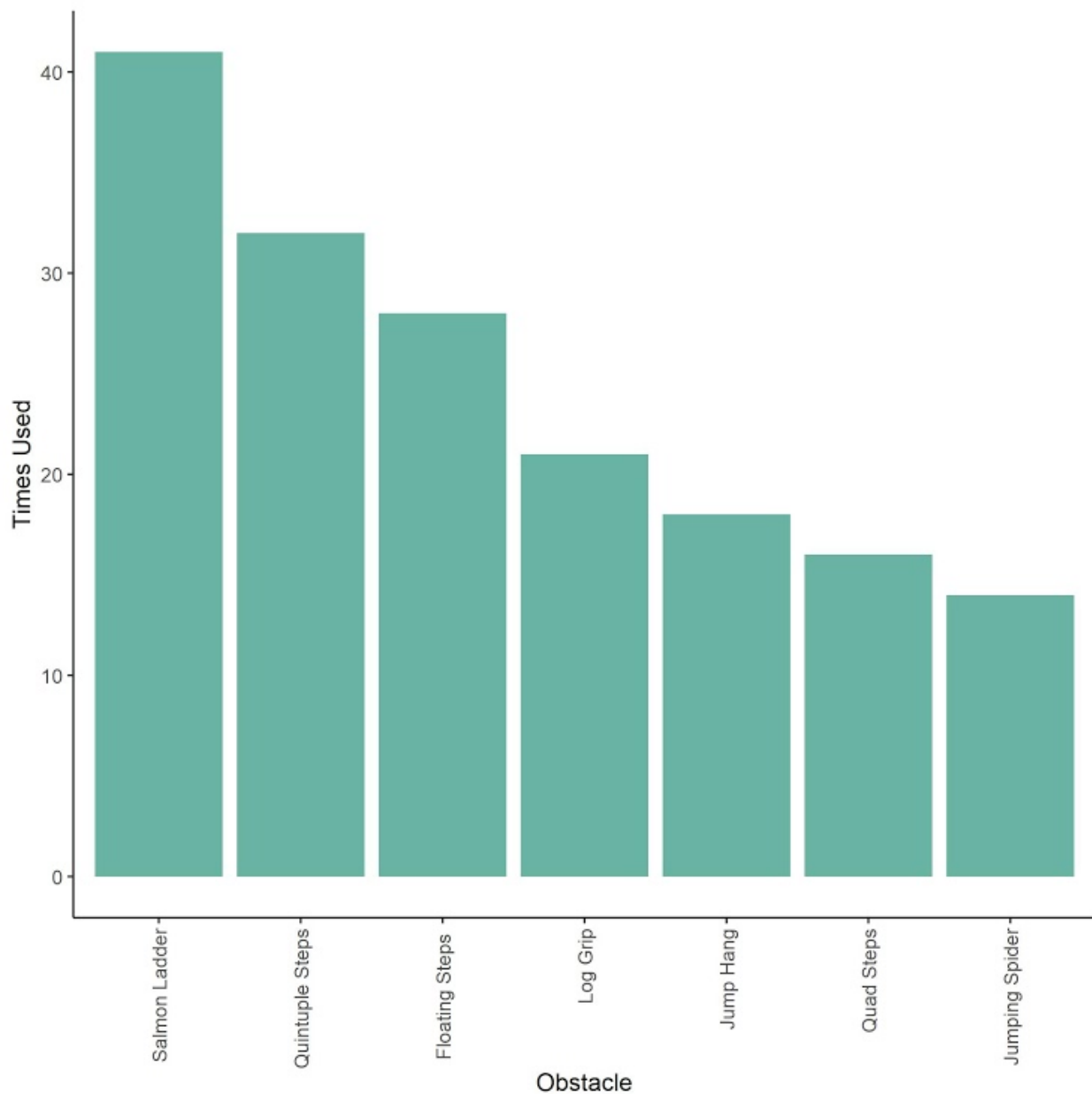
In relation to bar chart A:

20. How large would you say the difference between 'Jumping spider' and 'Salmon Ladder' is?

Mark only one oval.

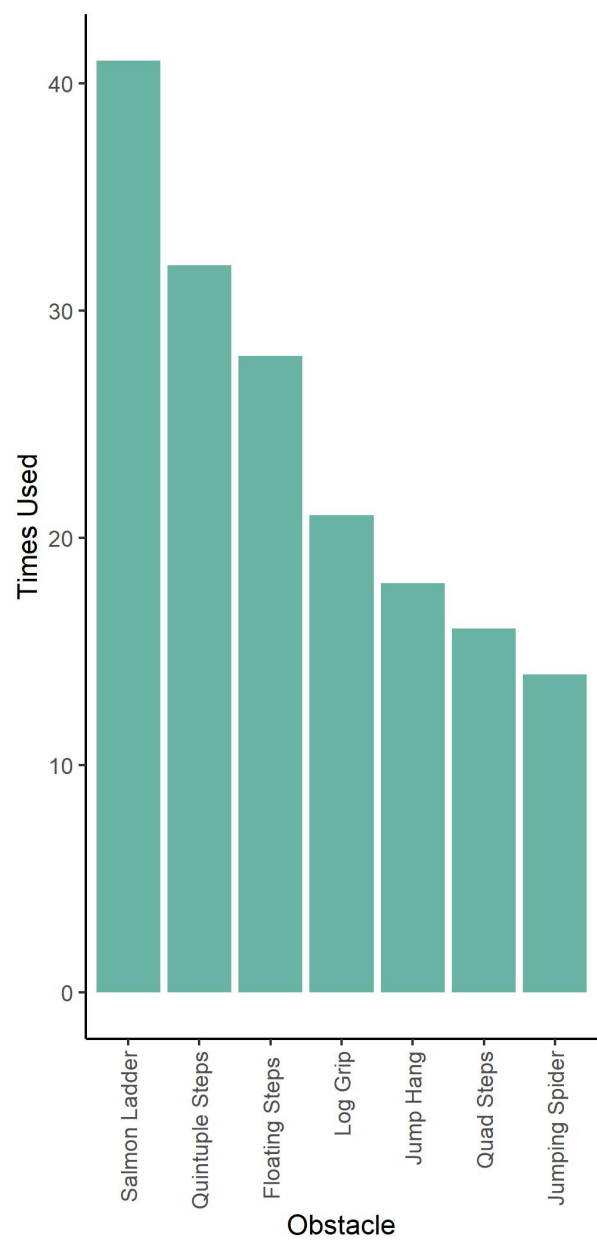|	1	2	3	4	5	6	7	
Very Small	◯	◯	◯	◯	◯	◯	◯	Very Large

