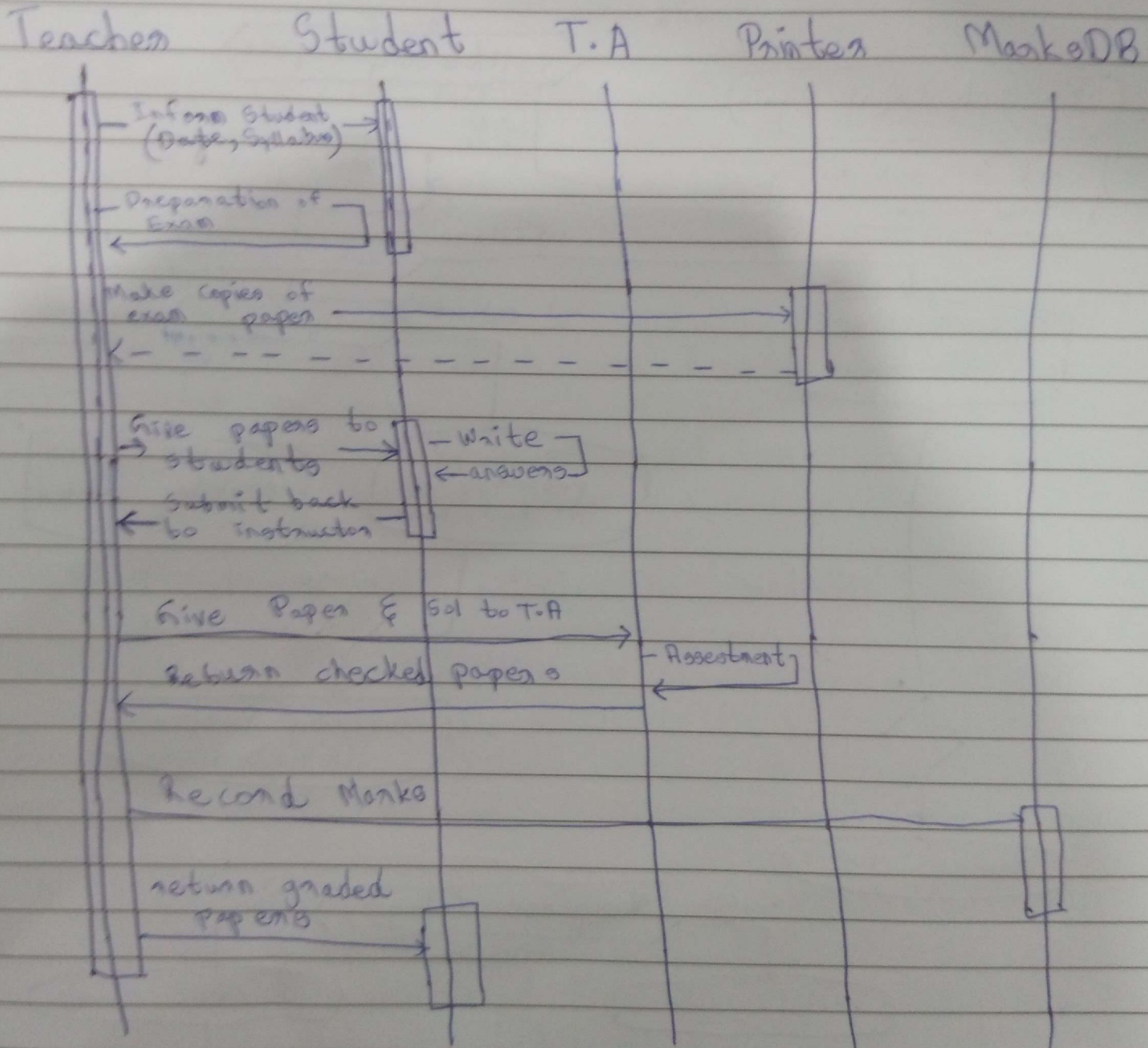


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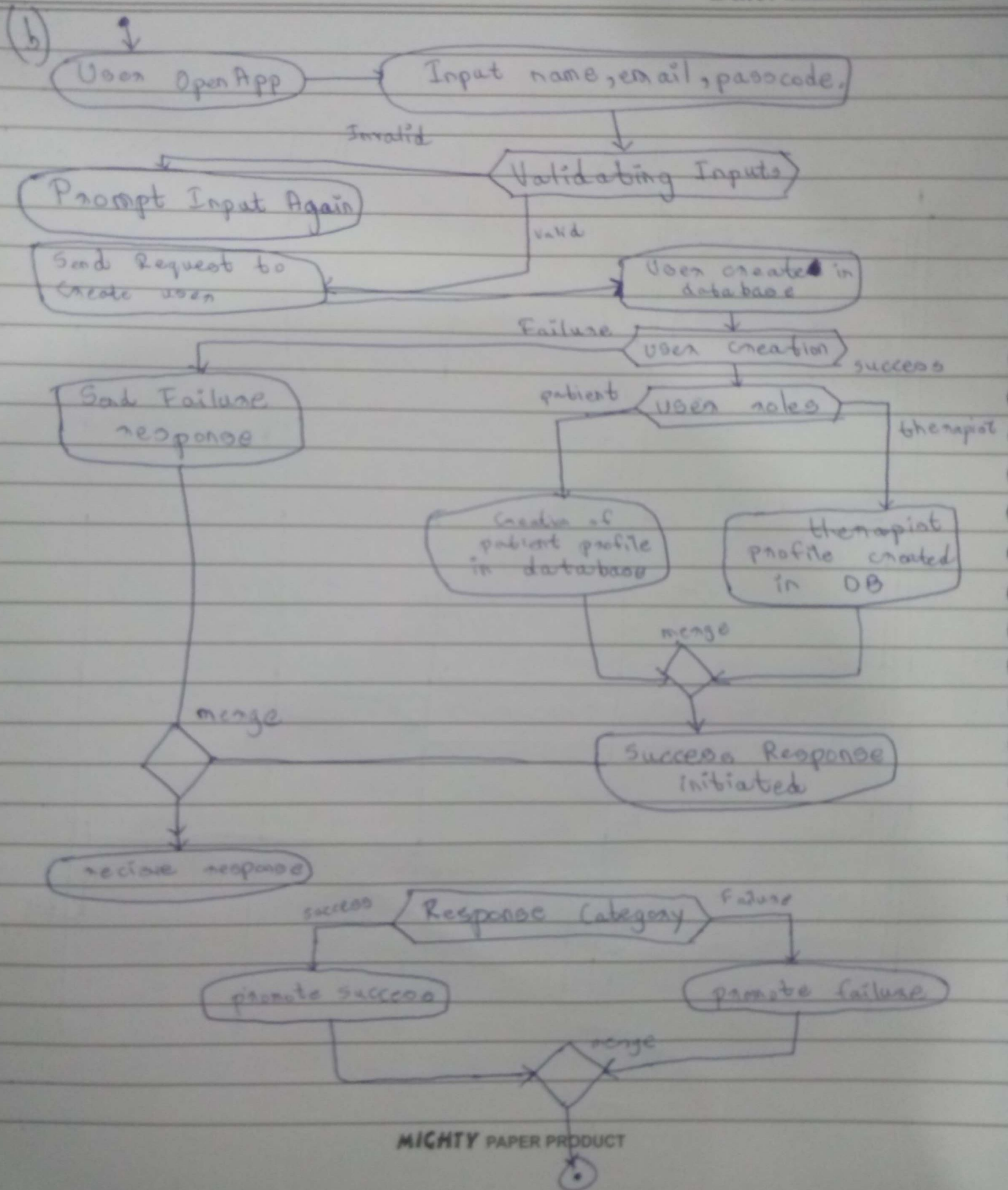
FSE Assignment (2)

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(Q1) → (a)



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(Q2)

1) tight coupling between encryption module & UI

→ Problem:- UI is highly integrated with encryption logics so any changes to encryption causes unnecessary changes in the UI.

→ Consequences:-

→ Security :- delays in updating encryption due to UI dependencies can leave the system exposed to risk.

→ Maintenance :- even minor updates will require somewhat effort.

2) low Cohesion in notification module

→ Problem :- ~~the module~~ many unrelated tasks including tracking delivery status, management of push notifications and addressing encryption errors.

→ Consequences:-

→ Risks :- encryption failure may go unnoticed if logged alongside irrelevant data.

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→ Error Spreading:- A malfunction in push notification ~~could~~ could disrupt encryption error reporting.

3) Monolithic logging system:-

→ Problem:- Security log and user activity logs are combined without separation.

→ Consequences:-

→ Security attacks: hinders the ability to track security breaches.

→ Compliance: fails to meet the principle of ~~separating~~ separating duties.

4) Monolithic architecture design:

→ Problem:- every application component runs within a single process.

→ Consequences:-

→ System weakness: a breach in any component can compromise the whole system.

~~→ System vulnerability: A failure~~

→ System vulnerability: a failure in one module can crash the entire application.

