

The Machine Learning Life Cycle

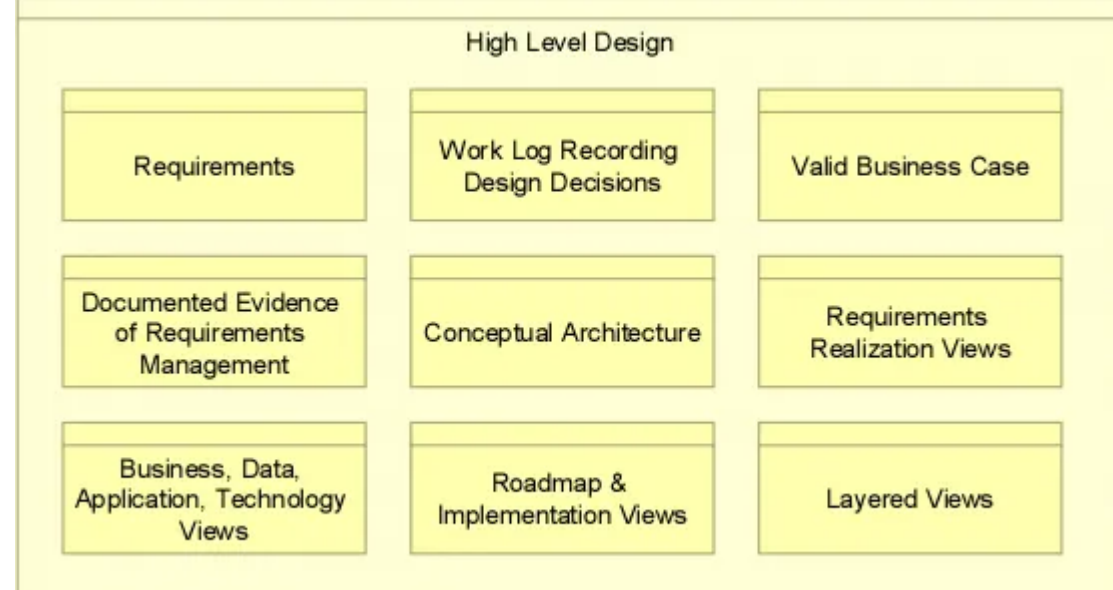


- 1. Define Project Objectives**
 - Specify business problem
 - Acquire subject matter expertise
 - Define unit of analysis and prediction target
 - Prioritize modeling criteria
 - Consider risks and success criteria
 - Decide whether to continue
- 2. Acquire & Explore Data**
 - Find appropriate data
 - Merge data into single table
 - Conduct exploratory data analysis
 - Find and remove any target leakage
 - Feature engineering
- 3. Model Data**
 - Variable selection
 - Build candidate models
 - Model validation and selection
- 4. Interpret & Communicate**
 - Interpret model
 - Communicate model insights
- 5. Implement, Document & Maintain**
 - Set up batch or API prediction system
 - Document modeling process for reproducibility
 - Create model monitoring and maintenance plan

