Phone interview preparation

Predicted questions

1. Explain 4 major principles that mane OOP link
    - Data abstraction
        > objects in an OOP language provide an abstraction that hides the internal implementation details
    - Encapsulation
        > is a mechanism of hiding the data and making it accessable by setters and getters
    - Pylomorphism
        > means one name, many forms. occurs when we have many classes that are related to each other by inheritance Example: we have animal classes like Dog, Pig and Animal class itself. `Animal myPig = new Pig();` is valid. We can use this to store different animals in a list for example
    - Inheritance
        > expresses “is-a” and/or “has-a” relationship between two objects (class X extends Y =java=)
2. Generics in Java link
    > Allows to write a single function for different types of arguments. Example: List<>, Dictionary<>, Sort<>, Print<>
3. Big O complexity
    > Big O notation characterizes functions according to their growth
4. Find algorithms
    - Linear
    - Binary (has to be presorted)
    - Jump (jump unless find smaller value, get back end do linear, has to be presorted)
5. Sort algorigthms
    - Selection sort Iterate, find smallest(or biggest), add to new array, pop old value
    - Bubble sort Iterate array multiple times and swap neighbors if needed
    - Insertion sort Works as sorting cards in hands. Pulling back untill its smaller(bigger)
    - Merge sort Splitting recursively in half and swapping when we have 2 elems, then joining 2 recursive functions (n and n - 1)

- Quick sort
- Heap sort - using complete binary tree. Forming min/max heap. Difficult to implement. O=nlogn complexity

6. Difference final, finally and finalize in Java
    - final means that it wont change (like variable, or if cass then methods only)
    - finally is used with try/catch
    - finalize class method is called after deconstructor to do garbage collection
7. Software design
8. Operating systems
9. Database design
    - Normalization forms