luv2code

Mapping Sets

Set

Collection of items that contains no duplicates

Use Case for Sets

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  - Only interested in membership … for yes/no decisions

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  - Membership: Is my name on the guest list?

Student and Images

Student and Images

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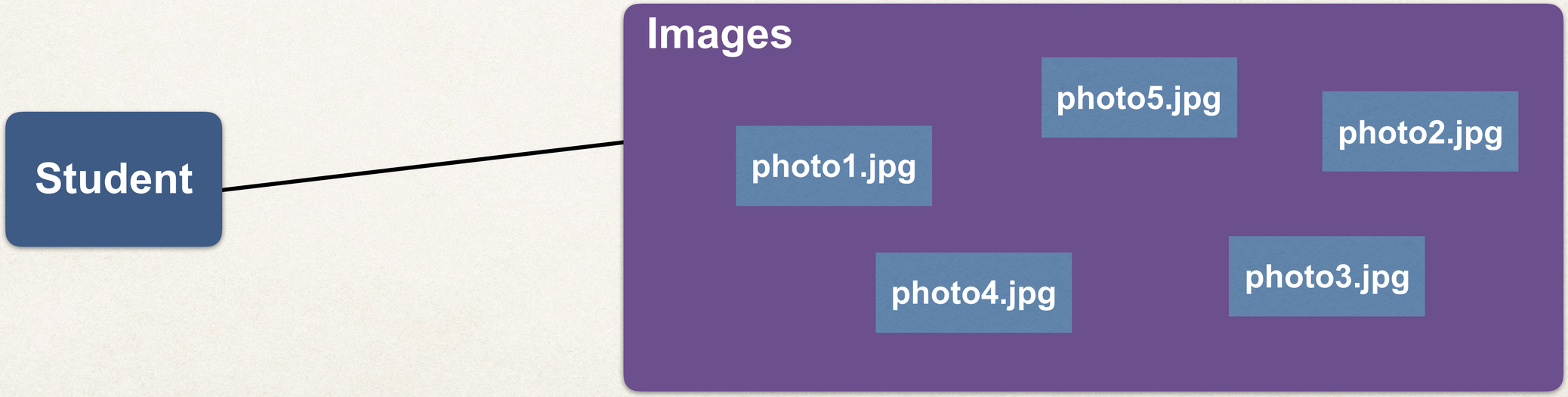
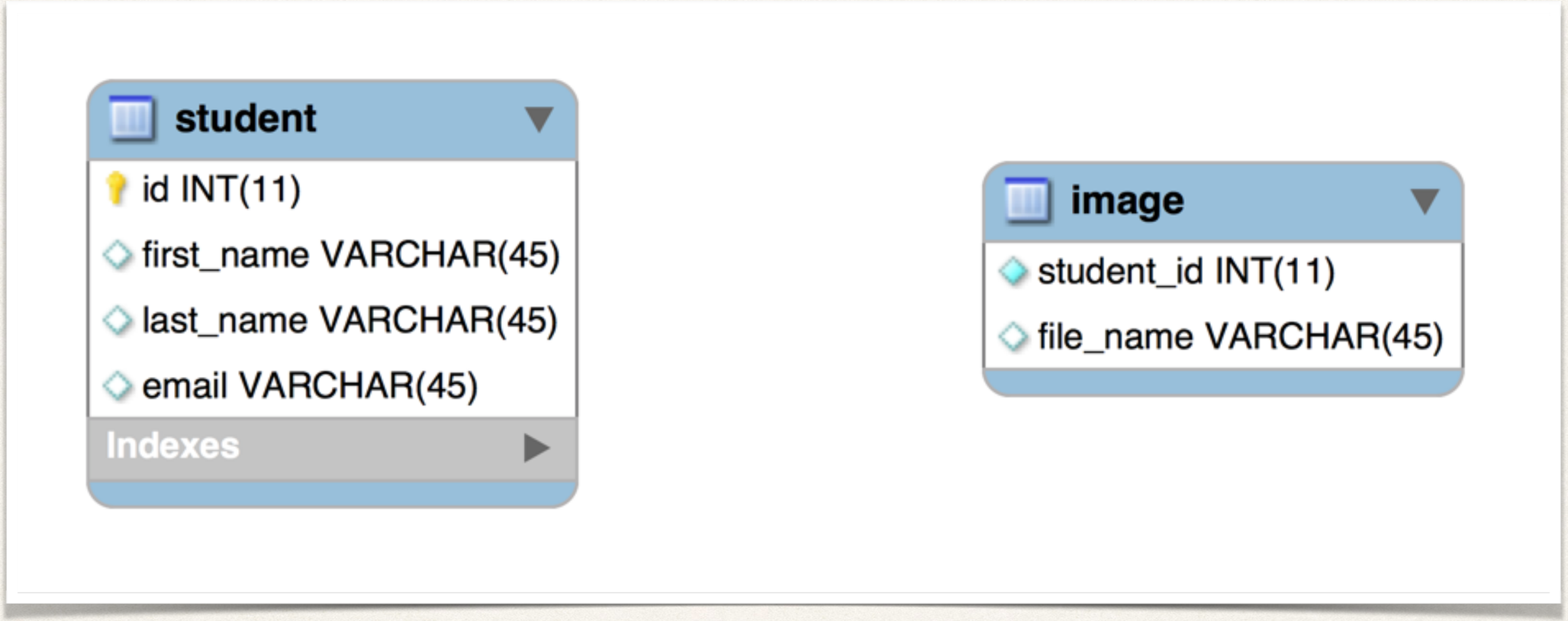


