luv2code

Mapping - Maps

Map

An object that maps unique keys to values

Key is used to store and retrieve values

Can not contain duplicate keys

Use Case for Maps

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- Useful when you want to access data via a key rather than integer index

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- Examples

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  - Map of error codes and error messages

Key	Value
20	Disk Full
30	Syntax Error
40	Account Blocked

Use Case for Maps

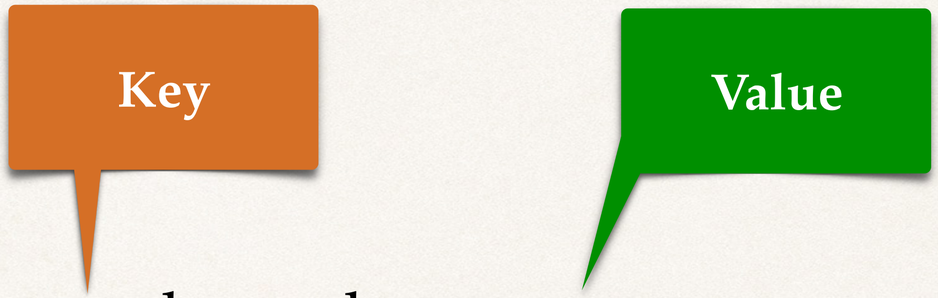
- Useful when you want to access data via a key rather than integer index

- Examples
  - Map of error codes and error messages
  - Map of country codes and country names

Key	Value
IN	India
DE	Germany
CR	Costa Rica

Use Case for Maps

- Useful when you want to access data via a key rather than integer index



- Examples
  - Map of error codes and error messages
  - Map of country codes and country names
  - Map of image file names and image descriptions

Key	Value
photo1.jpg	Photo 1
photo2.jpg	Photo 2
photo3.jpg	Photo 3

Student and Images

Student and Images

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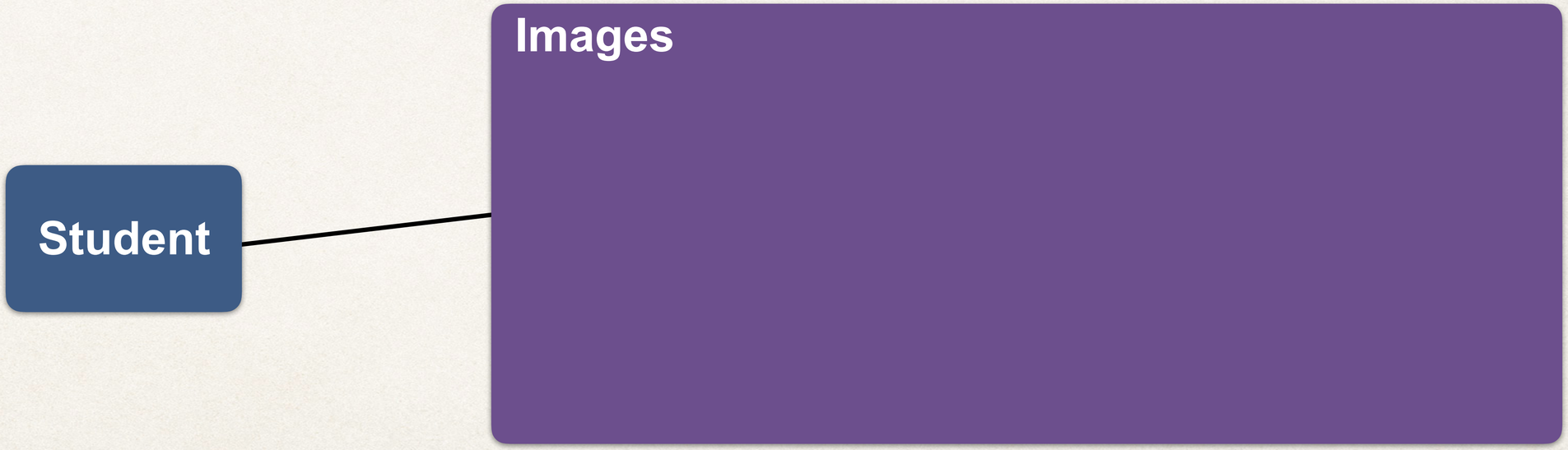

