

Index with JPA

,
IO .
” .
, / JPA .

Primary Key

- :
- null
 -
 - .
- JPA Id .

JPA Entity	SQL-DDL
<pre>@Entity public class Project { @Id @GeneratedValue(strategy = GenerationType.AUTO) private Integer id; }</pre>	<pre>CREATE TABLE `project` (`id` int(11) NOT NULL, PRIMARY KEY (`id`)) ENGINE=InnoDB DEFAULT CHARSET=utf8</pre>

- :
- : (ex.)
 - : ()
- .

GenerationType.)

\$F AUTO : GenerationType - GenerationType

\$F IDENTITY : GenerationType - GenerationType

\$F SEQUENCE : GenerationType - GenerationType

\$F TABLE : GenerationType - GenerationType

- AUTO : JPA DB ()
- IDENTITY : Insert , (JPA)
- SEQUENCE : DB

- TABLE : SEQUENCE DB , TABLE

/ SQL .

JPA , .

, , .

DB .

.

, .

, DateType

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.(DB)

DBMS , IO

, / ? .

- + : .
- + : + .

, JPA .

Row Entity .

, EmbeddedId .

JPA	SQL-DDL
<pre>@Entity public class Project2 { @EmbeddedId ProjectId id; }</pre>	<pre>CREATE TABLE `project2` (`branchName` varchar(255) NOT NULL, `projectId` int(11) NOT NULL, PRIMARY KEY (`branchName`,`projectId`)) ENGINE=InnoDB DEFAULT CHARSET=utf8</pre>

```

@Embeddable
public class ProjectId
implements Serializable {
    int projectId;
    String branchName;

    public ProjectId(int
projectId, String branchName) {
        this.projectId
= projectId;
        this.branchName
= branchName;
    }

    @Override
    public int hashCode() {
        final int prime
= 31;
        int result = 1;
        result = prime
* result
+ ((branchName == null) ? 0 :
branchName.hashCode());
        result = prime
* result + projectId;
        return result;
    }

    @Override
    public boolean equals
(Object obj) {
        if (this == obj)
return
true;
        if (obj == null)
return
false;
        if (getClass() !
= obj.getClass())
return
false;
        ProjectId other
= (ProjectId) obj;
        if (branchName
== null) {
            if
(other.branchName != null)
return false;
        } else if (!
branchName.equals(other.
branchName))
return
false;
        if (projectId !
= other.projectId)
return
false;
        return true;
    }
}

```

Indexes in Table

Key	Type	Uni...	Columns
PRIMARY	BTREE	YES	branchName, projectId

Index Details

Key Name: **PRIMARY**
Index Type: **BTREE (cluster**
Allows NULL:
Cardinality: **0**
Comment:
User Comment:

Clustered Index(BTREE)

branchname filter

JPA BTREE,Clusted .

DBMS

DB , .

JPA ,JPA Repository

ProjectID .

- ProjectID (DB)
- : hashCode()

- : equals()

JPA ,
JPA PROXY/

JPA
ProjectId(projectid,branchname)
(DB) .



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()

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- : .
- : , .

Entity

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```
@Entity
@Table(indexes = {
    @Index(name = "IDX_MYIDX1", unique=true, columnList = "idxf1,idxf2"),
    @Index(name = "IDX_MYIDX2", unique=false, columnList = "idxf3,idxf4")
})
public class EntityWithCompositeIndex {
    @Id
    private long id;

    @Column(name="idxf1",unique=true)
    private String idxf1;

    @Column(name="idxf2",unique=true)
    private int idxf2;

    @Column(name="idxf3",unique=true)
    private int idxf3;

    @Column(name="idxf4",unique=false)
    private int idxf4;
}
```

Indexes in Table				Index Details	
Key	Type	Uni...	Columns		
▶ IDX_MYIDX1	BTREE	YES	idxf1, idxf2	Key Name: IDX_MYIDX1	
▶ UK_7vitqwfue7jsir95lnw8o9plx	BTREE	YES	idxf1	Index Type: BTREE	Packed:
▶ UK_dm9vacr7d26t1qv7s1oeiwt3b	BTREE	YES	idxf2	Allows NULL: YES	Unique: YES
▶ UK_13ry5p17ghlho1mrns6yurbe4	BTREE	YES	idxf3	Cardinality: 0	
▶ IDX_MYIDX2	BTREE	NO	idxf3, idxf4	Comment:	
				User Comment:	

Columns in table			
Column	Type	Nullable	Indexes
◊ id	bigint(20)	NO	PRIMARY
◊ idxf1	varchar(255)	YES	IDX_MYIDX1, UK_7vitqwfue7jsir95lnw8o9plx
◊ idxf2	int(11)	YES	IDX_MYIDX1, UK_dm9vacr7d26t1qv7s1oeiwt3b
◊ idxf3	int(11)	YES	UK_13ry5p17ghlho1mrns6yurbe4, IDX_MYIDX2
◊ idxf4	int(11)	YES	IDX_MYIDX2

(IDX_MYIDX1,2) , 3 . Unique=true

. Unique . (Entity Unique .)

SQL DDL

```
CREATE TABLE `entitywithcompositeindex` (
  `id` bigint(20) NOT NULL,
  `idxf1` varchar(255) DEFAULT NULL,
  `idxf2` int(11) DEFAULT NULL,
  `idxf3` int(11) DEFAULT NULL,
  `idxf4` int(11) DEFAULT NULL,
  PRIMARY KEY (`id`),
  UNIQUE KEY `IDX_MYIDX1` (`idxf1`,`idxf2`),
  UNIQUE KEY `UK_7vitqwfue7jsir95lnw8o9plx` (`idxf1`),
  UNIQUE KEY `UK_dm9vacr7d26t1qv7s1oeiwt3b` (`idxf2`),
  UNIQUE KEY `UK_13ry5p17ghlho1mrns6yurbe4` (`idxf3`),
  KEY `IDX_MYIDX2` (`idxf3`,`idxf4`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8
```

/ DBMS

, OOP Entity

<http://wiki.webnori.com/display/webfr/02-DBHANDLE+with+JPA#id-02-DBHANDLEwithJPA-JPARElation>