

# Nach Homework Solution

**Application:** Ref: #4317

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**- What are the benefits of your design?**

1. The functions are well commented for further reviews.
2. The *design* is fully object oriented c++ which is easily editable. More classes can be added for future upgrades without affecting the main skeleton.
3. Friendly for user usage.

**- Do you see improvement potential?**

1. Other function can be added to allow adding a pattern call by the user manually to the pattern file.
2. Graphical user interface can be implemented.
3. Add “calling” option to give the user the chance to contact the caller.
4. Add more information in the pattern call tuple, e.g, call time, full name.

**- What assumptions did you make and what trade-offs did you consider?**

1. All the names are unique. No two callers with the same name.
  - No column for the last name
2. No two callers are recorded at the same time
  - No function to deal with waiting status.
  - No column for the waiting status

**- What is the complexity (Big-O notation) of the queries you provide?**

For the first query : retrieve a pattern call with a specified identifier

Big-O notation  $O(2)$

For the other queries:

Big-O notation  $O(3)$

**- Which part of your solution took the most time (e.g. design, coding, documentation) and why?**

*Design:*

*I had to shift between two different views about the algorithm and I ended up mixing both together.*

*Coding:*

1. I faced some technical problems with my PC related to unavailable libraries.
2. I was aiming to support the code with a GUI then I preferred to stick to the instruction in the exercise itself.