**AI- Based Automated SAP System Health Checks & Monitoring**

**Goal:** System Monitoring, log collection, predict system failure

**KPI:**

SM51

ST06

DB02

ST22

SM21

SM37

SM13

SM12

SM58

SMQ1

SMQ2

SOST

ST03N

**1. Objectives & Scope**

* Goal: Automate monitoring, collect logs, and predict system failures in SAP ECC.
* Scope: Track key SAP transactions (TCODES) that provide system health insights.

**2. Data Collection & Integration**

**Key SAP Transactions (TCODES) for Monitoring**

The following transactions will be monitored using AI-driven log collection:

1. **SM51** – Monitor active application servers.
2. **ST06** – Track OS-level performance (CPU, memory, disk).
3. **DB02** – Analyze database performance and bottlenecks.
4. **ST22** – Identify short dumps and critical errors.
5. **SM21** – Log system messages and security alerts.
6. **SM37** – Monitor background job execution and failures.
7. **SM13** – Check update requests for failed transactions.
8. **SM12** – Lock entries monitoring to prevent resource conflicts.
9. **SM58** – Track transactional RFC (TRFC) issues.
10. **SMQ1 / SMQ2** – Analyze inbound/outbound queues for failed processes.
11. **SOST** – Monitor email delivery status in SAP.
12. **ST03N** – Performance workload analysis for optimization.

**Implementation:**

* Extract logs from these TCODES via **SAP Solution Manager**, custom scripts, or API integration.
* Automate data collection into **a centralized AI-powered dashboard**.
* Store data in **SAP HANA or an external database** for ML processing.

**3. AI-Based Predictive Analytics**

* Implement **Anomaly Detection Models** (e.g., Isolation Forest, LSTM Time-Series).
* Train models on historical logs to identify failure patterns.
* Deploy **Threshold-based Alerting System** when KPIs exceed risk limits.
* Set up **Failure Prediction Algorithms** for proactive resolutions.

**4. Automated Alerting & Issue Resolution**

* Build **AI-powered dashboards** (Grafana, Power BI) for live system health tracking.
* Integrate **Slack/Teams alerts** for real-time notifications.
* Use **Natural Language Processing (NLP)** for log analysis & recommendations.
* Self-healing recommendations

**5. Continuous Learning & Optimization**

* Use **Reinforcement Learning** to improve AI recommendations.
* Schedule periodic **retraining of ML models** with new SAP system data.
* Automate **performance tuning** based on system workload patterns.