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# MEET MIGRATION

- Allows you to create/update/delete a table in your database.
- Modify and share the application's database
- schema. It's make easier to maintain relationship & foreign key constraint

# NAMING CONVENTION

- Create a new table  php artisan make:migration create_tableName
- Add a new column  php artisan make:migration add_columnName_to_tablename
- Update a column like rename column php artisan make:migration update_columnName_to_tablename
- Remove a column  php artisan make:migration remove_columnName_from_tablename
- Drop a table  php artisan make:migration drop_tableName
- **Rollback মানে drop method কে call করা  php artisan migrate:rollback**
- **সব টেবিল একসাথে remove বা rollback করে আবার সাথে migrate করতে চাইলে  php artisan migrate:fresh**

# MIGRATION STRUCTURE

- Up method is used to add new tables, columns, or indexes to your database
- Down method should reverse the operations performed by the up method.

2023_05_02_062343_create_profile_table.php

```php
return new class extends Migration
{
    public function up(): void
    {
        Schema::create('profile', function (Blueprint $table) {
            $table->id();
            $table->string('name');
            $table->string('city');
            $table->string('phone');
            $table->timestamps();
        });
    }
    public function down(): void
    {
        Schema::dropIfExists('profile');
    }
};
```

# AVAILABLE COLUMN TYPES

| | | |
|---|---|---|
| bigIncrements() | The **bigIncrements** method creates an auto-incrementing **UNSIGNED BIGINT** (primary key) equivalent | $table->bigIncrements('id'); |
| bigInteger() | The **bigInteger** method creates a **BIGINT** equivalent | $table->bigInteger('votes'); |
| binary() | The binary method creates a BLOB equivalent | $table->binary('photo'); |
| boolean() | **boolean** method creates a **BOOLEAN** equivalent column | $table->boolean('confirmed'); |
| char() | The **char** method creates a **CHAR** equivalent column with of a given length | $table->char('name', 100); |
| dateTime() | The **dateTime** method creates a **DATETIME** equivalent column with an optional precision (total digits) | $table->dateTime('created_at', $precision = 0); |
| date() | The **date** method creates a **DATE** equivalent | $table->date('created_at'); |
| double() | The **double** method creates a **DOUBLE** equivalent column with the given precision (total digits) and scale (decimal digits) | $table->double('amount', 8, 2); |
| enum() | The **enum** method creates a **ENUM** equivalent column with the given valid values | $table->enum('difficulty', ['easy', 'hard']); |

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# AVAILABLE COLUMN TYPES

| | | |
|---|---|---|
| float() | The **float** method creates a **FLOAT** equivalent column with the given precision (total digits) and scale (decimal digits) | $table->float('amount', 8, 2); |
| foreignId() | The **foreignId** method creates an **UNSIGNED BIGINT** equivalent | $table->foreignId('user_id') |
| foreignIdFor() | The **foreignIdFor** method adds a `{column}_id UNSIGNED BIGINT` equivalent column for a given model class | $table->foreignIdFor(User::class); |
| geometryCollection() | he **geometryCollection** method creates a **GEOMETRYCOLLECTION** equivalent | $table->geometryCollection('positions'); |
| geometry() | The **geometry** method creates a **GEOMETRY** equivalent | $table->geometry('positions'); |
| id() | The `id` method is an alias of the **bigIncrements** method | $table->id(); |
| increments() | The **increments** method creates an auto-incrementing **UNSIGNED INTEGER** equivalent column as a primary key | $table->increments('id'); |
| integer() | The **integer** method creates an **INTEGER** equivalent | $table->integer('votes') |
| ipAddress() | The **ipAddress** method creates a **VARCHAR** equivalent | $table->ipAddress('visitor'); |
| json() | The **json** method creates a **JSON** equivalent | $table->json('options') |
| longText() | The **longText** method creates a **LONGTEXT** equivalent | $table->longText('description'); |