21. How large would you say the difference between 'Log Grip' and 'Floating Steps' is?

Mark only one oval.

	1	2	3	4	5	6	7	
Very Small	◯	◯	◯	◯	◯	◯	◯	Very Large

22. How many times would you say 'Floating Steps' were used?

_____

Bar Chart B

In relation to bar chart B:

23.   How large would you say the difference between 'Jumping spider' and 'Salmon Ladder' is?

Mark only one oval.

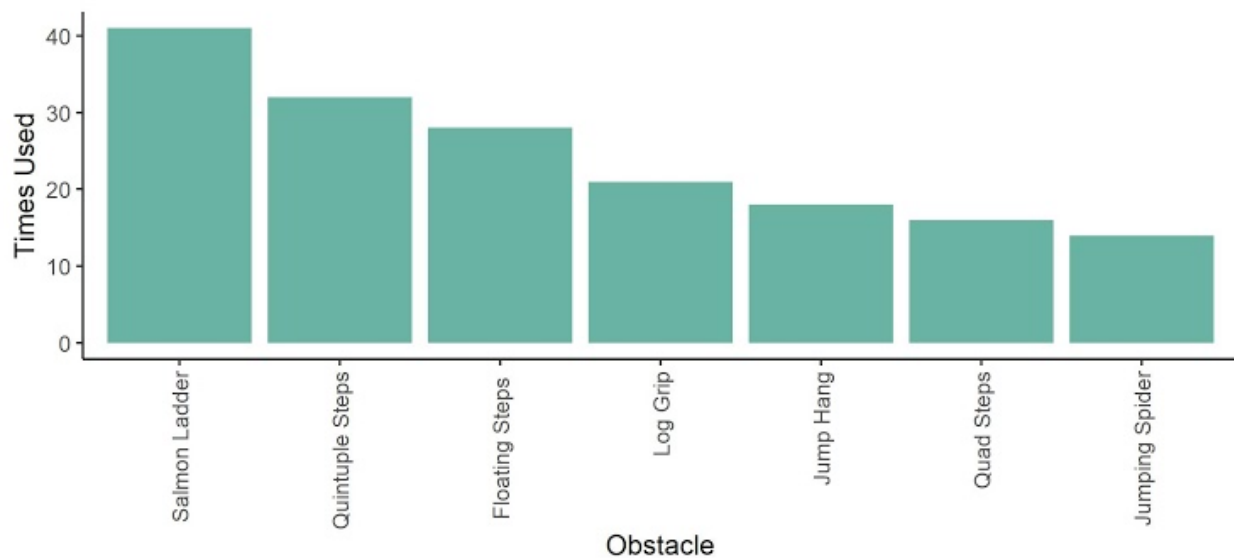|	1	2	3	4	5	6	7	
Very Small	◯	◯	◯	◯	◯	◯	◯	Very Large

24. How large would you say the difference between 'Log Grip' and 'Floating Steps' is?

Mark only one oval.

	1	2	3	4	5	6	7	
Very Small	◯	◯	◯	◯	◯	◯	◯	Very Large

25. How many times would you say 'Floating Steps' were used?

_____

Bar Chart C

In relation to bar chart C:

26.　How large would you say the difference between 'Jumping spider' and 'Salmon Ladder' is?

Mark only one oval.

	1	2	3	4	5	6	7	
Very Small	◯	◯	◯	◯	◯	◯	◯	Very Large

27.   How large would you say the difference between 'Log Grip' and 'Floating Steps' is?

Mark only one oval.

	1	2	3	4	5	6	7	
Very Small	◯	◯	◯	◯	◯	◯	◯	Very Large

28.   How many times would you say 'Floating Steps' were used?

_____

The following three questions refer to the three bar charts above

29.   Which of the three bar charts do you find most aesthetically pleasing? *

Mark only one oval.

◯ A

◯ B

◯ C

30.   Which bar chart do you feel is easiest to read and interpret? *

This includes ease in reading labels, ease of reading the value of each bar, and ease in seeing the relative differences in values of the bars.

Mark only one oval.