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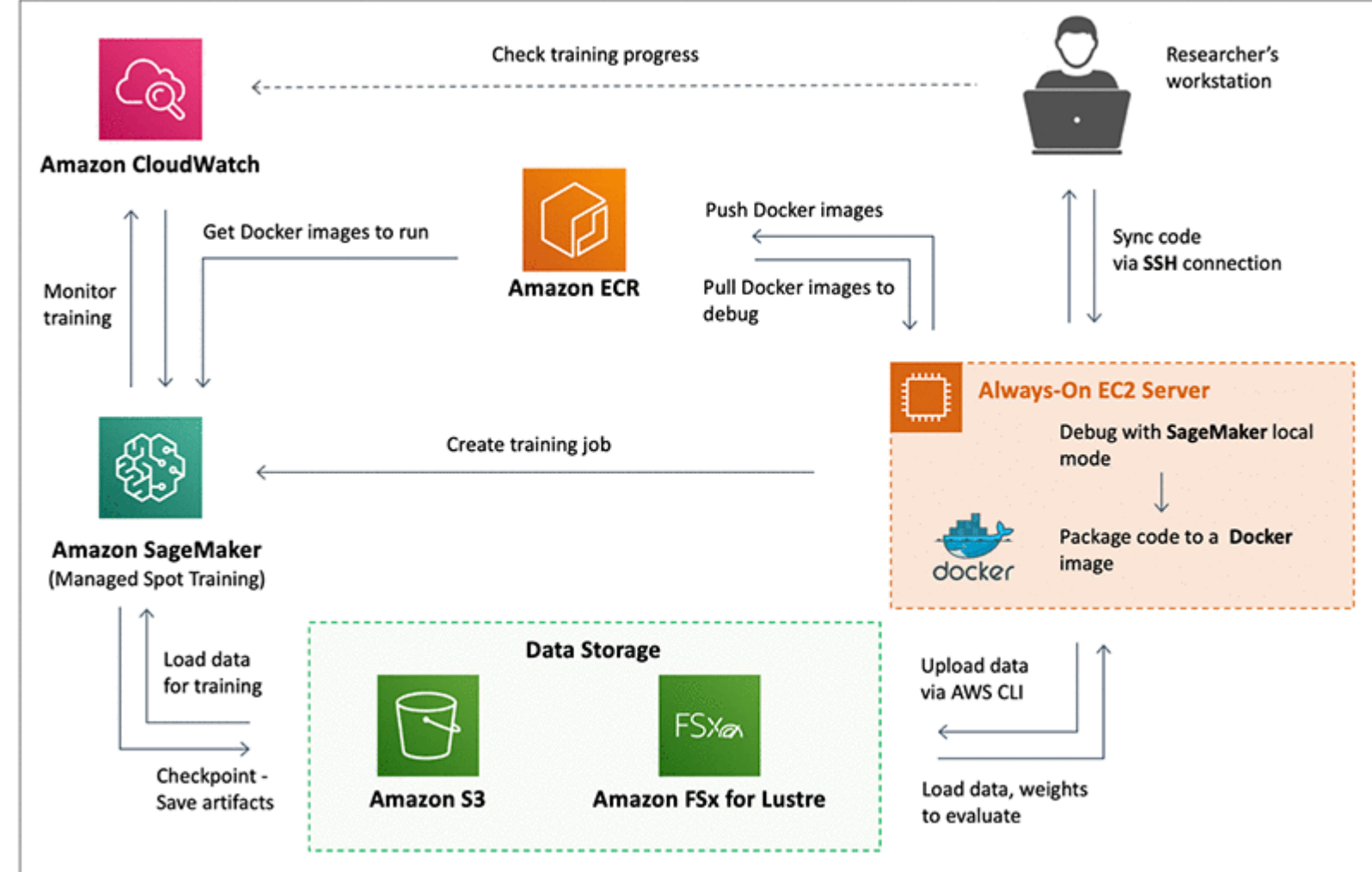
1.HLD (High Level Documentation)

- High Level Design in short HLD is the general system design means it refers to the overall system design. It describes the overall description/architecture of the application.
- It includes the description of system architecture, data base design, brief description on systems, services, platforms and relationship among modules. It is also known as macro level/system design.
- It is created by solution architect. It converts the Business/client requirement into High Level Solution. It is created first means before Low Level Design

