

Programming Concepts Summary

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Object-Oriented Programming (OOP):

- Classes: User, Video, SupportTicket models
- Encapsulation: Data and methods bundled together
- Inheritance: Not heavily used but available
- Polymorphism: Different objects responding to same method calls

Data Structures & Algorithms (DSA):

- Arrays/Lists: Processing video segments
- Dictionaries/Hash Maps: JSON data structures
- Queues: Processing video jobs (implied)
- Search Algorithms: Finding users, videos in database
- Sorting: Ordering tickets by date, priority

Database Concepts:

- NoSQL: MongoDB document database
- CRUD Operations: Create, Read, Update, Delete
- Indexing: Fast data retrieval
- Aggregation: Data analysis and statistics

Security Concepts:

- Authentication: Verifying user identity
- Authorization: Checking user permissions
- Encryption: Password hashing, JWT signing
- Input Validation: Preventing malicious uploads

Software Architecture Patterns:

- MVC Pattern: Models, Views (frontend), Controllers (routes)
- Service Layer: Business logic separation
- Repository Pattern: Database access abstraction
- Middleware Pattern: Request/response processing

Concurrency & Performance:

- Asynchronous Processing: Video processing in background
- File Streaming: Handling large video uploads
- Caching: Storing processed results
- Load Balancing: Handling multiple users (production)