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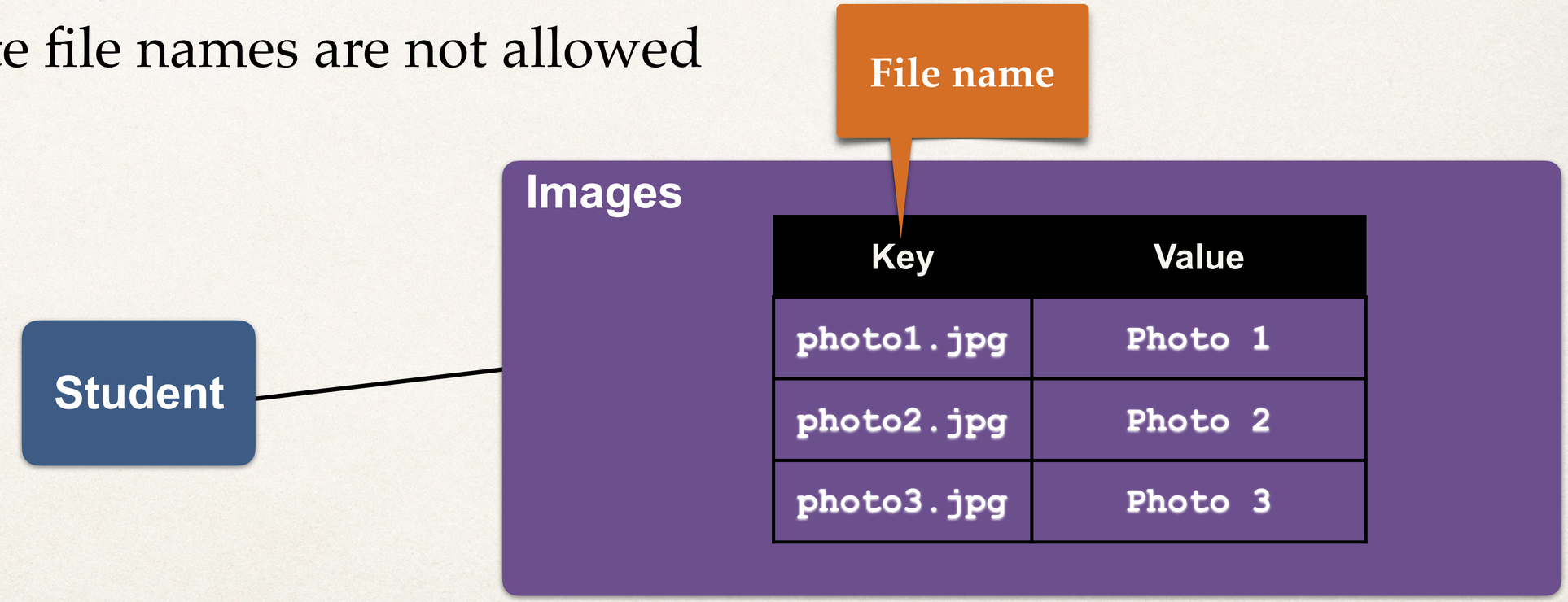

