

Today's Agenda :-

- 1) Types of LLD Interviews
- 2) How to approach LLD Interviews
- 3) Design a Pen.

No LLD Round { Google
 Meta }

Types of LLD Interviews :-

Theoretical
Design
Machine Coding

Theoretical :- (45 min)

Concepts
Q & A
explanations

Objective

→ Questions based on OOPS, design patterns & principles & language concepts, etc.

→ Knowledge based on LLD

→ Older tech companies

GoldmanSach, WellsFargo.

(Oracle, JPMorgan, BNY Mellon, etc)

Design Round (Most common) (45 min)

Problem statement to design some system

- Case Study based discussions.
- Amazon | Microsoft | Walmart | Paypal | Uber | Atlassian | etc.
- Basic API Design + Some basic code might be expect.

↳ 45 min to 1 hr

Machine Coding :-

(2 hr - 3 hr)

Case Study

Flipkart
PhonePe
Meesho
Myntra
Swiggy

} 1st round
as
MC.

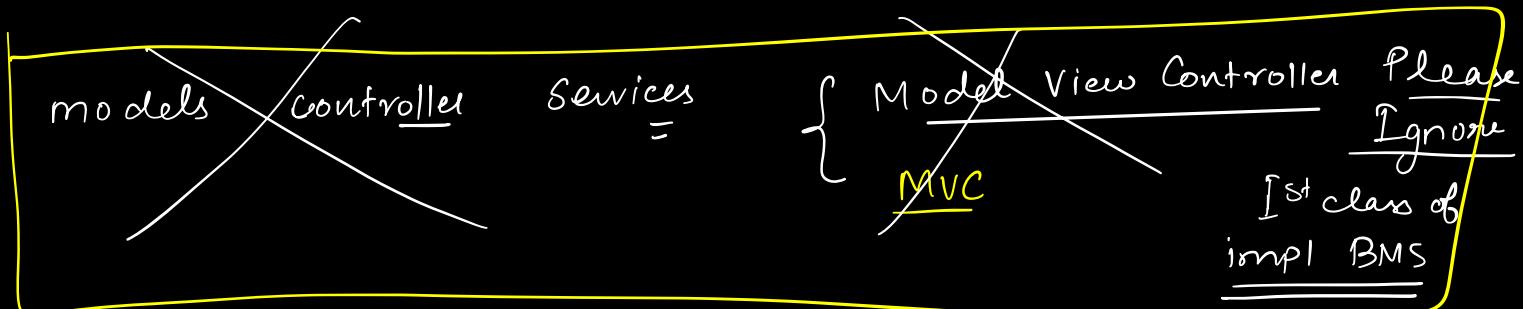
↗ Design Snake
Ladder game
=====

UIX

↳ Design + Working Code

↳ Write end to end working code for the given set of requirements.

↳ Almost every tech startup.



Design

1 line problem statement

Case Study

- 1) Gather Requirements ✓
- 2) Class Diagram ✓
- 3) Schema Design ✓
- 4) Basic API Design & code structure
- 5) Follow ups.

Amazon 1 hour

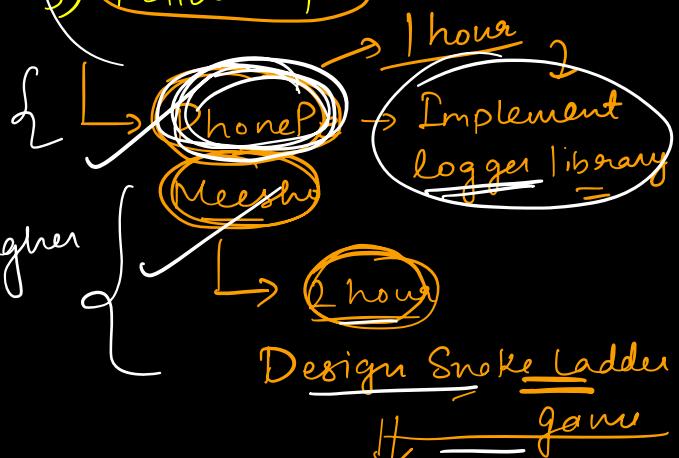
Machine Coding

2 - 3 hrs

Design + Working Code

(3 hr)

- 1) Gather Requirements
- 2) Class Diagram
- 3) Schema Design
- 4) Write end to end working code
- 5) Follow ups



You can use any IDE

You can use any lang

any tech stack

Atlassian

1 hour

Design Snake game

Working Appn

Uber

1 hr

At Scale,

1 line
problem statement

OR

given a set of requirements → easier

Gather requirement yourself ✓

you need
what to
focus on.