◯ A

◯ B

◯ C

31.　　Which bar chart do you find hardest to read and interpret? *
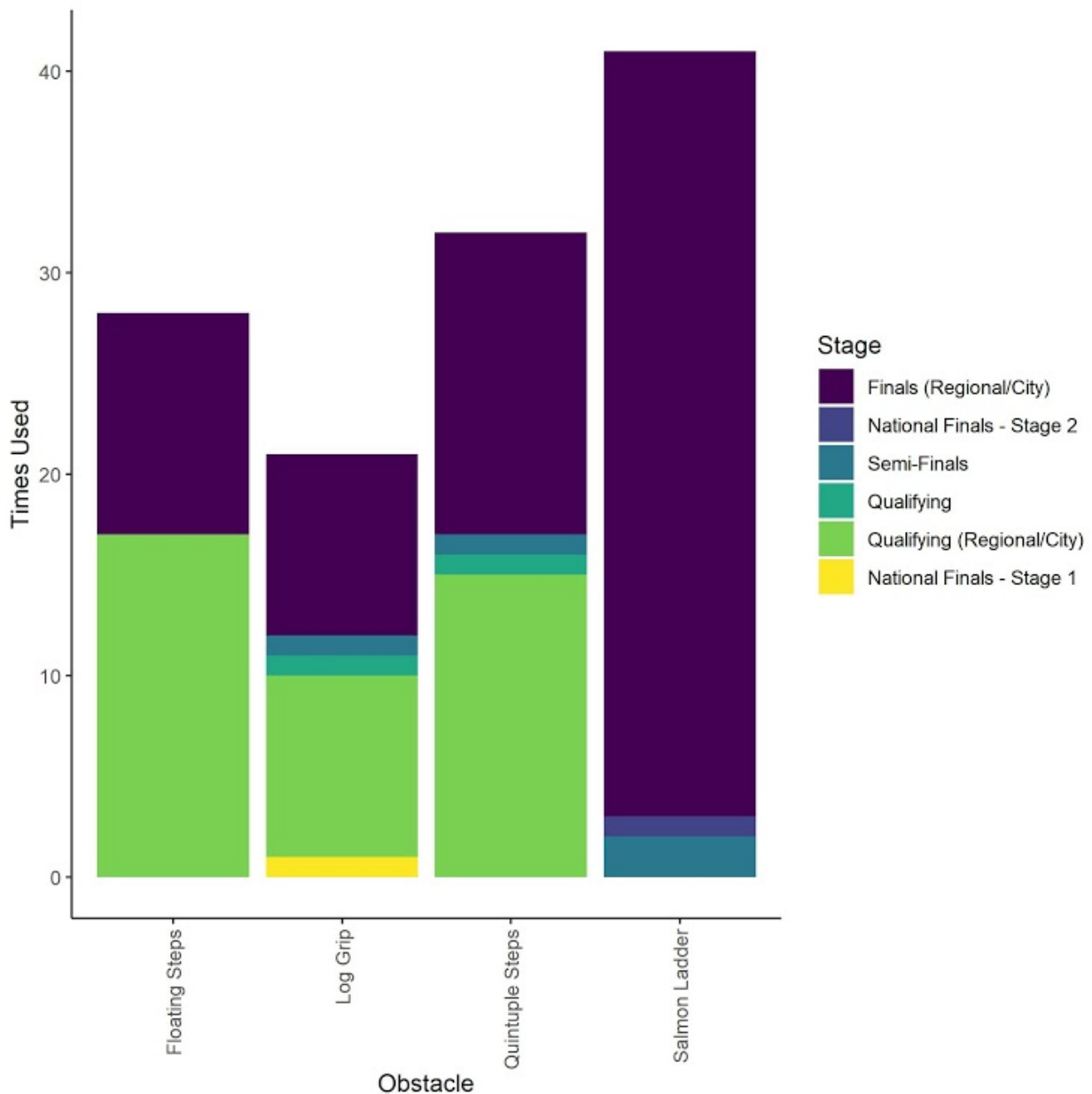
Mark only one oval.

　　　◯　A

　　　◯　B

　　　◯　C

American
Ninja
Warrior -
Part 3

The below plots again show the same data as the first three bar charts, but with different colours representing how many times each obstacle was used for each Stage of the competition.

32. How many times would you say 'Floating Steps' were used in the Finals (Regional/City) rounds? *

_____

33. How many times would you say 'Log Grip' was used in the Finals (Regional/City) rounds? *

_____

34. Please select the statement you feel applies to the bar chart above. *
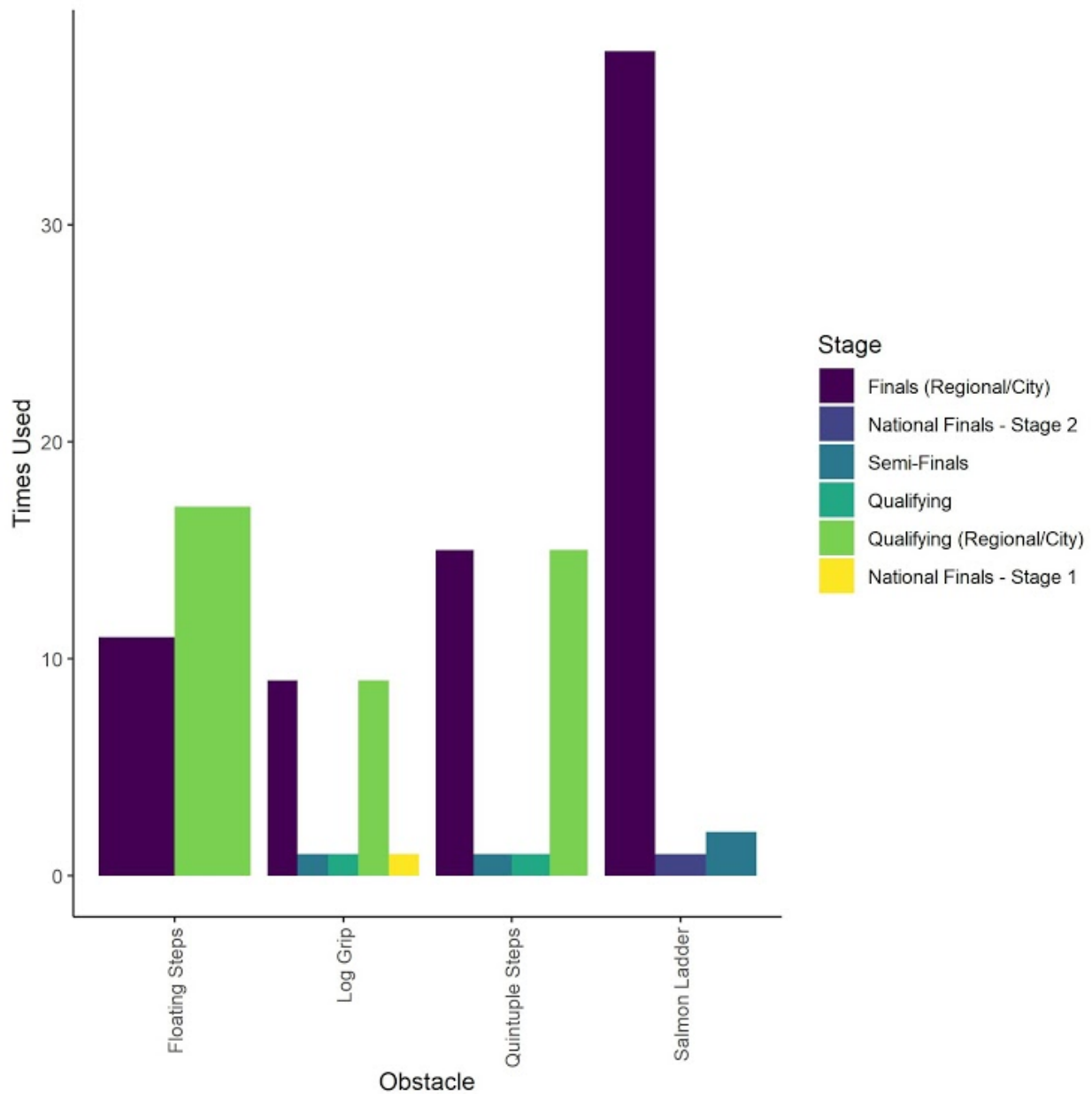
    Mark only one oval.

