Mentimeter

# Übung - Quiz

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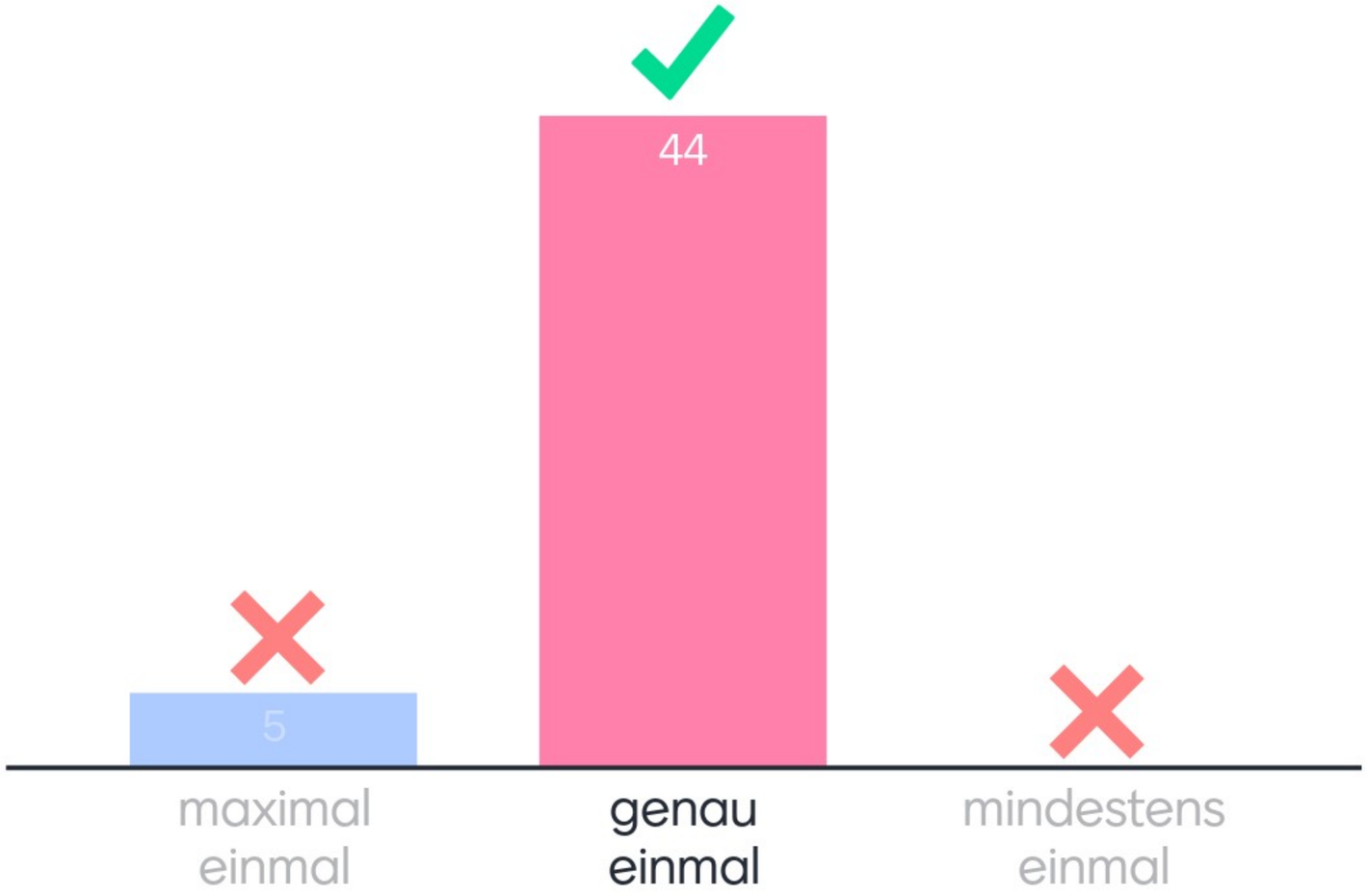
# 1. Eine Eulertour ist ein geschlossener Weg, der jede Kante ___ besucht.

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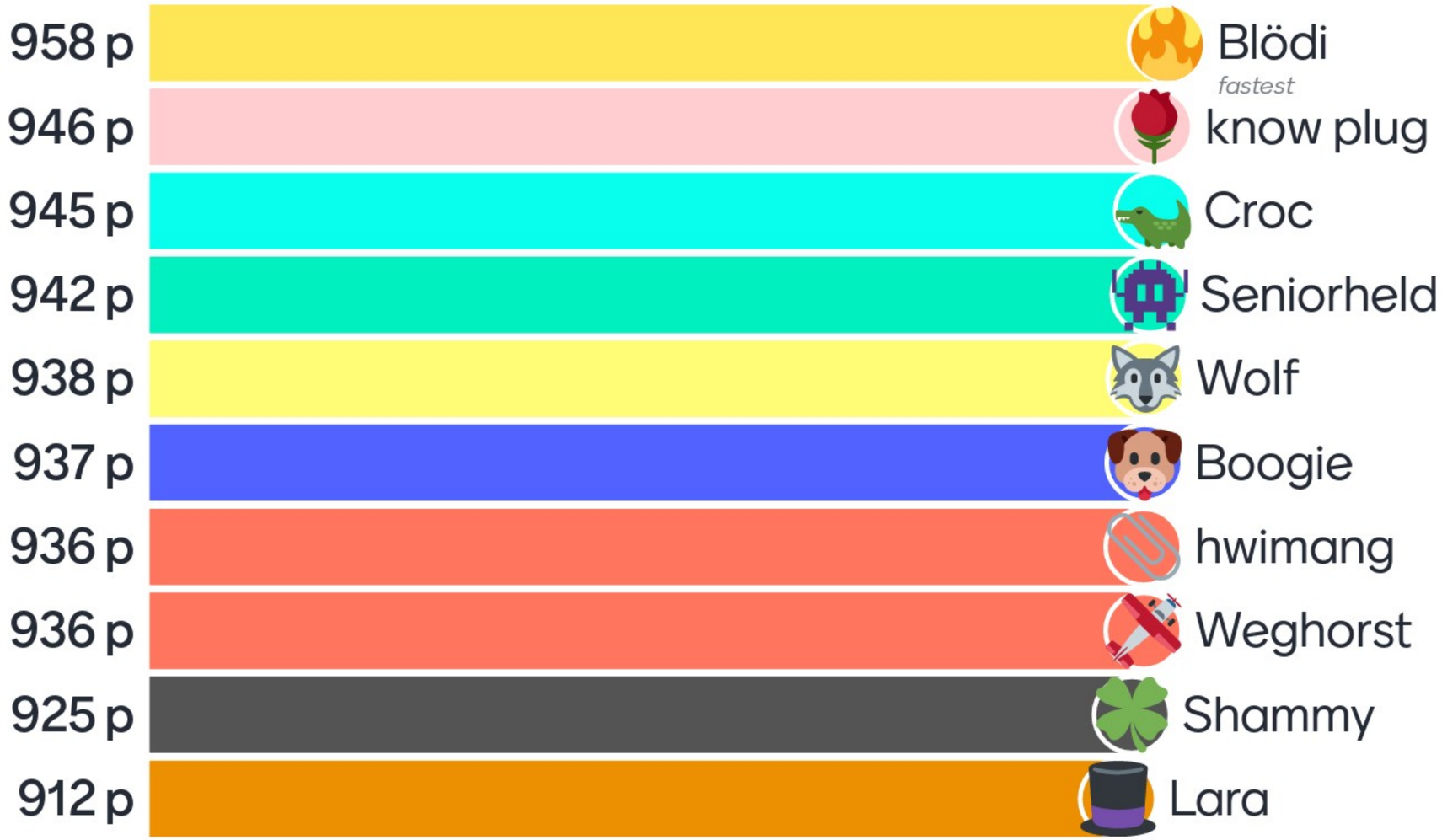
# Leaderboard

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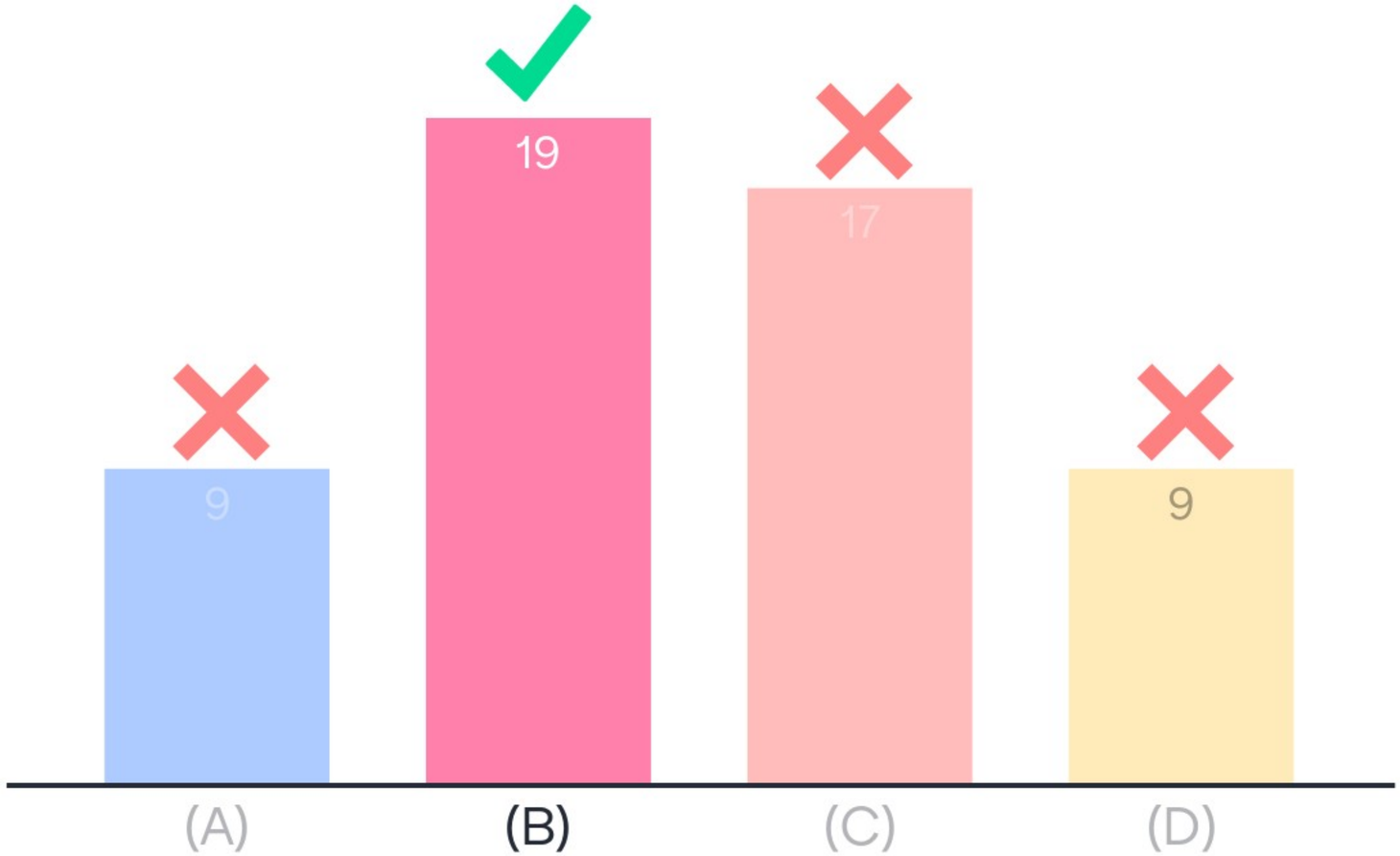
# 2. Welcher dieser Graphen besitzt eine Eulertour, einen Hamiltonpfad, aber keinen Hamiltonkreis?

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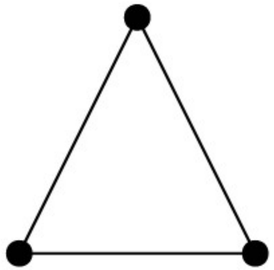
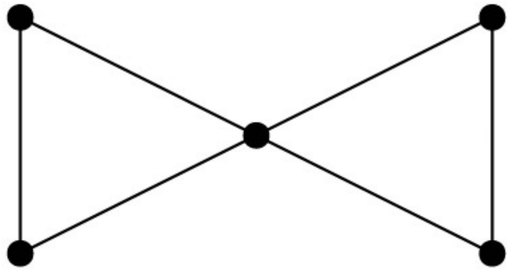
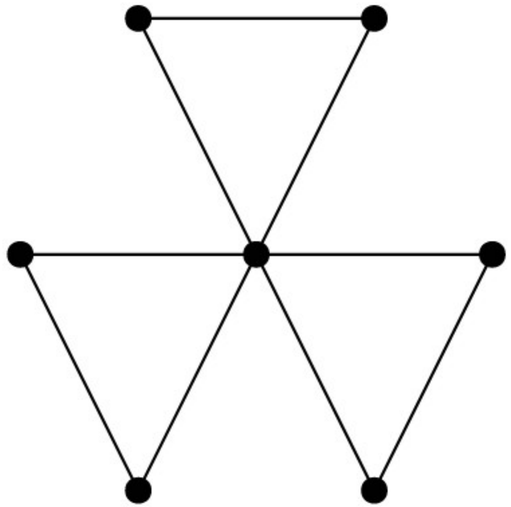


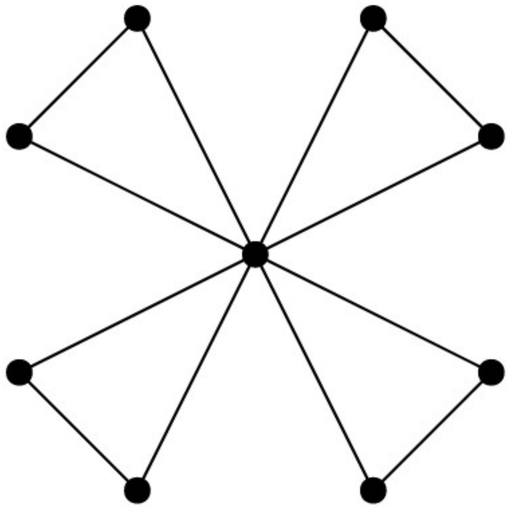
(A)



(B)



(C)



(D)

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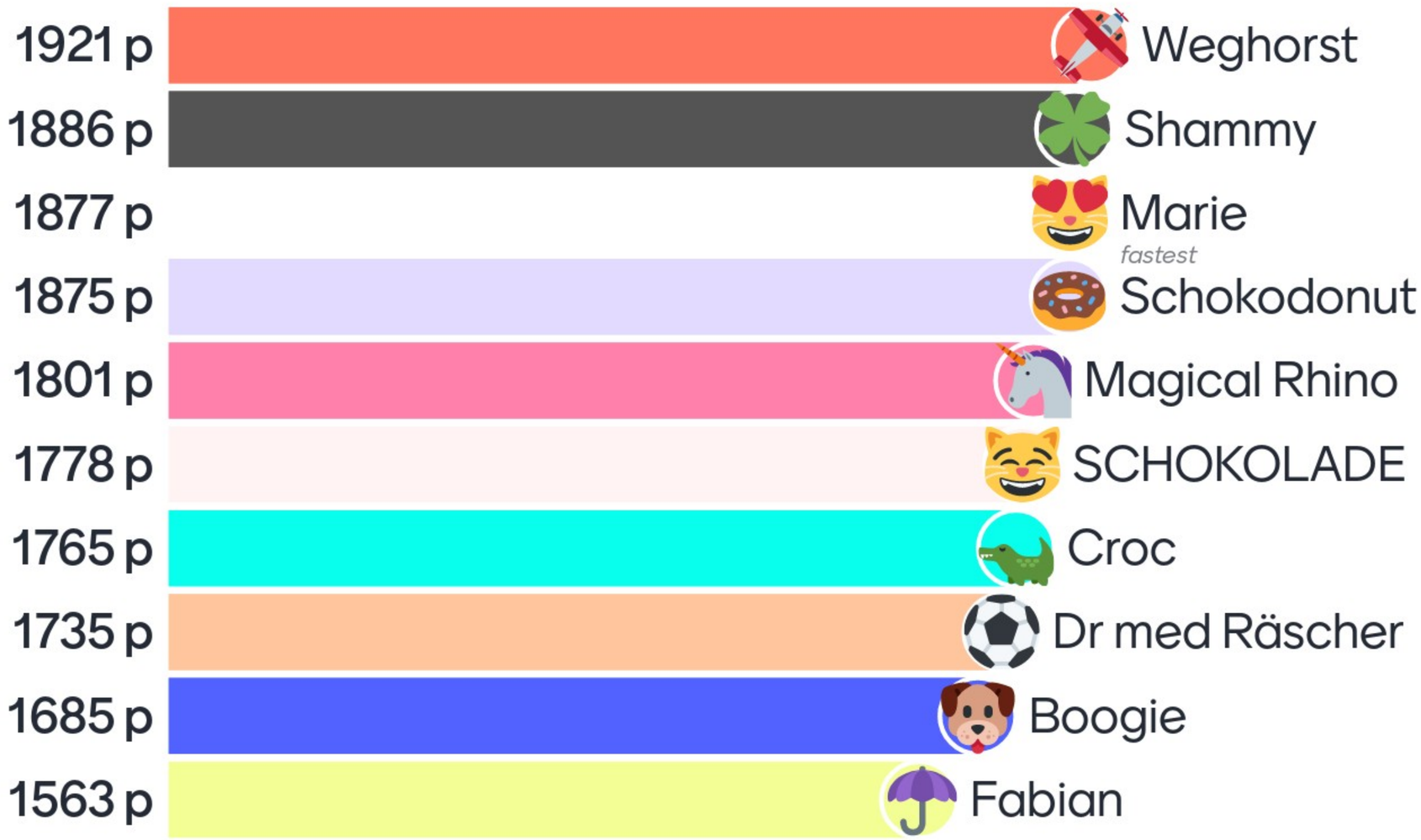
# Leaderboard

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# 3. Welche Datenstruktur wird für BFS genutzt?

