



# SQL Certification

Course Training for MS SQL Server

In Collaboration with **Microsoft**

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## About the Program

This MS SQL training designed by Microsoft-certified experts enables you to manage database solutions and various operations on databases, migrate them to the cloud, and scale them on demand. You will work on real-world projects and master Transact-SQL. As part of this online classroom training, you will also receive official SQL course material issued by Microsoft for Querying Data with Transact-SQL and Developing SQL Databases. Accredited by Microsoft, this online SQL training is the best you can get in the marketplace today.



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## Collaborating with Microsoft

Microsoft is one of the largest organizations in terms of inventing creative tools for various purposes. Experts from Microsoft and other top MNCs will offer you their understanding and knowledge in the field through this online certification. Moreover, you will also get deep insights into the concepts and gain hands-on experience by working on industry-specified assignments.

### **Benefits for students from Microsoft:**

- Industry-recognized Microsoft certification
- Real-time projects and exercises

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## About Intellipaate

Intellipaate is one of the leading e-learning training providers with more than 600,000 learners across 55+ countries. We are on a mission to democratize education as we believe that everyone has the right to quality education. Our courses are delivered by subject matter experts from top MNCs, and our world-class pedagogy enables learners to quickly learn difficult topics in no time. Our 24/7 technical support and career services will help them jump-start their careers in their dream companies.

# Key Features



**16 HRS INSTRUCTOR-LED  
TRAINING**



**16 HRS SELF-PACED TRAINING**



**32 HRS REAL-TIME  
PROJECT WORK**



**LIFETIME ACCESS**



**24/7 TECHNICAL SUPPORT**



**INDUSTRY-RECOGNIZED  
CERTIFICATION**



**JOB ASSISTANCE THROUGH  
80+ CORPORATE TIE-UPS**



**FLEXIBLE SCHEDULING**

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# Career Support



## **SESSIONS WITH INDUSTRY MENTORS**

Attend sessions from top industry experts and get guidance on how to boost your career growth



## **MOCK INTERVIEWS**

Mock interviews to make you prepare for cracking interviews by top employers



## **GUARANTEED INTERVIEWS & JOB SUPPORT**

Get interviewed by our 400+ hiring partners



## **RESUME PREPARATION**

Get assistance in creating a world-class resume from our career services team



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## Why take up this course?

- Most companies estimate that they're analyzing a mere 12% of the data they have – Forrester Research
- Worldwide Business Intelligence and Analytics market to grow to US\$22.8 billion in the next 2 years – Gartner
- A SQL Developer in the United States can earn US\$92,000 per year – Indeed

SQL is one of the most important programming languages for working on large sets of databases. Thanks to the Big Data explosion, today, the amount of data that enterprises have to deal with is humongous. This creates a huge demand for SQL Developers who can parse all that Big Data and convert them into business insights. Taking up this instructor-led Microsoft SQL Server training course and clearing the Microsoft SQL Server certification exam can give a boost to your career.

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## Who should take up this course?

- Software Developers and IT Professionals
- SQL and Database Administrators
- Project Managers
- Business Analysts and Managers
- Business Intelligence Professionals
- Big Data and Hadoop Professionals
- Those aspiring for a career in SQL Development

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# Program Curriculum

## SQL Course Content

### **1. INTRODUCTION TO SQL**

- 1.1 Various types of databases
- 1.2 Introduction to Structured Query Language
- 1.3 Distinction between client server and file server databases
- 1.4 Understanding SQL Server Management Studio
- 1.5 SQL table basics
- 1.6 Data types and functions
- 1.7 Transact-SQL
- 1.8 Authentication for Windows
- 1.9 Data control language
- 1.10 The identification of the keywords in T-SQL, such as Drop Table

### **2. DATABASE NORMALIZATION & ENTITY RELATIONSHIP MODEL**

- 2.1 Data anomalies
- 2.2 Update anomalies
- 2.3 Insertion anomalies
- 2.4 Deletion anomalies
- 2.5 Types of dependencies
- 2.6 Functional dependency
- 2.7 Fully functional dependency
- 2.8 Partial functional dependency
- 2.9 Transitive functional dependency
- 2.10 Multi-valued functional dependency
- 2.11 Decomposition of tables
- 2.12 Lossy decomposition
- 2.13 Lossless decomposition
- 2.14 What is normalization?
- 2.15 First normal form
- 2.16 Second normal form

- 2.17 Third normal form
- 2.18 Boyce-Codd normal form (BCNF)
- 2.19 Fourth normal form
- 2.20 Entity-Relationship model
- 2.21 Entity and entity sets
- 2.22 Attributes and types of attributes
- 2.23 Entity sets
- 2.24 Relationship sets
- 2.25 Degree of relationship
- 2.26 Mapping cardinalities: one-to-one, one-to-many, many-to-one, and many-to-many
- 2.27 Symbols used in the E-R notation