Database Diagram



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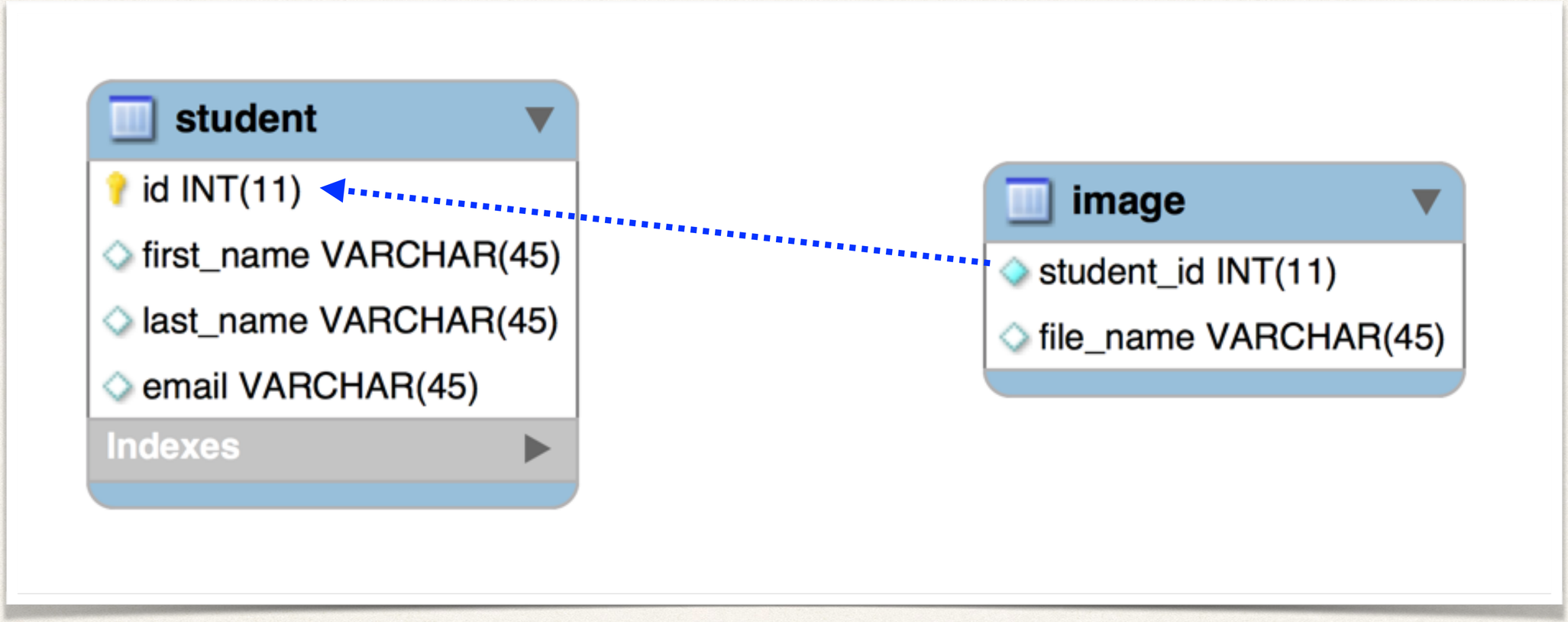

Development Process

Step-By-Step

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1. Create database tables

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2. Create Student entity

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Development Process

Step-By-Step

1. Create database tables

2. Create Student entity

3. Map the element collection

4. Develop the main application

Step 1: Create database tables: `student`

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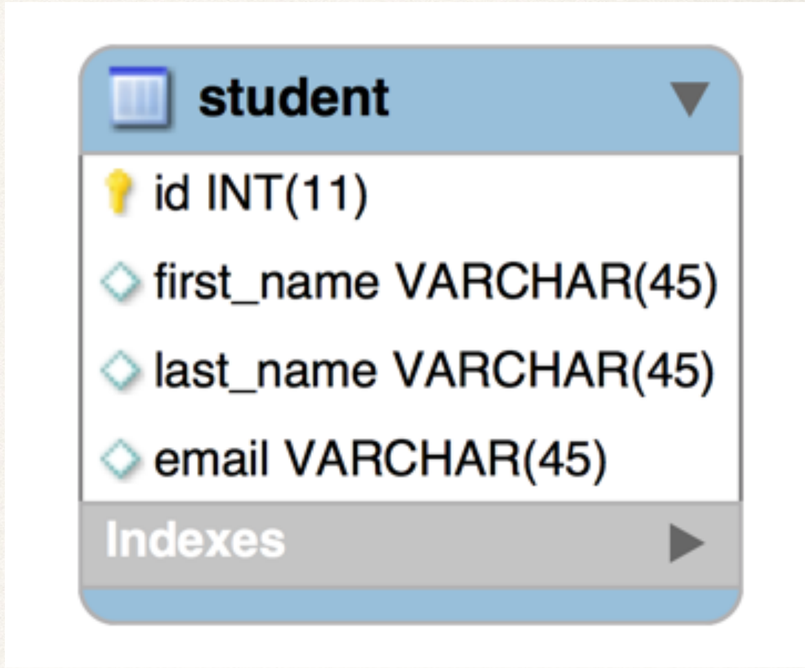


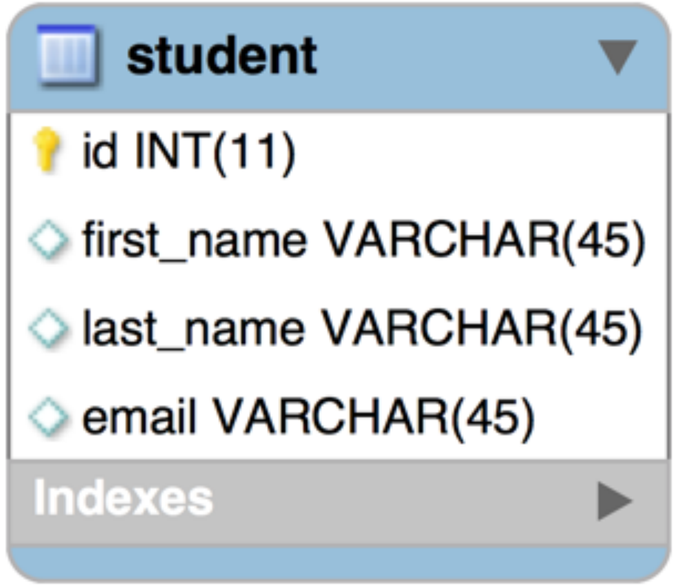
Step 1: Create database tables: `student`

File: hb_student_tracker_student.sql

```
CREATE TABLE student (

  id int(11) NOT NULL AUTO_INCREMENT,
  first_name varchar(45) DEFAULT NULL,
  last_name varchar(45) DEFAULT NULL,
  email varchar(45) DEFAULT NULL,

  PRIMARY KEY (id)
);
…
```



Step 1: Create database tables: `image`

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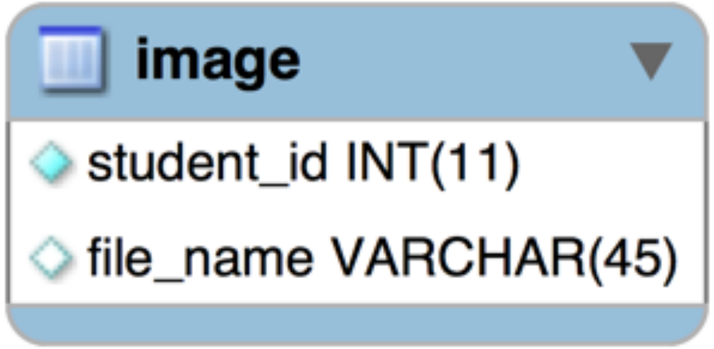


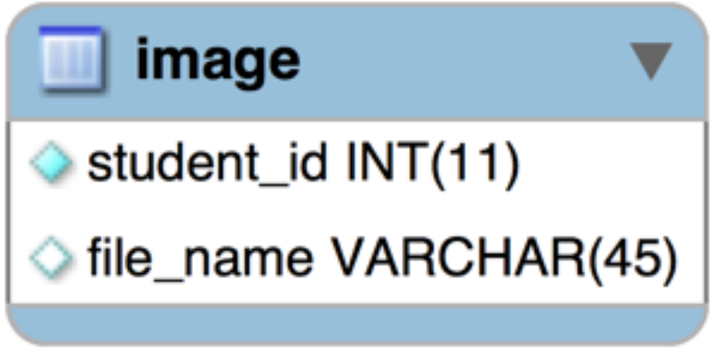
Step 1: Create database tables: `image`

File: hb_student_tracker_student.sql (continued)

```
…
CREATE TABLE image (

  student_id int(11) NOT NULL,
  file_name varchar(45) DEFAULT NULL

);
```