   ◯ 'Log Grip' was used MORE in Finals (Regional/City) rounds than in Qualifying (Regional/City) rounds.

    ◯ 'Log Grip' was used LESS in Finals (Regional/City) rounds than in Qualifying (Regional/City) rounds.

    ◯ 'Log Grip' was used an EQUAL number of times in Finals (Regional/City) rounds and Qualifying (Regional/City) rounds.

35. Which obstacle do you think was used MORE in Finals (Regional/City) rounds, 'Log Grip' or 'Floating Steps'? *

    Mark only one oval.

    ◯ 'Log Grip'

    ◯ 'Floating Steps'

    ◯ They were used the same amount of times

36. How many times would you say 'Floating Steps' were used in the Finals
    (Regional/City) rounds? *

    _____

37. How many times would you say 'Log Grip' was used in the Finals (Regional/City) rounds? *

_____

_____

_____

_____

_____

38. Please select the statement you feel applies to the bar chart above. *

   Mark only one oval.

   ( ) 'Log Grip' was used MORE in Finals (Regional/City) than in Qualifying (Regional/City).

   ( ) 'Log Grip' was used LESS in Finals (Regional/City) than in Qualifying (Regional/City).

   ( ) 'Log Grip' was used an EQUAL number of times in Finals (Regional/City) and Qualifying (Regional/City).

39. Which obstacle do you think was used MORE in Finals (Regional/City) rounds, 'Log Grip' or 'Floating Steps'? *

   Mark only one oval.

   ( ) 'Log Grip'

   ( ) 'Floating Steps'

   ( ) They were used the same amount of times

Below compares the color scheme of the plots above (A) with another colour scheme (B).
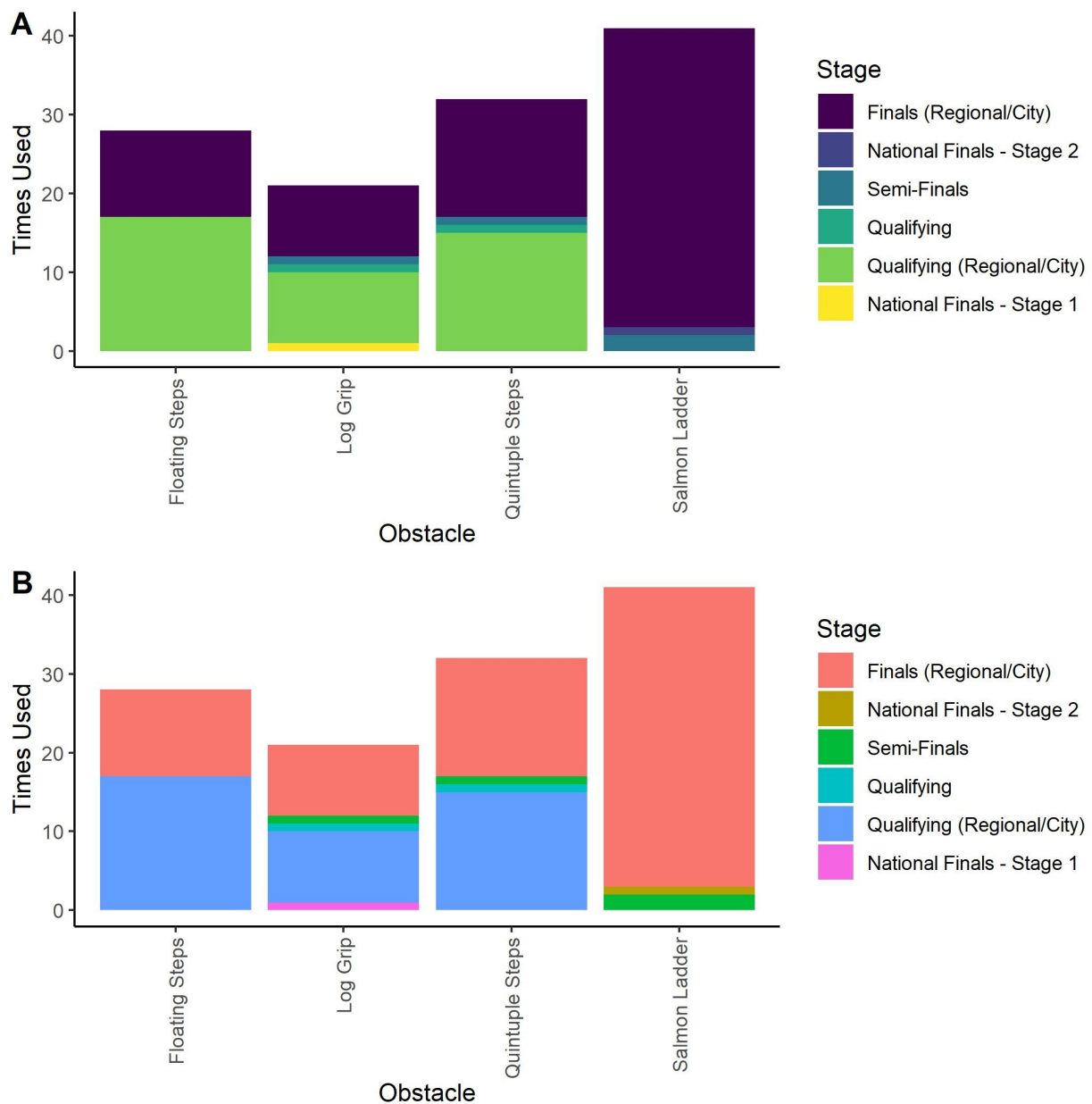
40. Which colour scheme do you find most aesthetically pleasing? *