# AVAILABLE COLUMN TYPES

| | | |
|---|---|---|
| mediumIncrements() | The **mediumIncrements** method creates an auto-incrementing **UNSIGNED MEDIUMINT** equivalent column as a primary key | $table->mediumIncrements('id'); |
| mediumInteger() | The **mediumInteger** method creates a **MEDIUMINT** equivalent | $table->mediumInteger('votes'); |
| mediumText() | The **mediumText** method creates a **MEDIUMTEXT** equivalent | $table->mediumText('description'); |
| smallIncrements() | The **smallIncrements** method creates an auto-incrementing **UNSIGNED SMALLINT** equivalent column as a primary key | $table->smallIncrements('id'); |
| smallInteger() | The **smallInteger** method creates a **SMALLINT** equivalent | $table->smallInteger('votes'); |
| string() | The **string** method creates a **VARCHAR** equivalent column of the given length | $table->string('name', 100); |
| text() | The **text** method creates a **TEXT** equivalent column | $table->text('description'); |

# AVAILABLE COLUMN TYPES

| | | |
|---|---|---|
| time() | The **time** method creates a **TIME** equivalent column with an optional precision (total digits) | $table->time('sunrise', $precision = 0); |
| timestamp() | The **timestamp** method creates a **TIMESTAMP** equivalent column with an optional precision (total digits) | $table->timestamp('added_at', $precision = 0); |
| timestamps() | The **timestamps** method creates **created_at** and **updated_at** **TIMESTAMP** equivalent columns with an optional precision (total digits) | $table->timestamps($precision = 0); |
| tinyIncrements() | The **tinyIncrements** method creates an auto-incrementing UNSIGNED **TINYINT** equivalent column as a primary key | $table->tinyIncrements('id'); |
| tinyInteger() | The **tinyInteger** method creates a **TINYINT** equivalent | $table->tinyInteger('votes'); |
| tinyText() | The **tinyText** method creates a **TINYTEXT** equivalent | $table->tinyText('notes') |
| unsignedBigInteger() | The **unsignedBigInteger** method creates an **UNSIGNED BIGINT** equivalent | $table->unsignedBigInteger('votes'); |
| unsignedInteger() | The **unsignedInteger** method creates an **UNSIGNED INTEGER** equivalent | $table->unsignedInteger('votes'); |

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# AVAILABLE COLUMN TYPES

| | | |
|---|---|---|
| unsignedMediumInteger() | The **unsignedMediumInteger** method creates an UNSIGNED **MEDIUMINT** equivalent | $table->unsignedMediumInteger('votes'); |
| unsignedSmallInteger() | The **unsignedSmallInteger** method creates an **UNSIGNED SMALLINT** equivalent | $table->unsignedSmallInteger('votes'); |
| unsignedTinyInteger() | The **unsignedTinyInteger** method creates an **UNSIGNED TINYINT** equivalent | $table->unsignedTinyInteger('votes'); |

# AVAILABLE COLUMN ATTRIBUTES

| | | |
|---|---|---|
| **nullable()** | Accept null value | $table->string('email')->nullable() |
| **default($value)** | Set default value if null | $table->string('email')->default($value) |
| **useCurrent()** | Set TIMESTAMP columns to use CURRENT_TIMESTAMP as default value | $table->timestamp('created_at')->useCurrent() |
| **useCurrentOnUpdate()** | Set TIMESTAMP columns to use CURRENT_TIMESTAMP when a record is updated | $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate(); |
| **collation()** | Specify a collation for the column | $table->string('email')->collation('utf8mb4_unicode_ci') |
| **charset( )** | Specify a character set for the column (MySQL). | $table->string('email')->charset('utf8mb4') |
| **autoIncrement()** | Set INTEGER columns as auto-incrementing (primary key). | $table->increments('id') |
| **first()** | Place the column "first" in the table (MySQL). | $table->increments('id')->first() |
| **`invisible()`** | Make the column "invisible" to SELECT * queries (MySQL). | $table->string('email')->invisible() |
| **`unsigned()`** | Set INTEGER columns as UNSIGNED (MySQL) | $table->integer('votes')->unsigned() |
| **unique()** | Ensure unique value | $table->string('email')->unique() |
| **change()** | Allows you to modify the type and attributes of existing columns. | $table->string('name', 50)->change(); |