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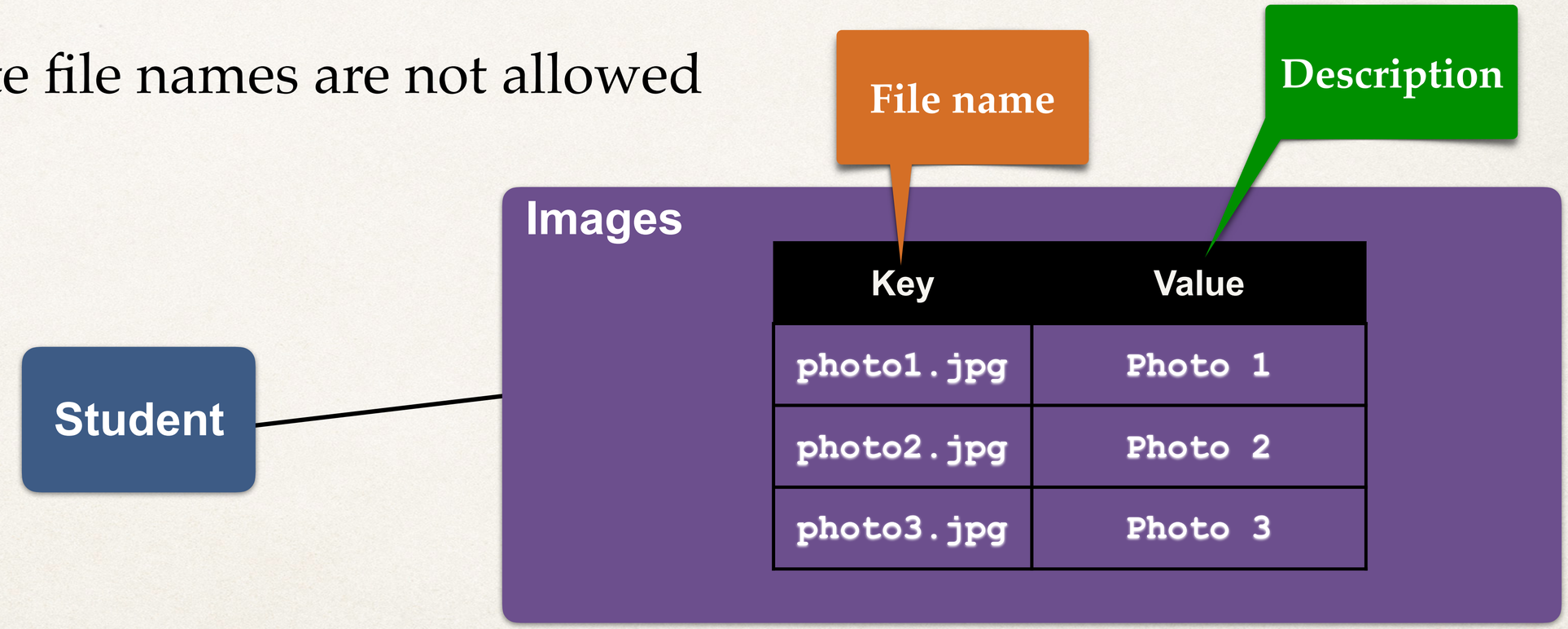
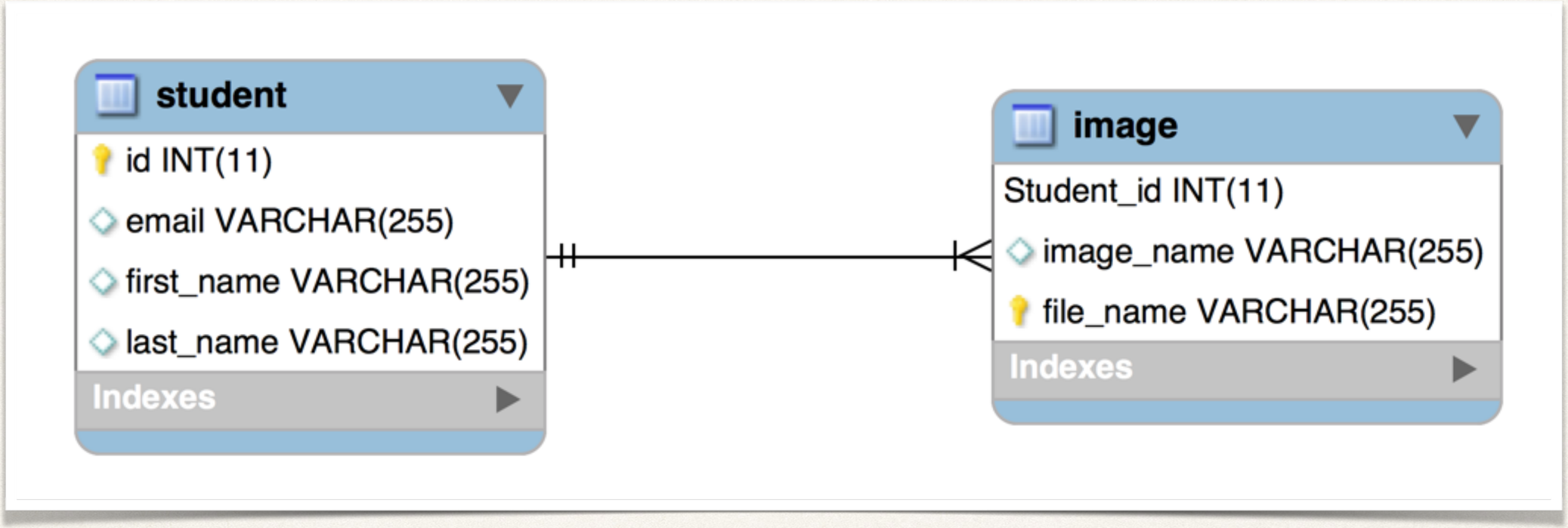


