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| **Single() / SingleOrDefault()** | **First () / FirstOrDefault()** |
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| **Single()** - There is exactly 1 result, an exception is thrown if no result is returned or more than one result.  **SingleOrDefault()** – Same as Single(), but it can handle the null value. | **First()** - There is at least one result, an exception is thrown if no result is returned.  **FirstOrDefault()** - Same as First(), but not thrown any exception or return null when there is no result. |
| Single() asserts that one and only one element exists in the sequence. | First() simply gives you the first one. |
| When to use  Use Single / SingleOrDefault() when you sure there is only one record present in database or you can say if you querying on database with help of primary key of table. | When to use  Developer may use First () / FirstOrDefault() anywhere,  when they required single value from collection or database. |
| Single() or SingleOrDefault() will generate a regular TSQL like "SELECT ...". | The First() or FirstOrDefault() method will generate the TSQL statment like "SELECT TOP 1..." |
| In the case of Fist / FirstOrDefault, only one row is retrieved from the database so it performs slightly better than single / SingleOrDefault. such a small difference is hardly noticeable but when table contain large number of column and row, at this time performance is noticeable. | |
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int[] intdata = { 1, 3, 6, 87, 9 };

var result2 = (from maxval in intdata orderby maxval descending select maxval).Distinct().Skip(0).Take(1);

int max2 = result2.SingleOrDefault();

string vowels = "aeiou";

List<string> words = new List<string>();

words.Add("dkjd");

words.Add("aaaaa");

words.Add("iii");

words.Add("tttt");

words.Add("pppp");

var vowelwords = words.Where(word => word.All(d => vowels.Contains(d))).ToList();

// Your words go in here

List<string> words;

// is vowelled a word?

var vowelledWords = words.Where(w => Regex.IsMatch(w, "([aeiou])|([A-Za-z]y)"));