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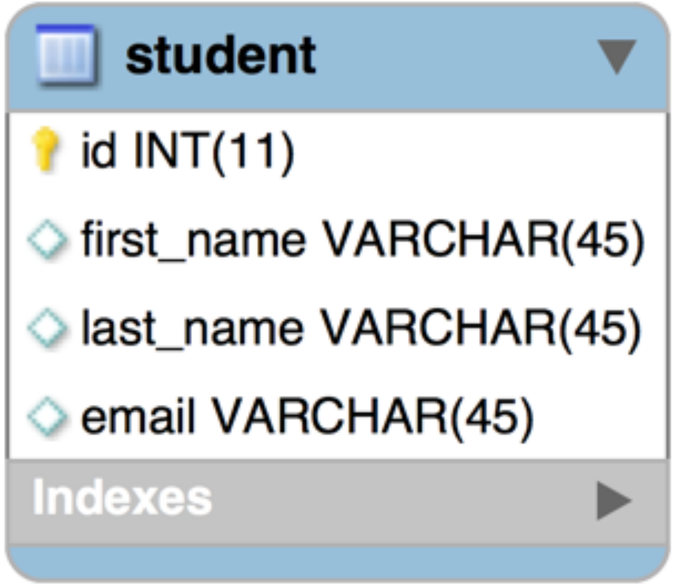