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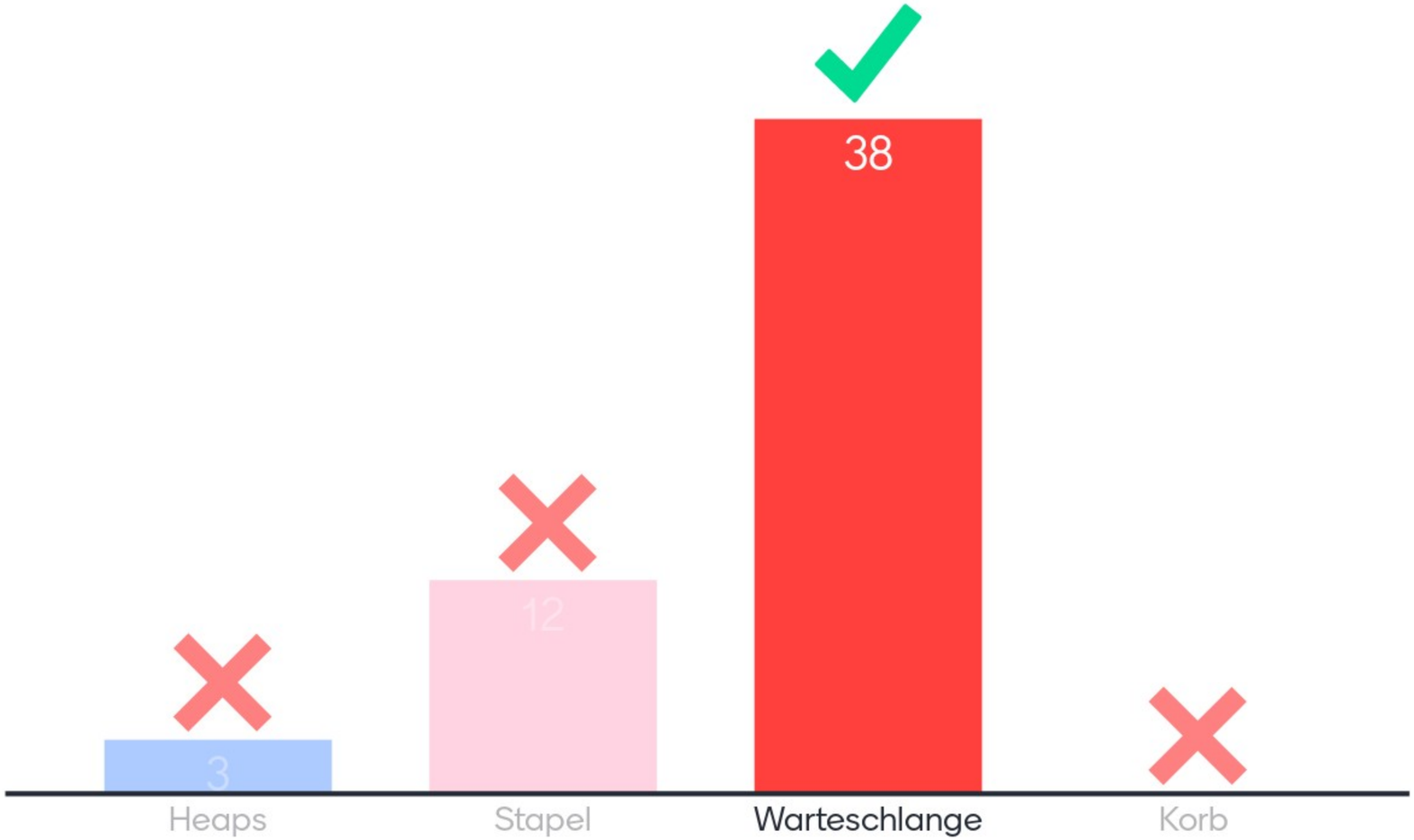


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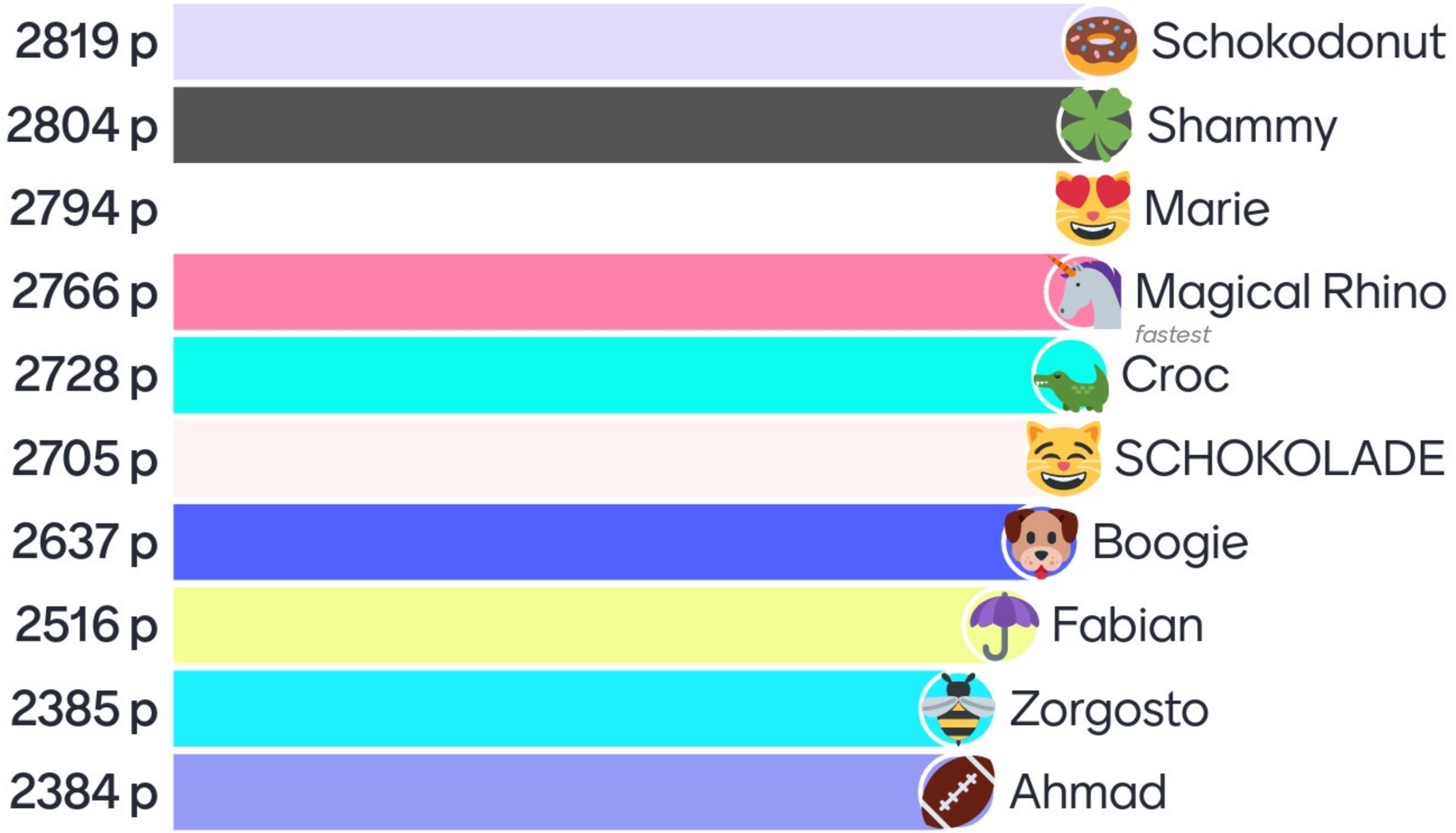
# Leaderboard

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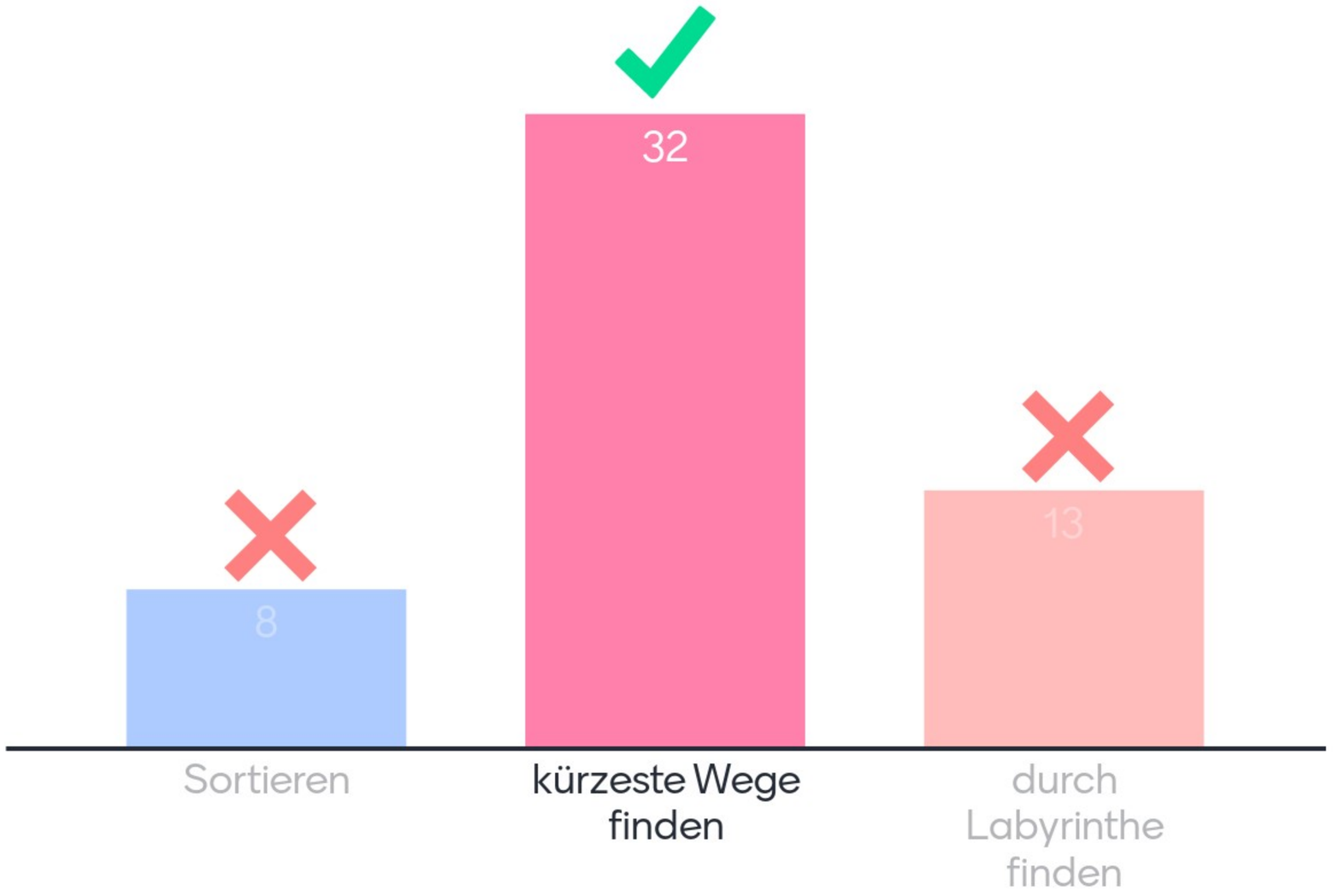
# 4. Wofür ist BFS am besten geeignet?

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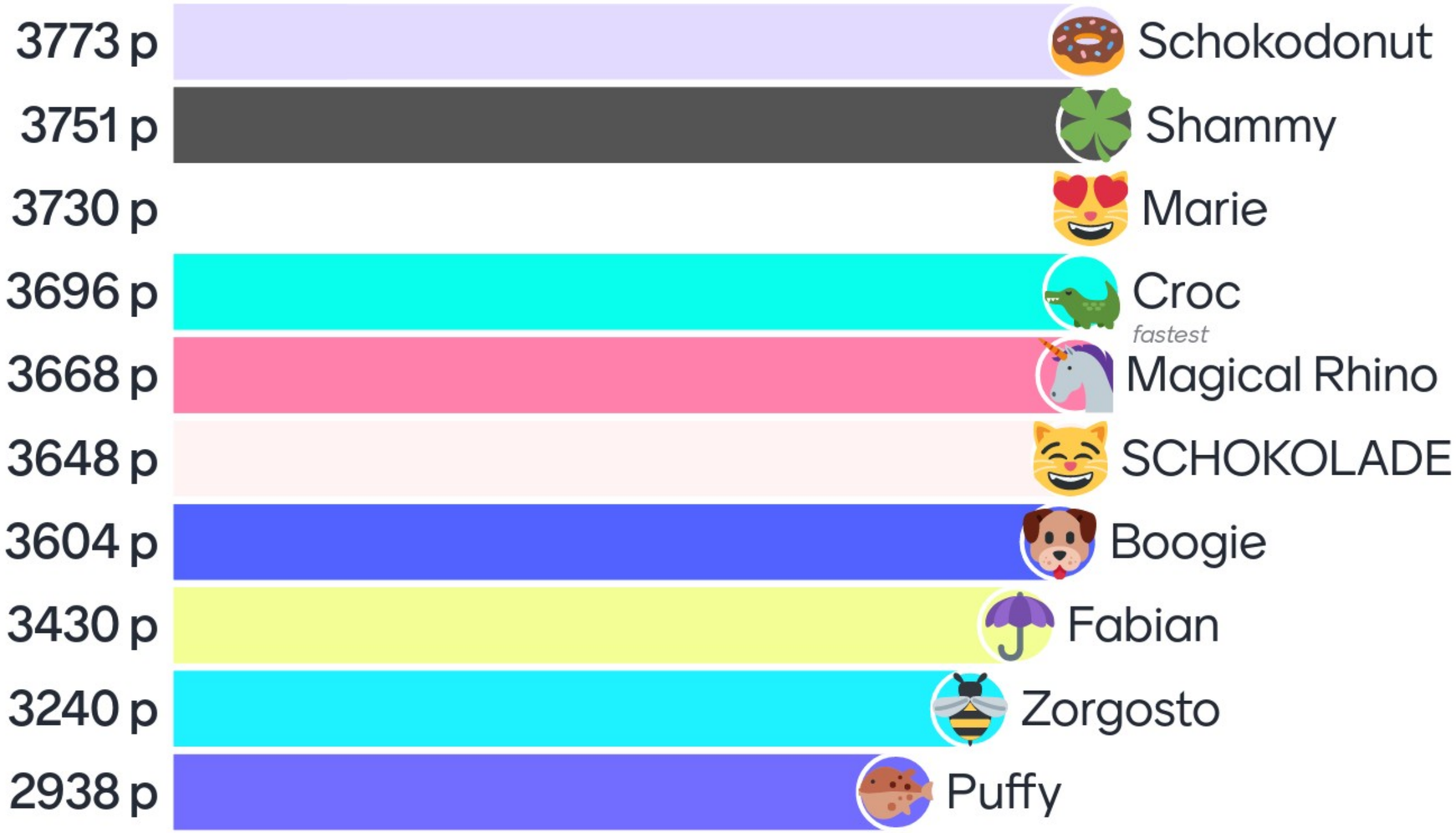
# Leaderboard