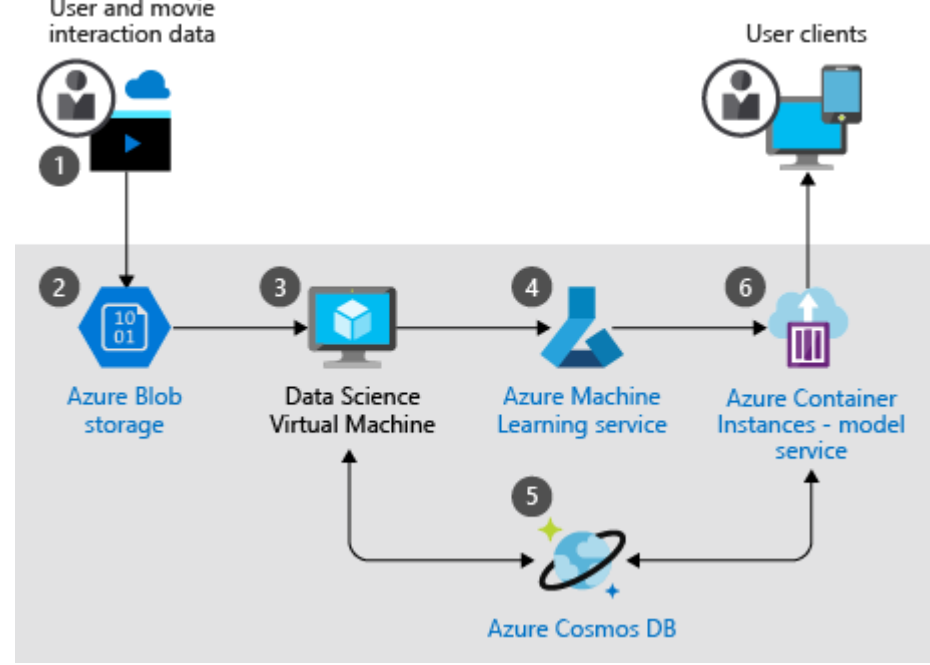


- High Level Design (HLD) is the overall system design - covering the system architecture and database design. It describes the relation between various modules and functions of the system. data flow, flow charts and data structures are covered under HLD.
- High Level Design gives the overall System Design in terms of Functional Architecture details and Database design. This is very important for the ETL developers to understand the flow of the system with function and database design wise. In this phase the design team, testers and customers are plays a major role. Also it should have projects standards, the functional design documents and the database design document also.

Amazon segmaker Architecture is the best eample of HLD



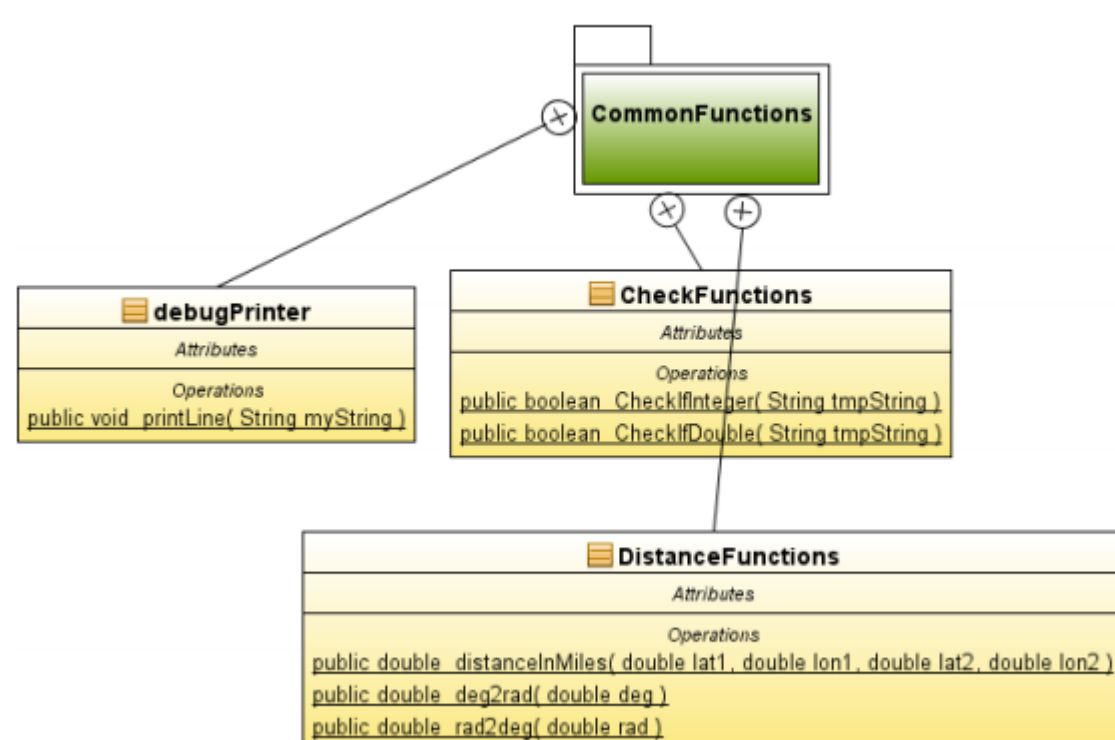
Asure Movie Recommendation engine HLD.