Step 2: Create Student entity

```
@Entity
@Table(name="student")
public class Student {

  @Id
  @GeneratedValue(strategy=GenerationType.IDENTITY)
  private int id;

  @Column(name="first_name")
  private String firstName;

  @Column(name="last_name")
  private String lastName;

  @Column(name="email")
  private String email;


  …
  // constructors, getters / setters
}
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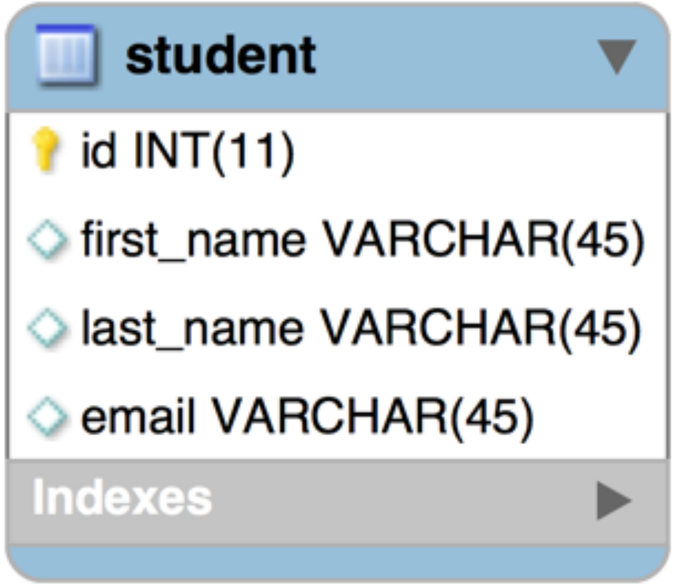

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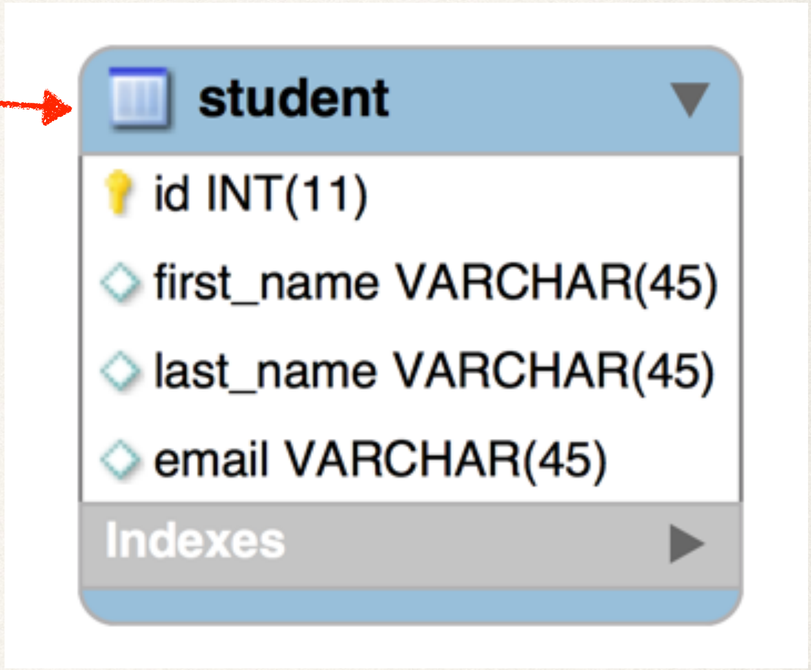

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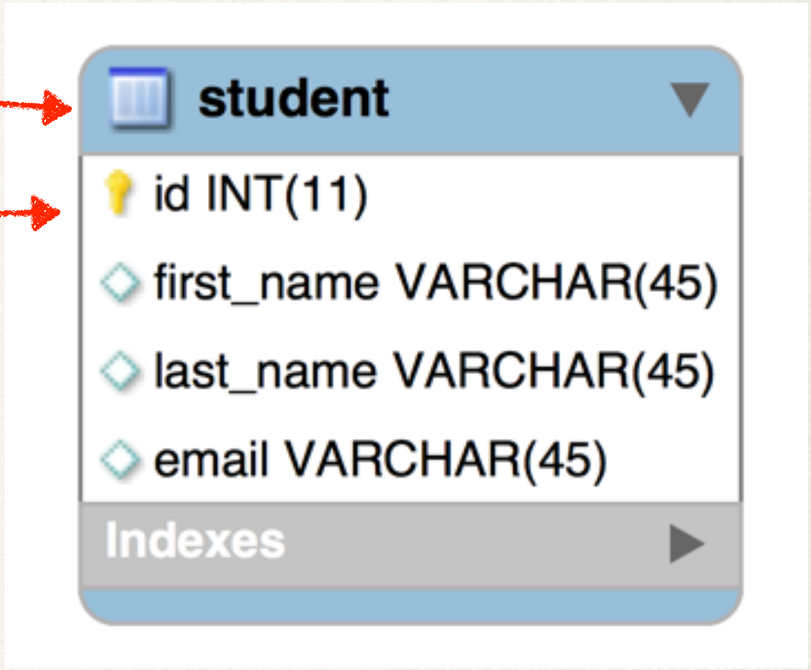

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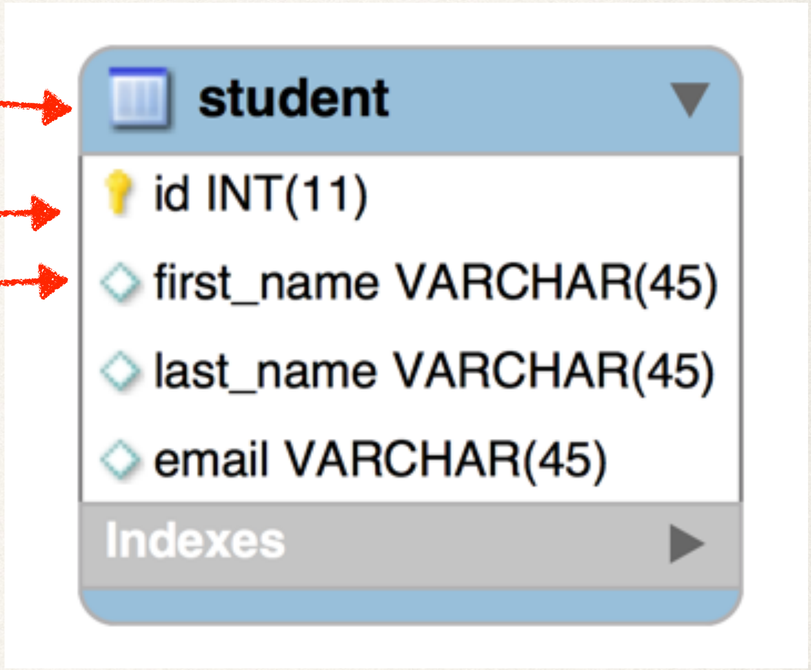

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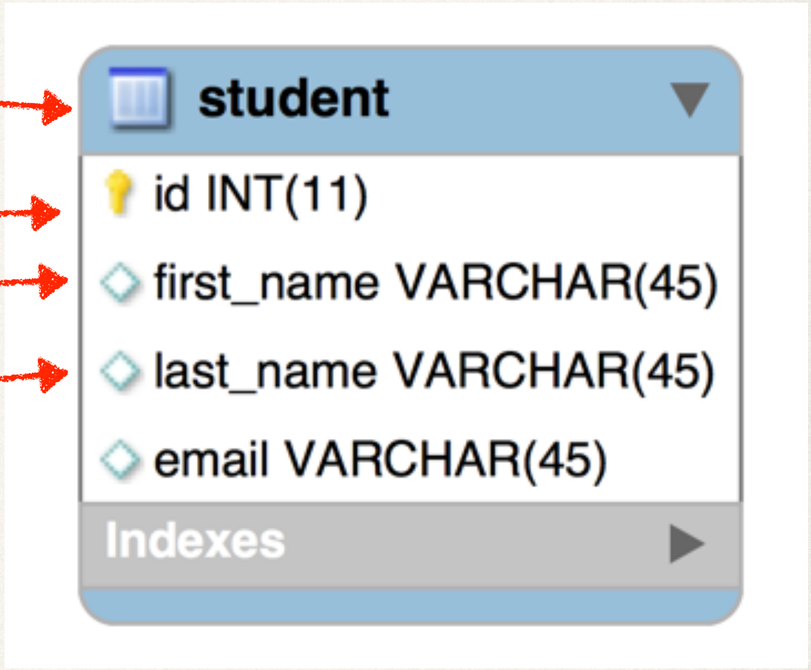

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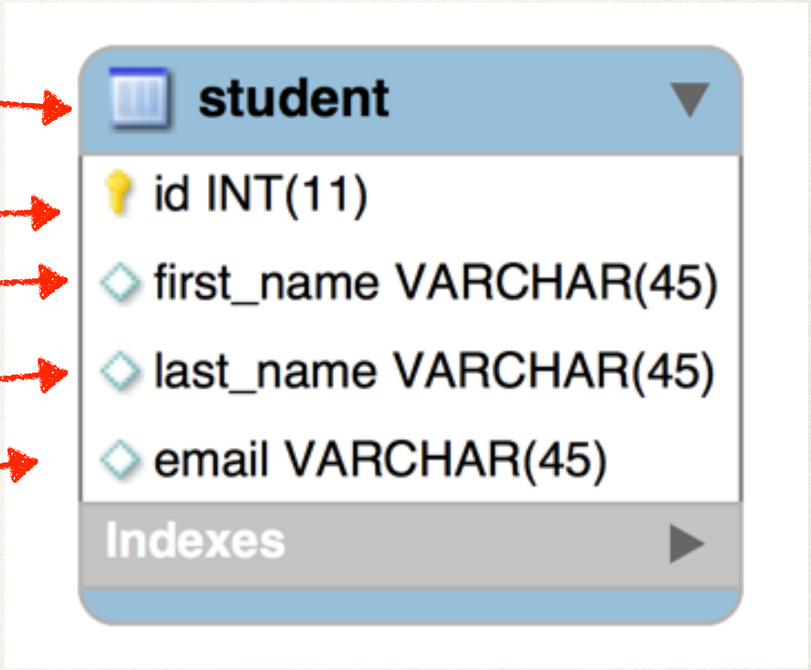

Step 3: Map the element collection

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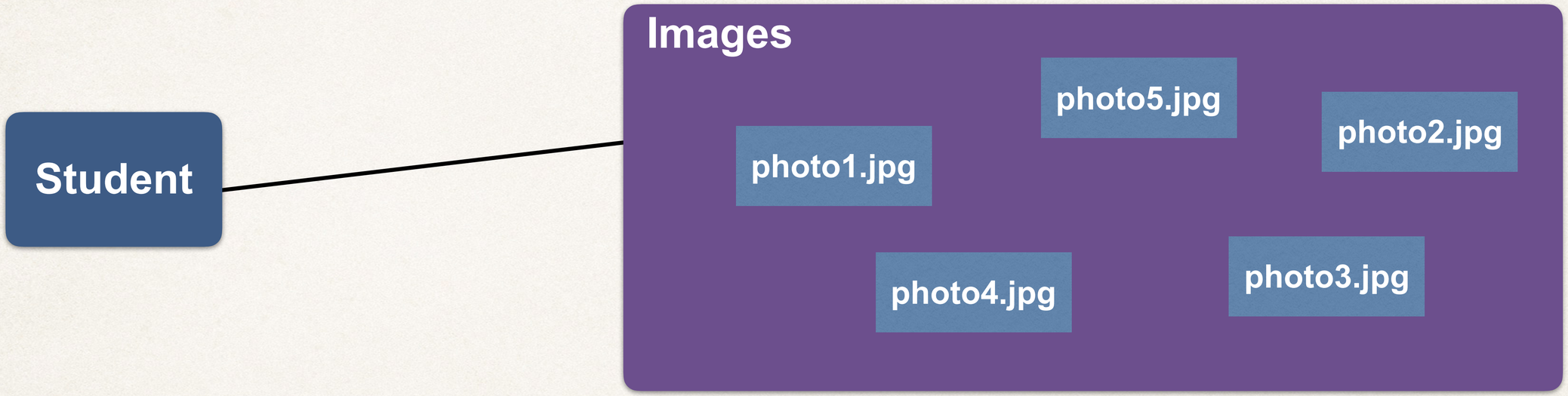

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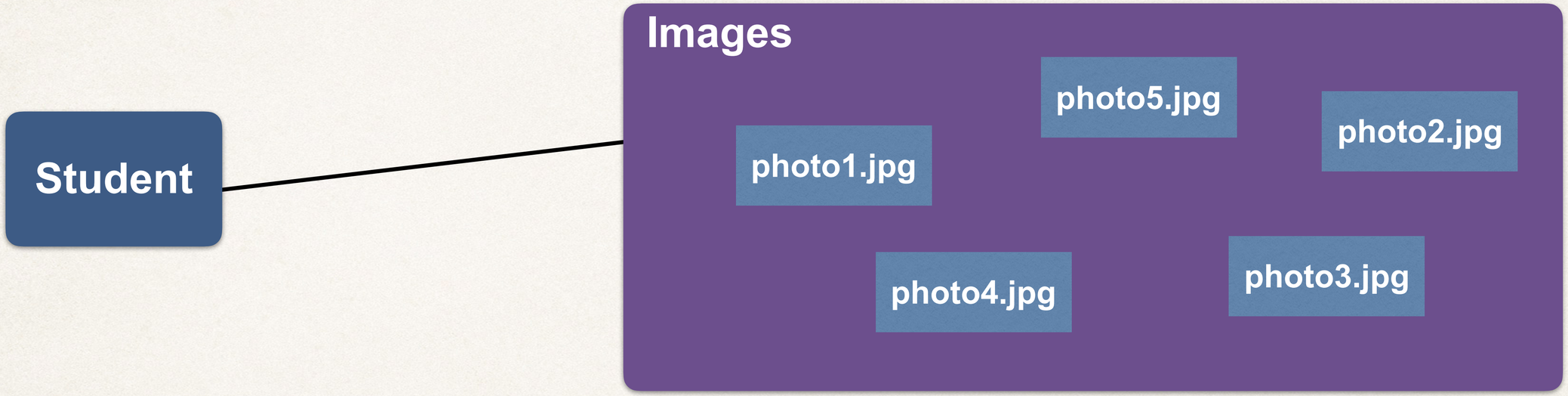