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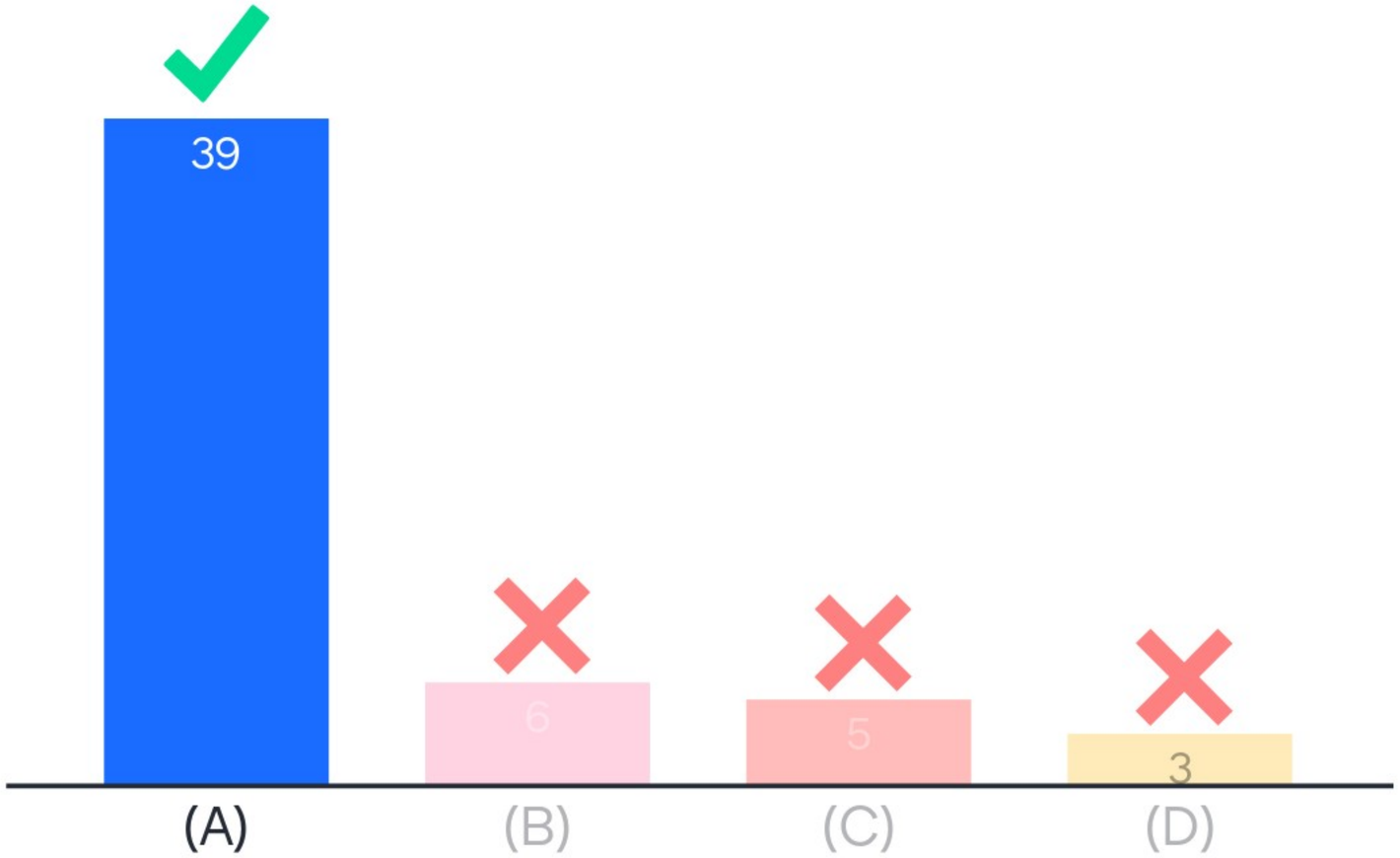
# 5. Welcher dieser Bäume ist ein BFS-Baum zum Graphen G mit dem Startknoten v1?

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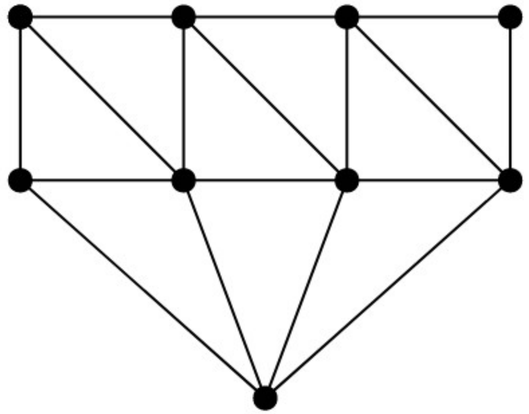
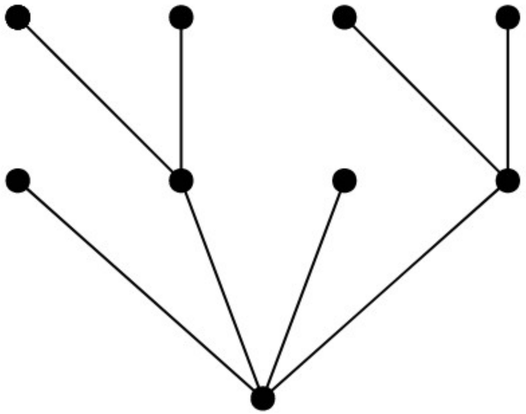
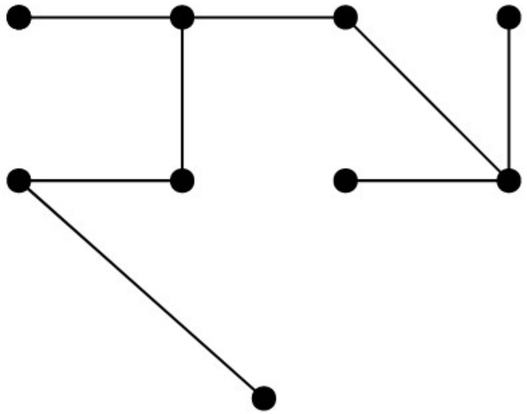
# Graph G:



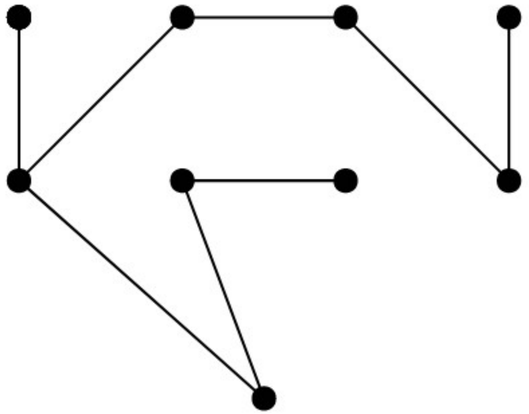

## Antworten:



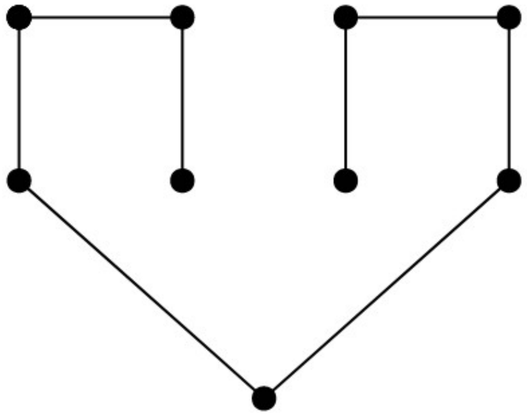
(A)



(B)



(C)



(D)

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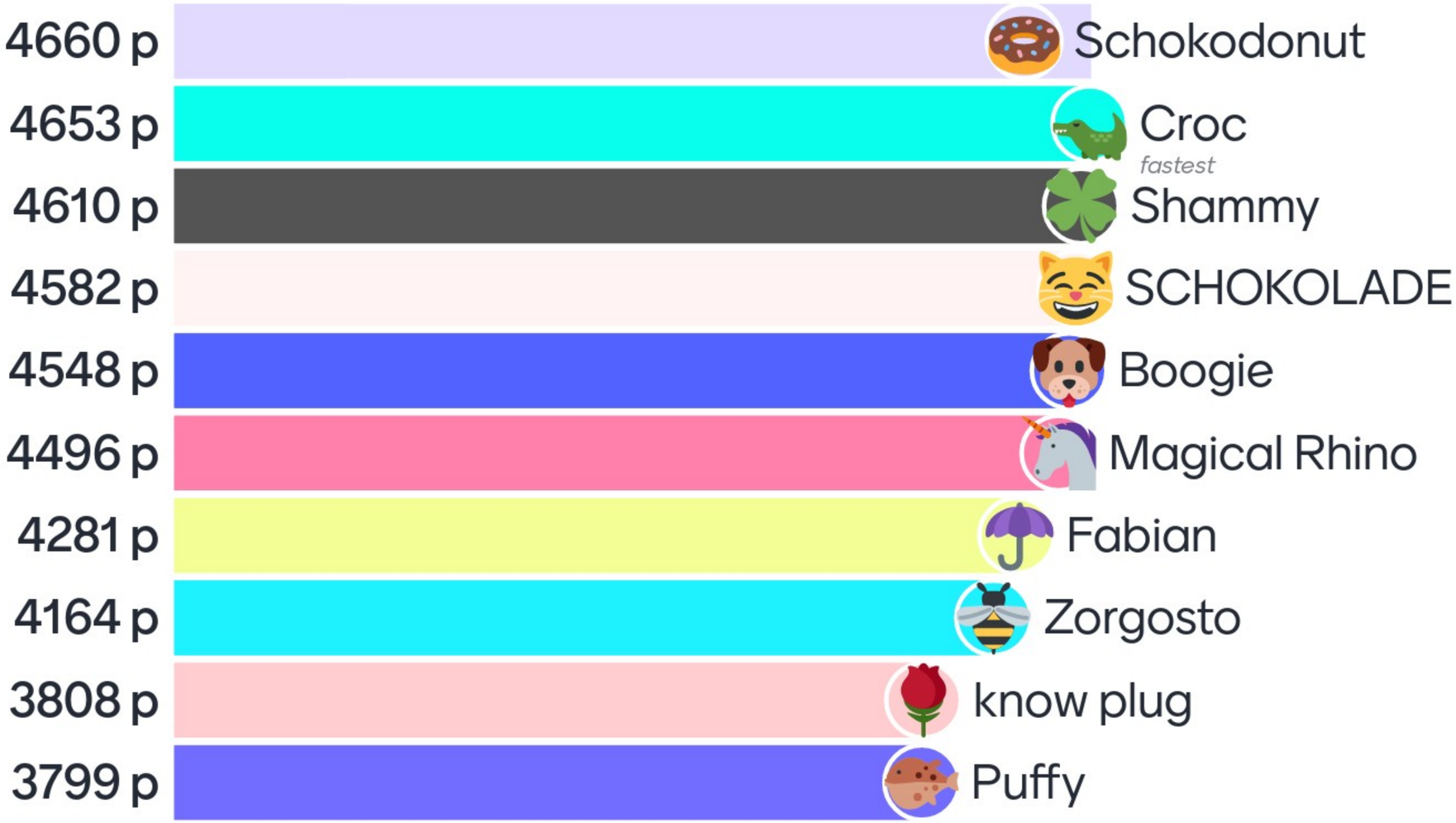
# Leaderboard

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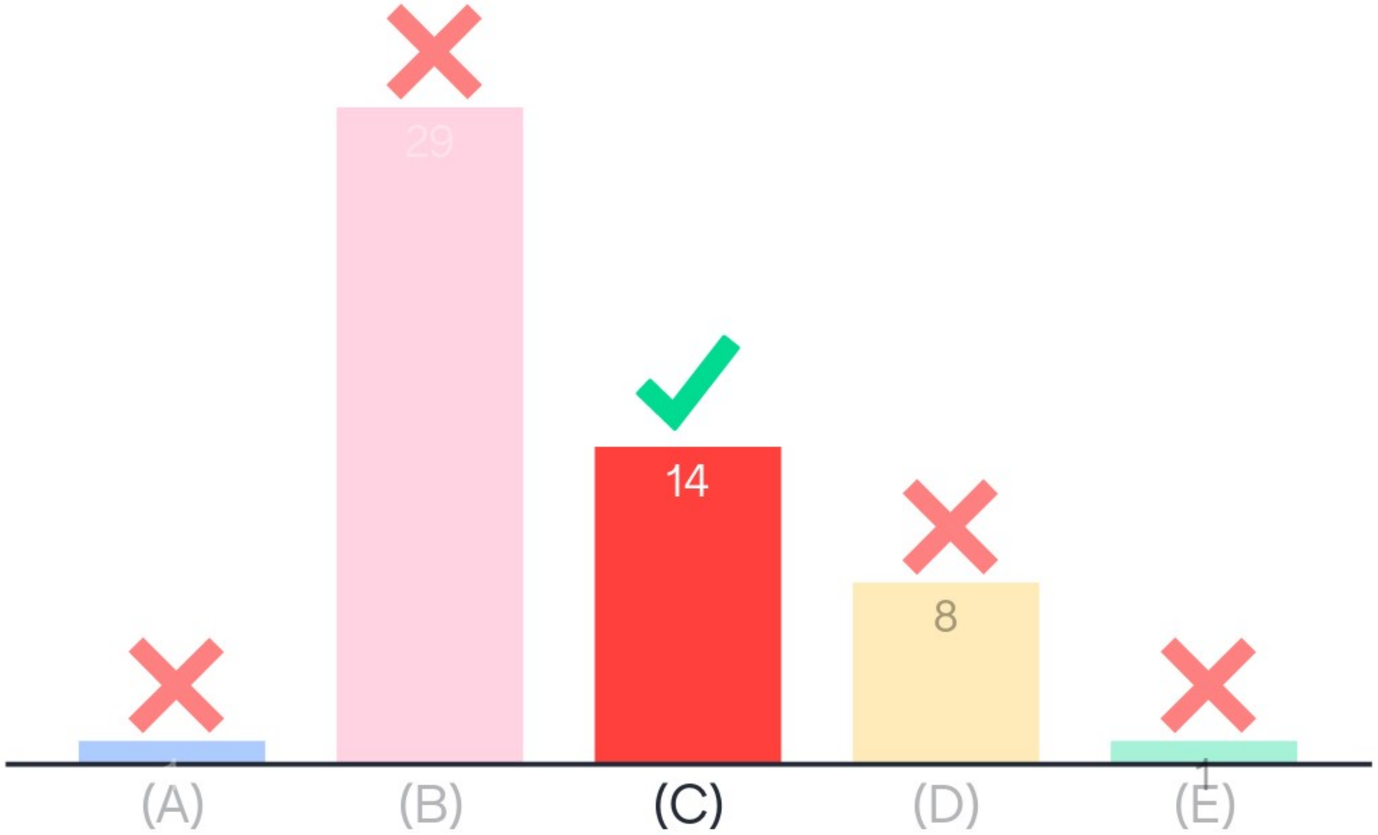
# 6. In welcher Klasse liegt die folgende Funktion?

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$$f(n) = 4n\log(n) - 5n + 30$$

| $O(1)$ | $O(n)$ | $O(n^2)$ | $\Theta(n^2)$ | $\Omega(n^2)$ |
|---|---|---|---|---|
| **(A)** | **(B)** | **(C)** | **(D)** | **(E)** |

In welcher Klasse liegt die folgende Funktion?

