**API Development & Integration with Telecom Billing, CRM, and Banks**

**Objective**

Design and implement robust APIs to ensure real-time, secure integration with key internal and external systems: telecom billing, CRM, and partner financial institutions.

**API Categories**

| **API Group** | **Description** | **Consumer Systems** |
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| **Wallet APIs** | Balance, transfer, deposit, withdrawal | USSD, Mobile App, Agent App |
| **Bank APIs** | Wallet-to-bank and bank-to-wallet transfers | PesaLink, Partner Bank APIs |
| **Billing APIs** | Recharge, airtime/data bundle purchases | Telco Billing System |
| **CRM APIs** | Sync KYC, update account info | Telecom CRM |
| **Merchant APIs** | C2B, B2C, bulk disbursements | Aggregators, Merchants |
| **Compliance APIs** | AML alerts, audit trail logging, KYC checks | CBK Systems, Internal Risk Ops |

**API Standards**

* **Protocol**: HTTPS RESTful APIs (TLS 1.3)
* **Security**: OAuth2, HMAC, IP whitelisting
* **Rate Limits**: Tiered by partner SLA
* **Versioning**: URI versioning /api/v1/...
* **Docs & Sandbox**: Swagger UI + partner sandbox environment
* **Monitoring**: Via API Gateway (e.g., Kong/Apigee) and centralized logs

**Example Integration Flows**

**Bank Withdrawal Flow**

1. User initiates withdrawal via App
2. Wallet system calls partner bank API (via PesaLink)
3. Confirmation → Wallet debited → SMS confirmation sent

**Telco Airtime Recharge Flow**

1. User selects airtime recharge via USSD
2. Wallet API debits user
3. Billing API credited → Airtime balance updated