```
private Set<String> images = new HashSet<String>();
```

Annotations to Map Collections

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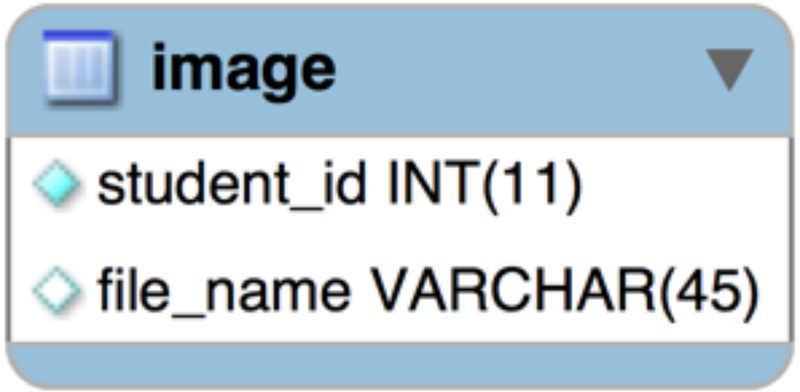
`@Column`	**The name of the column to map in the collection table.**

Mapping the Collection



Mapping the Collection

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@Entity
@Table(name="student")
public class Student {

  …

  private Set<String> images = new HashSet<String>();

  …
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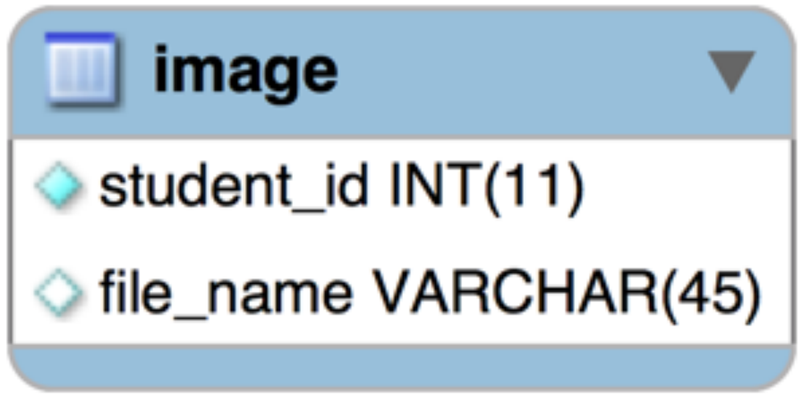

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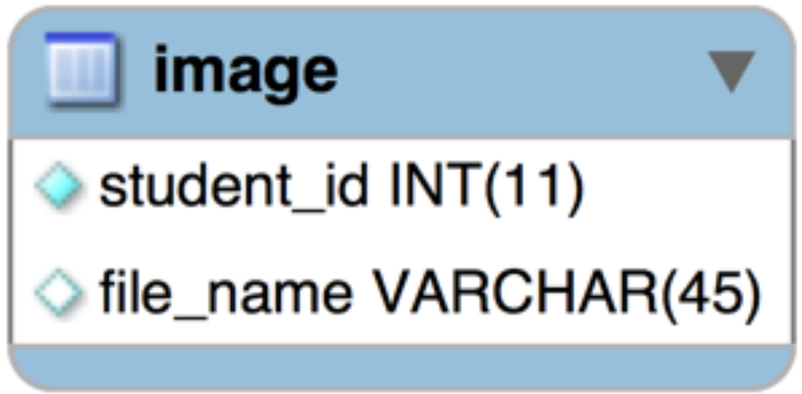

Use a **`Set`** to track image file names

Mapping the Collection

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@Table(name="student")
public class Student {

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  @ElementCollection
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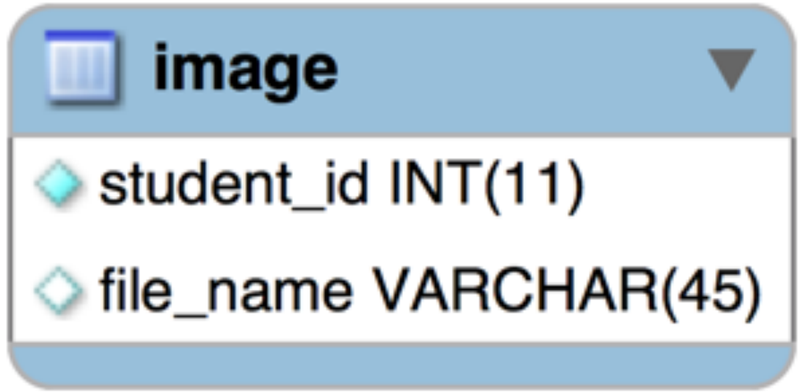
  private Set<String> images = new HashSet<String>();


  …
}
```