### **3. SQL OPERATORS**

- 3.1 Introduction to relational databases
- 3.2 Fundamental concepts of relational rows, tables, and columns
- 3.3 Several operators (such as logical and relational), constraints, domains, indexes, stored procedures, and primary and foreign keys
- 3.4 Understanding group functions
- 3.5 The unique key

### **4. WORKING WITH SQL: JOIN, TABLES, & VARIABLES**

- 4.1 Advanced concepts of SQL tables
- 4.2 SQL functions
- 4.3 Operators and queries
- 4.4 Table creation
- 4.5 Data retrieval from tables
- 4.6 Combining rows from tables using inner, outer, cross, and self joins
- 4.7 Deploying operators such as intersect, except, and union
- 4.8 Temporary table creation
- 4.9 Set operator rules
- 4.10 Table variables

### **5. DEEP DIVE INTO SQL FUNCTIONS**

- 5.1 Understanding SQL functions – What do they do?
- 5.2 Scalar functions



5.3 Aggregate functions

5.4 Functions that can be used on different datasets, such as numbers, characters, strings, and dates

5.5 Inline SQL functions

5.6 General functions

5.7 Duplicate functions

## **6. WORKING WITH SUBQUERIES**

6.1 Understanding SQL subqueries and their rules

6.2 Statements and operators with which subqueries can be used

6.3 Using the set clause to modify subqueries

6.4 Understanding different types of subqueries, such as where, select, insert, update, delete, etc.

6.5 Methods to create and view subqueries

## **7. SQL VIEWS, FUNCTIONS, & STORED PROCEDURES**

7.1 Learning SQL views

7.2 Methods of creating, using, altering, renaming, dropping, and modifying views

7.3 Understanding stored procedures and their key benefits

7.4 Working with stored procedures

7.5 Studying user-defined functions

7.6 Error handling

## **8. DEEP DIVE INTO USER-DEFINED FUNCTIONS**

8.1 User-defined functions

8.2 Types of UDFs like scalar

8.3 Inline table value

8.4 Multi-statement table

8.5 Stored procedures and when to deploy them

8.6 What is a rank function?

8.7 Triggers and when to execute triggers

## **9. SQL OPTIMIZATION & PERFORMANCE**

9.1 SQL Server Management Studio

9.2 Using pivot in MS Excel and MS SQL Server

9.3 Differentiating between Char, Varchar, and NVarchar

9.4 XL path, indexes, and their creation

9.5 Records grouping, advantages, searching, sorting, and modifying data

9.6 Clustered indexes creation

9.7 Use of indexes to cover queries

9.8 Common table expressions

9.9 Index guidelines

## **10. MANAGING DATA WITH TRANSACT-SQL**

10.1 Creating Transact-SQL queries

10.2 Querying multiple tables using joins

10.3 Implementing functions and aggregating data

10.4 Modifying data

10.5 Determining the results of DDL statements on supplied tables and data

10.6 Constructing DML statements using the output statement

## **11. QUERYING DATA WITH ADVANCED TRANSACT-SQL COMPONENTS**

11.1 Querying data using subqueries and APPLY

11.2 Querying data using table expressions

11.3 Grouping and pivoting data using queries

11.4 Querying temporal data and non-relational data

11.5 Constructing recursive table expressions to meet business requirements

11.6 Using windowing functions to group

11.7 Rank the results of a query

## **12. PROGRAMMING DATABASES USING TRANSACT-SQL**

12.1 Creating database programmability objects by using T-SQL

12.2 Implementing error handling and transactions

12.3 Implementing transaction control in conjunction with error handling in stored procedures

12.4 Implementing data types and NULL

## **13. DESIGNING & IMPLEMENTING DATABASE OBJECTS**

13.1 Designing and implementing relational database schema

13.2 Designing and implementing indexes

- 13.3 Comparing between indexed and included columns
- 13.4 Implementing clustered index
- 13.5 Designing and deploying views
- 13.6 Column store views

## **14. IMPLEMENTING PROGRAMMABILITY OBJECTS**

- 14.1 Explaining foreign key constraints
- 14.2 Using T-SQL statements
- 14.3 Usage of Data Manipulation Language (DML)
- 14.4 Designing the components of stored procedures
- 14.5 Implementing input and output parameters
- 14.6 Applying error handling
- 14.7 Executing control logic in stored procedures
- 14.8 Designing trigger logic, DDL triggers, etc.

