



## Ajay Kumar Dwivedi

Automation, Performance Optimization, Query Tuning, Database Design, Monitoring || SQLServer, PostgreSQL, PowerShell, Python, Grafana, Ansible

**I help clients to ensure Database Systems are Issue Free, Always Available, and running at Peak Performance State all the time.**

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## EMPLOYMENT

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### Senior Site Reliability Engineer, AngelOne (Feb 2022 - Present)

- Developed & baselined 280+ P1 SQL Server using own SQLMonitor project in a multi-domain environment.
- Developed alerts using Grafana Alert Engine & custom PowerShell
- Developed advanced Alert Engine tool using Python & Slack.
- Created 25+ alerts for events like Server Unavailability, Low Available Memory, High CPU, Blocking, Low Disk Space, etc with self developed Alert Engine.
- Performed Optimization of SQL Servers by implementing D.E.A.T.H method of Indexing bring down IO latency from 350+ ms to less than 9 ms.
- Tuned multiple queries using various tools like sp\_BlitzCache, sp\_WhoIsActive, XEvents (rpc\_completed/sql\_batch\_completed)
- Helped developers identify/resolve Ascending Key Problem, and fix linked server query issues.
- Mentored developers in efficient query writing and performance tuning using techniques like 10x rule of cardinality, cut/combine queries, dealing with scalar functions, inlining of MSTVFs, pagination, columnstore indexes etc.
- Helped developers identify parameter sniffing issues causing query regression issues, and resolve them using various techniques.
- Resolved many complex query performance issues by solving Kitchen Sink design patterns.
- Automated 1-click implementation of Transparent Data Encryption on 150+ servers.
- Tuned PostgreSQL queries by redesigning query to allow parallel plan, utilizing grouping sets, and creating partial covering indexes.

### Database Reliability Engineer, Arcesium (May 2020 - Feb 2022)

- Designed AlwaysOn RO Readiness solution using TSQL & PowerShell
- Designed PowerShell module to move Availability Group databases, and moved 38 TB data
- Provided Org Wide SQL Server Training
- Designed automation to setup remote Distributor in availability group using PowerShell
- Designed automation to setup Transactional replication using PowerShell
- Automated scripting out of entire SQL Server & Replications similar to Export-DbInstance
- Designed automations & Monitoring Dashboards on Grafana
- Resolved High CPU/Query Regression/IO Latency/Blocking Alerts

- Manage PostgreSQL servers/databases
- Resolved High CPU issues using Resource Governor & XEvents in multitenancy environment
- Brought down app query duration to seconds by converting multi day time filter query to SARGable predicates.
- Resolved query regressions by getting rid of issues like tempdb spills, wrong index choice, creating proper structure like indexed view, computed columns, and putting appropriate query hints

#### **Senior SQL Server DBA, TiVo** (Feb 2018 - May 2020)

- Implemented Database Inventory and Monitoring System using Python/Django/PowerShell/SQL Server
- Created Alert/Monitoring System using PowerShell
- Automated Server Health Check for users using native tools
- Automated Installation/Configuration/Uninstallation of SQL Servers using PowerShell

#### **Senior SQL Server DBA, United Health Group** (Oct 2016 - Feb 2018)

- Saved \$1.0 million/year with Space Capacity Automation
- Handled VLDBs and took care of Core DBA Tasks

#### **Senior SQL Server Developer, Ericsson** (Jun 2015 - Oct 2016)

- Resolved SQL Server Performance Issue with Table Partitioning
- Mentored team and guided them with Query Performance Turning best practices
- Tripled Database server performance by Query Optimization

#### **SQL Server DBA/Developer, TATA Consultancy Services** (Mar 2011 - June 2015)

- Saved Hours of DBA efforts with TSQL scripts for SQL Instance Migration activity
- Mentored 5 developers and designed Data Warehouse using DB2 & Pentaho
- Successfully migrated Billions of data with efficient Tsql programming

## **Education**

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**Bachelor of Engineering**, RGPV University, Bhopal (July 2006 - Apr 2010)

**Fundamentals & Mastering Bundle**, BrentOzar Unlimited (Dec 2021 - Nov 2022)

**SQLSkills Blackbelt Bundle**, SQLSkills.com (Dec 2022 - Present)

## **OPEN SOURCE PROJECTS**

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**SQLMonitor**: Automation to baseline SQL Server using TSQL, PowerShell, Perfmon & Grafana

**SQLMonitor-AlertEngine**: Advanced smart alert system to get Slack/Email/PagerDuty alerts for SQLServer issues/events.

**SQLDBA-SSMS-Solution**: TSQL/PowerShell script for day to day DBA support work.

**SQLDBATools**: PowerShell module to automate common DBA tasks and advanced alert setup.

**HadrSync**: PowerShell module to synchronize everything from Primary/Principal replicas to Secondary/Mirror/DR replicas in Always On/Mirror setup.

**Credential Manager**: Infra that provides storage/retrieval functionality similar to Windows Credential Manager. This is very helpful in environment where a proper vault/credential management software is not present.

**Space-Capacity-Automation**: Stored Procedure that would add/restrict data and log files on new and old disk drives automatically without DBA intervention.

## **Additional Experience And Awards**

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- **Instructor (2008 - 2010)**: Taught 4 batches of C/C++ in coaching institute
- **Multiple Award for Automation**: Awarded multiple times for Space Capacity automation, Prod- Non-Prod DDL script comparison, Instance Migration automation and many more.
- **Technical Blog Website**: <https://ajaydwivedi.com>
- Online live YouTube tutorial sessions for L1/L2 Database Administrators & Developers

## **Languages and Technologies**

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### **Technologies**

- HTML, CSS, SQL Server, Linux, CentOS8, Ubuntu, PostgreSQL

### **Tools**

- Docker, Django, Bootstrap, JQuery, SQL Server, BrentOzarUnlimited First-Responder-Kit; SQLQueryStress; SQL Sentry Plan Explorer; Ola Hallengren Maintenance Solution; OStress; DiagManager;

SQLNexus; Performance Monitor; SQL Profiler; SQL Trace; Clear Trace; Extended Events; ReadTrace; PAL; Django; CentOS; RHEL; Grafana;

### **Scripting**

- PowerShell, TSQL, Python, Bash

### **Operating System**

- RHEL 8, Ubuntu, Windows

### **Programming Models**

- SOLID Principles
- MVT Architecture
- MVC Architecture
- NORM Methodology for ORM Applications