1 line problem statement ✓

Gather requirement. (Gather what to focus on)

↳ V·Imp (Core MVP)

Class Diagram ✓

Minimal
Viable
Product
MVP

Schema Design ✓ (when you're persisting data in
the db)

5 min

First 2-3 Min ✓

Step 0 Get an overview of the system.

Problem statement

Product

Please ask interviewer like what kind of system you are designing...
e.g. are you asking about same BMS application which is used to book movie tickets

4-5 min

We already know about the system

We don't know about the system.

→ Align yourself with the interviewer's expectation } { Ask the interviewer to explain about the system brief.

Classification Questions

What kind of system we need to design?

No code } → Entity Design

1 hr

UML X

(Requirements + Class Diagram)

if its

1 hr → Working code.

2 hr → Design

3 h + WC
write code

HLD

Code } → Working App^n

Command line appn / Web App^n (Rest APIs)

=

Terminal

SOL vs NO-SOL

SQL DB Schema Design

Do we need to store data in the database?

Yes or No
No Schema
SQL DB

X ✓

Schema Design

7-8 min

Step 1

Gather Requirements

↳ Try to collect 5-8 core features of the system.

↳ Try to find out edge cases

Design

Step 2

Class Diagram

↳ Classes | Interfaces

↳ Reln b/w classes

↳ Design Patterns

first 10 min

+

25 min

+

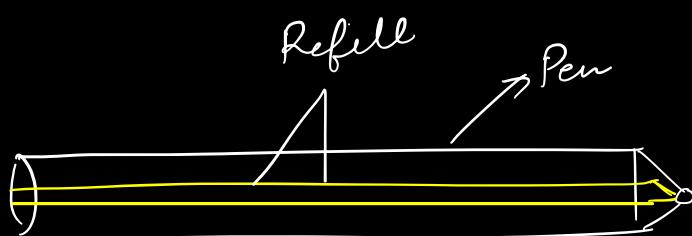
Step 3

Schema Design

+
follow ups

10 Min

↳ 45 min



Visualize the
Physical
Structure.

Design a Pen :- (10 Min Upper bound)

