

# Database Fundamentals: Creating and Manipulating Data

with Adam Wilbert

	Topics from MTA Exam 98-364															
	Understand core database concepts				Create database objects				Manipulate data				Understand data storage			
	1.1 Understand how data is stored in tables				2.1 Choose data types				3.1 Select data				4.1 Understand normalization			
	1.2 Understand relational database concepts				2.2 Understand tables and how to create them				3.2 Insert data				4.2 Understand primary, foreign, and composite keys			
	1.3 Understand data manipulation language (DML)				2.3 Create views				3.3 Updated data				4.3 Understand indexes			
	1.4 Understand data definition language (DDL)				2.4 Create stored procedures and functions				3.4 Delete data				Administer a database			
													5.1 Understand database security concepts			
													5.2 Understand database backups and restore			
Defining Data Types																
Understanding the built-in SQL Server data types								X								
Using exact numeric data types								X								
Using approximate numeric data types								X								
Storing data and time values								X								
Storing text as character strings								X								
Understanding spatial data types								X								
Working with binary strings and other data types								X								
Converting data types in calculations								X								

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Understanding Tables and How to Create Them																
Defining your data needs	X															
Creating a table in SQL Server Management Studio							X									
Creating a table using Transact-SQL commands				X			X									
Applying data constraints and indexes in T-SQL							X									
Using SSMS to create reusable scripts		X					X									
Challenge: Writing T-SQL commands				X			X									
Solution: Writing T-SQL commands				X			X									

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<b>Using Queries to Select Data</b>																
Selecting records from the database										X						
Combining multiple related tables with the JOIN clause										X						
Combining conditions with AND and OR										X						
Clarifying ranges with a BETWEEN clause										X						
Specifying data you don't want with NOT										X						
Sorting data with ORDER BY										X						
Combining returns with the UNION clause										X						
Using the EXCEPT and INTERSECT clauses										X						
Using aggregate functions										X						
Challenge: Making selections										X						
Solution: Making selections										X						

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Working with Views																
Understanding the role of SQL Server views								X								
Creating a table in SQL Server Management Studio								X								
Viewing related data from multiple tables								X								
Defining a view using Transact-SQL commands								X								
Challenge: Creating a view								X								
Solution: Creating a view								X								

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Creating Stored Procedures and Functions																
Understanding the roll of stored procedures																
Creating a stored procedure in SQL Server Management Studio																
Leveraging user-defined parameters																
Introducing user-defined functions																
Creating a user-defined scalar function																

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Inserting and Updated Data in a Table																				
Using SSMS to insert data into a table											X									
Inserting data using data manipulation language											X									
Updating data in SSMS												X								
Modifying data using the UPDATE clause											X									

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Removing Data from the Database																
Deleting records in SSMS												X				
Using the DELETE statement												X				
Clearing out a table with TRUNCATE TABLE												X				
Deleting a table with DROP TABLE												X				
Understanding transactions												X				