

Project – WiSe 25/26

Detailed Information

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Goal of the Project

- In a group of 4 students you will:
 - Create exercises for
 - Dijkstra
 - BFS / DFS
 - Eulerian and Hamiltonian cycles and paths
 - Dynamic tasks with detailed feedback

Example I

The binary search algorithm is to be applied to the sorted list [1, 2, 7, 9, 10, 12, 14, 15, 16] to search for the element $k=1$.

Provide the values of mid assigned during the respective calls of Binary Search.

1.

2.

3.

4.

Feedback Example I

Ergebnis: 0%

- Incorrect. The first mid can be calculated as followed:

```
mid = (left + right) // 2  
mid = (0 + 8) // 2  
mid = 4
```

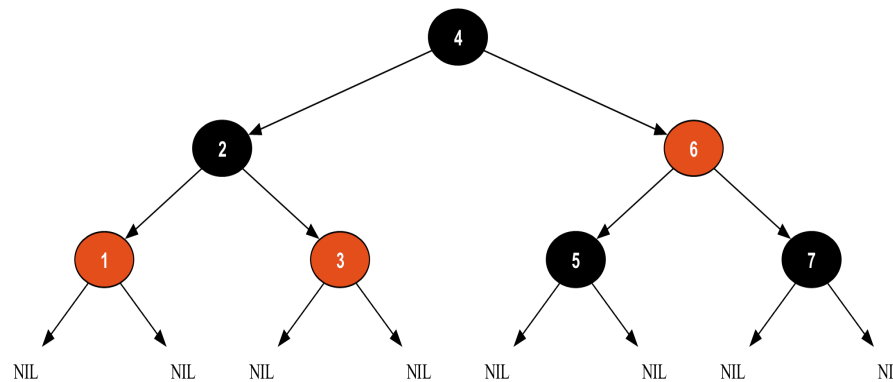
Solution:

1. 4
2. 1
3. 0

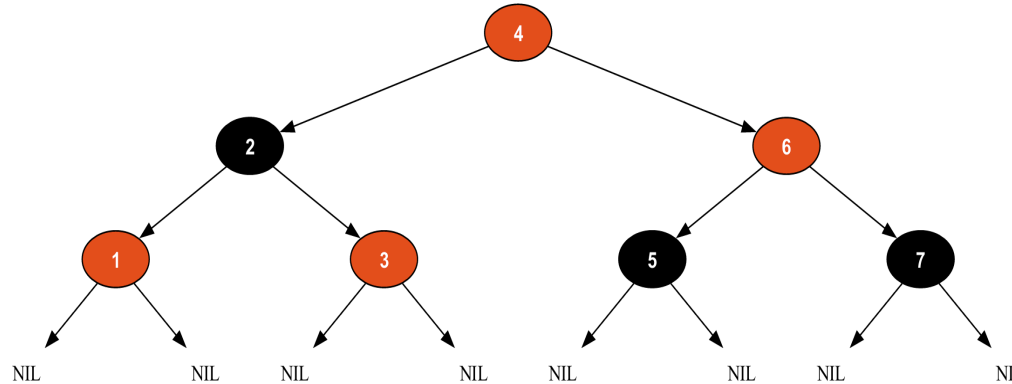
Example II

- Insert the sequence [6, 4, 2, 7, 1, 5, 3] into an initially empty red-black tree and draw the resulting red-black tree.

Correct solution:



Submitted by student:



Feedback Example II

- “Your solution does not fulfill the rule, that the root node in a red-black tree must be black, since the root with the value 4 is colored red in your submission. You likely just forgot to re-color it after correctly balancing. Everything else is correct.”

Important Criteria

- The exercises need to fulfill following criteria:
 - Align with the standards (see files)
 - Dynamic exercises
 - Detailed feedback
- Not meeting the requirements will negatively impact your final grade.

Milestones

- Total of 2 Milestones and 1 Final Presentation
- Submission via Mail:
 - Diary & Group Presentation (**every Milestone**)
 - Lessons Learned, Group Codebase (**only in Final Presentation**)
 - Deadline: the evening before the presentation

Milestone 1

Intermediate Results

- Intermediate Results
- Submit: Diary
- Submission Deadline:
- Presentation: 27.10.25 – 31.10.25
 - Exact date: tba.

Milestone 2

Intermediate Results

- Intermediate Results
- Submit: Diary
- Submission Deadline:
- Presentation: 24.11.25 – 28.11.25
 - Exact date: tba.

Final Presentation

- Final Results
- Submit:
 - Code
 - Lessons Learned
 - Diary
- Submission Deadline: 06.12.25 – 10.12.25
 - Exact date: tba.

Diary

- Individual submission! **NOT** group submission!
- Write down in detail what you did
- Essential for grading, since we cannot check who did what
- You do not have to track actual time, just what you did in which week
- **Without a detailed diary, we cannot grade you!**

Lessons Learned

- Rather short free-form document (approximately 1/2 page)
- Reflect on this project
- What have you learned?
- What went well?
- What could have been better?

Presentations

- Only Jack → No PPP!
- Each presentation should be 20 minutes
 - 5 minutes each

Additional Information

- If you face any problems that cannot be →
Contact us via Mail!
- But keep in mind to:
 - Introduce yourself
 - Use a clear subject line
 - Give a detailed description of your problem
 - Always write both of us (cc)

Website:

<https://jensliebehenschel.github.io/ADLT/>