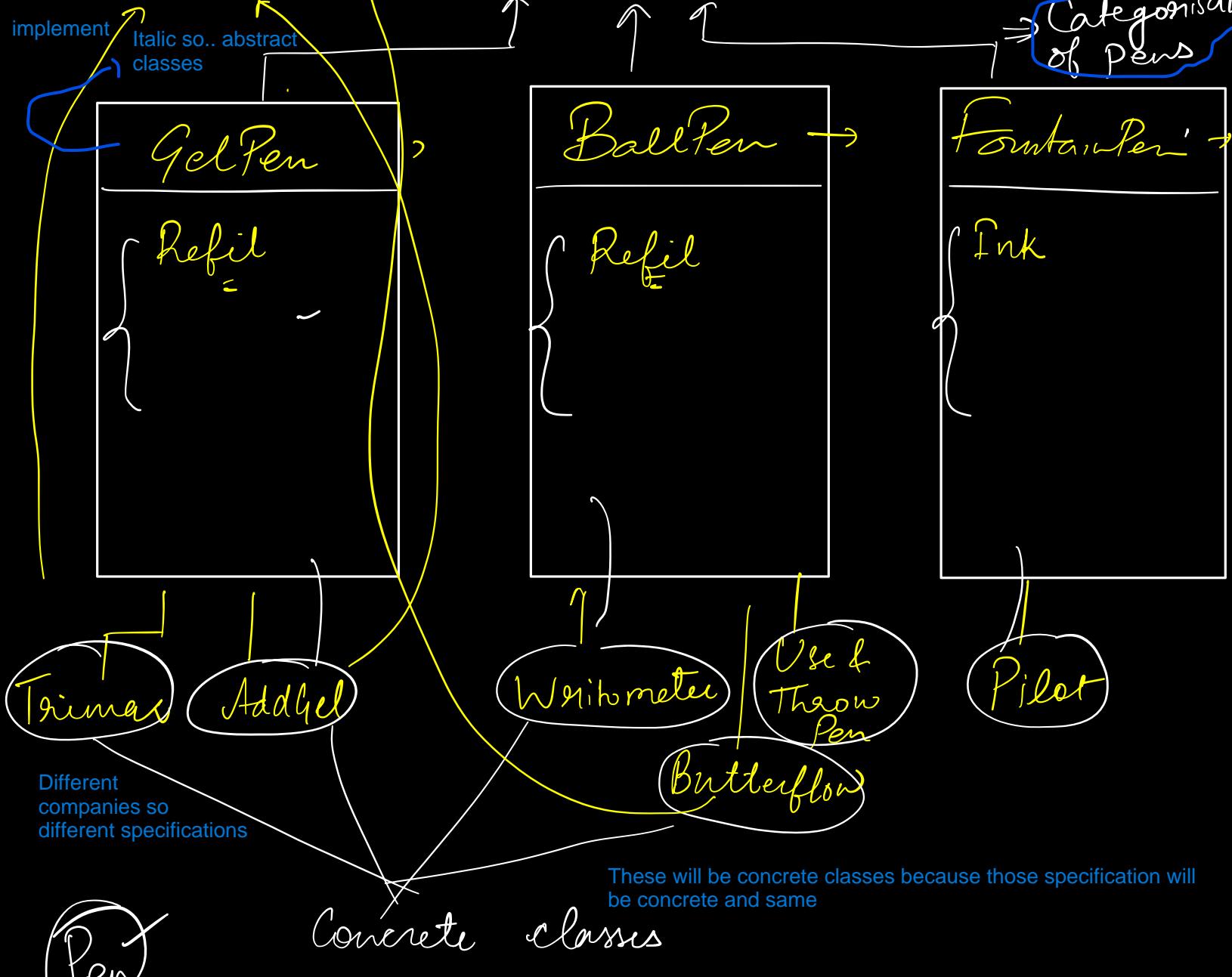
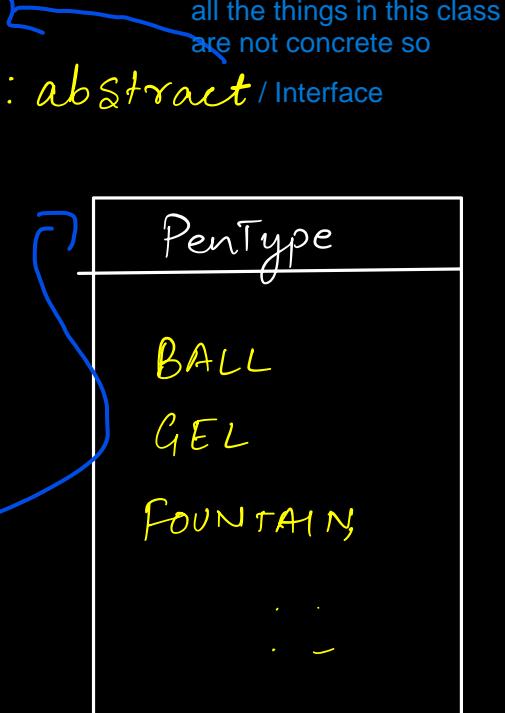
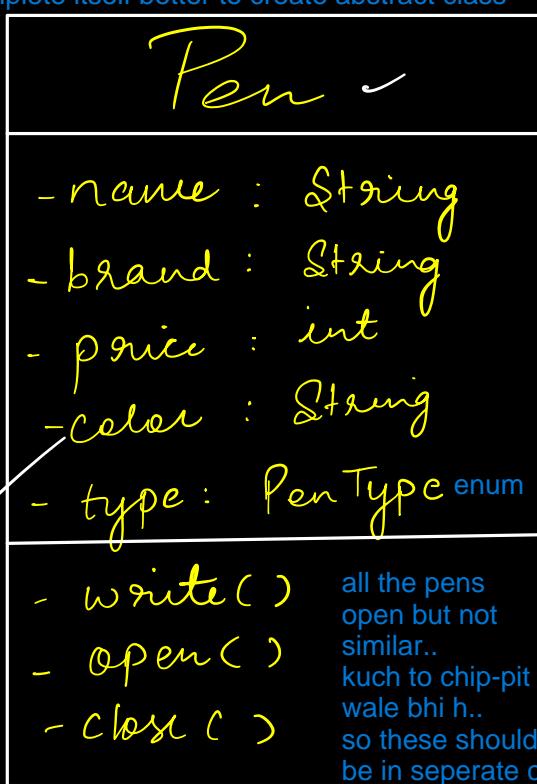
Requirements:-