2.LLD (Low Level Documentation)

- Low Level Design in short LLD is like detailing HLD means it refers to component-level design process.
- It describes detailed description of each and every module means it includes actual logic for every system component and it goes deep into each modules specification.
- It is also known as micro level/detailed design. It is created by designers and developers. It converts the High Level Solution into Detailed solution. It is created second means after High Level Design.

3.1.3 Class Diagram

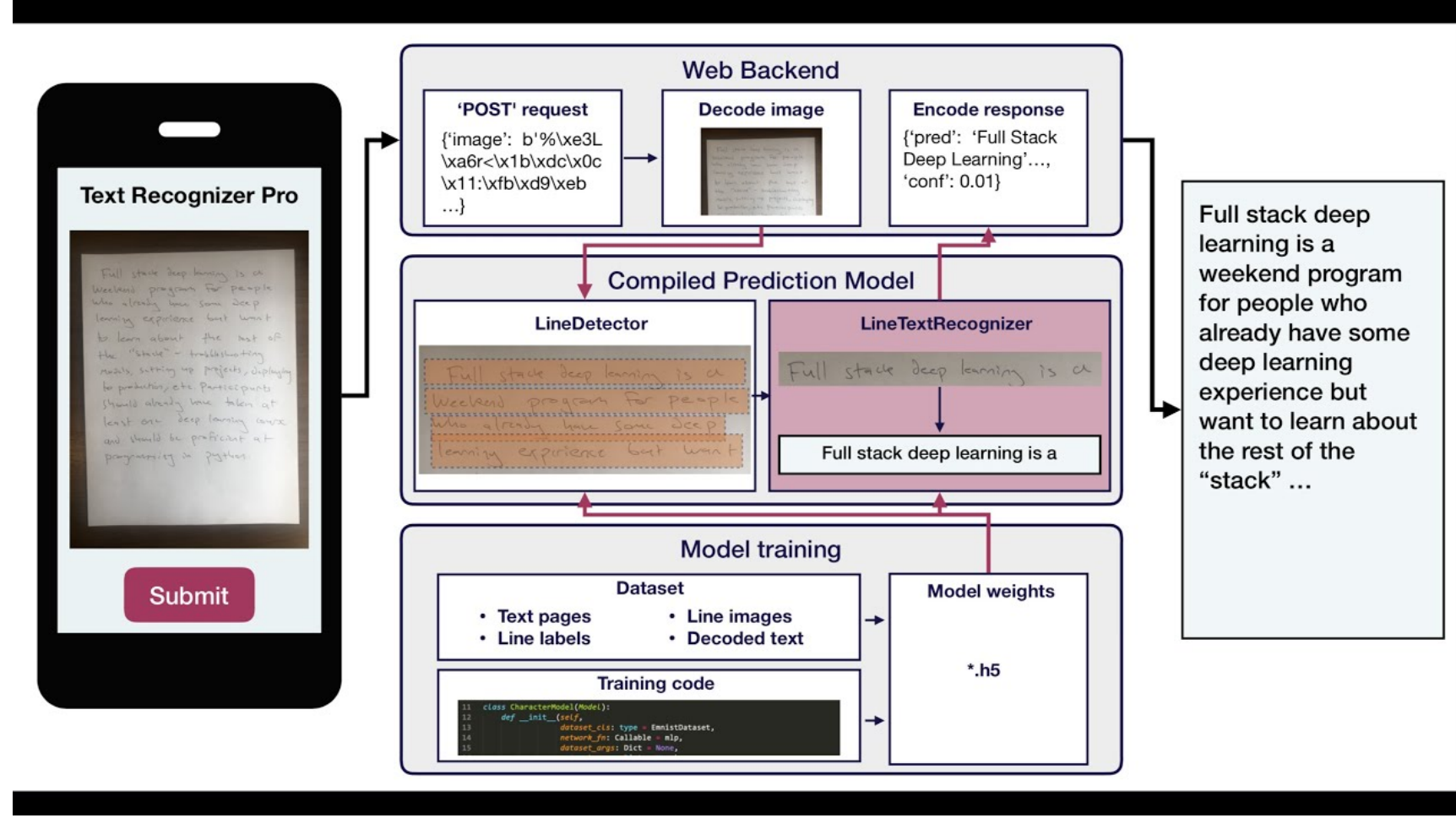
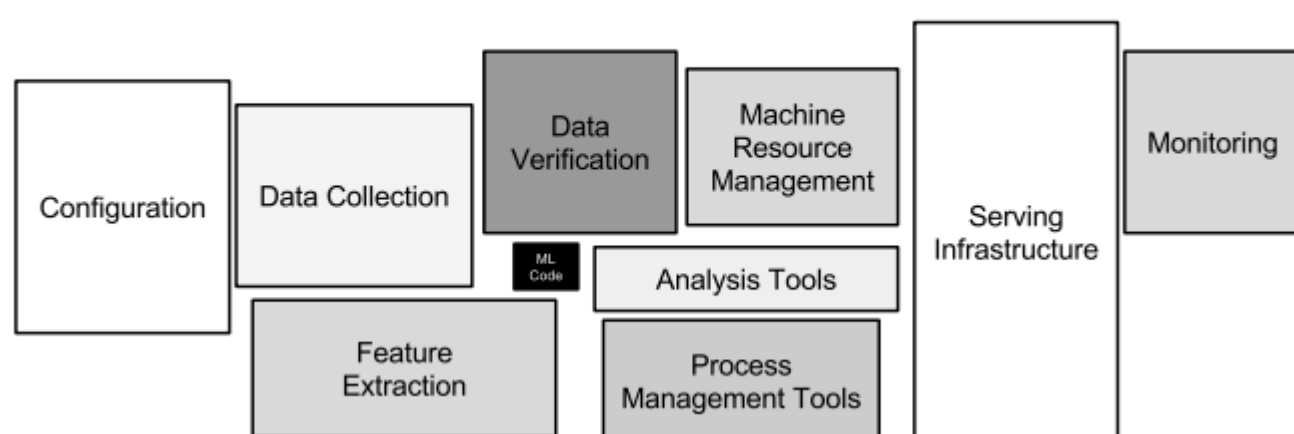