# CREATE RENAME AND DROP TABLES

- Drop a table  php artisan make:migration drop_tableName

2023_05_02_110102_drop_profile_table.php

```php
12      public function up(): void
13      {
14          Schema::dropIfExists("user_profile");
15      }
```

- Update a column like rename column

php artisan make:migration update_columnName_to_tablename

2023_05_02_105819_rename_profile_table.php

```php
12      public function up(): void
13      {
14          Schema::rename("profile", "user_profile");
15      }
```

2023_05_02_062343_create_profile_table.php

```php
7   return new class extends Migration
8   {
9       public function up(): void
10      {
11          Schema::create('profile', function (Blueprint $table) {
12              $table->id();
13              $table->string('name');
14              $table->string('city');
15              $table->string('phone');
16              $table->timestamps();
17          });
18      }
19      public function down(): void
20      {
21          Schema::dropIfExists('profile');
22      }
23  };
```

# ADD RENAME AND DROP COLUMN

2023_05_02_112754_modify_profile_table.php

```php
12      public function up(): void
13      {
14          Schema::table('profile', function (Blueprint $table) {
15              $table->after('city', function ($table) {
16                  $table->string('address_line1');
17                  $table->string('address_line2');
18              });
19          });
20      }
```

# ADD RENAME AND DROP COLUMN

```php
Schema::table('users', function (Blueprint $table) {
    $table->dropColumn('votes');
});
```

```php
Schema::table('users', function (Blueprint $table) {
    $table->renameColumn('from', 'to');
});
```

```php
Schema::table('users', function (Blueprint $table) {
    $table->dropColumn(['votes', 'avatar', 'location']);
});
```

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# RELATIONSHIP SIGN

| | |
|---|---|
|  | Zero or One |
|  | One or More |
|  | One and only One |
|  | Zero or More |

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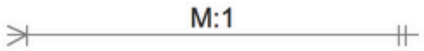
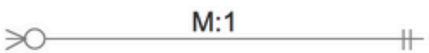
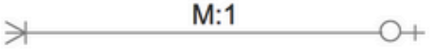
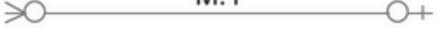
# RELATIONSHIP SIGN

| | |
|---|---|
|  | a one through many notation on one side of a relationship and a one and only one on the other |
|  | a zero through many notation on one side of a relationship and a one and only one on the other |
|  | a one through many notation on one side of a relationship and a zero or one notation on the other |
|  | a zero through many notation on one side of a relationship and a zero or one notation on the other |

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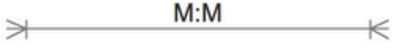
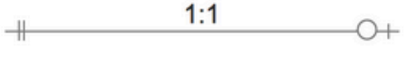
# RELATIONSHIP SIGN

| | |
|---|---|
|   | a zero through many on both sides of a relationship |
|   | a zero through many on one side and a one through many on the other |
|   | a one through many on both sides of a relationship |
|   | a one and only one notation on one side of a relationship and a zero or one on the other |
|   | a one and only one notation on both sides |

