

# Data Retrieval

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## From MySQL Database

# DATABASE FOR SOFTWARE DEVELOPERS

# Anis Uddin Ahmad

# What we see in a Shopping Portal?

- ▶ List of Products
- ▶ Latest Products
- ▶ Featured Products
- ▶ Active deals
- ▶ Products of user interest



HOME MEN WOMEN COLLECTION STORE PRODUCTS LATEST PRODUCT

Search



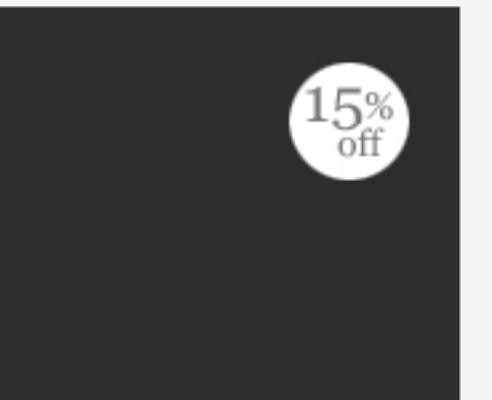
Collection  
**Summer**  
Helping you look cool

40  
off %

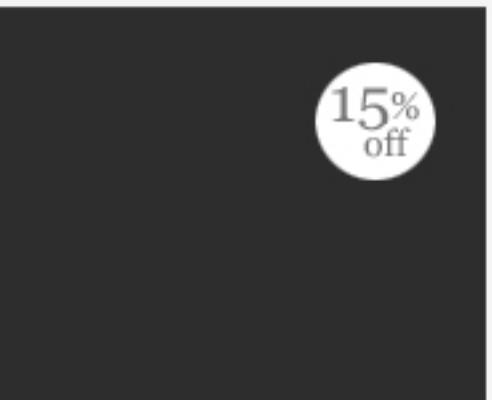
Some text regarding the featured product.

## LATEST ARRIVALS

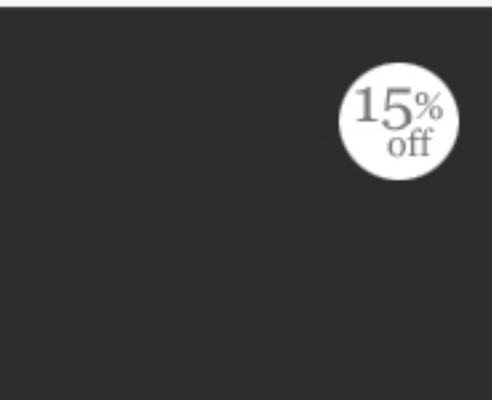
Check our all latest products in this section.



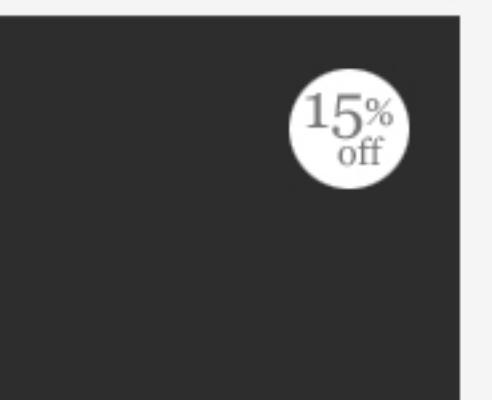
Premium Denim Women's Hidden  
\$179.00 | Add to Cart



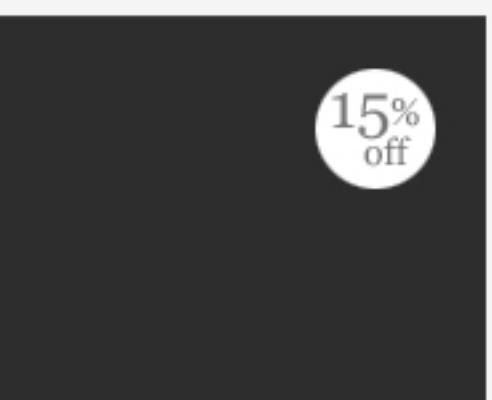
Premium Denim Women's Hidden  
\$179.00 | Add to Cart



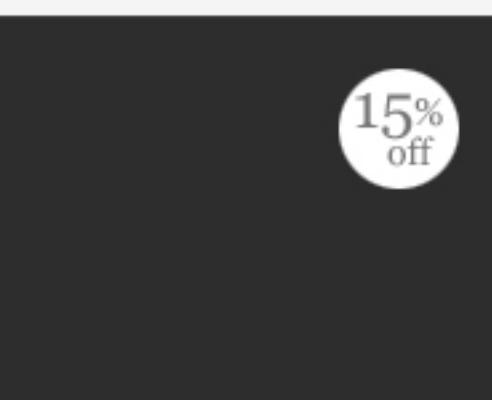
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Premium Denim Women's Hidden  
\$179.00 | Add to Cart

