

PRACTICAL - 5

AIM: Select the most appropriate Process model

Task:

1. Study the importance of selecting an appropriate process model for a given project.
2. Evaluate different process models based on project characteristics.
3. Choose the most appropriate process model for a given scenario.
4. Consider factors such as project size, requirements volatility, and the need for customer involvement.

Solution :

Team Details :

| Sr. No. | Name | Enrollment No. |
|---------------|-----------------|-----------------|
| Team Leader | Fenil Shilodre | 202203103510041 |
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Project Title : Airbnb System

Introduction :

The Airbnb System is a digital marketplace connecting travelers with property owners offering short-term accommodations. The platform enables users to browse, book, and manage stays while providing hosts an efficient way to list and monetize their properties. It operates through both web and mobile applications, offering a seamless experience across global markets.

Key Objective :

- Provide an intuitive and user-friendly platform for short-term rentals.
- Enable hosts to efficiently list and manage their properties.
- Ensure secure transactions and payment processing.
- Deliver continuous improvements through rapid iterations.
- Support multiple languages, currencies and global access.

Modules :

- User Management – Registration, login, profile management.
- Property Listings – Adding, updating and removing property listings.
- Search & Booking – Filtering, availability checks and reservation systems.
- Payments & Transactions – Integration with secure payment gateways.
- Reviews & Ratings – Feedback mechanisms for users and hosts.

- Messaging & Notifications – In-app communication and alert systems.
- Admin Panel – Monitoring and managing users, listings and disputes.

Based on Size :

- Large-scale system with a global user base.
- Requires distributed cloud infrastructure for high traffic and data management.
- Involves multiple integrations (payments, mapping services, messaging).
- Manages significant volumes of user and transactional data.

Selected Process Model : Agile (Scrum/Kanban)**Rationale and Industry Practice :**

The Agile Model is ideal for Airbnb's dynamic requirements, global user base and need for rapid feature deployment. Agile frameworks like Scrum enable iterative development, allowing frequent releases (e.g., biweekly sprints) to incorporate user feedback and adapt to market trends. Key considerations include :

- **Scalability** : Airbnb employs a microservices architecture and event-driven architecture, which enables independent feature deployments and ensures system reliability. DevOps practices (CI/CD pipelines) ensure seamless updates to cloud infrastructure, critical for handling high traffic.
- **Security** : Security "sprints" can be integrated into Agile cycles to address vulnerabilities in payment gateways.
- **Globalization** : Airbnb uses Localization Sprints to support incremental multilingual and multi-currency expansion. Feature Toggles and A/B Testing allow gradual rollouts of region-specific updates.

Industry Practice : Companies like Airbnb use Agile with cross-functional teams to manage distributed systems. Feature flags and A/B testing (common in Agile) allow gradual rollouts to diverse markets.

Project Title : Farfetch E-commerce System

Introduction :

Farfetch is a global luxury fashion marketplace that connects customers with boutiques and brands. It provides an online platform for browsing and purchasing high-end fashion items, offering features such as secure payments, order tracking and global shipping. The system is designed to deliver a seamless and personalized shopping experience for fashion-conscious consumers worldwide.

Key Objective :

- Deliver an intuitive and user-friendly platform for luxury fashion shopping.
- Enable boutiques and brands to efficiently manage product inventory.
- Ensure secure and reliable payment processing.
- Offer personalized recommendations based on user preferences.
- Provide comprehensive support for global shipping and returns.

Modules :

- User Management – Account creation, login and profile management.
- Product Catalog – Display and management of product listings.
- Shopping Cart & Checkout – Order processing and payment systems.
- Payment Gateway – Secure processing of online transactions.
- Order Management – Tracking orders, managing deliveries and handling returns.
- Inventory Management – Real-time updates and alerts for stock levels.
- Personalized Recommendations – Algorithms for tailoring product suggestions.
- Admin Panel – Oversight of product listings, orders and customer accounts.

Based on Size :

- Medium to large-scale system with complex operations and international reach.
- Requires robust cloud infrastructure to handle high user volumes and transactions.
- Involves extensive third-party integrations (payment gateways, logistics).
- Manages diverse product catalogs and a large database of user and order information.

Selected Process Model : Hybrid Agile (Scrum + Structured Phases)

Rationale and Industry Practice :

While the Spiral Model's risk-driven phases are valuable for complex integrations (e.g., payment gateways), Farfetch's need for speed and personalization aligns better with a Hybrid Agile approach. This combines :

- **Agile Flexibility** : Sprints for user-facing features (e.g., personalized recommendations) and frequent updates.

- **Structured Phases :** Waterfall-like stages for critical components (e.g., PCI-DSS compliance audits for payment security, inventory database design) to mitigate risks.

Industry Practice : Luxury e-commerce platforms like Farfetch often adopt Hybrid Agile to balance innovation with stability. For example :

- **Security :** Farfetch follows a structured security phase with rigorous fraud detection using machine learning models, compliance audits, and disaster recovery planning.
 - **Inventory Management :** Real-time updates use Agile iterations but follow strict compliance checks (hybrid approach ensures data consistency and accuracy in stock levels).
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