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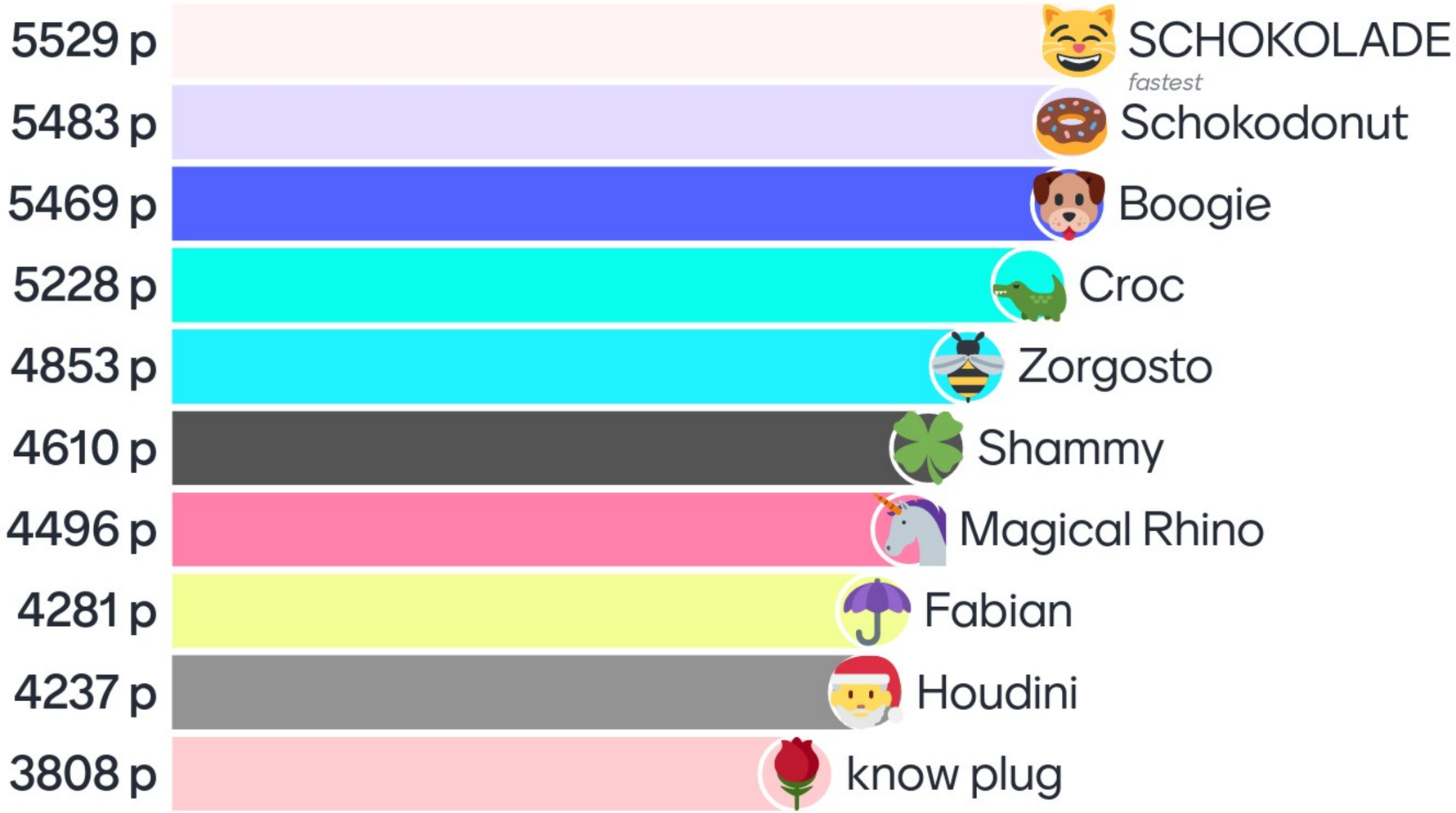
# Leaderboard

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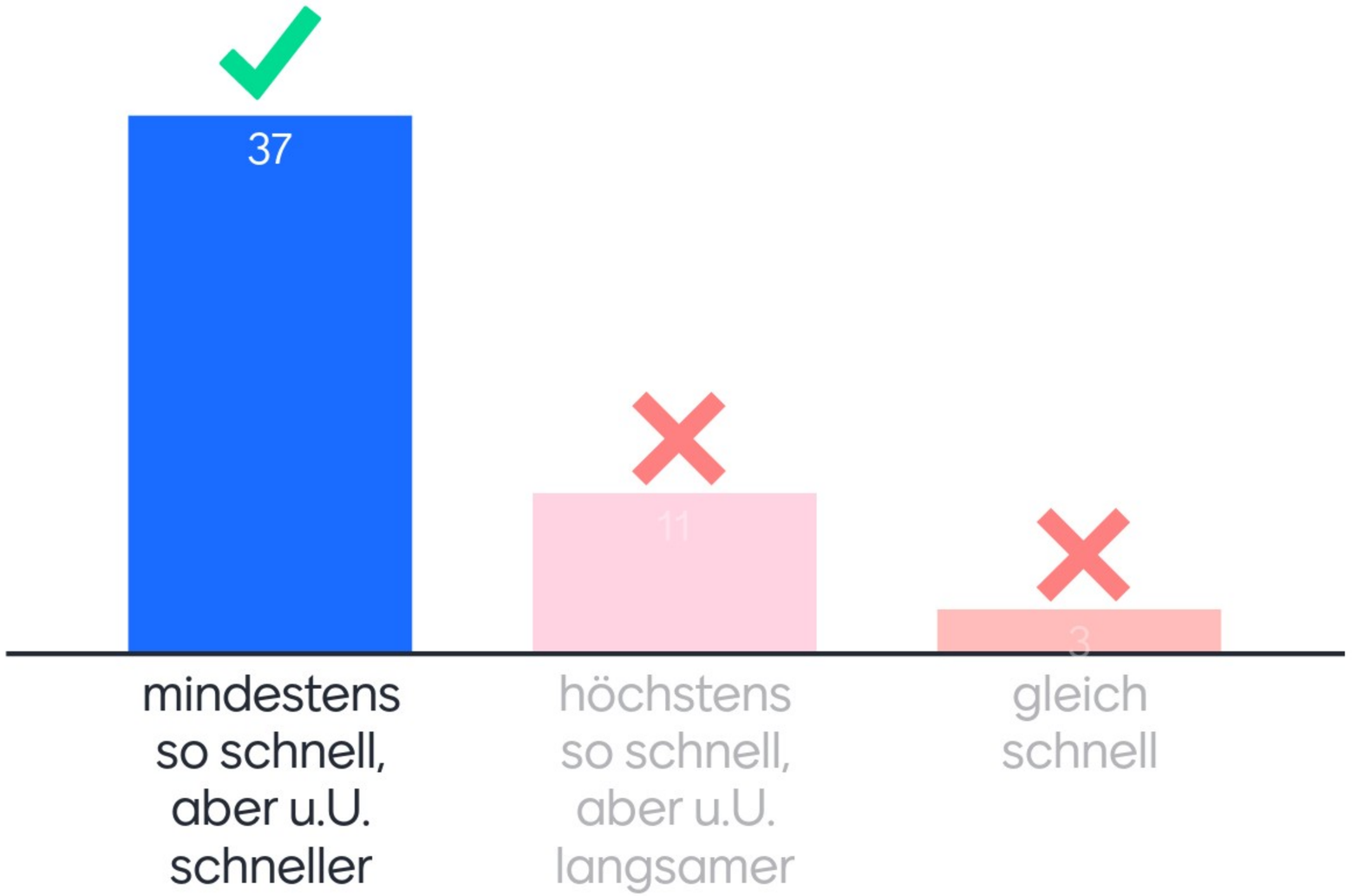
# Frage 7

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Alle Funktionen in $\Omega(f(n))$ wachsen bezüglich f(n)...

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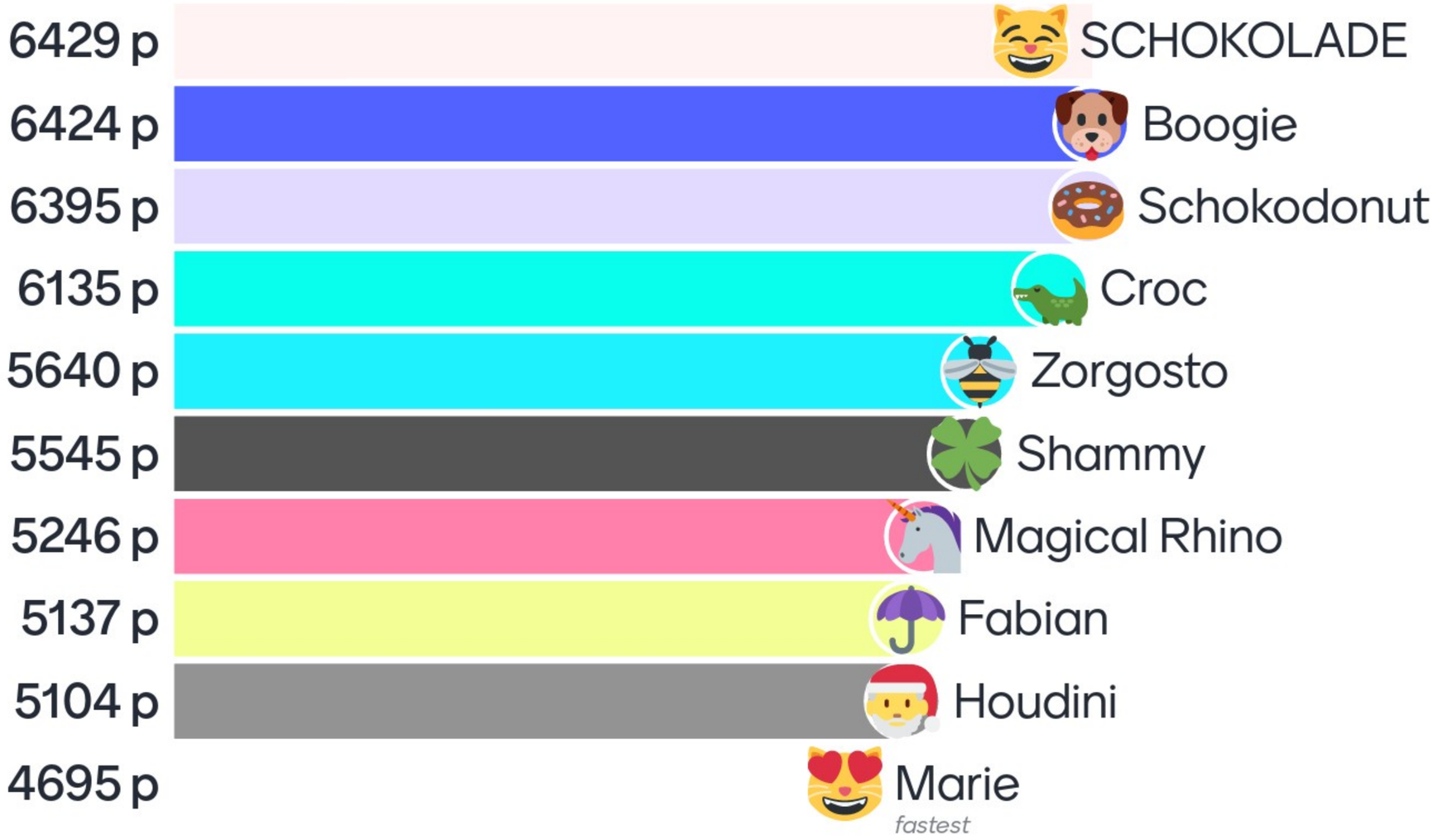
# Leaderboard

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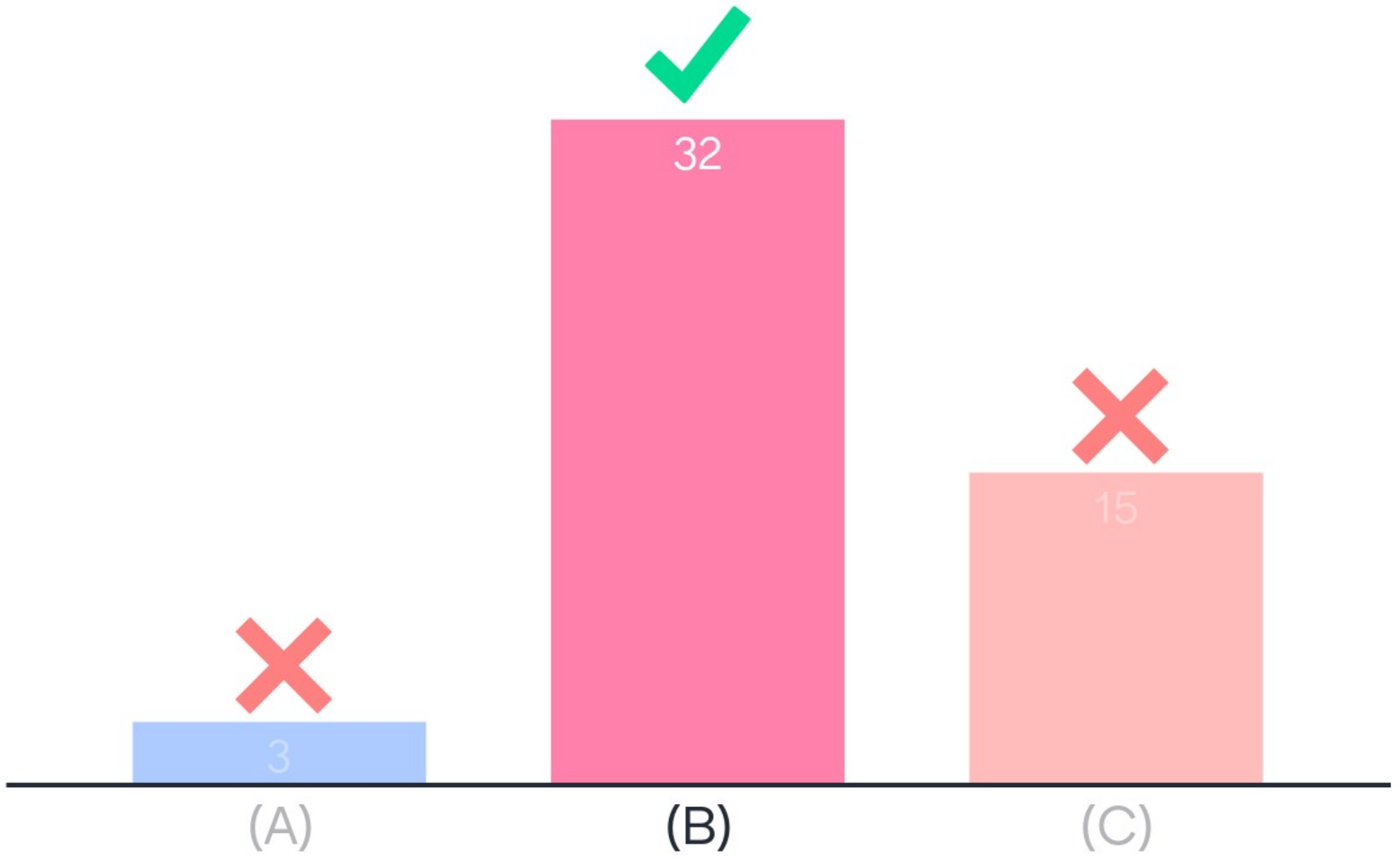
# Frage 8

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Welche Klasse ist nicht in $O(n^2)$ enthalten?

| $O(n)$ | $\Omega(1)$ | $\Theta(n \log(n))$ |
| --- | --- | --- |
| **(A)** | **(B)** | **(C)** |

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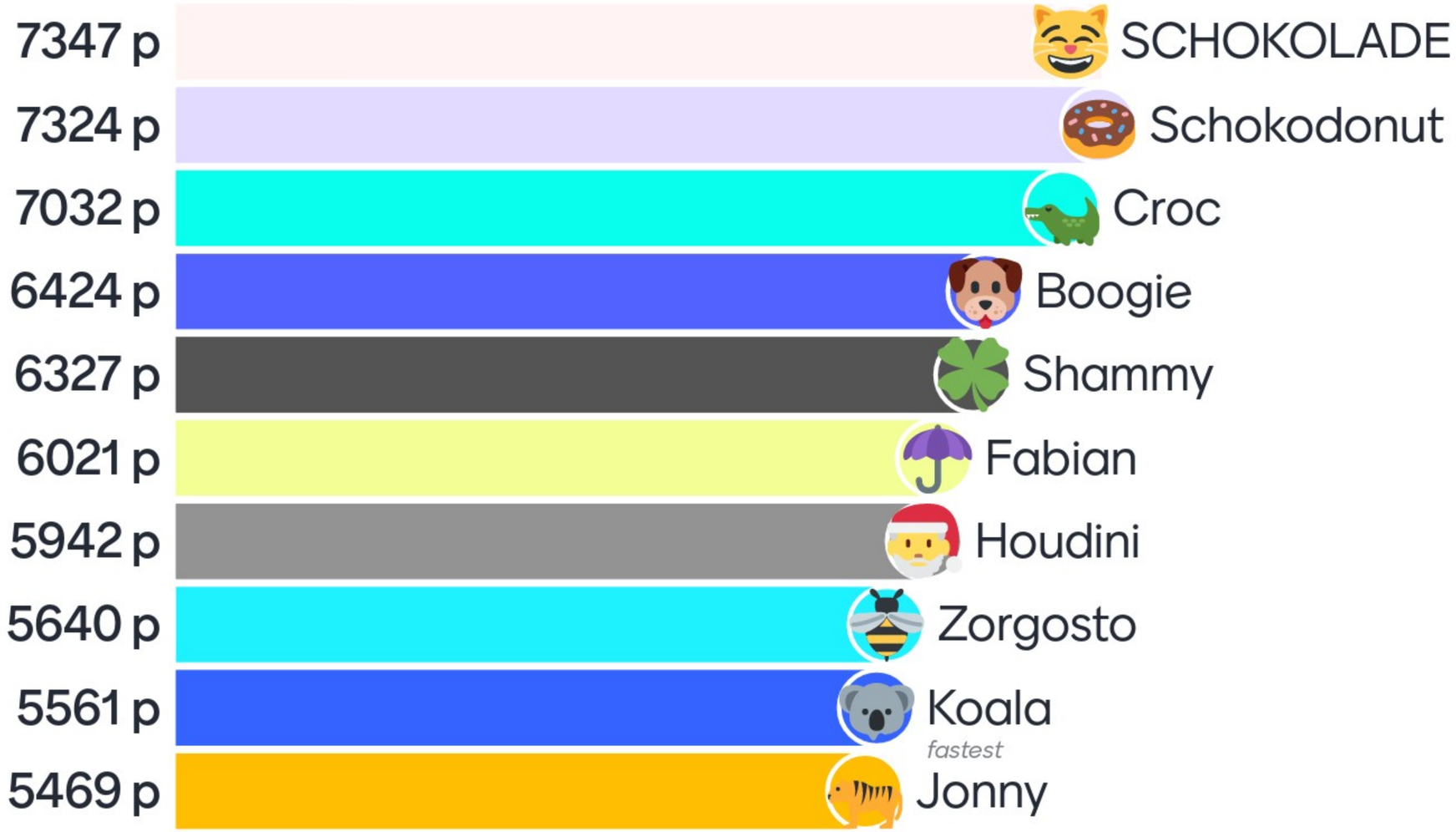
# Leaderboard

