# Mini Case Study — Healthcare Appointment System

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|---|---|---|
| Manual, phone-based scheduling led to long wait times, scheduling errors, and poor visibility across staff and billing. | Deploy an online appointment portal with integrated notifications and billing to cut wait times and improve throughput. | Reduced onboarding/booking time to **1.8 mins**; no-show rate held at **8%**; billing accuracy improved to **95%** with automated invoices. |

## Context

A mid-sized clinic needed to modernize its appointment process. The legacy workflow relied on phone calls and paper calendars, causing bottlenecks, missed confirmations, and delayed billing. I led the system analysis to design and validate an online portal integrated with notifications and payment processing.

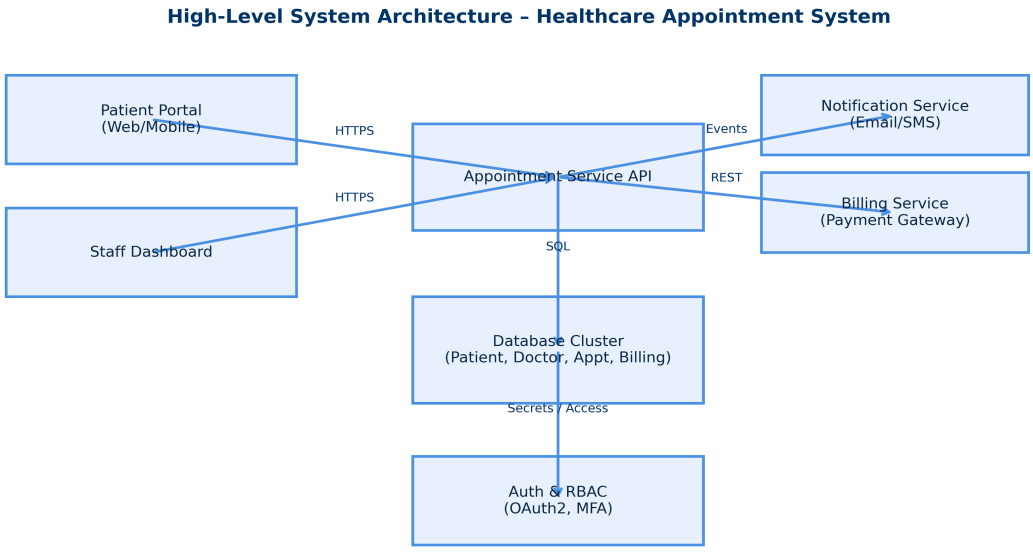
## Approach & Key Deliverables

- Requirements: BRD, FRS, and NFRs aligned with stakeholder needs and HIPAA considerations.
- Models: Context + DFDs, UML Use Cases, ERD, BPMN As■Is/To■Be swimlanes.
- Integration: High-level architecture and payment gateway flow.
- Testing: UAT plan, test cases, defect log, and filled feedback forms.
- Governance: RTM, RACI, stakeholder map, risk register, change log.
- Analytics: KPI dashboard tracking booking time, no-show rate, billing accuracy.

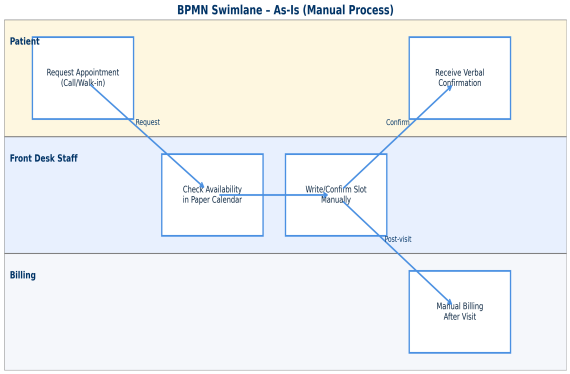
## KPIs & Results

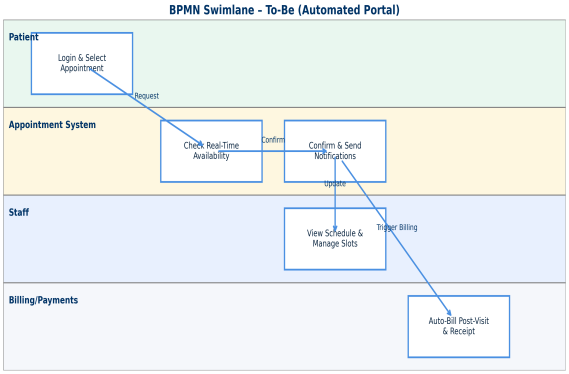
| KPI | Baseline | Target | Outcome | Status |
|---|---|---|---|---|
| Average Booking Time (mins) | 3.5 | <= 2.0 | 1.8 | On Track |
| No■Show Rate (%) | 12% | < 10% | 8% | On Track |
| Billing Accuracy (%) | 88% | >= 98% | 95% | Improving |
| Staff Utilization (%) | 75% | >= 85% | 88% | On Track |

## Architecture Snapshot




## Process Improvements (As■Is → To■Be)




## Tools

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| Modeling | Lucidchart / draw.io |
| Docs | Word / Excel |
| Data | SQL (mock DB) |
| BI | Excel/Power BI KPI mockup |
| Testing | UAT templates, defect tracking |

## Next Steps

- Add specialty filters and wait■list logic to booking.
- Tighten billing accuracy to ≥ 98% via payment gateway retries and validation rules.
- Expand reporting (cohort analysis on no■shows, staff load forecasting).