Database Diagram



Development Process

Step-By-Step

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1. Create database tables

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2. Annotate the Map

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2. Annotate the Map

3. Develop the main application

Step 1: Create database tables

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- For ease of development and testing, we'll use auto configuration

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<property name="hibernate.hbm2ddl.auto">create</property>
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- Database tables are **dropped** first and then **created** from scratch

Step 2: Annotate the Map

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```
private Map<String, String> images = new HashMap<String, String>();
```

Annotation for Maps

Annotation for Maps

Annotation	Description

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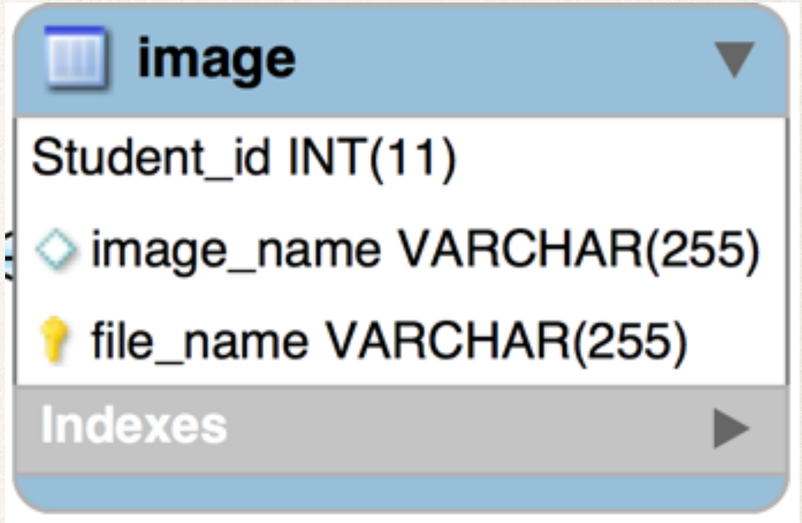
Annotation	Description
`@MapKeyColumn`	**The name of the key column for a map** **Name defaults to <property>_KEY**

Step 2: Annotate the Map



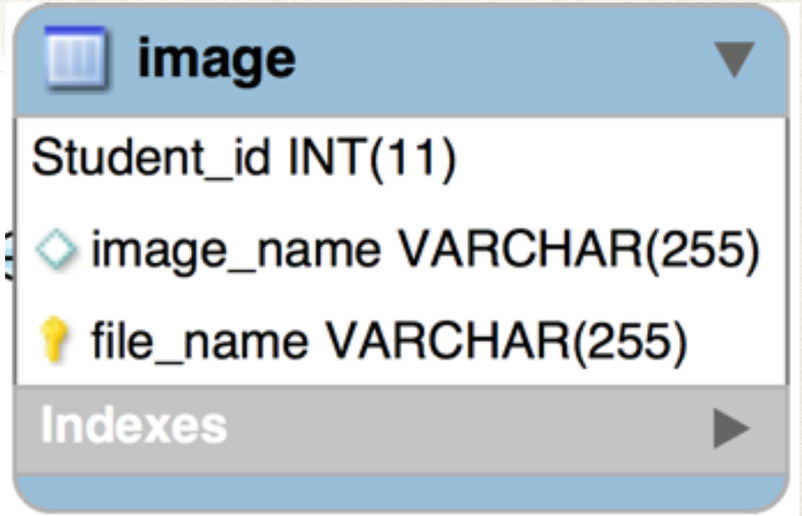
Step 2: Annotate the Map

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

  private Map<String, String> images = new HashMap<String, String>();

  …
}
```