Mark only one oval.

⬭ A

⬭ B

41. Do you feel that one of the colour schemes makes it easier to read and interpret the data than the other? If so, please select which one. *
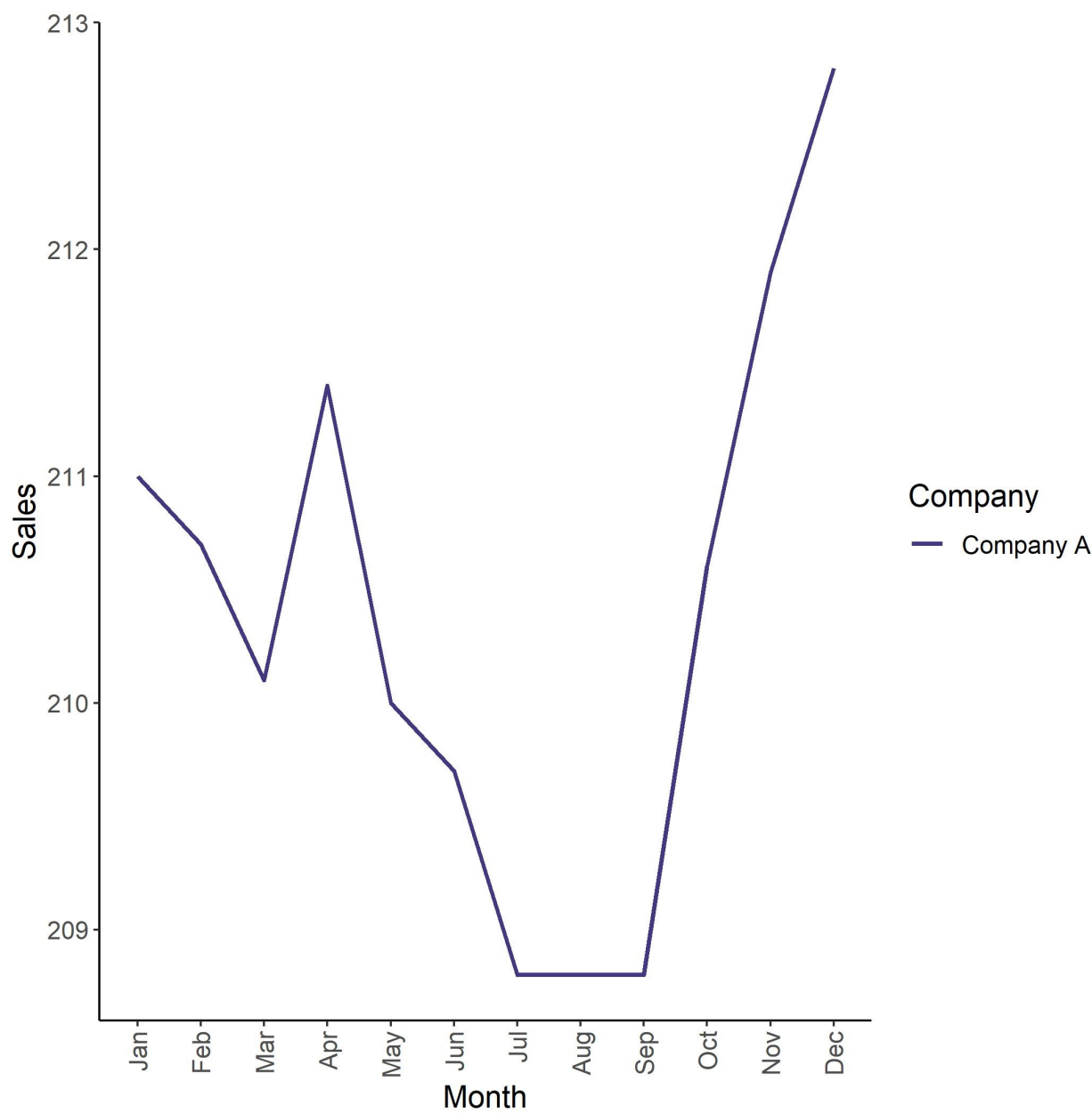
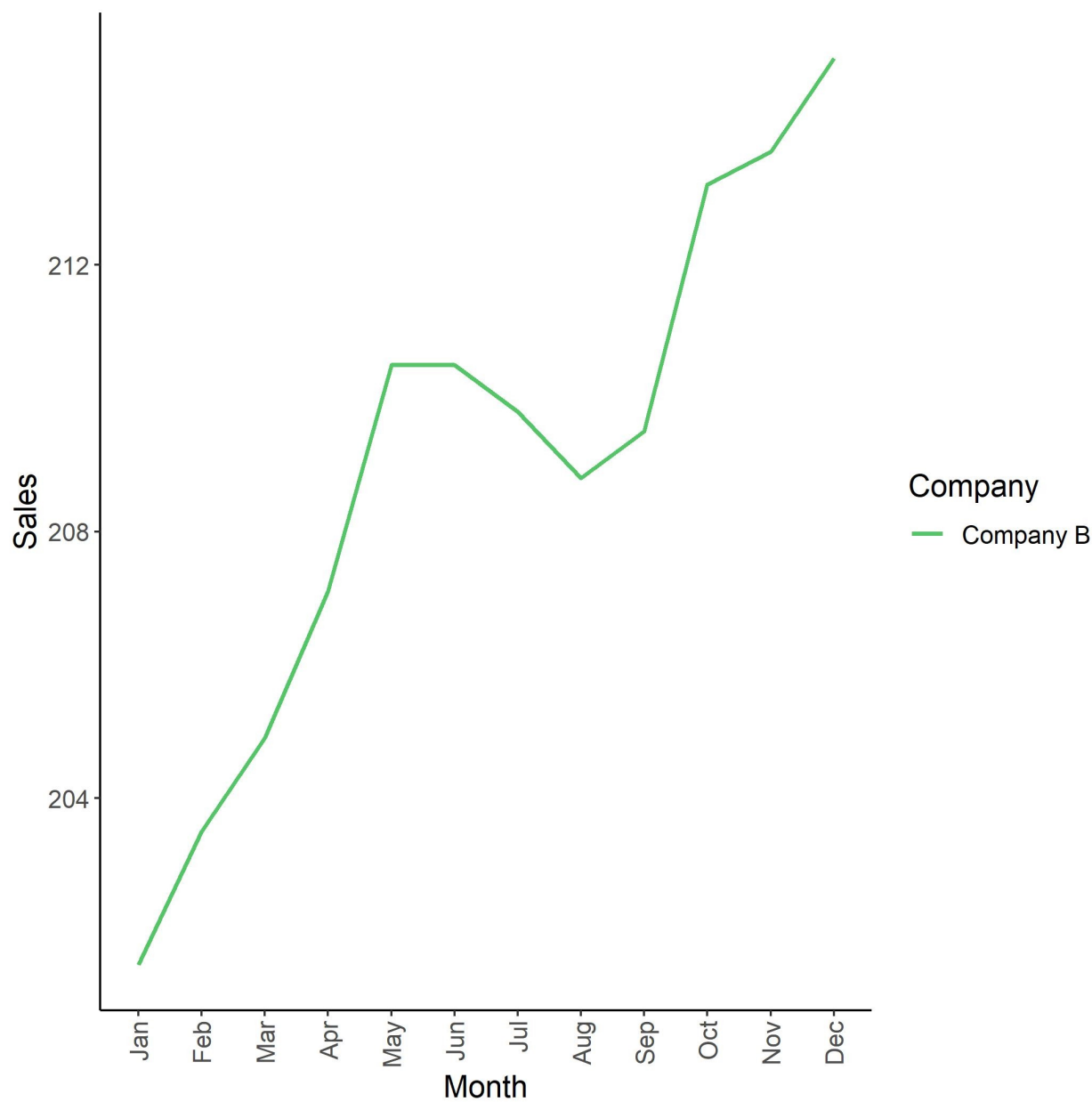*Mark only one oval.*