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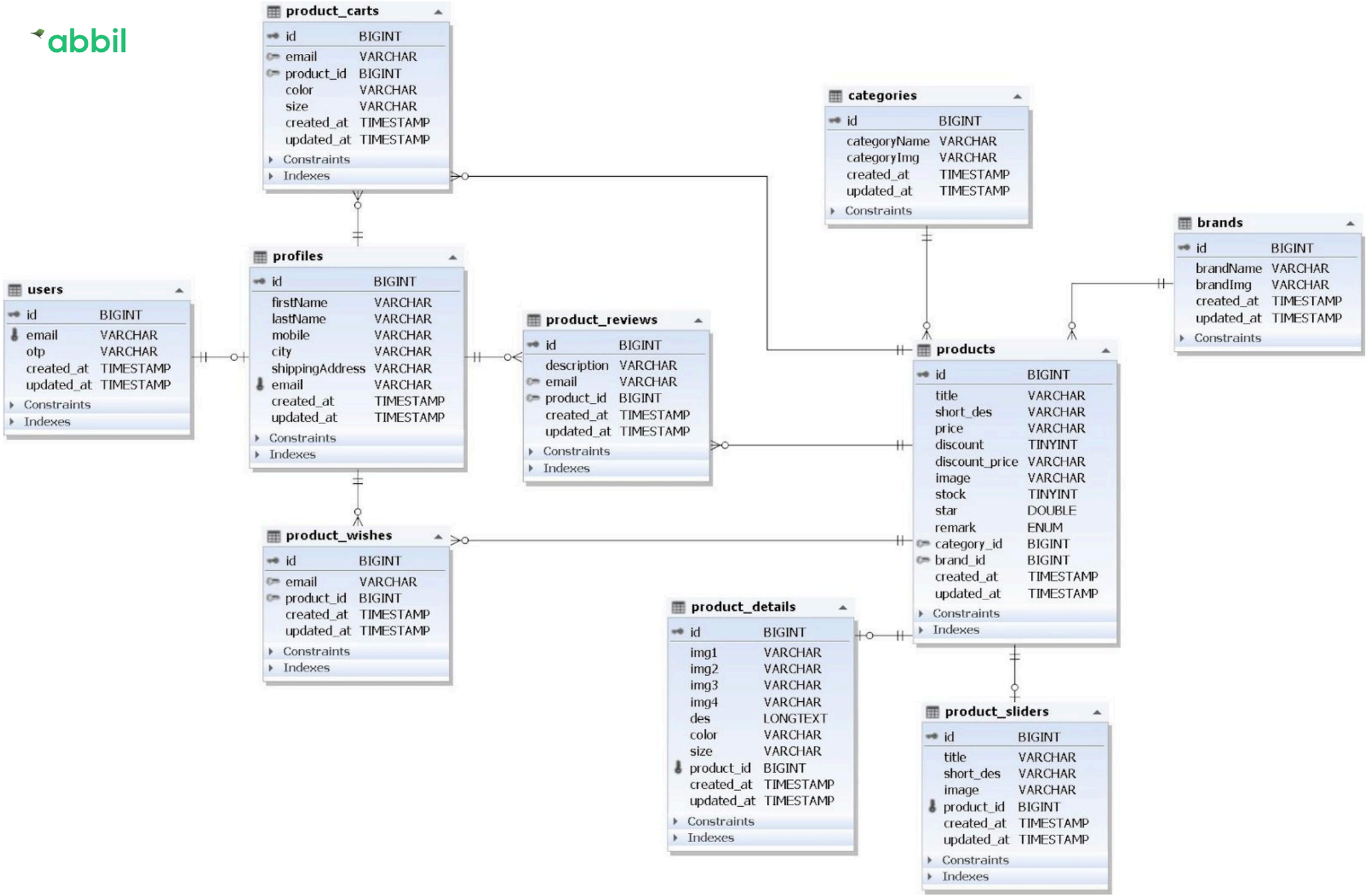
product_carts
id BIGINT
email VARCHAR
product_id BIGINT
color VARCHAR
size VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
categories
id BIGINT
categoryName VARCHAR
categoryImg VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
brands
id BIGINT
brandName VARCHAR
brandImg VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
profiles
id BIGINT
firstName VARCHAR
lastName VARCHAR
mobile VARCHAR
city VARCHAR
shippingAddress VARCHAR
email VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
users
id BIGINT
email VARCHAR
otp VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
product_reviews
id BIGINT
description VARCHAR
email VARCHAR
product_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
products
id BIGINT
title VARCHAR
short_des VARCHAR
price VARCHAR
discount TINYINT
discount_price VARCHAR
image VARCHAR
stock TINYINT
star DOUBLE
remark ENUM
category_id BIGINT
brand_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
product_wishes
id BIGINT
email VARCHAR
product_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
product_details
id BIGINT
img1 VARCHAR
img2 VARCHAR
img3 VARCHAR
img4 VARCHAR
des LONGTEXT
color VARCHAR
size VARCHAR
product_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
product_sliders
id BIGINT
title VARCHAR
short_des VARCHAR
image VARCHAR
product_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes

