Cheat sheet: JPA Repositories Query Creation

The following table describes the keywords supported for JPA and what a method containing that keyword translates to:

Table 3. Supported keywords inside method names		
Keyword	**Sample**	**JPQL snippet**
`Distinct`	`findDistinctByLastnameAndFirstname`	`select distinct … where x.lastname = ?1 and x.firstname = ?2`
`And`	`findByLastnameAndFirstname`	`… where x.lastname = ?1 and x.firstname = ?2`
`Or`	`findByLastnameOrFirstname`	`… where x.lastname = ?1 or x.firstname = ?2`
`Is, Equals`	`findByFirstname,findByFirstnameIs,findByFirstnameEquals`	`… where x.firstname = ?1`
`Between`	`findByStartDateBetween`	`… where x.startDate between ?1 and ?2`
`LessThan`	`findByAgeLessThan`	`… where x.age < ?1`
`LessThanEqual`	`findByAgeLessThanEqual`	`… where x.age <= ?1`
`GreaterThan`	`findByAgeGreaterThan`	`… where x.age > ?1`
`GreaterThanEqual`	`findByAgeGreaterThanEqual`	`… where x.age >= ?1`

Table 3. Supported keywords inside method names

Keyword	Sample	JPQL snippet
`After`	`findByStartDateAfter`	`… where x.startDate > ?1`
`Before`	`findByStartDateBefore`	`… where x.startDate < ?1`
`IsNull`, `Null`	`findByAge(Is)Null`	`… where x.age is null`
`IsNotNull`, `NotNull`	`findByAge(Is)NotNull`	`… where x.age not null`
`Like`	`findByFirstnameLike`	`… where x.firstname like ?1`
`NotLike`	`findByFirstnameNotLike`	`… where x.firstname not like ?1`
`StartingWith`	`findByFirstnameStartingWith`	`… where x.firstname like` `?1` (parameter bound with appended %)
`EndingWith`	`findByFirstnameEndingWith`	`… where x.firstname like` `?1` (parameter bound with prepended %)
`Containing`	`findByFirstnameContaining`	`… where x.firstname like` `?1` (parameter bound wrapped in %)
`OrderBy`	`findByAgeOrderByLastnameDesc`	`… where x.age = ?1 order by` `x.lastname desc`

Table 3. Supported keywords inside method names

Keyword	Sample	JPQL snippet
Not	findByLastnameNot	… where x.lastname <> ?1
In	findByAgeIn(Collection<Age> ages)	… where x.age in ?1
NotIn	findByAgeNotIn(Collection<Age> ages)	… where x.age not in ?1
True	findByActiveTrue()	… where x.active = true
False	findByActiveFalse()	… where x.active = false
IgnoreCase	findByFirstnameIgnoreCase	… where UPPER(x.firstname) = UPPER(?1)

Repository query keywords

Supported query method subject keywords

The following table lists the subject keywords generally supported by the Spring Data repository query derivation mechanism to express the predicate. Consult the store-specific documentation for the exact list of supported keywords, because some keywords listed here might not be supported in a particular store.

Table 8. Query subject keywords

Keyword	Description
find…By, read…By, get…By, query…By, search…By, stream…By	General query method returning typically the repository type, a `Collection` or `Streamable` subtype or a result wrapper such as `Page`, `GeoResults` or any other store-specific result wrapper. Can be used as `findBy…`, `findMyDomainTypeBy…` or in combination with additional keywords.
exists…By	Exists projection, returning typically a `boolean` result.
count…By	Count projection returning a numeric result.
delete…By, remove…By	Delete query method returning either no result (`void`) or the delete count.
…First<number>…, …Top<number>…	Limit the query results to the first <number> of results. This keyword can occur in any place of the subject between `find` (and the other keywords) and by.
…Distinct…	Use a distinct query to return only unique results. Consult the store-specific documentation whether that feature is supported. This keyword can occur in any place of the subject between `find` (and the other keywords) and by.

Supported query method predicate keywords and modifiers

The following table lists the predicate keywords generally supported by the Spring Data repository query derivation mechanism. However, consult the store-specific documentation for the exact list of supported keywords, because some keywords listed here might not be supported in a particular store.

Table 9. Query predicate keywords	
Logical keyword	**Keyword expressions**
AND	And
OR	Or
AFTER	After, IsAfter
BEFORE	Before, IsBefore
CONTAINING	Containing, IsContaining, Contains
BETWEEN	Between, IsBetween
ENDING_WITH	EndingWith, IsEndingWith, EndsWith
EXISTS	Exists
FALSE	False, IsFalse

Table 9. Query predicate keywords

Logical keyword	Keyword expressions
GREATER_THAN	GreaterThan, IsGreaterThan
GREATER_THAN_EQUALS	GreaterThanEqual, IsGreaterThanEqual
IN	In, IsIn
IS	Is, Equals, (or no keyword)
IS_EMPTY	IsEmpty, Empty
IS_NOT_EMPTY	IsNotEmpty, NotEmpty
IS_NOT_NULL	NotNull, IsNotNull
IS_NULL	Null, IsNull
LESS_THAN	LessThan, IsLessThan
LESS_THAN_EQUAL	LessThanEqual, IsLessThanEqual
LIKE	Like, IsLike
NEAR	Near, IsNear

Table 9. Query predicate keywords

Logical keyword	Keyword expressions
NOT	Not, IsNot
NOT_IN	NotIn, IsNotIn
NOT_LIKE	NotLike, IsNotLike
REGEX	Regex, MatchesRegex, Matches
STARTING_WITH	StartingWith, IsStartingWith, StartsWith
TRUE	True, IsTrue
WITHIN	Within, IsWithin

In addition to filter predicates, the following list of modifiers is supported:

Table 10. Query predicate modifier keywords

Keyword	Description
IgnoreCase, IgnoringCase	Used with a predicate keyword for case-insensitive comparison.
AllIgnoreCase, AllIgnoringCase	Ignore case for all suitable properties. Used somewhere in the query method predicate.

Table 10. Query predicate modifier keywords	
Keyword	**Description**
`OrderBy…`	Specify a static sorting order followed by the property path and direction (e. g. `OrderByFirstnameAscLastnameDesc`).

Repository query return types

Supported Query Return Types

The following table lists the return types generally supported by Spring Data repositories. However, consult the store-specific documentation for the exact list of supported return types, because some types listed here might not be supported in a particular store.

Table 11. Query return types (incomplete)	
Return type	**Description**
`void`	Denotes no return value.
Primitives	Java primitives.
Wrapper types	Java wrapper types.

Table 11. Query return types (incomplete)

Return type	Description
T	A unique entity. Expects the query method to return one result at most. If no result is found, `null` is returned. More than one result triggers an `IncorrectResultSizeDataAccessException`.
Iterator<T>	An `Iterator`.
Collection<T>	A `Collection`.
List<T>	A `List`.
Optional<T>	A Java 8 or Guava `Optional`. Expects the query method to return one result at most. If no result is found, `Optional.empty()` or `Optional.absent()` is returned. More than one result triggers an `IncorrectResultSizeDataAccessException`.