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Summary:

Problem	Issue	Impact
Tight Coupling	UI script ^{script}	Delayed security patches, high maintenance
Low Cohesion	Low cohesion in notification module	Unreliable error handling
Mixed Responsibilities	Monolithic logging	Compliance failure, Observed security training
No module separation	Monolithic Design	One update can cause multiple changes or errors.

(Q3)

1) Presentation layer:

- home page
- registration page
- Donation page
- login page
- Post management
- View Donation/Profile

2) Application layer :-

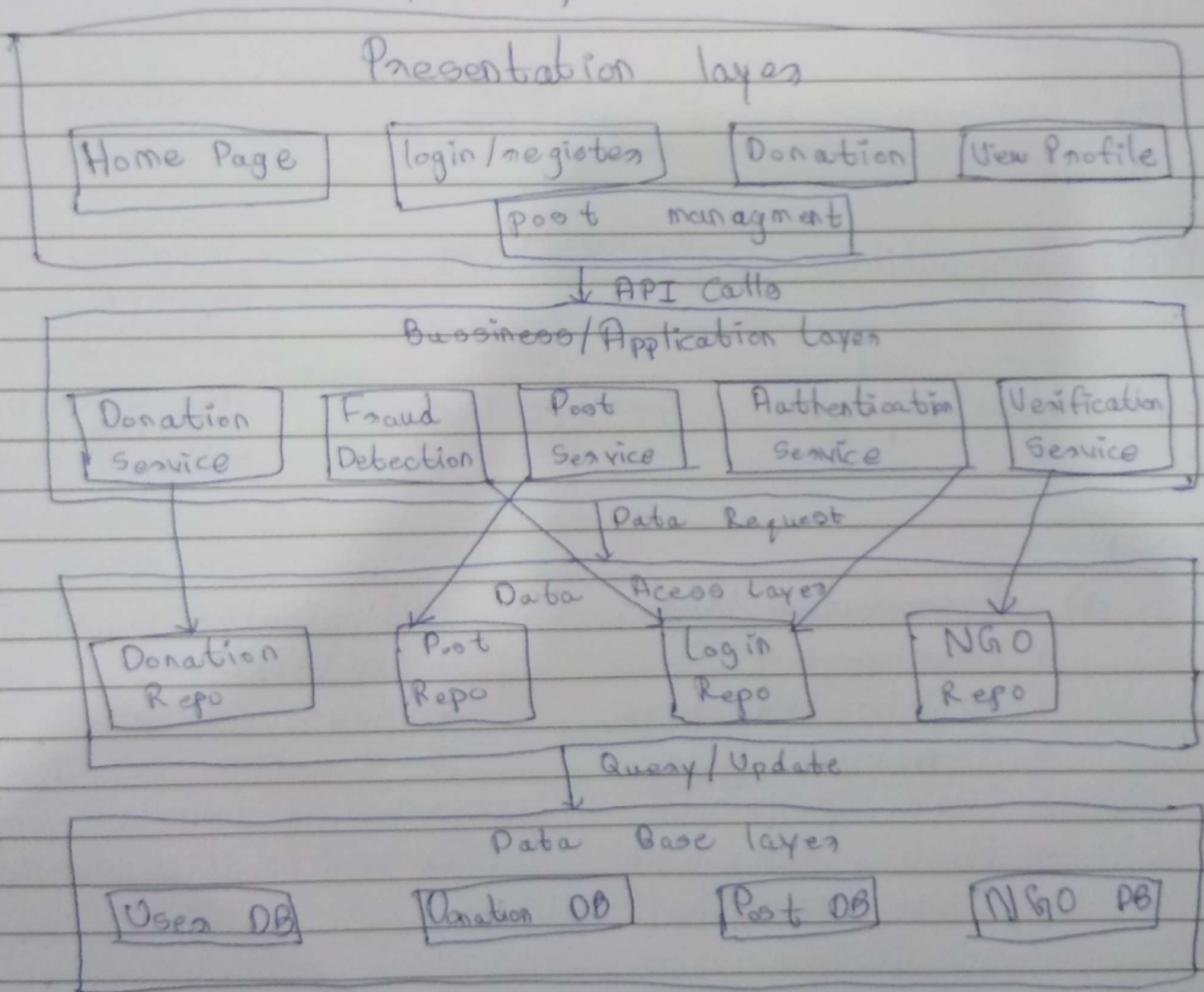
- authentication service
- post service
- donation service
- Fraud detection service
- Verification service

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- 3) Data Access Layer:
- Login repository
 - Post repository
 - NGO repository
 - Donation repository

- 4) Data Base layer
- User database
 - Donation Database
 - Post database
 - NGO database