◯ No

◯ Yes, A is easier

◯ Yes, B is easier

Sales
-
Part
1

The following section will present graphs showing monthly sales data of two competing companies over the course of a year, and ask you questions relating to the graphs.

Sales data for Company A

Sales data for Company B

42. How much would you say the of sales each company increased from January to December? *

Mark only one oval per row.

	1 (A little)	2	3	4	5	6	7 (A lot)
Company A	◯	◯	◯	◯	◯	◯	◯
Company B	◯	◯	◯	◯	◯	◯	◯

43. How large would you say the drop in sales between April and July of Company A is? *

Mark only one oval.

	1	2	3	4	5	6	7	
A little	◯	◯	◯	◯	◯	◯	◯	A lot

44. Now looking at the graphs on the same set of axes, how much would you say sales of each company increase? *
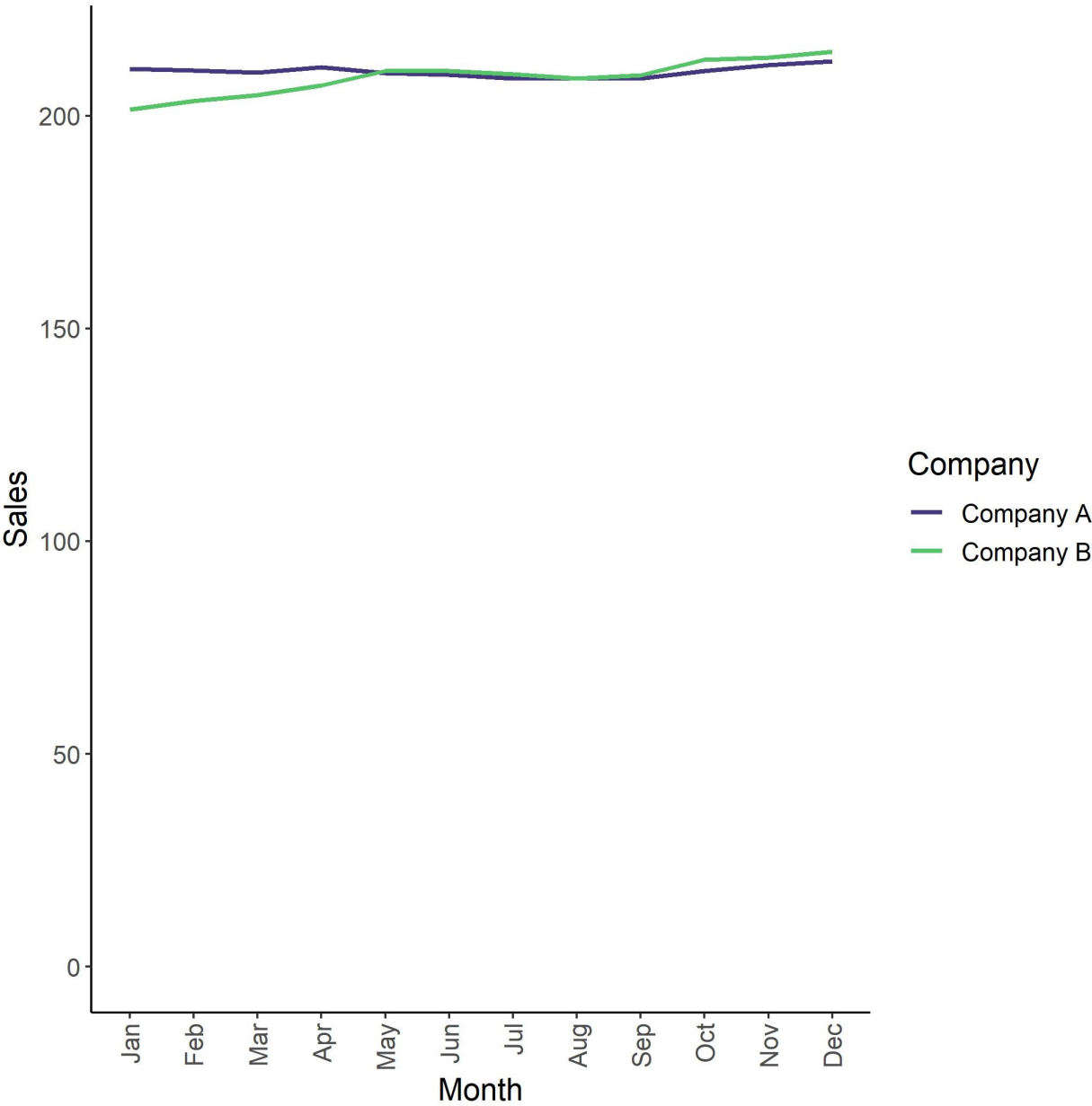
Mark only one oval per row.

	1 (A little)	2	3	4	5	6	7 (A lot)
Company A	◯	◯	◯	◯	◯	◯	◯
Company B	◯	◯	◯	◯	◯	◯	◯

45. How large would you say the drop in sales between April and July of Company A is? *

Mark only one oval.

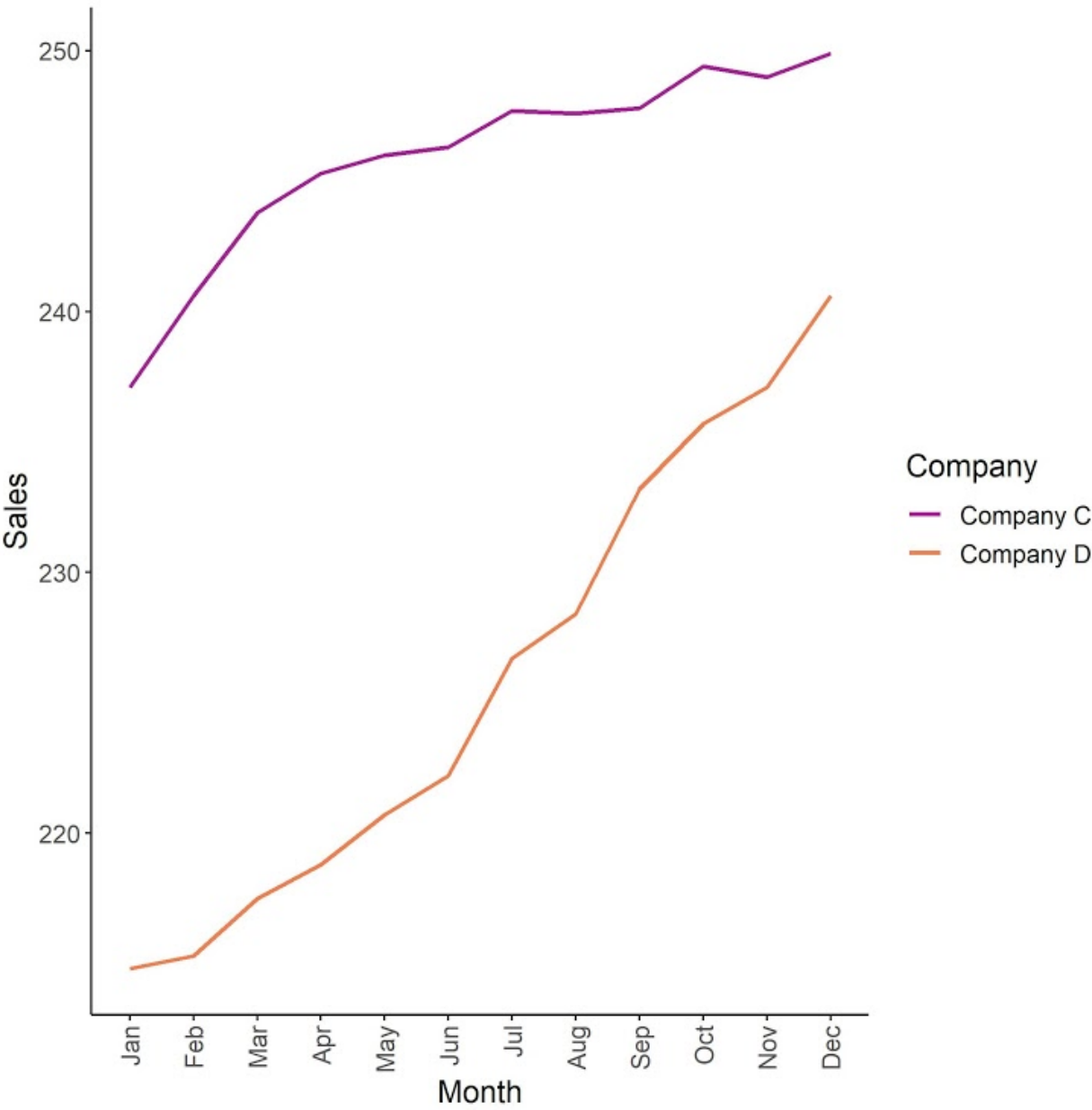|	1	2	3	4	5	6	7	
A little	◯	◯	◯	◯	◯	◯	◯	A lot

