GUID (Global Unique Identifier) Tutorial

A **GUID** (Global Unique Identifier) or **UUID** (Universally Unique Identifier) is a 128-bit value used to uniquely identify objects, records, or entities across space and time. It is typically represented as a sequence of hexadecimal characters divided into five groups.

Here are some examples of GUIDs:

```
126D303F-86EF-4146-97A7-1C3A0CF479D1
029CCAB8-6D20-460D-BE07-55DBE8A197C3
7D482457-ED71-4BCF-937C-3D71067B339C
E0367B22-60CA-402E-A140-0B14E9F04F31
FB54D770-AD8C-47E5-A258-D300C1B1C4B8
```

C# Example: Generating GUIDs

```
using System;

namespace GUID_Sample_In_CSharp
{
    internal class Program
    {
        static void Main(string[] args)
        {
            for (short i = 1; i <= 10; i++)
            {
                Guid GuidNumber = Guid.NewGuid();
                Console.WriteLine(GuidNumber);
            }

            Console.ReadKey();
        }
    }
}
```

SQL Server Example: Using GUIDs

```
-- Generate a GUID
SELECT NEWID();

-- Randomize employees order by GUID
SELECT * FROM Employees
ORDER BY NEWID();
```

How does ORDER BY NEWID() randomize rows?

Each time you call **NEWID()**, SQL Server generates a new GUID for every row in the result set. When you sort by these GUIDs, the order appears random because GUIDs are essentially unpredictable values.

EmployeeID	FirstName	Generated GUID	Order

1	Alice	A7F2-91C2-...	3
2	Bob	5D8E-12AB-...	1
3	Charlie	C4F7-88DE-...	4
4	Diana	9B23-67FA-...	2

Key Points to Remember: - GUID and UUID are two names for the same concept: a globally unique identifier. - They can be generated in almost every programming language and database system. - In SQL Server, `ORDER BY NEWID()` can be used to randomize result sets efficiently. - The probability of two identical GUIDs colliding is astronomically low, making them ideal for unique identifiers.