

Personal Project by Abner Soberon Martinez

Strategic Guide: Software Development Methodologies for Building a Social Network

Project Overview

This document presents a personal project analysis written by Abner Soberon Martinez. The purpose of this document is to evaluate the most suitable software development methodologies for creating a complete and secure social networking platform. The system will feature multiple modules, including user validation (email, phone, and biometric data), a dynamic feed, blogs, photo and video sharing, and community tools similar to Facebook, VK, Instagram, TikTok, and YouTube.

Software Development Methodologies Analysis

Waterfall Model

Advantages:

- Clearly defined phases, easy to follow.
- Strong documentation ensures traceability.

Disadvantages:

- Not flexible to changes once phases are complete.
- No working product until the final stage.

Recommended Use: Best for requirement analysis and architectural planning, especially in security modules.

Agile Model

Advantages:

- Highly flexible and adaptive to changes.
- Delivers working increments frequently.

Disadvantages:

- Minimal documentation can lead to knowledge gaps.
- Requires constant client collaboration.

Recommended Use: Ideal for modules like the user feed, blog system, and social interactions.

Incremental Model

Advantages:

- Early prototypes available.
- Manages risk by building core features first.

Disadvantages:

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- High resource requirement.
- May cause architectural inconsistencies.

Recommended Use: Great for adding features like groups or community pages progressively.

RAD Model

Advantages:

- Very fast development cycles.
- Code reuse reduces effort and increases productivity.

Disadvantages:

- Not suitable for new or unfamiliar technologies.
- Costly due to specialized tools and skilled staff.

Recommended Use: Suitable for prototyping sections like Instagram, TikTok-style feeds, or UX interfaces.

Spiral Model

Advantages:

- Integrated risk management at every phase.
- Allows ongoing feedback and refinement.

Disadvantages:

- Complex and potentially expensive.
- Heavy on documentation.

Recommended Use: Recommended for validating identity, biometric checks, and core system infrastructure.

Iterative Model

Advantages:

- Detects issues early through constant feedback.
- Allows parallel development of subsystems.

Disadvantages:

- Not ideal for small projects.
- Requires good understanding of the whole system beforehand.

Recommended Use: Effective for large modular systems such as this multi-functional social network.

Recommended Development Plan by Project Phase

1. Requirements & Planning - (Waterfall Model)

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Used to establish secure, legal and technical requirements, especially for personal data handling.

2. Architecture & Security Design - (Spiral Model)

Implemented to identify and mitigate risks during the design of core systems like user validation.

3. Core Module Development - (Agile Model)

Agile allows flexible, user-driven development of main features like wall posts, blogs, media sharing.

4. Feature Expansion - (Incremental Model)

Used to integrate additional features (groups, live streams, etc.) without impacting core stability.

5. Interface Prototyping - (RAD Model)

Allows rapid UI/UX prototyping for Instagram-style stories or TikTok modules.

6. Deployment & Feedback - (Agile + Iterative)

Continuous delivery and testing cycles to refine and improve user experience based on feedback.