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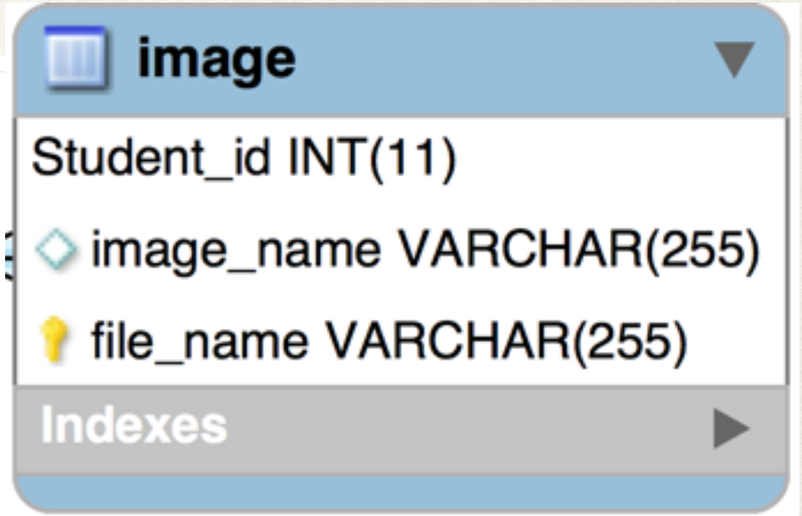


Use a **Map** to track
image file names and descriptions

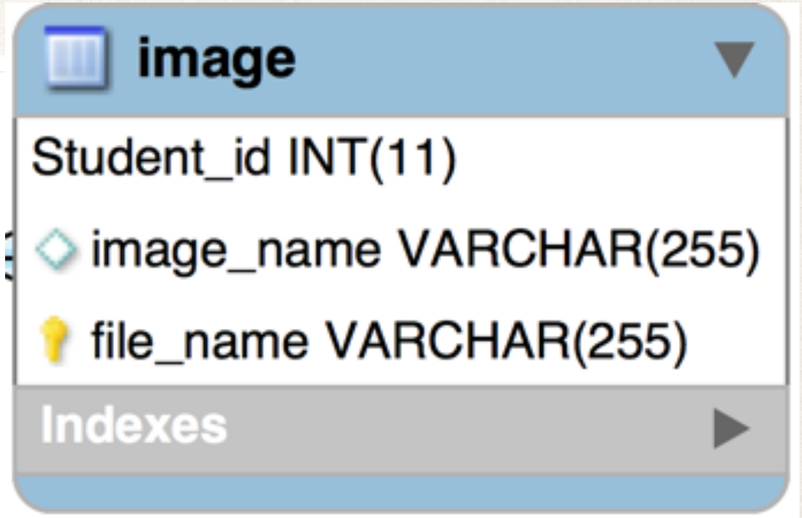
Step 2: Annotate the Map

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

  …

  @ElementCollection
  @CollectionTable(name="image")
  @MapKeyColumn(name="file_name")
  @Column(name="image_name")
  private Map<String, String> images = new HashMap<String, String>();


  …
}
```



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public class Student {

  …

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  @CollectionTable(name="image")
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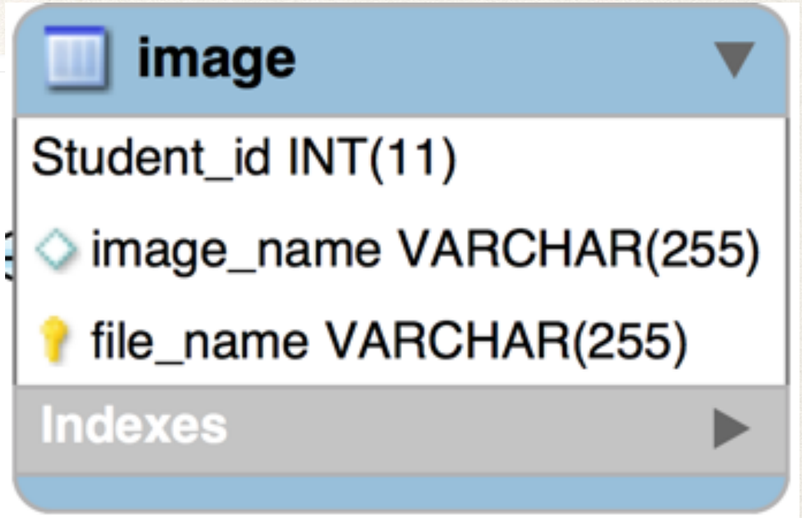
  @Column(name="image_name")
  private Map<String, String> images = new HashMap<String, String>();


  …
}
```