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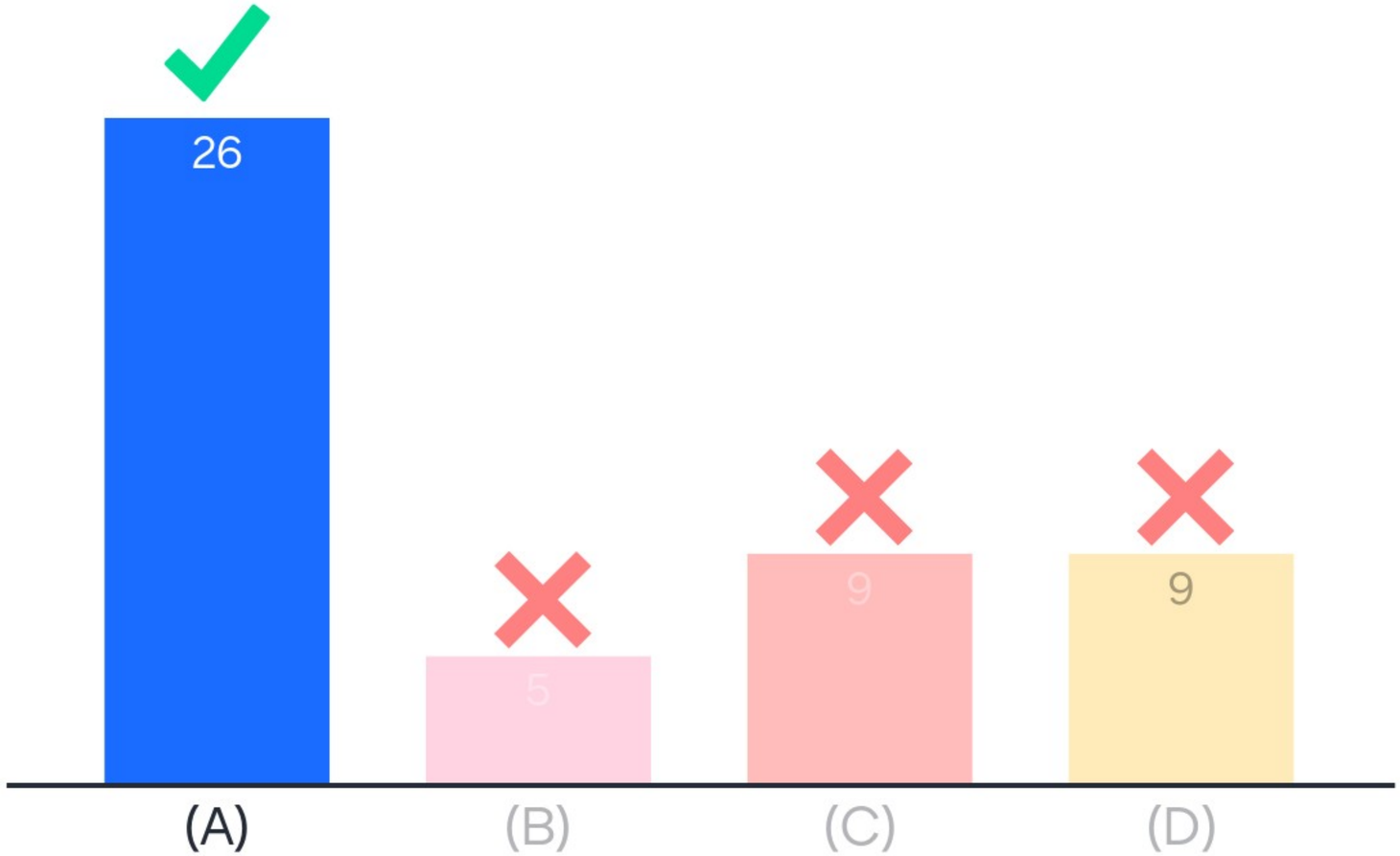
# 9. Das Löschen eines identifizierten Elements aus einer doppelt verketteten Liste dauert...

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**(A)** $\Theta(1)$

**(B)** $\Theta(\log(n))$

**(C)** $\Theta(n)$

**(D)** $\Theta(n \log(n))$

Das Löschen eines identifizierten Elements aus einer doppelt verketteten Liste dauert...

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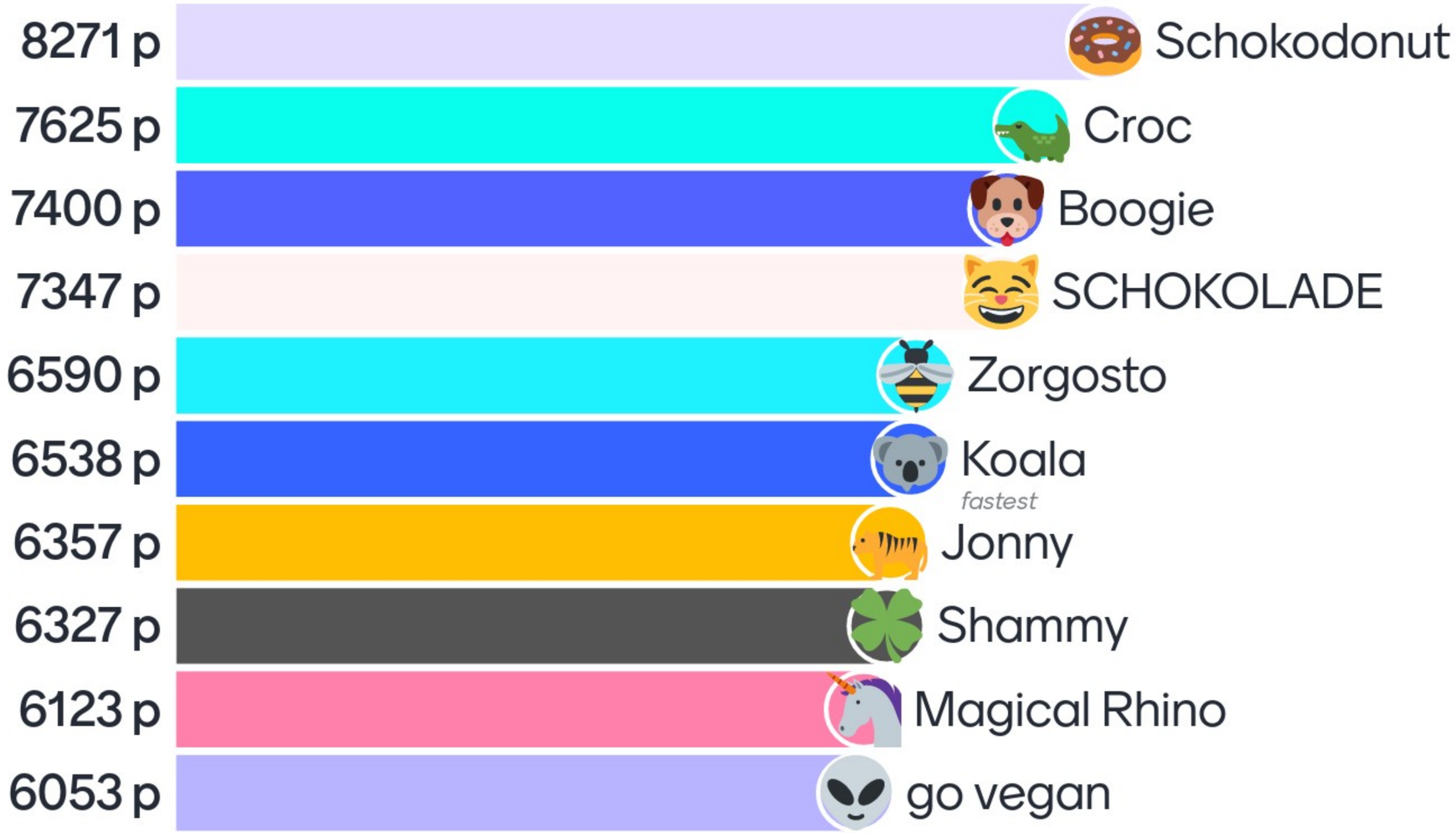
# Leaderboard

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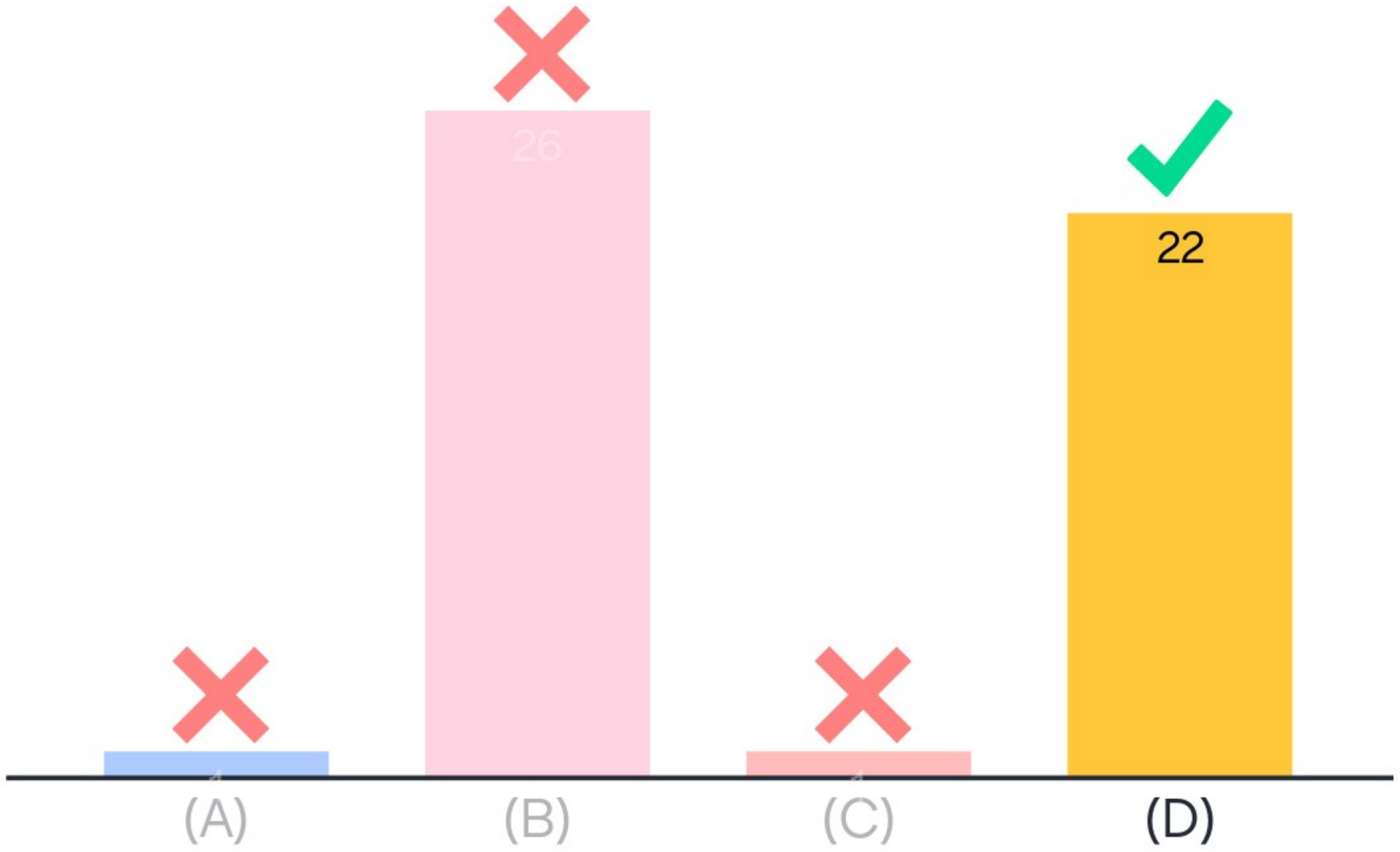
# 10. Ein binärer Suchbaum mit n Elementen besitzt welche Höhe?

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**(A)** $O(1)$

**(B)** $O(\log(n))$

**(C)** $O(\sqrt{n})$

**(D)** $O(n)$

Ein binärer Suchbaum mit n Elementen besitzt welche Höhe?

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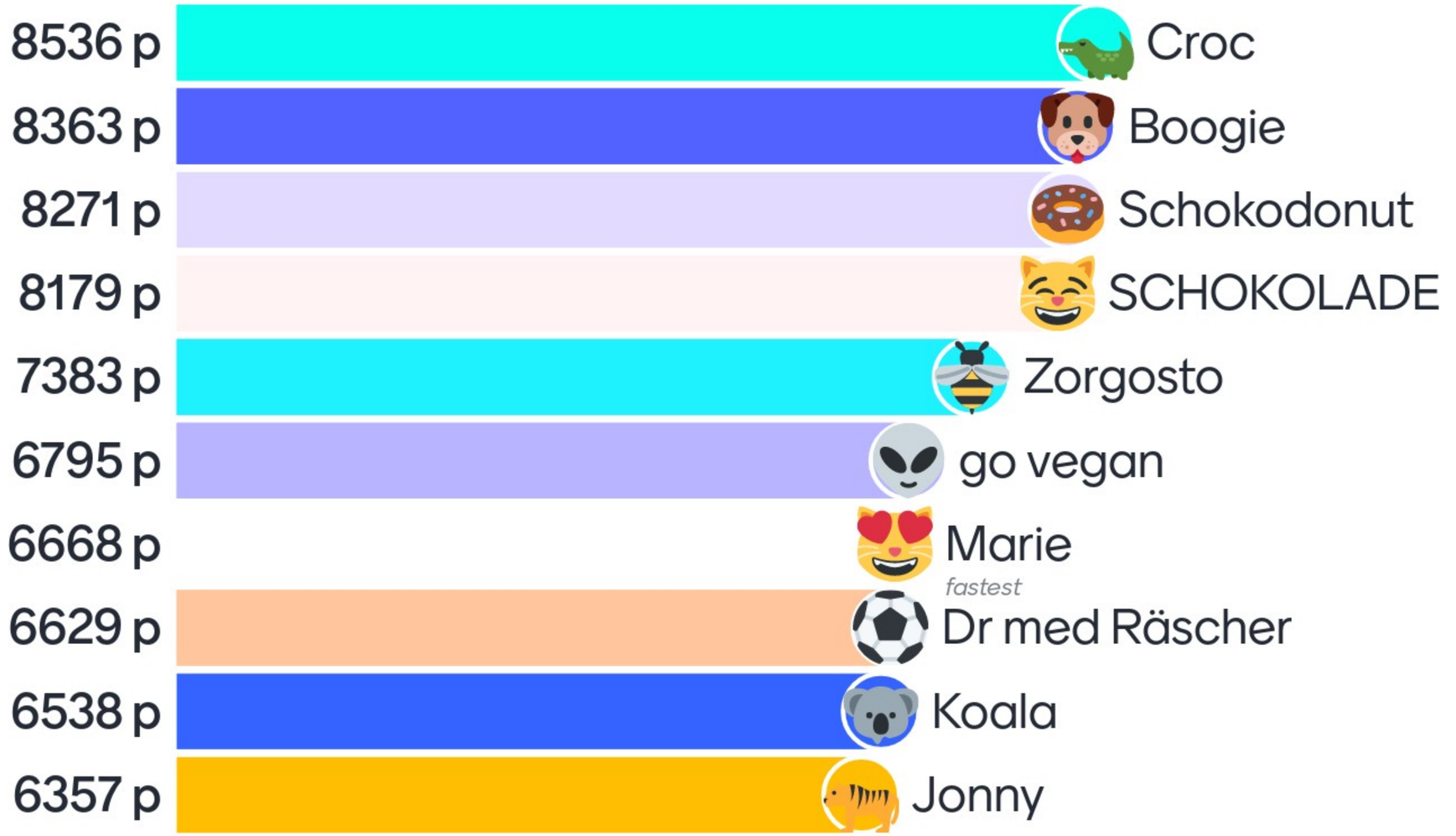
# Leaderboard

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# 11. Die Anzahl an Rotationen nach dem Löschen eines Elements aus einem AVL-Baum ist...