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(Q4) For Metro City's Smart Traffic Management System, Layered architecture is best due to its structured, modular and scalable design. There are several reasons to select this architecture which are given below:-

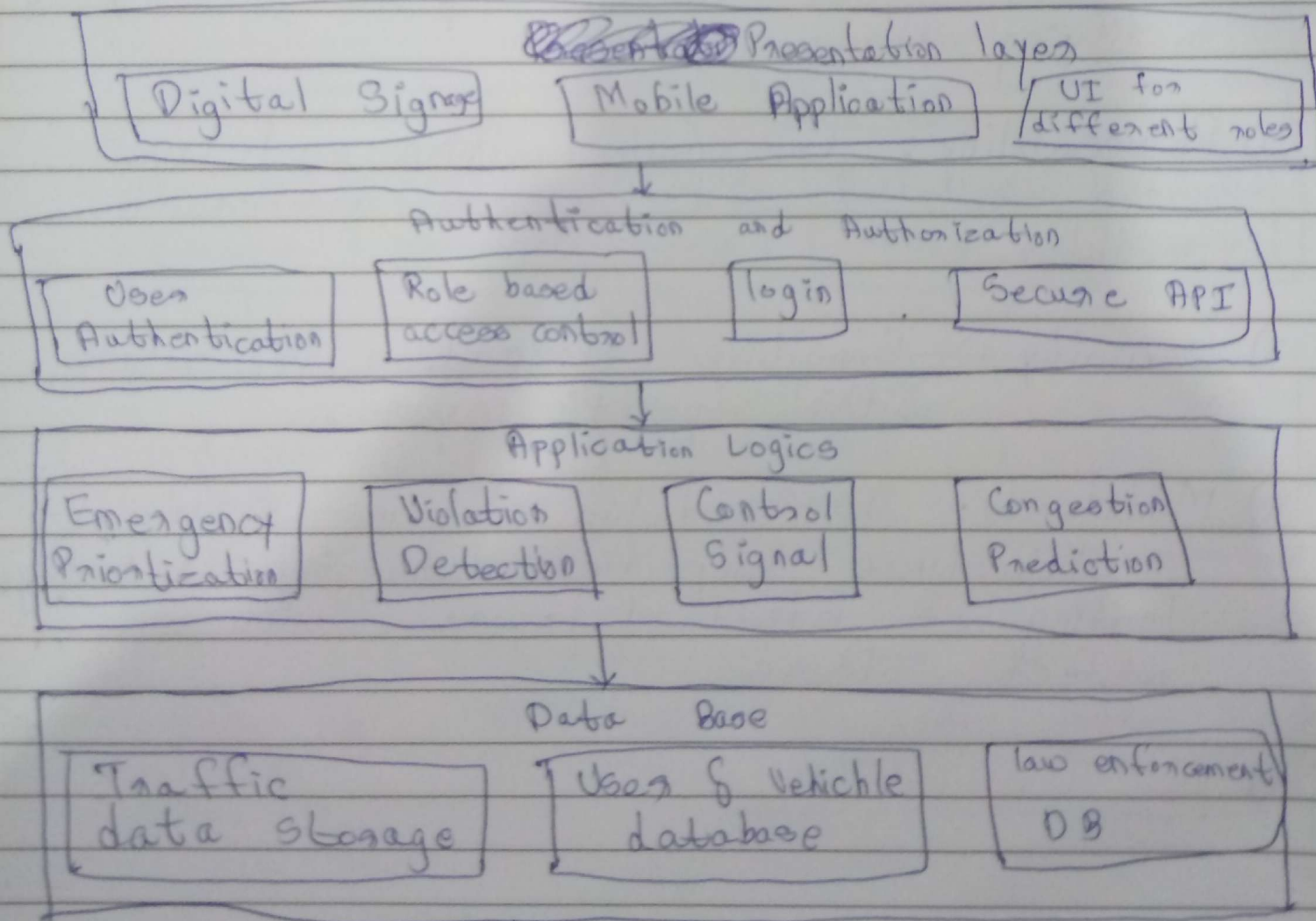
- 1) Scalability: The layered approach gives independent scaling for each component. Additional layers can be implemented without modifying others.
- 2) Reuseability: Components within each layer can be reused across different modules.
- 3) Security: Sensitive information is isolated within specific layers.
- 4) Modularity: The modular nature of layered architecture simplifies debugging and testing. Testing of individual layers won't affect others.

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5) Separation of Concerns:- Every layer has a well defined goal. This ensures that modification in one layer does not disturb others.

6) Ease of integration: System requires interaction with external systems. These integrations are handled at specific layers, avoiding complexity in other parts.



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