



# Spring Framework 7

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Beginner to Guru

What is Paging and Sorting?



## What is Paging and Sorting?

- Paging and Sorting refer to techniques for dealing with lists of data
- Paging is also referred to pagination
- For example searching on the web:
  - First page is 25 results of thousands
  - Data on first page is ordered by “best search match”
- Clicking on next page says:
  - Give me the second page of the sorted data





## Paging in SQL

- By default most SQL databases will return the full data set for a query
- Most GUI tools will set a default limit
- Large record sets can become problematic for performance and memory utilization
  - Large meaning hundreds of thousands or millions of records
- In SQL the `limit` clause is used to limit the number of records returned
- In SQL the `offset` clause is used to move the starting point of the record set
- Second page of 25 would be `limit 25 offset 25`





## Sorting in SQL

- By default most SQL databases will not sort data
- When no sort is specified the order returned is not guaranteed to be the same query to query
  - Often the order will be the same, but beware it can change!
- Sorting is controlled by via the SQL order by clause
- One or more columns can be specified with sort order (asc or desc)
- Default order is ascending
- Example: `ORDER BY beerName ASC`





## Paging and Sorting with Spring Data JPA

- Spring Data JPA provides robust support for paging and sorting
- Spring Data JPA does not have a default limit on records returned
- Spring Data JPA does not set a default sort
- Only limit is memory of the JVM
- Returning several million records in a JSON response will consume a lot of memory
  - Possibly crashing the application
- Best practice is to set default limits for the number of records returned