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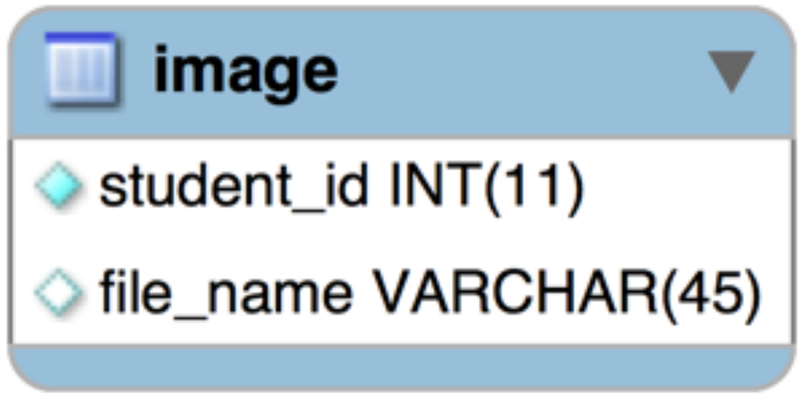
Tells Hibernate we are mapping a collection



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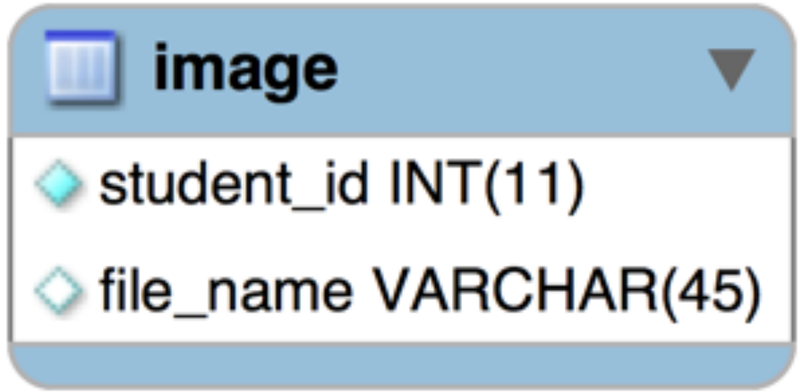

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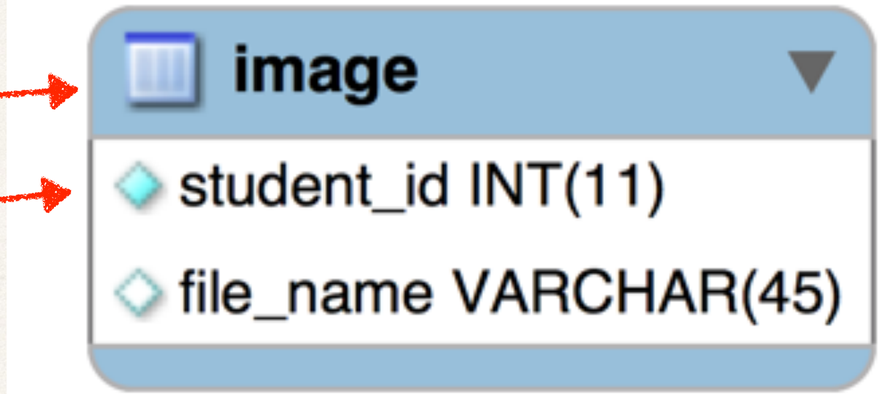

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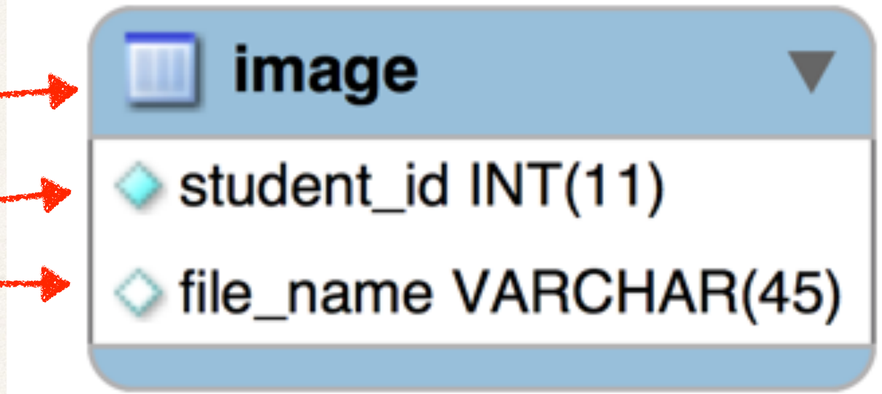

Step 4: Develop the main application

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```
…
// create the object
Student tempStudent =  new Student("Paul", "Wall", "paul@luv2code.com");
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// create the object
Student tempStudent =  new Student("Paul", "Wall", "paul@luv2code.com");
Set<String> theImages = tempStudent.getImages();
```

Get a reference
to the images collection

Step 4: Develop the main application

```
…
// create the object
Student tempStudent =  new Student("Paul", "Wall", "paul@luv2code.com");
Set<String> theImages = tempStudent.getImages();

theImages.add("photo1.jpg");
theImages.add("photo2.jpg");
theImages.add("photo3.jpg");
```

Now, let's add to the images collection

Step 4: Develop the main application

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// start a transaction
session.beginTransaction();
```

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// start a transaction
session.beginTransaction();

// save the object
System.out.println("Saving the student and images..");
session.persist(tempStudent);
```

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// start a transaction
session.beginTransaction();

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session.persist(tempStudent);

// commit the transaction
session.getTransaction().commit();
…
```