- Low Level Design (LLD) is like detailing the HLD. It defines the actual logic for each and every component of the system. Class diagrams with all the methods and relation between classes comes under LLD. Programs specs are covered under LLD.
- This document is need to do during the detailed phase, the view of the application developed during the high level design is broken down into separate modules and programs for every program and then documented by program specifications.

LLD :- <https://nest.cs.wmich.edu/report/AGORA-Low-Level-Design-Documen-rev2.pdf>

3.DDL (Detailed Level Design)

- DLD's are referring to a process known as top-down design. In short, when you think about the problem you are trying to solve, you start at the highest level and then work yourself into the details.
- This approach works very well when you have an overall structure you want your application to live within.
- At the macro level you are considering how many machines will be needed to host your application, which existing services you will need to use, etc.
- As you dive deeper, you are looking at use cases (or user stories if you prefer that terminology), and error handling (use cases have both normal and error condition paths to worry about).
- As you go even further into the details, you are looking at your algorithm, state transitions, logical sequence, and how internal parts of the code work together



Difference between High Level Design (HLD) and Low Level Design(LLD)

S.No. HIGH LEVEL DESIGN	LOW LEVEL DESIGN
01. High Level Design is the general system design means it refers to the overall system design.	Low Level Design is like detailing LLD means it refers to component-level design process.
02. High Level Design in short called as HLD.	Low Level Design in short called as LLD.
03. It is also known as macro level/system design.	It is also known as micro level/detailed design.
04. It describes the overall description/architecture of the application.	It describes detailed description of each and every module.
05. High Level Design expresses the brief functionality of each module.	Low Level Design expresses details functional logic of the module.
06. It is created by solution architect.	It is created by designers and developers.
07. Here in High Level Design the participants are design team, review team and client team.	Here in Low Level Design participants are design team, Operation Teams and Implementers.
08. It is created first means before Low Level Design.	It is created second means after High Level Design.
09. In HLD the input criteria is Software Requirement Specification (SRS).	In LLD the input criteria is reviewed High Level Design (HLD).
10. High Level Solution converts the Business/client requirement into High Level Solution.	Low Level Design converts the High Level Solution into Detailed solution.
11. In HLD the output criteria is data base design, functional design and review record.	In HLD the output criteria is program specification and unit test plan.

Thank You !!