## **15. MANAGING DATABASE CONCURRENCY**

- 15.1 Applying transactions
- 15.2 Using the transaction behavior to identify DML statements
- 15.3 Learning about implicit and explicit transactions
- 15.4 Isolation level management
- 15.5 Understanding concurrency and locking behavior
- 15.6 Using memory-optimized tables

## **16. OPTIMIZING DATABASE OBJECTS**

- 16.1 Accuracy of statistics
- 16.2 Formulating statistics maintenance tasks
- 16.3 Dynamic management objects
- 16.4 Identifying missing indexes
- 16.5 Examining and troubleshooting query plans
- 16.6 Consolidating overlapping indexes
- 16.7 The performance management of database instances
- 16.8 SQL Server performance monitoring

## **17. ADVANCED TOPICS**

- 17.1 Correlated subqueries, grouping sets, rollup, and cube

### **Hands-on Exercise:**

1. *Implementing correlated subqueries*
2. *Using the exists clause with a correlated subquery*
3. *Using the union query*
4. *Using the grouping set query*
5. *Using rollup*
6. *Using cube to generate four grouping sets*
7. *Performing a partial cube*

### **18. MICROSOFT COURSES: STUDY MATERIAL**

18.1 Performance Tuning and Optimizing SQL Databases

18.2 Querying Data with Transact-SQL

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## Project Work

### SQL Projects

#### **Writing Complex Subqueries**

In this project, you will be working with SQL subqueries and utilizing them in various scenarios. You will learn to use IN or NOT IN, ANY or ALL, EXISTS or NOT EXISTS, and other major queries. You will be required to access and manipulate datasets, operate and control statements in SQL, and execute queries in SQL against databases.

#### **Querying a Large Relational Database**

This project is on how to get details about customers by querying the database. You will be working with table basics and data types, various SQL operators, and SQL functions. The project will require you to download a database, restore it on the server, and then query the database for customer details and sales information.

#### **Relational Database Design**

Here, you will convert a relational design that has enlisted various users, user roles, user accounts, and their status into tables in SQL Server. You will define relations/attributes and primary keys and create respective foreign keys with at least two rows in each table.

# Certification

After the completion of the course, you will get certificates from Intellipaate and Microsoft.



This certificate accredits that

**Hemant Jain**



has successfully completed the following  
Microsoft Official Course



**Course Name**

*Satya Nadella*  
Satya Nadella  
Chief Executive Officer

*Ayush Rathe*  
Ayush Rathe  
Microsoft Certified Trainer



## CERTIFICATE OF COMPLETION

This certificate is awarded to

**Your Name**

Who has successfully completed

**Course Name**

Fulfilling all the requirements stipulated by Intellipaate to  
achieve professional excellence.

Issued Date: Month XX, XXXX

*Shilpi Jain*

Mrs. Shilpi Jain  
Director,  
intellipaate Software Solutions Pvt. Ltd.

**VERIFIED  
CERTIFICATE**

Certificate ID #94658291

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## Success Stories



### **Kevin K Wada**

Thank you very much for your top-class service. A special mention should be made for your patience in listening to my queries and giving me a solution, which was exactly what I was looking for. I am giving you a 10 on 10!



### **Sampson Basoah**

The Intellipaateam helped me in selecting the perfect course that suits my profile. The whole course was practically oriented, and the trainers were always ready to answer any question. I found this course to be impactful. Thank you.



### **Sugandha Sinha**

Intellipaate's course instructors were excellent and well-versed with their concepts. The support team solved all my queries within the promised 24 hours. They explained all topics and concepts well, and the course material was updated and included videos, exercises, etc. I would highly recommend Intellipaate to those who wish to excel in the IT field.



### **Quentin Jones**

Worth the money! The given training resources were well-organized. Overall, I got benefited from taking up the course. Besides, I also got a job through placement assistance provided by Intellipaate. Thanks, Intellipaate. I'm so grateful to you.



### **Sachin Bhatia**

The best training program for MS SQL! My decision to learn from Intellipaate was the best to upgrade my career. This course gave a thorough understanding of the subject. I recently completed the course and experienced good quality teaching offered by Intellipaate.

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# CONTACT US

## INTELLIPAAT SOFTWARE SOLUTIONS PVT. LTD.

### Bangalore

AMR Tech Park 3, Ground Floor, Tower B,  
Hongasandra Village, Bommanahalli,  
Hosur Road, Bangalore – 560068

### USA

1219 E. Hillsdale Blvd. Suite 205,  
Foster City, CA 94404

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If you have any further queries or just want to have a conversation with us, then do call us.

**IND: +91-7022374614 | US: 1-800-216-8930**