98-364: Database Fundamentals

Symbol	Meaning
>	greater than
<	less than
=	equals to
<>	not equal to
<=	less than or equal to
>=	greater than or equal to
AND	both conditions have to be true
OR	at least one condition has to be true
NOT	Instead of having to be true, it has to be false
'string'	enclose your strings in single quotation marks
LIKE % _	LIKE uses the wildcards % and _
%	0-infinity characters
_	1 character
'2019-01-01 00:00:00.000'	Date/time literals need to be surrounded by single quotation marks

Field types

Exact numerics

Data type	Range	Storage
bigint	-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807	8 Bytes
int	-2,147,483,648 to 2,147,483,647	4 Bytes
smallint	-32,768 to 32,767	2 Bytes
tinyint	0 to 255	1 Byte
bit	0 to 1	1/8 Byte

Data type	Range	Storage
decimal/ numeric(p,s)	Precision = Number of digits; Scale = Number of decimal places	5-17 Bytes

Data type	Range	Storage
money	-922,337,203,685,477.5808 to 922,337,203,685,477.5807	8 Bytes
smallmoney	-214,748.3648 to 214,748.3647	4 Bytes

Approximate numerics

Data type	Range	Storage
float([n])	n=1-24: 7 digits precision	4 Bytes
	n=25-53: 15 digits precision	8 Bytes
	- 1.79E+308 to -2.23E-308, 0 and 2.23E-308 to 1.79E+308	
real	-214,748.3648 to 214,748.3647	4 Bytes
= float(24)	- 3.40E + 38 to -1.18E - 38, 0 and 1.18E - 38 to 3.40E + 38	4 Bytes

Date and time

Data type	Time Precision	Date Range	Storage
date	None	Year 1 to 9999	3 Bytes
datetime	To a 1/300th of a second (0.003)	1753 to 9999	8 Bytes
datetime2(n)	Up to 7 decimal places (0.0000001 seconds)	Year 1 to 9999	6-8 Bytes
datetimeoffset(n)	Up to 7 decimal places (0.0000001 seconds), with offset between - 12:59 to +14:00	Year 1 to 9999	8-10 Bytes
smalldatetime	To the nearest minute	1900 to 2079	4 Bytes
time(n)	Up to 7 decimal places (0.0000001 seconds)	None	3-5 Bytes

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Field types

Character strings

Data type	Characters	Storage	
char(n)	UTF-8; 1-8000 characters	n Bytes	
varchar(n)	UTF-8; 1-8000 characters	Char+2 Bytes	
text	UTF-8; 1-2,147,483,647 characters	Variable	Depreciated
varchar(max)	UTF-8; 1-2,147,483,647 characters	Variable	

Unicode character strings

Data type	Characters	Storage	
nchar(n)	Unicode; 1-4000 characters	2n Bytes	
nvarchar(n)	Unicode; 1-4000 characters	2Char+2 Bytes	
ntext	Unicode; 1-1,073,741,823 characters	2Char Bytes	Depreciated
nvarchar(max)	Unicode; 1-1,073,741,823 characters	2Char Bytes	

Binary strings

Data type	Use when
binary	Sizes are consistent
varbinary	Sizes vary considerably
varbinary(max)	More than 8000 bytes

Other data types

Data type	Note
cursor	
geography	
geometry	
hierarchyid	
rowversion	
sql_variant	
table	
uniqueidentifier	Unique value using NEWID or NEWSEQUENTIALID
xml	XML data