

**Department of Information Technology**

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**Subject:**

**Software Engineering**

**Project Title:**

**Billing Management System**

**Submitted To:**

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### **Billing Management System**

### **Project**

Development of a **Billing Management Software** for a large mall to streamline transactions, support multi-vendor operations, generate real-time reports, and integrate with existing systems (e.g., inventory management, accounting software).

### **Planning Activity:**

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| --- | --- |
| **Project Definition** | - Define objectives (e.g., secure billing, multi-vendor support, compliance with PCI-DSS). - Identify stakeholders (mall management, vendors, customers, IT team). - Draft initial project vision and goals. |
| **Feasibility Analysis** | - **Technical**: Assess compatibility with existing POS hardware, scalability for 10,000+ daily transactions, and cloud integration. - **Financial**: Estimate development costs (Rs 150,000), ROI analysis, and budget allocation. - **Operational**: Evaluate staff training requirements and user adoption strategies. - **Legal**: Ensure compliance with financial regulations (PCI-DSS, GDPR). |
| **Scope Identification** | - **Inclusions**: Core features (secure payments, real-time reporting, vendor dashboards), integration with accounting software. - **Exclusions**: Hardware procurement (assumes existing POS terminals), mobile app development (deferred to Phase 2). |
| **Risk Management** | - Identify risks: Data breaches, integration failures, budget overruns. - Mitigation strategies: Encryption protocols, phased deployment, contingency budgeting. |
| **Resource Planning** | - Assign roles: developers, designers, testers, project manager. - Schedule timelines using Gantt charts (9-month development cycle). - |

### **Scope and Feasibility Reports**

#### **Scope Report**

* **Objectives**:
  + Centralize billing operations for 100+ mall vendors.
  + Ensure secure transactions compliant with PCI-DSS.
  + Provide real-time sales analytics and tax compliance reports.
* **Deliverables**:
  + POS software with multi-payment support (cash, card, mobile wallets).
  + Vendor-specific dashboards for transaction tracking and inventory sync.
  + Integration with QuickBooks for automated accounting.
* **Exclusions**:
  + Hardware upgrades or procurement.
  + Mobile app development (planned for future expansion).

#### **Feasibility Report**

* **Technical Feasibility**:
  + Compatible with Windows/Linux-based POS systems.
  + Scalable cloud architecture (AWS/Azure) to handle peak transaction loads.
  + API integration with third-party tools (e.g., QuickBooks).
* **Financial Feasibility**:
  + Development cost: Rs150,000 (includes testing, training, and deployment).
  + ROI: Achievable within 3 months through reduced manual errors and faster checkouts.
* **Operational Feasibility**:
  + Training plan: 3-day workshops for vendors and IT staff.
  + User-friendly UI designed for minimal learning curve.
* **Legal Feasibility**:
  + Compliance with PCI-DSS for payment security and GDPR for data privacy.

### **Process Model Selection**

#### **Selected Model**: **Waterfall Model**

**Justification**:

* **Structured Phases**: Ideal for projects with fixed requirements (e.g., compliance needs, predefined features).
* **Documentation-Driven**: Ensures thorough documentation at each stage (e.g., SRS, SDD), critical for regulatory audits.
* **Predictability**: Clear timelines and budgets align with the mall’s operational deadlines and financial constraints.
* **Risk Mitigation**: Sequential testing (unit → integration → system) ensures security and functionality before deployment.

#### **Why Not Agile?**

* Fixed scope and compliance requirements reduce the need for iterative changes.
* Regulatory standards (PCI-DSS) demand upfront planning and formal documentation.