Run the App

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Console output

```
Hibernate: insert into student (email, first_name, last_name) values (?, ?, ?)
Hibernate: insert into image (student_id, file_name) values (?, ?)
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Table: student

id	first_name	last_name	email
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Let's Go Deep!

More Info - Mapping the Collection

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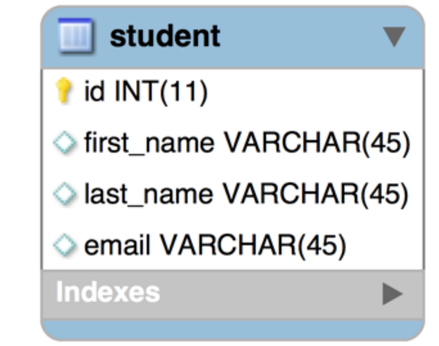

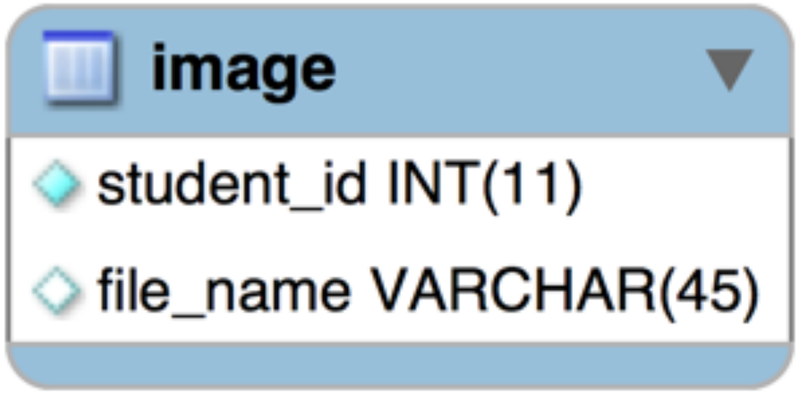

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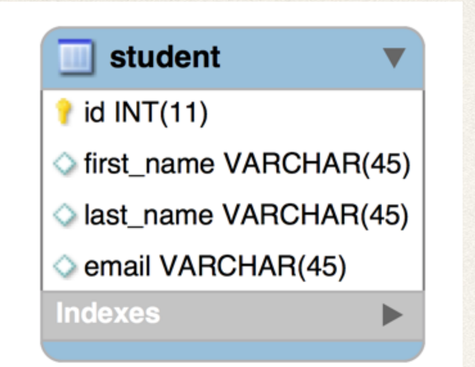
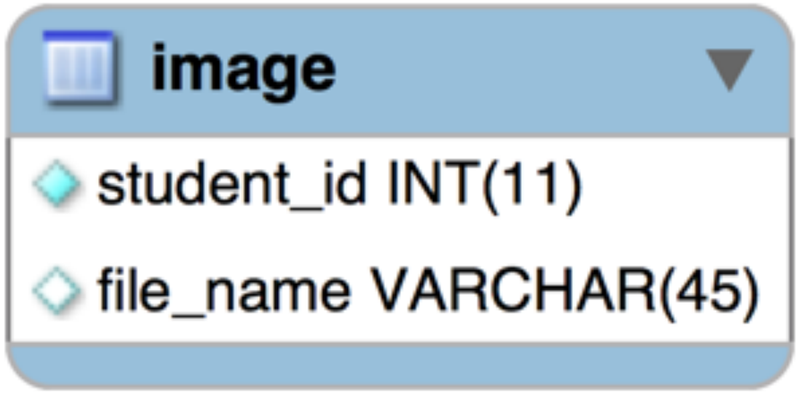
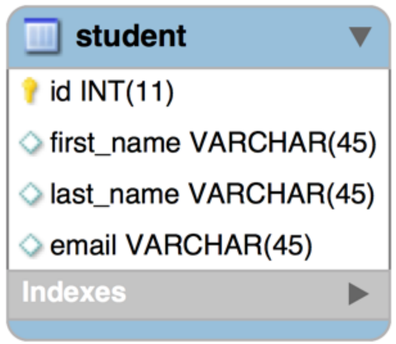
Tells Hibernate
we are mapping a collection





More Info - Mapping the Collection

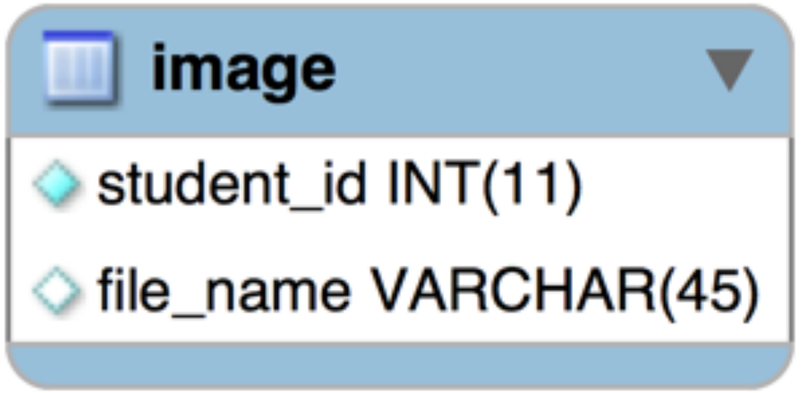