46. Above is the same graph of sales for both companies, but with the axis extended to include 0. Once again, how much would you say sales of each company increase from January to December? *

Mark only one oval per row.

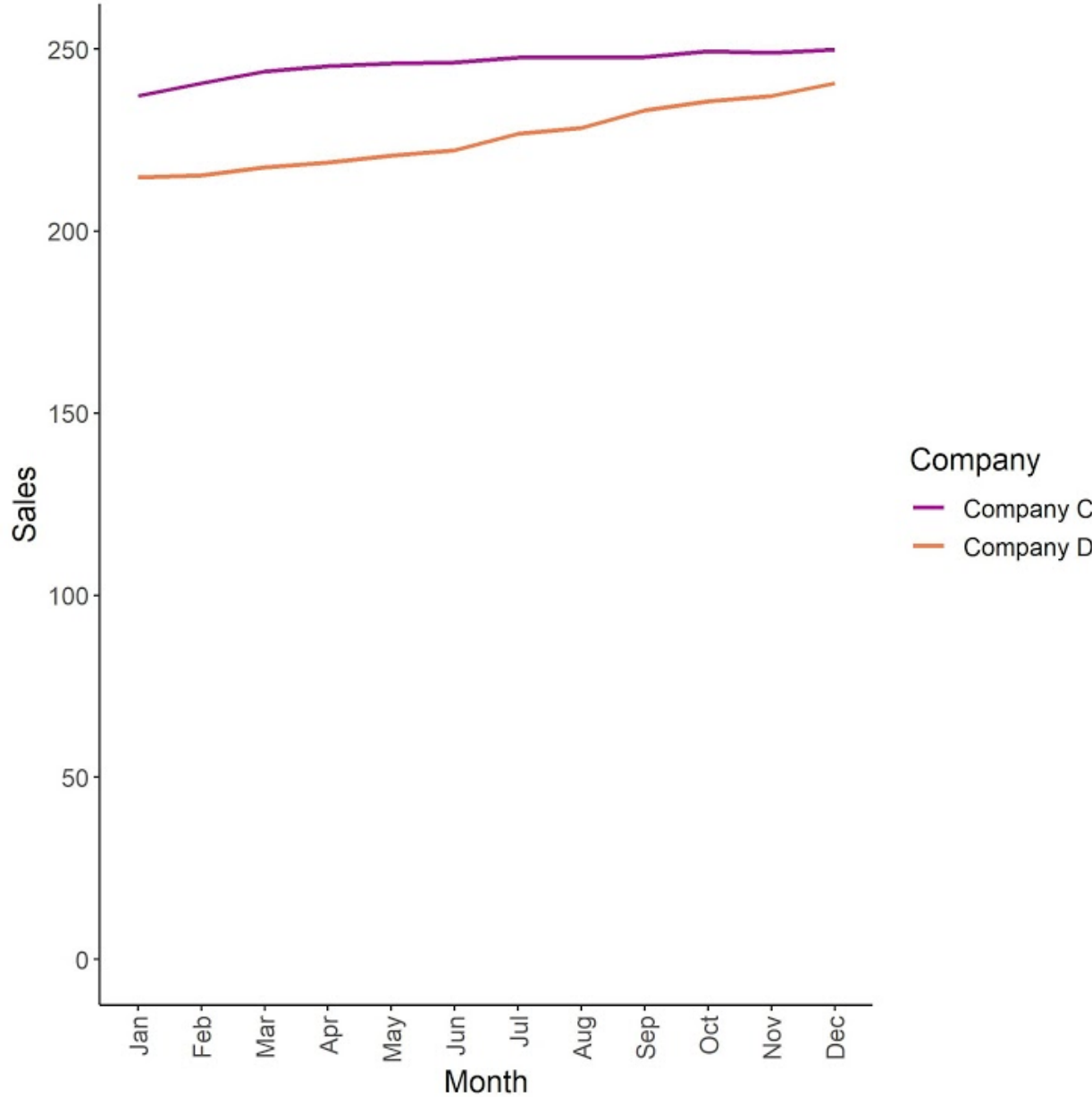|	1 (A little)	2	3	4	5	6	7 (A lot)
Company A	◯	◯	◯	◯	◯	◯	◯
Company B	◯	◯	◯	◯	◯	◯	◯

Sales - Part 2

The graphs below show the sales data for two more companies, Company C and Company D.

47. Based on the above graph, how large would you say the difference is between the number of sales Company C makes and the number of sales Company D makes? *

Mark only one oval.

	1	2	3	4	5	6	7	
A little	⬭	⬭	⬭	⬭	⬭	⬭	⬭	A lot

48. Again, based on the above graph, how large would you say the difference is between the number of sales Company C makes and the number of sales Company D makes? *

Mark only one oval.

	1	2	3	4	5	6	7	
A little	◯	◯	◯	◯	◯	◯	◯	A lot

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