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# RELATIONSHIP CONSTRAINT

| Method | Description |
| --- | --- |
| `$table->cascadeOnUpdate();` | Updates should cascade. |
| `$table->restrictOnUpdate();` | Updates should be restricted. |
| `$table->cascadeOnDelete();` | Deletes should cascade. |
| `$table->restrictOnDelete();` | Deletes should be restricted. |
| `$table->nullOnDelete();` | Deletes should set the foreign key value to null. |

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# LETS DO A DATABASE PROEJCT

For Better Understanding

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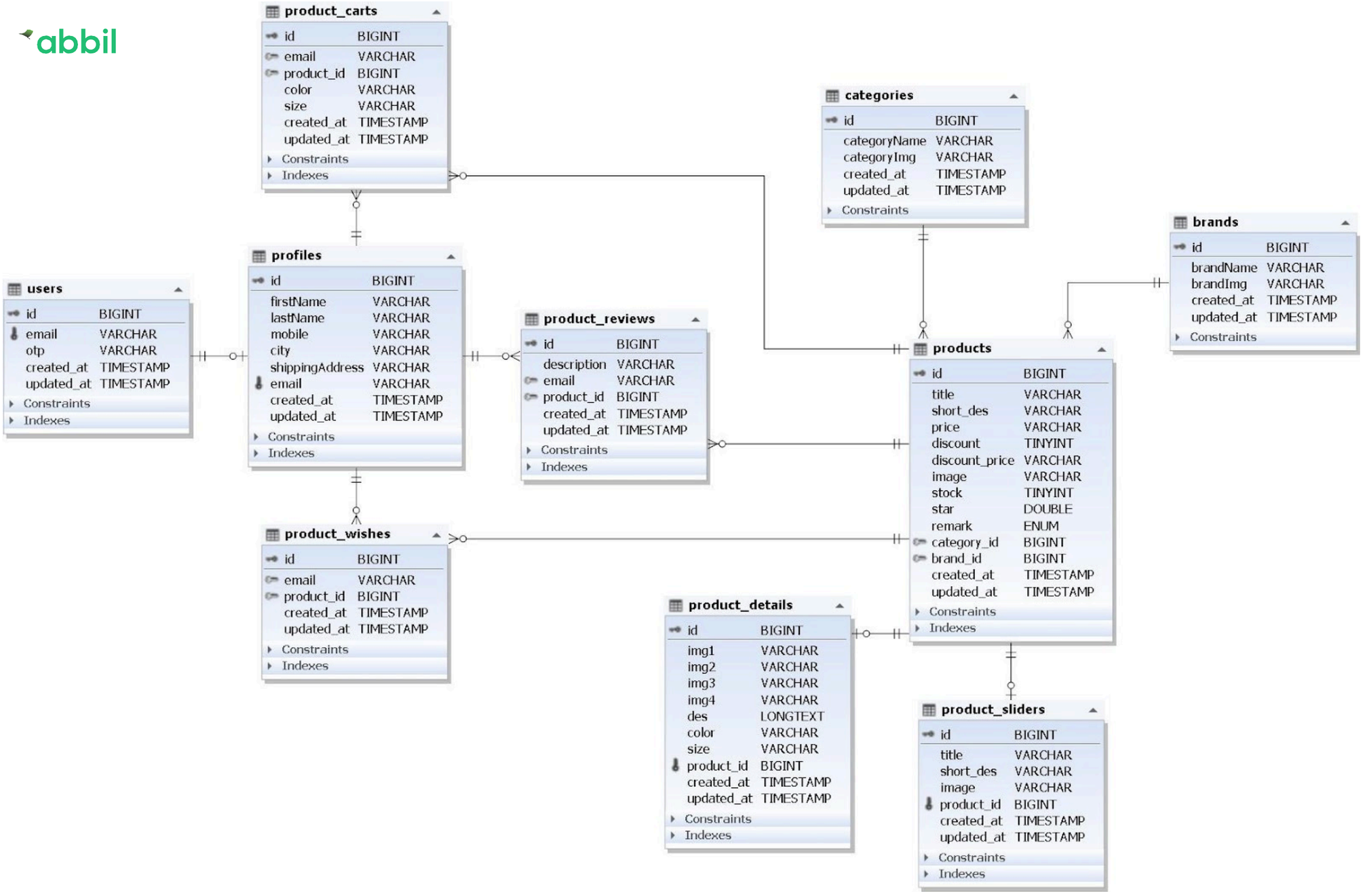
product_carts
id BIGINT
email VARCHAR
product_id BIGINT
color VARCHAR
size VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
categories
id BIGINT
categoryName VARCHAR
categoryImg VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
brands
id BIGINT
brandName VARCHAR
brandImg VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
profiles
id BIGINT
firstName VARCHAR
lastName VARCHAR
mobile VARCHAR
city VARCHAR
shippingAddress VARCHAR
email VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
users
id BIGINT
email VARCHAR
otp VARCHAR
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
product_reviews
id BIGINT
description VARCHAR
email VARCHAR
product_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
products
id BIGINT
title VARCHAR
short_des VARCHAR
price VARCHAR
discount TINYINT
discount_price VARCHAR
image VARCHAR
stock TINYINT
star DOUBLE
remark ENUM
category_id BIGINT
brand_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
product_wishes
id BIGINT
email VARCHAR
product_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
product_details
id BIGINT
img1 VARCHAR
img2 VARCHAR
img3 VARCHAR
img4 VARCHAR
des LONGTEXT
color VARCHAR
size VARCHAR
product_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes
product_sliders
id BIGINT
title VARCHAR
short_des VARCHAR
image VARCHAR
product_id BIGINT
created_at TIMESTAMP
updated_at TIMESTAMP
Constraints
Indexes

