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Part 29 –Mathematical functions

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In this session we will learn

- Mathematical functions
- Abs
- Ceiling
- Floor
- Power
- Rand
- Square
- Sqrt
- Round

Mathematical Functions

ABS (numeric_expression) - ABS stands for absolute and returns, the absolute (positive) number.

```
Select ABS(-101.5) -- returns 101.5, without the - sign
```

CEILING (numeric_expression) and FLOOR (numeric_expression)

CEILING and FLOOR functions accept a numeric expression as a single parameter. CEILING() returns the smallest integer value greater than or equal to the parameter, whereas FLOOR() returns the largest integer less than or equal to the parameter.

```
Select CEILING(15.2) -- Returns 16
Select CEILING(-15.2) -- Returns -15

Select FLOOR(15.2) -- Returns 15
Select FLOOR(-15.2) -- Returns -16
```

Power(expression, power)

Returns the power value of the specified expression to the specified power.

```
Select POWER(2,3) -- Returns 8
```

SQUARE (Number)

Returns the square of the given number.

```
Select SQUARE(9) -- Returns 81
```

SQRT (Number)

Returns the square root of the given number

```
Select SQRT(81) -- Returns 9
```

RAND() function

RAND([Seed_Value]) - Returns a random float number between 0 and 1. Rand() function takes an optional seed parameter. When seed value is supplied the RADN() function always returns the same value for the same seed.

```
Select RAND(1) -- Always returns the same value
```

Generate a random number between 1 and 100

```
Select FLOOR(RAND() * 100)
```

Prints 10 random numbers between 1 and 100.

```
Declare @Counter INT
Set @Counter = 1
While(@Counter <= 10)
Begin
    Print FLOOR(RAND() * 100)
    Set @Counter = @Counter + 1
End
```

ROUND() function

ROUND (numeric_expression , length [,function]) - Rounds the given numeric expression based on the given length. This function takes 3 parameters.

1. Numeric_Expression is the number that we want to round.

2. Length parameter, specifies the number of the digits that we want to round to. If the length is a positive number, then the rounding is applied for the decimal part, where as if the length is negative, then the rounding is applied to the number before the decimal.

3. The optional function parameter, is used to indicate rounding or truncation operations. 0 indicates rounding, non zero indicates truncation. Default, if not specified is 0.

```
-- Round to 2 places after (to the right) the decimal point
Select ROUND(850.556, 2) -- Returns 850.560

-- Truncate anything after 2 places, after (to the right) the decimal point
Select ROUND(850.556, 2, 1) -- Returns 850.550

-- Round to 1 place after (to the right) the decimal point
Select ROUND(850.556, 1) -- Returns 850.600

-- Truncate anything after 1 place, after (to the right) the decimal point
Select ROUND(850.556, 1, 1) -- Returns 850.500

-- Round the last 2 places before (to the left) the decimal point
Select ROUND(850.556, -2) -- 900.000

-- Round the last 1 place before (to the left) the decimal point
Select ROUND(850.556, -1) -- 850.000
```

Additional Resources

- PRAGIM Home Page:
  - http://www.PragimTech.com
- Resources:
  - ASP.NET Interview Questions
  - http://www.VenkatASPInterview.Blogspot.com
  - C# Interview Questions
  - http://www.VenkatCSharpInterview.Blogspot.com

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