```
@Entity
@Table(name="student")
public class Student {



  @ElementCollection
  @CollectionTable(
      name="image",
      joinColumns= @JoinColumn(name="student_id"))
  @Column(name="file_name")
  private Set<String> images = new HashSet<String>();
```

The name of the collection table



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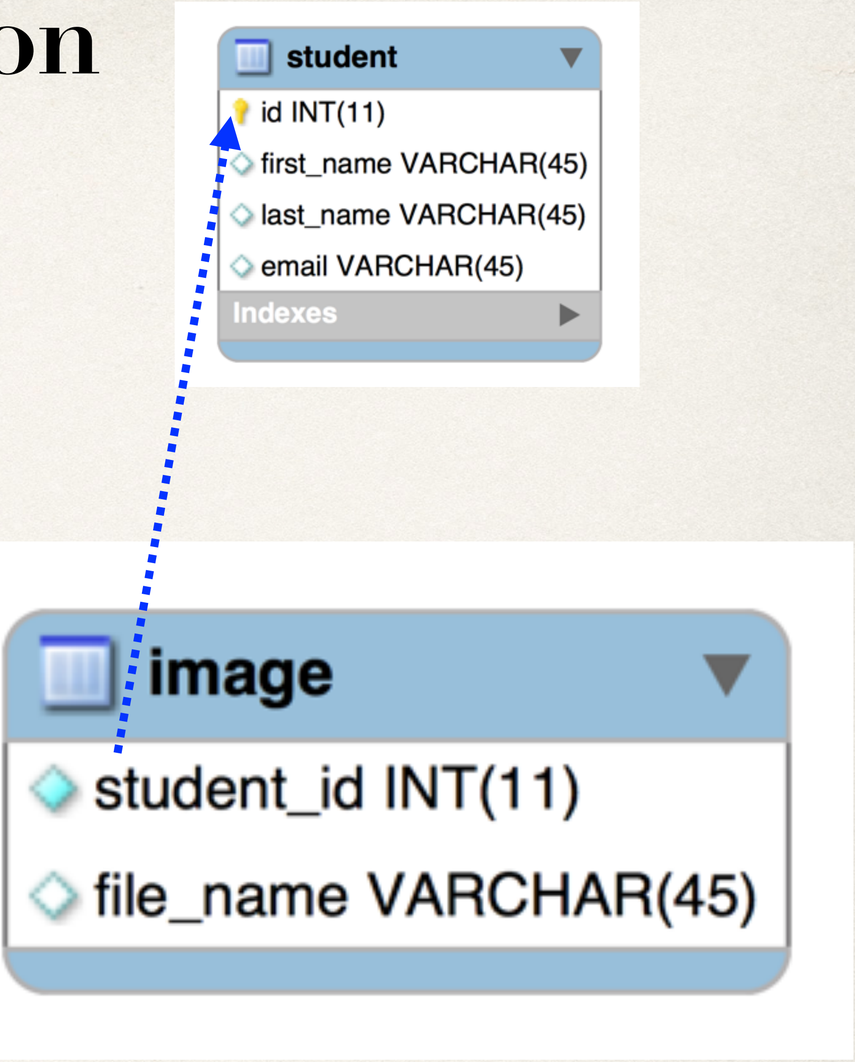
The column to join on



More Info - Mapping the Collection

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@Table(name="student")
public class Student {

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   private int id;

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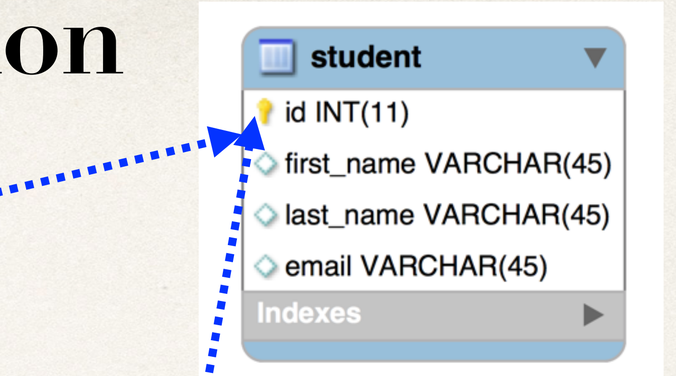
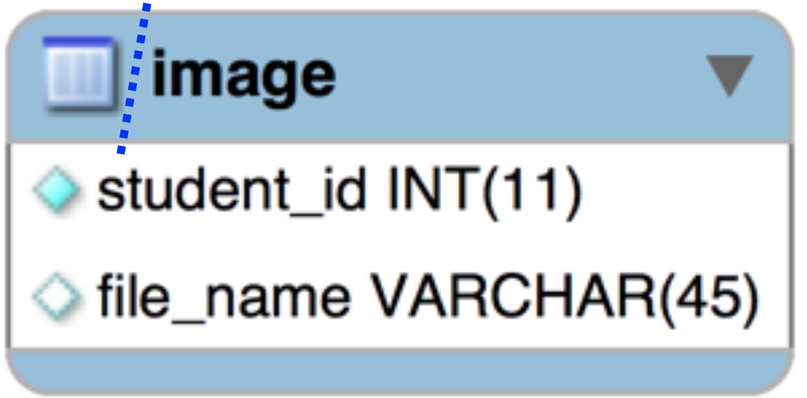
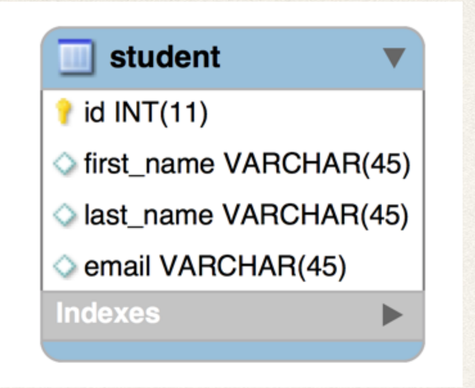
Based on our primary key
@Id: id

The column
to join on





More Info - Mapping the Collection

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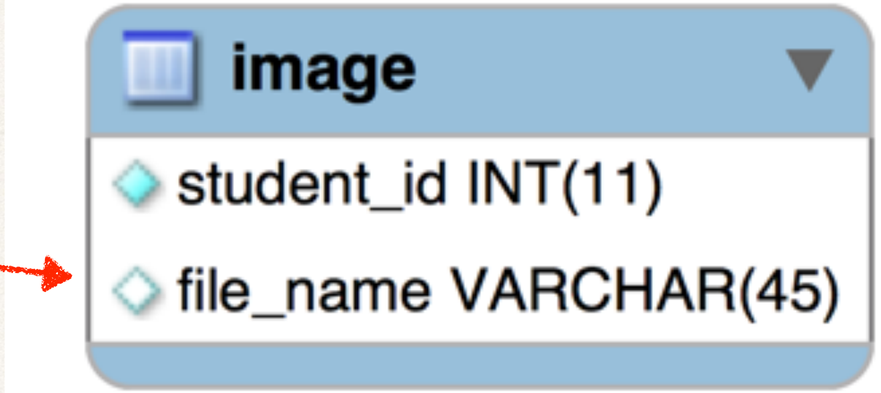

The column for the image file name

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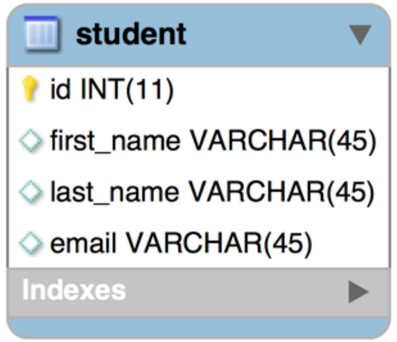

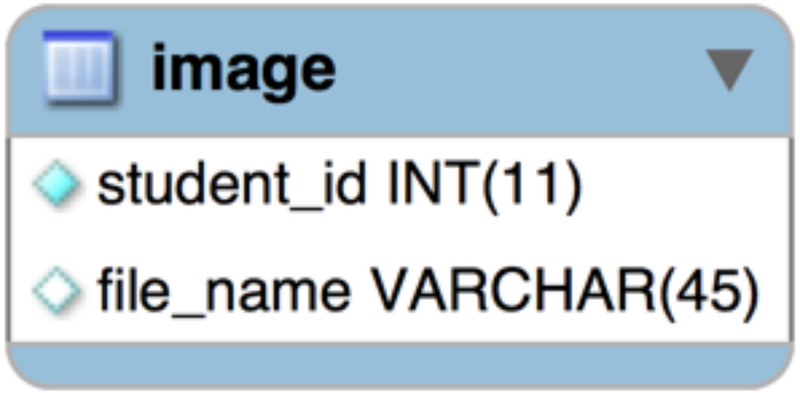

More on @ElementCollection

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- **`@ElementCollection`** can be used to define relationships

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  - One-to-many relationship to an **`@Embeddable`** object

More on @ElementCollection

We'll cover this later in the course

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    - `Date`, `String`, etc ...

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private Set<String> images = new HashSet<String>();
```

Hmmm …

How does this compare to @OneToMany???!!!

Compare @ElementCollection to @OneToMany

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- Similar to **`@OneToMany`** except target object is not an **`@Entity`**

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Collection of Strings

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Parent object:
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Compare @ElementCollection to @OneToMany

- Similar to **`@OneToMany`** except target object is not an **`@Entity`**

Parent object:
Student

Target object:
Collection of Strings

```
private Set<String> images = new HashSet<String>();
```

- Easy way to define a collection with simple/basic objects

Limitations on @ElementCollection

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- With **`@ElementCollection`**
  - You can't query, persist or merge target objects independently of their parent object

- **`@ElementCollection`** does not support a cascade option
  - Target objects are ALWAYS persisted, merged, removed with their parent object

Comparison

Comparison

	@ElementCollection	@OneToMany

Comparison

	@ElementCollection	@OneToMany
Query target objects independently of parent object	No	Yes

Comparison

	@ElementCollection	@OneToMany
Query target objects independently of parent object	No	Yes
Supports fine-grained cascading option	No	Yes

Comparison

Easy way to define a collection with simple/basic objects

	@ElementCollection	@OneToMany
Query target objects independently of parent object	No	Yes
Supports fine-grained cascading option	No	Yes