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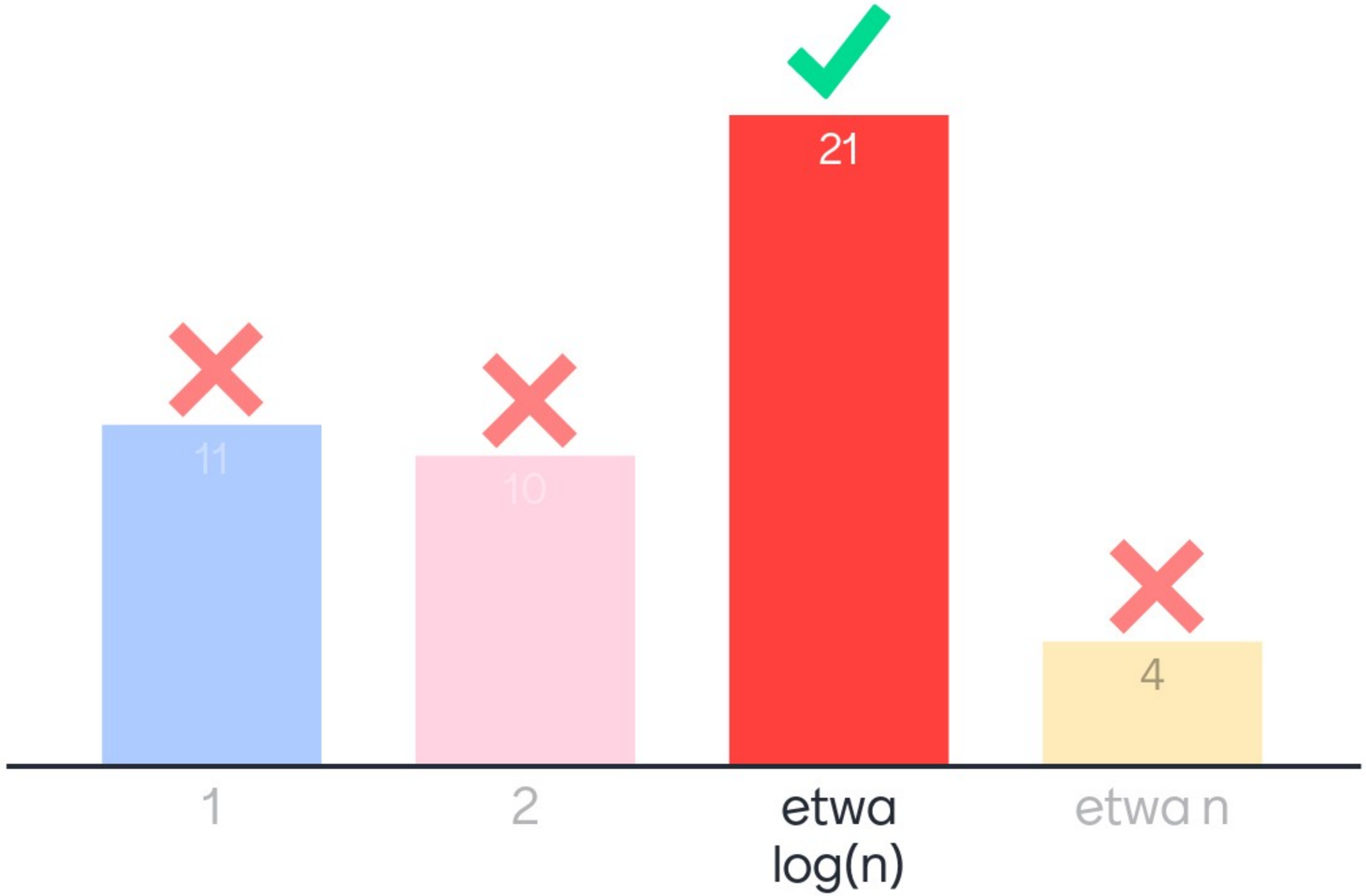


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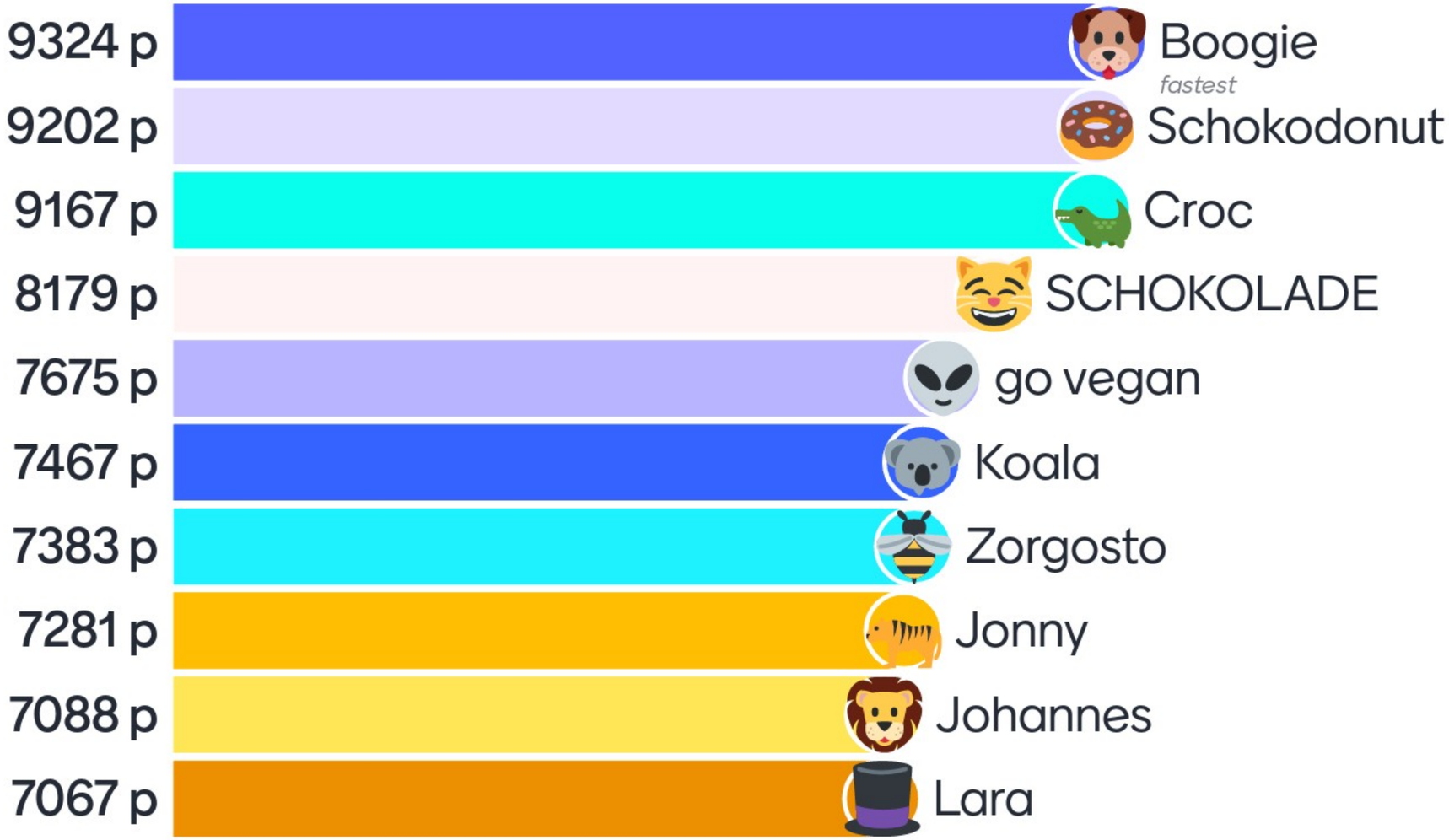
# Leaderboard

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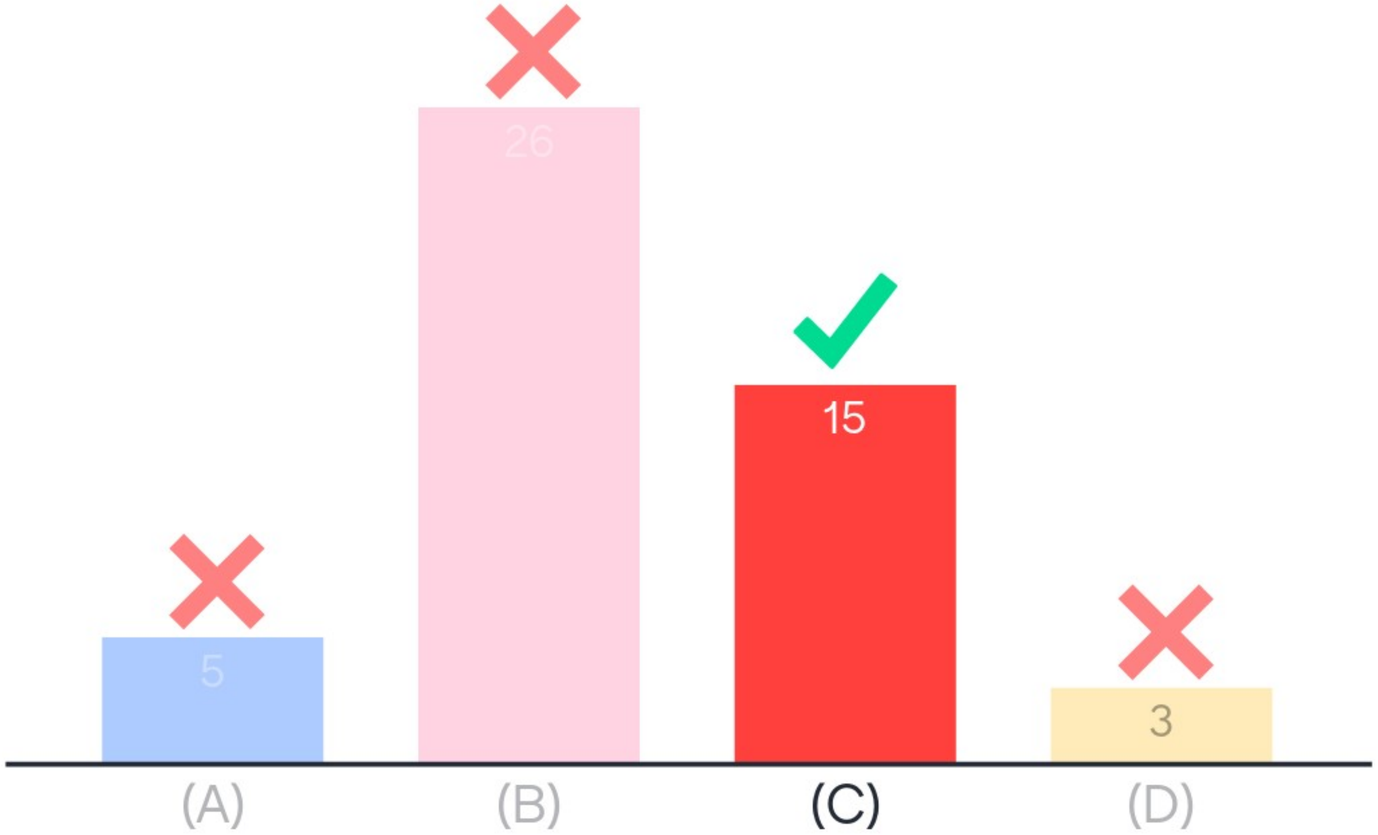
# 12. Welcher der folgenden Bäume ist ein AVL-Baum?

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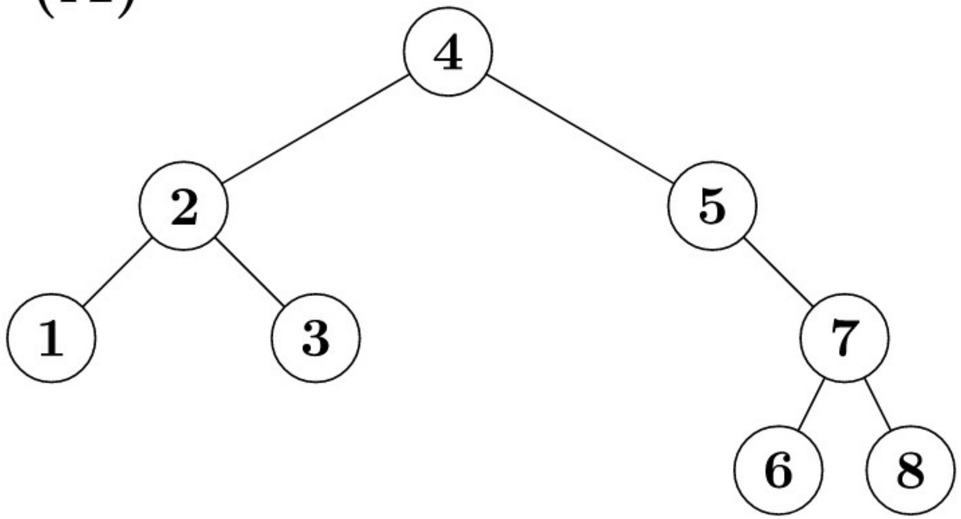
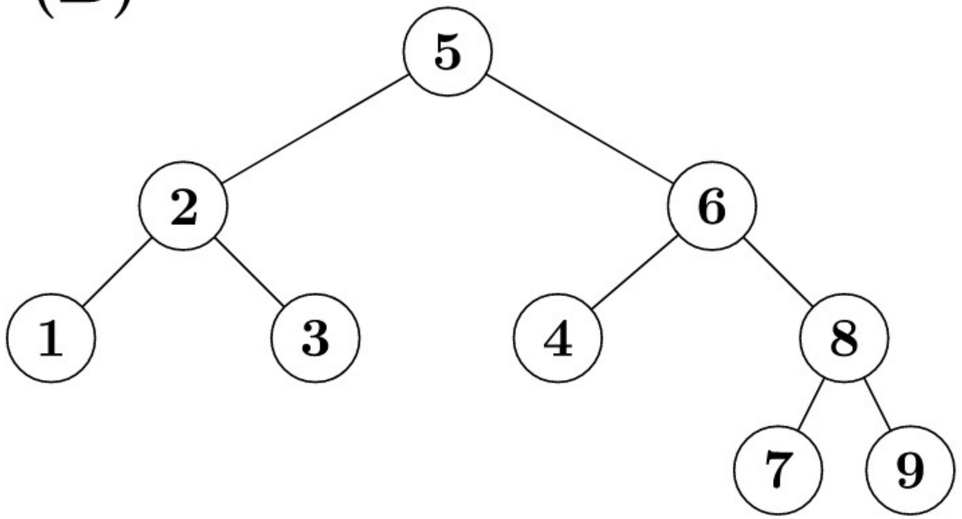
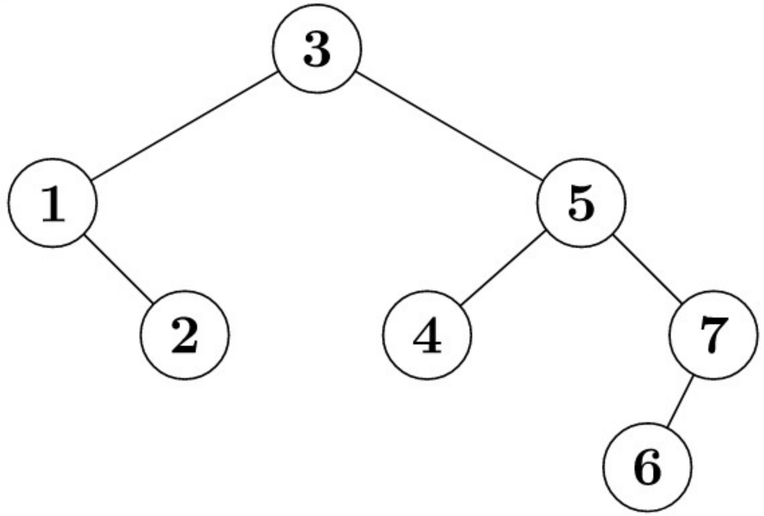
(A)