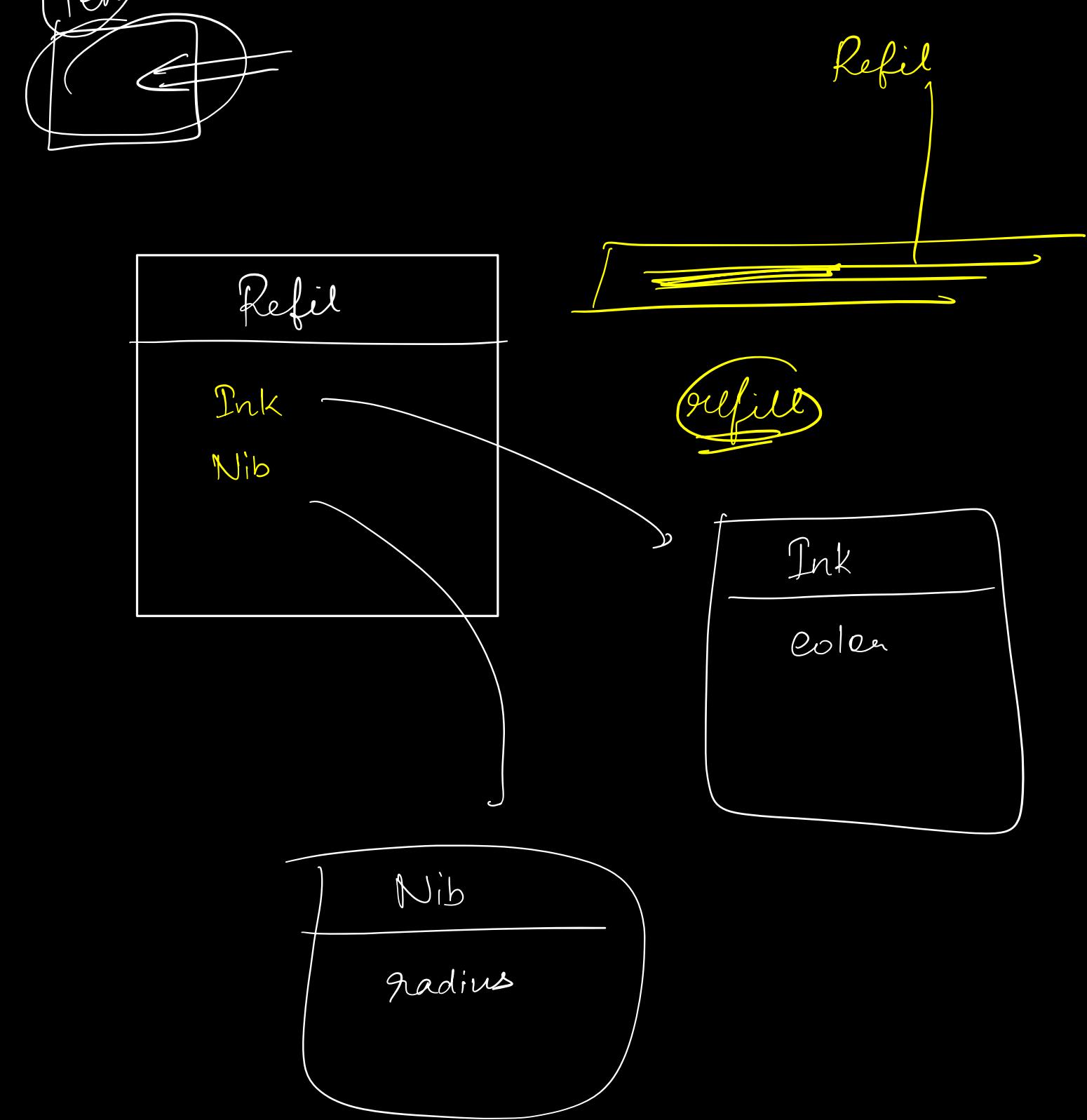
- 1) Any physical entity that can write is a Pen.
- 2) Different types of pens:- Ball Pen, Gel Pen, Fountain Pen, Pencil, etc.
- 3) Ball & Gel Pen will have a refil , fountain pen doesn't have a refil .
- 4) Refil will have Ink. Fountain pen directly will have ink.
- 5) Ink can be of diff colors.
- 6) Refil will have a nib. Nib can be of different radius
- 7) Fountain Pen will directly have a nib.
- 8) Some pens can be refilled & some pens can't.
- 9) Pens can be opened via cap or via button

whenever we feel like an entity is not complete itself better to create abstract class instead of interface.. but whenever we feel these are behaviours only and these are not gonna change better to go with interface

Behaviours... and refile can not behaviour.. because all pens do not have refills
e.g. all birds can not fly

<<Refillable>>





Pen

BP

GP

FP

Nib

Refil

LnK

Categorising

list of Gel Pens

list < GelPen >

||

only can put

Gel Pen

printPrices OF All Gel Pens (list < ~~GelPen~~ >)

atly of Gel Pen

2

3