# Project Plan: SQL Server Performance and Configuration Remediation

## 1. Project Objectives

The primary goal of this project is to improve SQL Server performance, reliability, and recoverability through optimized configurations, maintenance practices, and security enhancements.

## 2. Scope of Work

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| Task | Description | Estimated Time | Downtime Required |
| Server Sizing | Add memory and adjust MAXDOP settings. | 30 minutes | Yes, restart required |
| DBCC CHECKDB | Schedule and perform weekly integrity checks. | 5-6 hours total | No |
| TempDB Optimization | Move TempDB to a dedicated drive. | 1 hour | Yes |
| Instant File Initialization (IFI) | Enable IFI to reduce overhead and downtime for file extensions. | 30 minutes | Yes, restart required |
| Maintenance Plans | Set up agent jobs for index reorganization, rebuilds, and statistics updates. | 5-10 hours | No |
| Security Enhancements | Patch SQL Server, audit SA accounts, and adjust job ownership to service accounts. | 4 weeks, 1 hour/week | Minimal |
| Performance Tuning | Analyze unused/missing indexes, optimize queries, and address parameterization issues. | 10-30 hours | No |
| Disk Configuration | Migrate data, log, and TempDB files to separate drives with 64K cluster size. | 2-8 hours | Yes, full outage |
| VLF Count Reduction | Resize transaction logs to optimize virtual log file count. | 2-4 hours | Yes |
| Query Store Configuration | Enable Query Store for query plan monitoring and optimization. | 3-8 hours | No |
| Backup Strategy | Implement a robust backup schedule (daily FULL, hourly transaction logs). | 3-8 hours + 3 hours audit | No |

## 3. Timeline

The project will be executed starting Jan 4th, 2025  
 - Server Sizing  
 - TempDB Optimization  
 - Instant File Initialization  
 - Disk Configuration  
 - DBCC CHECKDB setup  
 - Maintenance Plan implementation  
 - Security enhancements (audit and ownership updates)  
 - Performance tuning analysis and initial actions  
 - VLF Count Reduction  
 - Query Store Configuration  
 - Backup Strategy implementation and validation

## 4. Assumptions

- Downtime will be scheduled during off-peak hours.

- SQL Server access will be provided with necessary permissions.

- Storage requirements (additional drives) will be fulfilled prior to scheduled tasks.

## 5. Deliverables

- Updated SQL Server configurations and best-practice documentation.

- Performance improvement metrics.

- Maintenance plans and job schedules.

- Validated backup and recovery strategy.

- Summary report of completed optimizations.

## 6. Dependencies

- Procurement of additional memory and storage.

- Scheduled maintenance windows for tasks requiring downtime.

## 7. Project Risks

- Extended downtime if unforeseen issues arise during migrations.

- Temporary performance impact during reindexing or maintenance tasks.