Column for map key



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  @CollectionTable(name="image")
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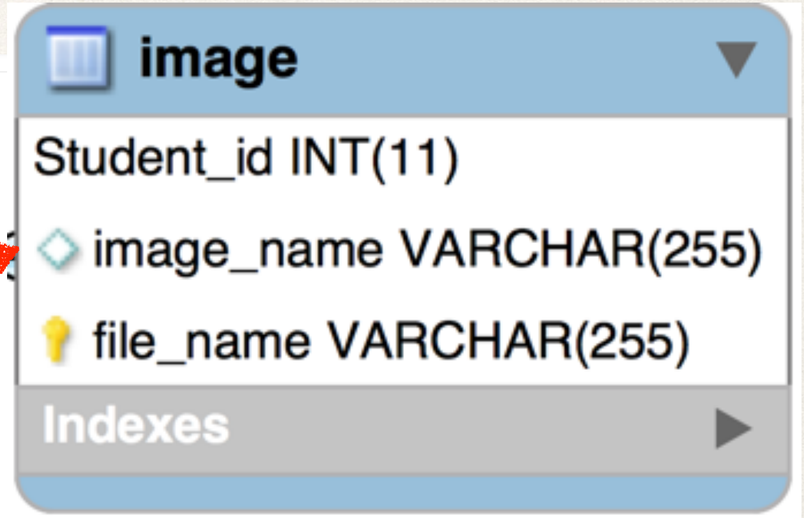

The column for map value

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@Entity
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public class Student {

  …

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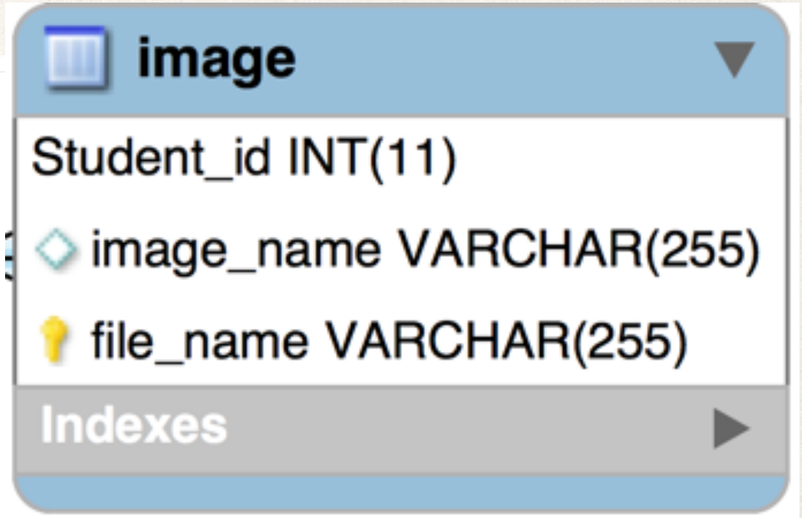

Step 3: Develop the main application

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```
// create the object
Student tempStudent =  new Student("John", "Doe", "john@luv2code.com");
Map<String, String> theImages = tempStudent.getImages();
```

Get a reference to the images **Map**

Step 3: Develop the main application

```
// create the ob
Student tempStud          Stude          Doe", "john@luv2code.com");
Map<String, String> theImages = tempStudent.getImages();

theImages.put("photo1.jpg", "Photo 1");
theImages.put("photo2.jpg", "Photo 2");
theImages.put("photo3.jpg", "Photo 3");
```

Key

Value

Now, let's add to the images **Map**

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Key

Value

File name

Description

Images

Key	Value
photo1.jpg	Photo 1
photo2.jpg	Photo 2
photo3.jpg	Photo 3

Step 3: Develop the main application

Key

Value

```
// create the ob
Student tempStu      = new Stude          Doe", "john@luv2code.com");
Map<String, String> theImages = tempStudent.getImages();

theImages.put("photo1.jpg", "Photo 1");
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theImages.put("photo3.jpg", "Photo 3");


// 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();

// save the object
System.out.println("Saving the student and images..");
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, image_name) values (?, ?, ?)
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Table: student

id	email	first_name	last_name
1	john@luv2code.com	John	Doe

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id	email	first_name	last_name
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Table: image

Student_id	file_name	image_name
1	photo1.jpg	Photo 1
1	photo2.jpg	Photo 2
1	photo3.jpg	Photo 3

```
select Student_id, file_name, image_name from image
```

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