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# LETS DO A DATABASE PROEJCT

user migration

2023_02_16_065502_create_users.php

```php
12      public function up(): void
13      {
14          Schema::create('users', function (Blueprint $table) {
15              $table->id();
16              $table->string('email',50)->unique();
17              $table->string('otp',10);
18              $table->timestamp('created_at')->useCurrent();
19              $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
20          });
21      }
```

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# LETS DO A DATABASE PROEJCT

profiles migration

2023_02_16_065520_create_profiles.php

```php
    public function up(): void
    {
        Schema::create('profiles', function (Blueprint $table) {
            $table->id();
            $table->string('firstName',50);
            $table->string('lastName',50);
            $table->string('mobile',50);
            $table->string('city',50);
            $table->string('shippingAddress',1000);
            $table->string('email',50)->unique();
            $table->foreign('email')->references('email')->on('users')
            ->restrictOnDelete()
            ->cascadeOnUpdate();
            $table->timestamp('created_at')->useCurrent();
            $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
        });
    }
```

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# LETS DO A DATABASE PROEJCT

categories migration

2023_02_16_065529_create_categories.php

```php
    public function up(): void
    {
        Schema::create('categories', function (Blueprint $table) {
            $table->id();
            $table->string('categoryName',50);
            $table->string('categoryImg',300);
            $table->timestamp('created_at')->useCurrent();
            $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
        });
    }
```

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# LETS DO A DATABASE PROEJCT

brands migration

2023_02_16_065654_create_brands.php

```php
12      public function up(): void
13      {
14          Schema::create('brands', function (Blueprint $table) {
15              $table->id();
16              $table->string('brandName',50);
17              $table->string('brandImg',300);
18              $table->timestamp('created_at')->useCurrent();
19              $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
20          });
21      }
```