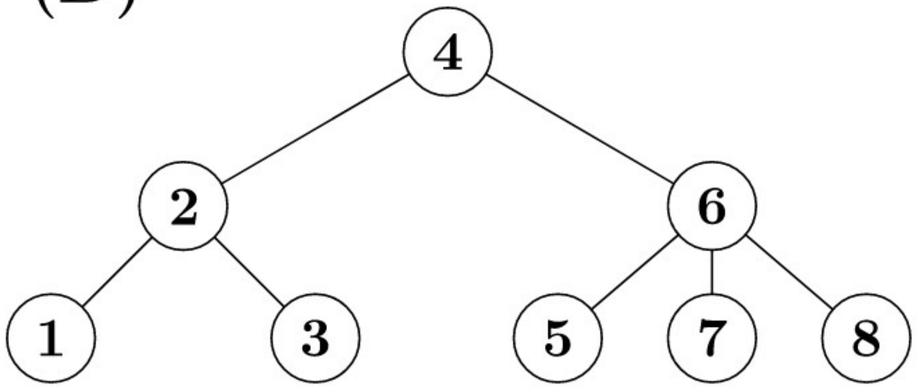

(B)




(C)




(D)

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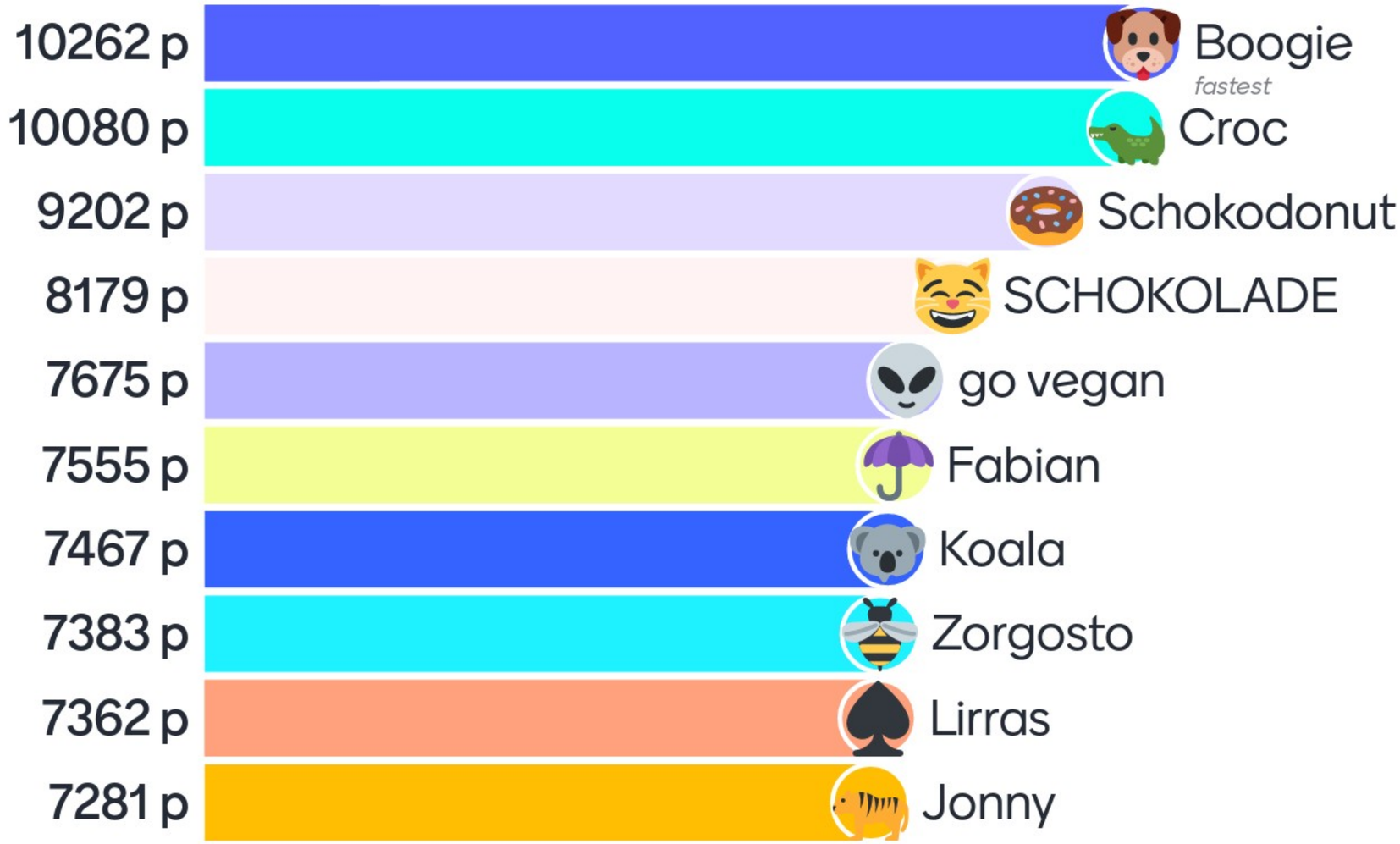
# Leaderboard

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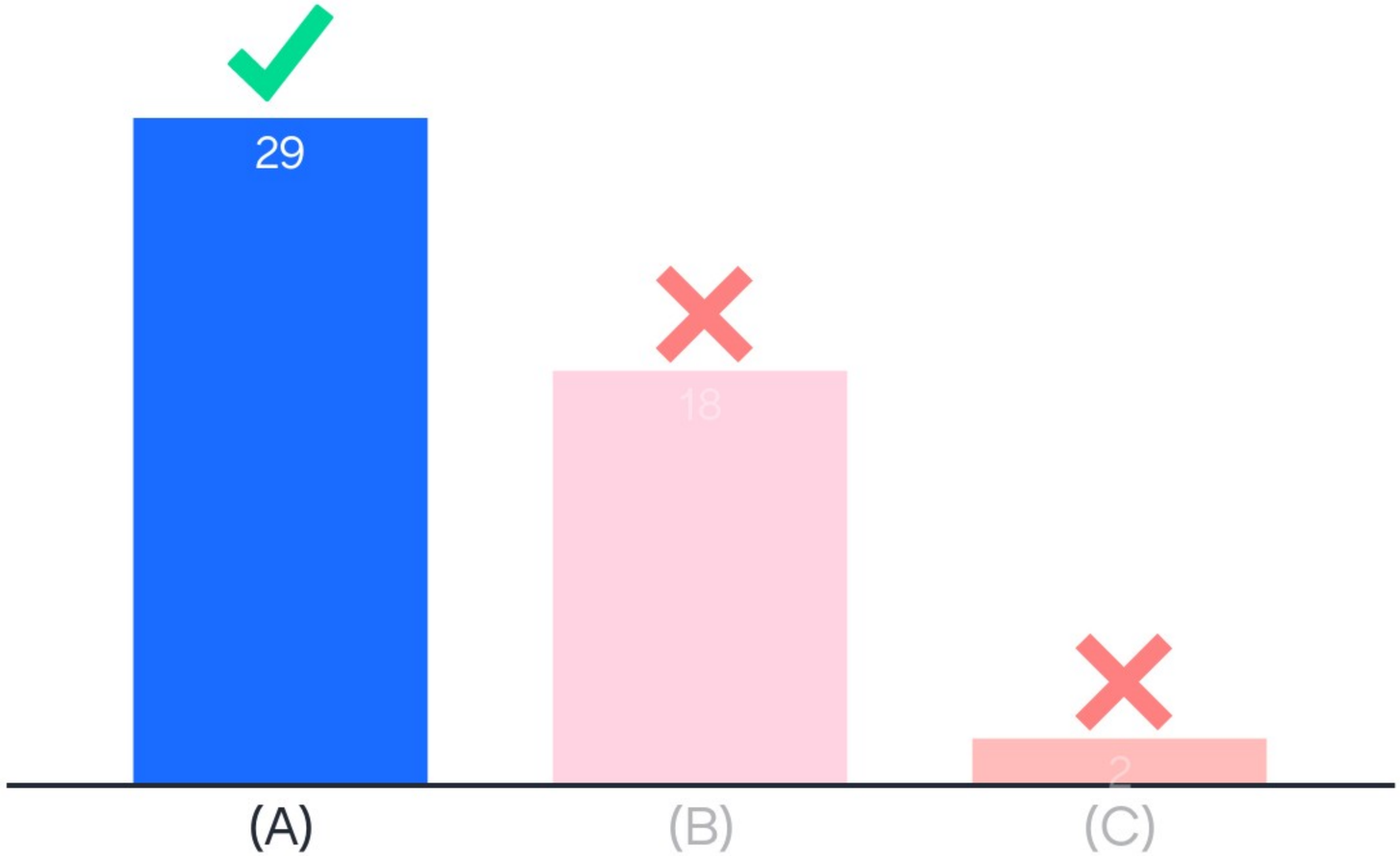
# 13. Unter welcher Bedingung können n Zahlen mit je d Ziffern in O(n) Zeit sortiert werden?

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$d \in O(1)$ **(A)**

$n = d$ **(B)**

geht gar nicht **(C)**

Unter welcher Bedingung können n Zahlen mit je d Ziffern in O(n) Zeit sortiert werden?

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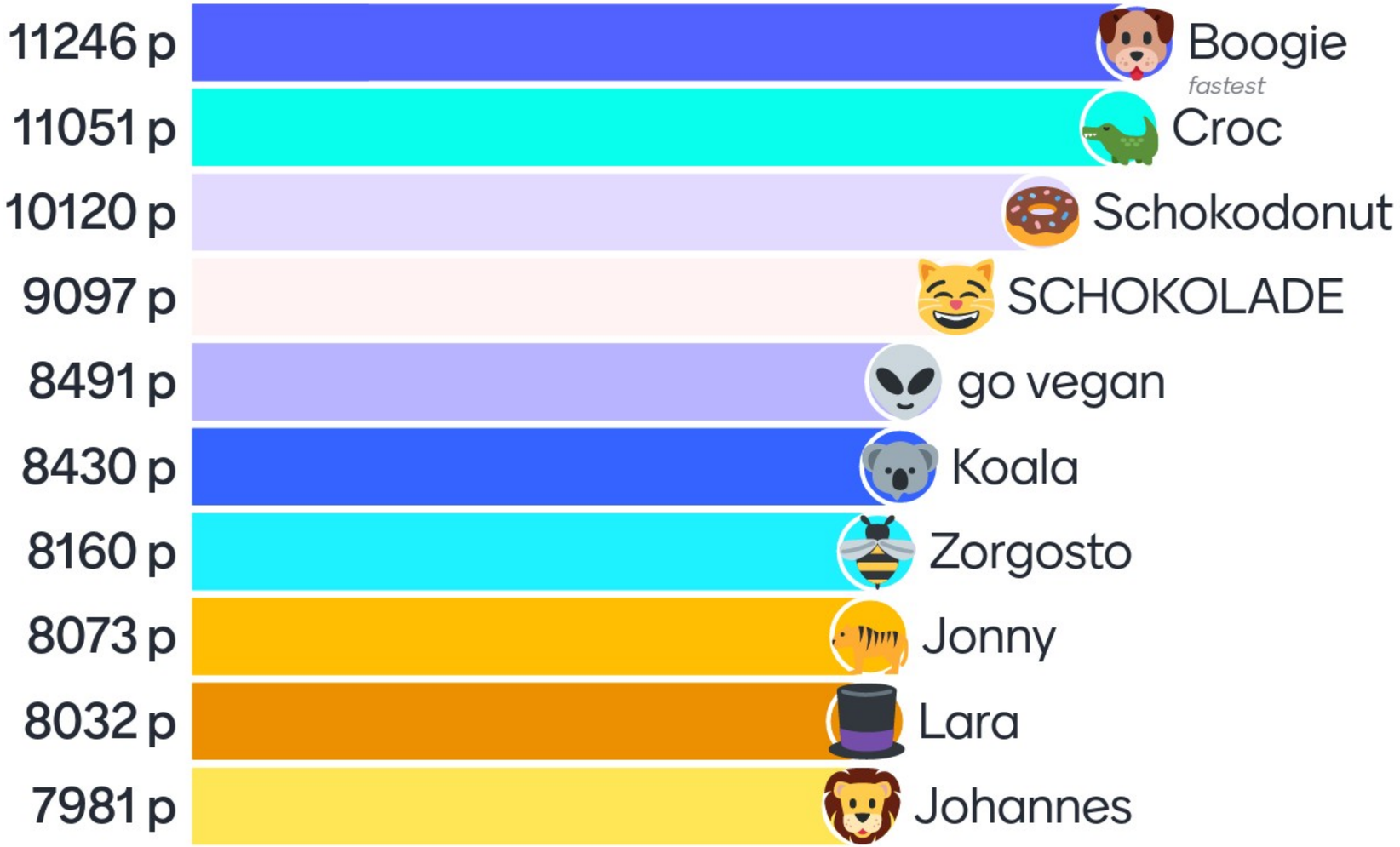
# Leaderboard

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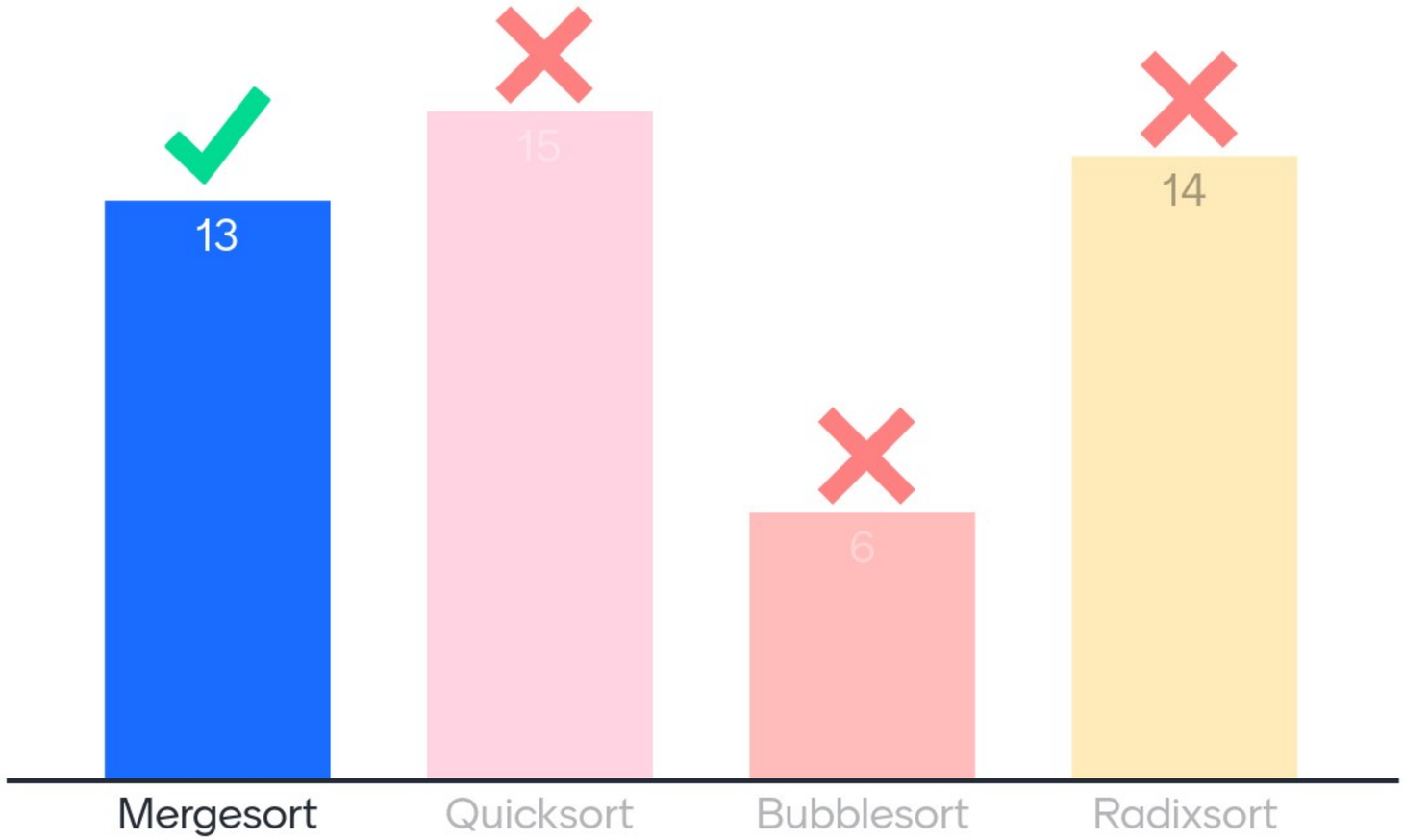
# 14. Welcher der folgenden Algorithmen (nach VL) besitzt die beste Worst-Case Laufzeit?