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# LETS DO A DATABASE PROEJCT

products migration

2023_02_17_114815_create_products.php

```php
public function up(): void
{
    Schema::create('products', function (Blueprint $table) {
        $table->id();
        $table->string('title',200);
        $table->string('short_des',500);
        $table->string('price',50);
        $table->boolean('discount');
        $table->string('discount_price',50);
        $table->string('image',200);
        $table->boolean('stock');
        $table->float('star');
        $table->enum('remark',['popular','new','top','special','trending','regular']);

        $table->unsignedBigInteger('category_id');
        $table->unsignedBigInteger('brand_id');

        $table->foreign('category_id')->references('id')->on('categories')
            ->restrictOnDelete()
            ->cascadeOnUpdate();

        $table->foreign('brand_id')->references('id')->on('brands')
            ->restrictOnDelete()
            ->cascadeOnUpdate();

        $table->timestamp('created_at')->useCurrent();
        $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
    });
}
```

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# LETS DO A DATABASE PROEJCT

product_reviews

2023_02_17_144756_create_product_reviews.php

```php
public function up(): void
{
    Schema::create('product_reviews', function (Blueprint $table) {
        $table->id();
        $table->string('description',1000);

        $table->string('email',50);
        $table->foreign('email')->references('email')->on('profiles')
            ->restrictOnDelete()
            ->restrictOnUpdate();

        $table->unsignedBigInteger('product_id');
        $table->foreign('product_id')->references('id')->on('products')
            ->restrictOnDelete()
            ->restrictOnUpdate();

        $table->timestamp('created_at')->useCurrent();
        $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
    });
}
```

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# LETS DO A DATABASE PROEJCT

product_details

2023_02_17_164424_create_product_details.php

```php
    public function up(): void
    {
        Schema::create('product_details', function (Blueprint $table) {
            $table->id();
            $table->string('img1',200);
            $table->string('img2',200);
            $table->string('img3',200);
            $table->string('img4',200);
            $table->longText('des');
            $table->string('color',200);
            $table->string('size',200);

            $table->unsignedBigInteger('product_id')->unique();
            $table->foreign('product_id')->references('id')->on('products')
                ->restrictOnDelete()
                ->restrictOnUpdate();


            $table->timestamp('created_at')->useCurrent();
            $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
        });
    }
```

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# LETS DO A DATABASE PROEJCT

product_sliders

2023_02_17_184723_create_product_sliders.php

```php
public function up(): void
{
    Schema::create('product_sliders', function (Blueprint $table) {
        $table->id();
        $table->string('title',200);
        $table->string('short_des',500);
        $table->string('image',200);
        $table->unsignedBigInteger('product_id')->unique();
        $table->foreign('product_id')->references('id')->on('products')
            ->restrictOnDelete()
            ->restrictOnUpdate();
        $table->timestamp('created_at')->useCurrent();
        $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
    });
}
```

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# LETS DO A DATABASE PROEJCT

product_wishes

```php
public function up(): void
{
    Schema::create('product_wishes', function (Blueprint $table) {
        $table->id();
        $table->string('email',50);
        $table->unsignedBigInteger('product_id');

        $table->foreign('product_id')->references('id')->on('products')
            ->restrictOnDelete()
            ->restrictOnUpdate();


        $table->foreign('email')->references('email')->on('profiles')
            ->restrictOnDelete()
            ->restrictOnUpdate();


        $table->timestamp('created_at')->useCurrent();
        $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
    });
}
```

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# LETS DO A DATABASE PROJECT

product_carts

```php
public function up(): void
{
    Schema::create('product_carts', function (Blueprint $table) {
        $table->id();

        $table->string('email',50);
        $table->unsignedBigInteger('product_id');

        $table->string('color',200);
        $table->string('size',200);

        $table->foreign('product_id')->references('id')->on('products')
            ->restrictOnDelete()
            ->restrictOnUpdate();

        $table->foreign('email')->references('email')->on('profiles')
            ->restrictOnDelete()
            ->restrictOnUpdate();

        $table->timestamp('created_at')->useCurrent();
        $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
    });
}
```