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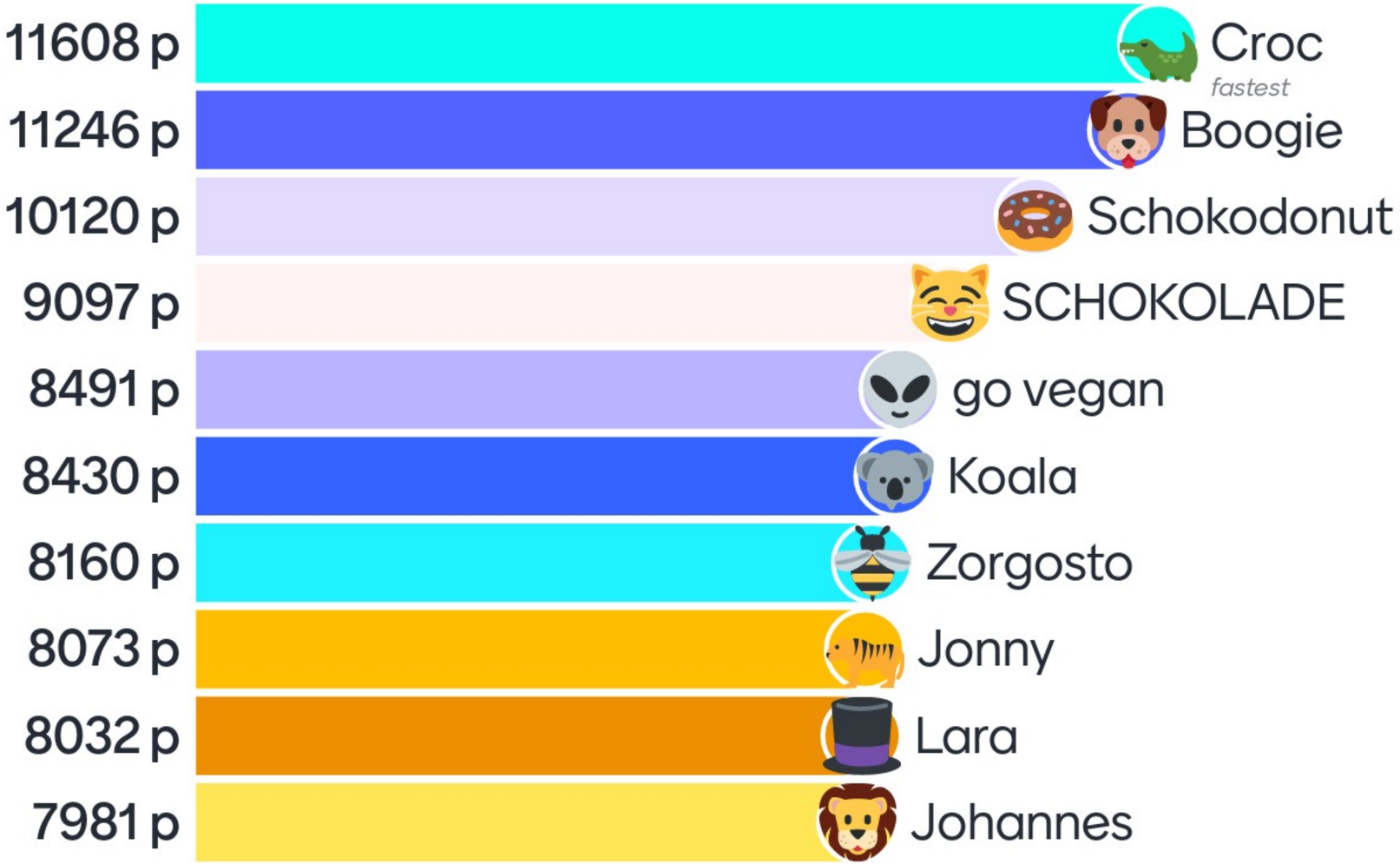
# Leaderboard

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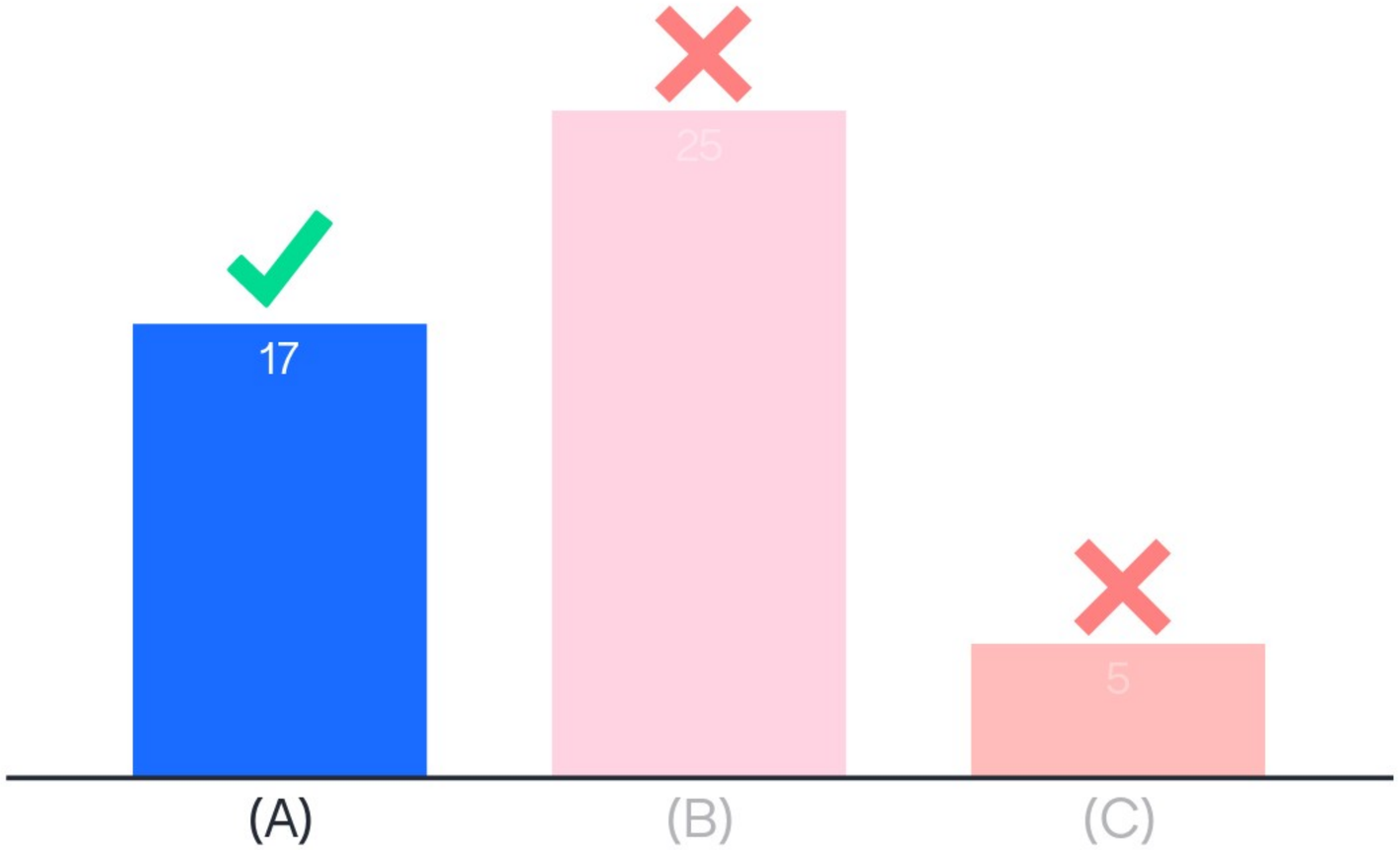
# 15. Welche Laufzeit besitzt der Algorithmus zum Finden eines Medians?

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**(A)** $T(n) = T(\frac{n}{5}) + T(\frac{7n}{10}) + \Theta(n)$

**(B)** $T(n) = T(\frac{n}{5}) + T(\frac{4n}{5}) + \Theta(n)$

**(C)** $T(n) = T(\frac{n}{5}) + T(\frac{7n}{10}) + \Theta(n^2)$

Welche Laufzeit besitzt der Algorithmus zum Finden eines Medians?

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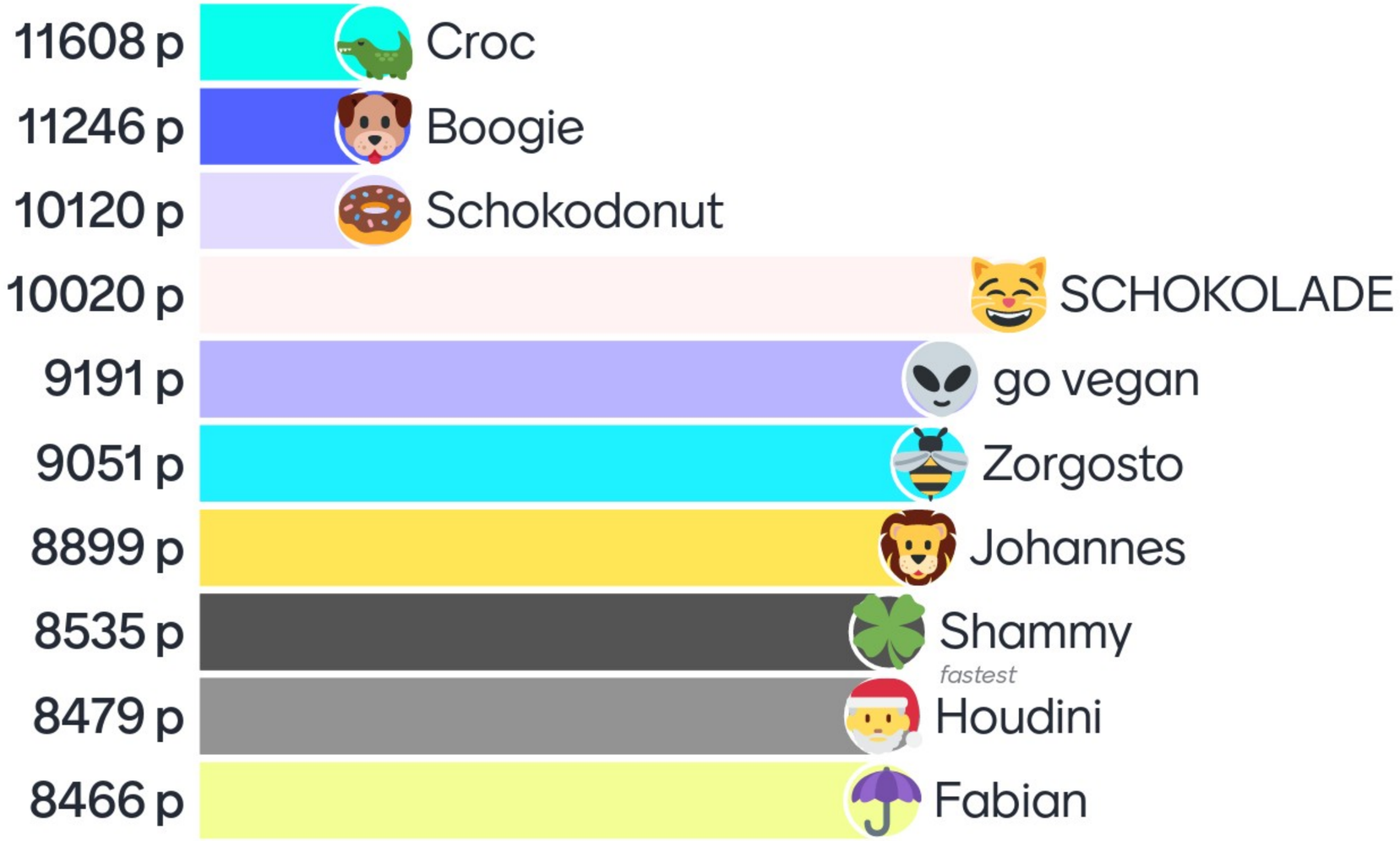


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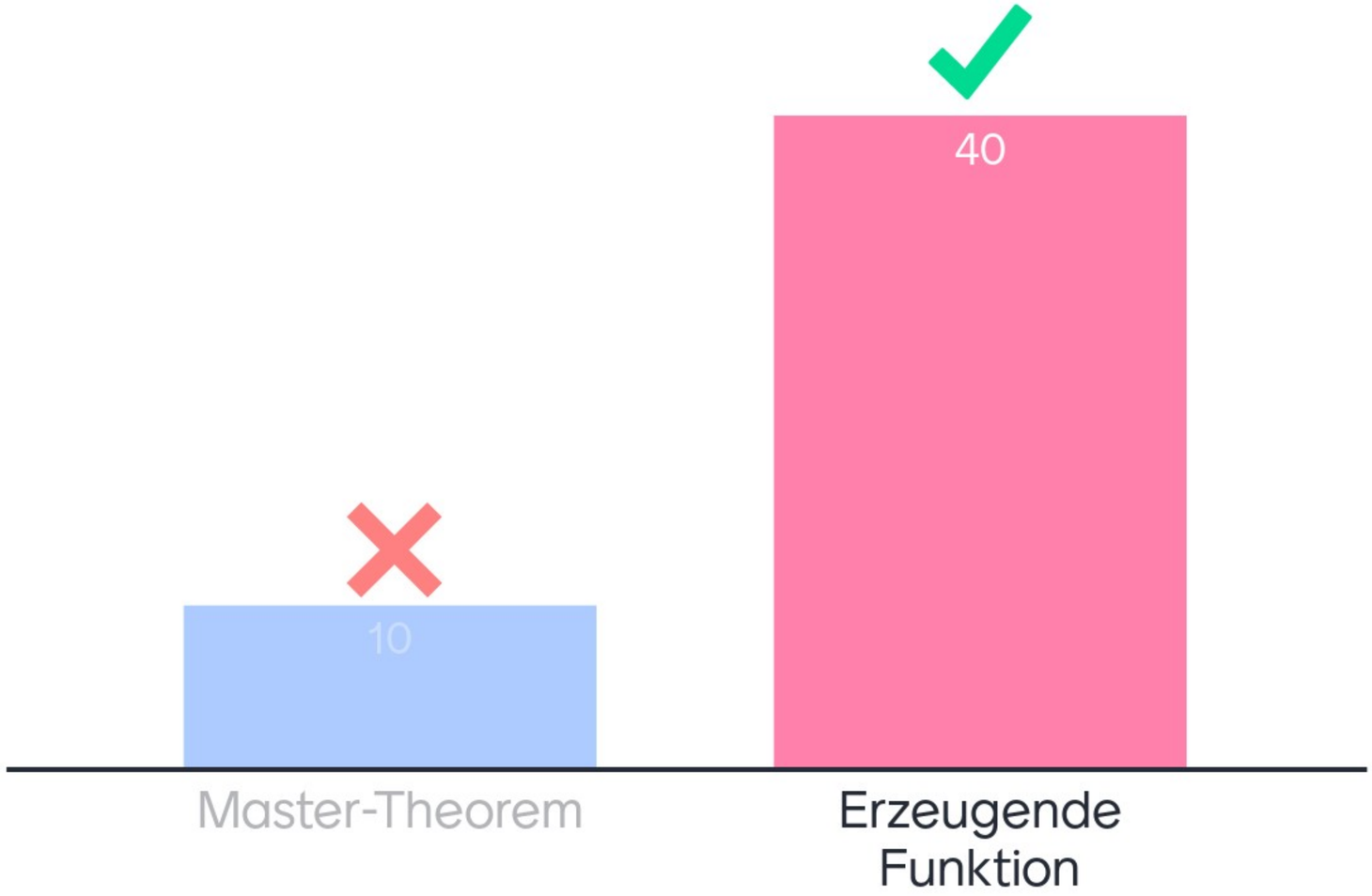
# 16. Womit lässt sich eine explizite Form der Fibonacci-Zahlen ( F(n) = F(n-1)+F(n-2) ) bestimmen?

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