## COOL COLLECTIONS

Get  
Collection  
**Winter**  
**50%**  
off

Exclusive  
discount  
Womens wear

Know more

Get Exclusive  
discount on  
Ladies wear

Know more

## TWITTER UPDATES



@suniljoshi Looks like nice and dicent design  
<http://bit.ly/sun>  
About 1 hour ago via twitterieed

@suniljoshi Looks like nice and dicent design  
<http://bit.ly/sun>  
About 1 hour ago via twitterfood

More Tweets

# Getting Records



```
SELECT {fields}  
FROM {table_name}  
WHERE {conditions};
```

Users

Profiles

Cart

Discounts

Promotions

Categories

Products

Shipments

Refunds

Orders

```
SELECT {fields}  
FROM products  
WHERE {conditions};
```

Users

Profiles

Cart

Discounts

Promotions

Categories

Products

Shipments

Refunds

Orders

```
SELECT {fields}  
FROM products  
WHERE {conditions};
```

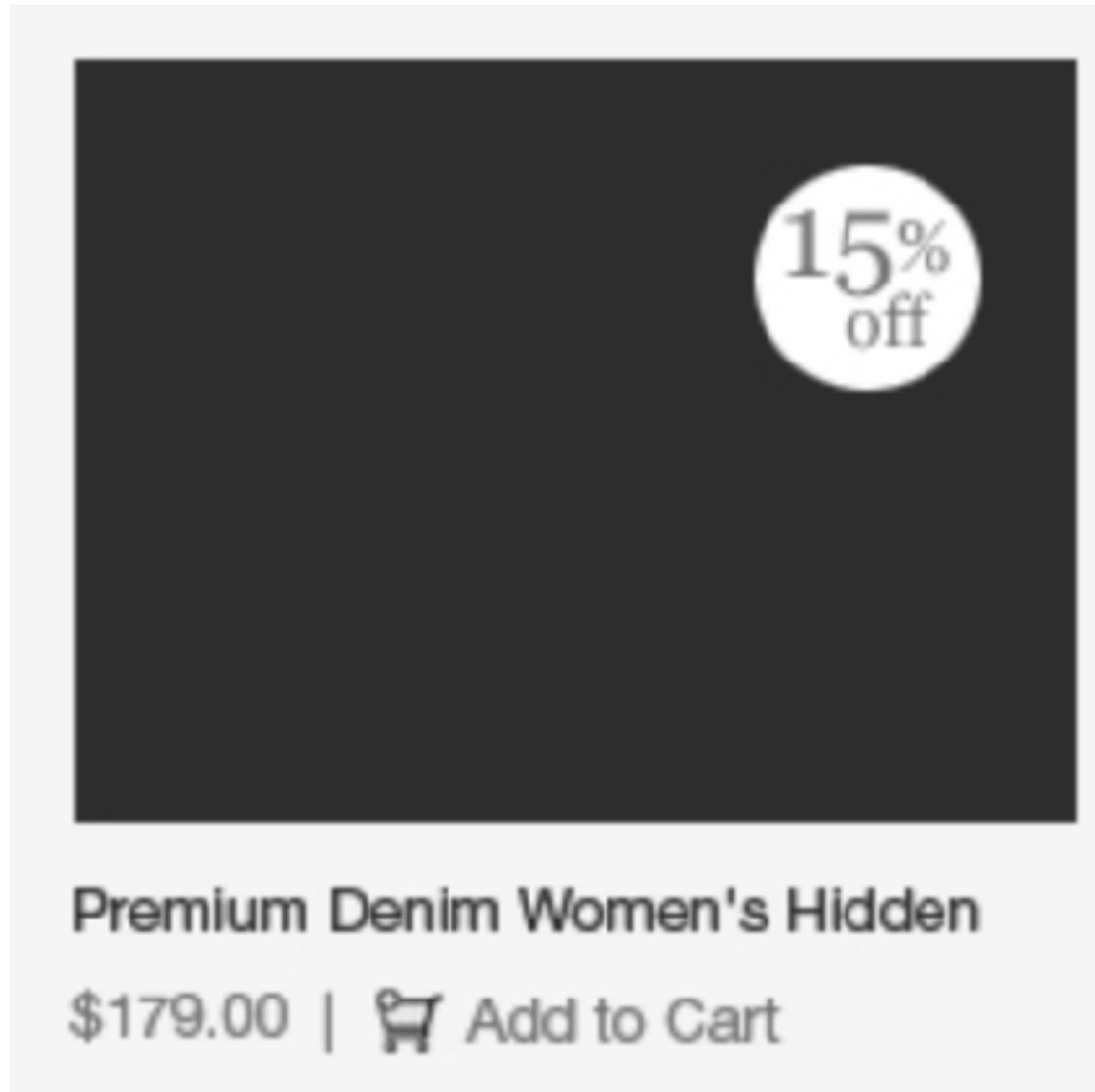


Premium Denim Women's Hidden  
\$179.00 | Add to Cart

## products

<b><i>id</i></b>	<b><i>name</i></b>	<b><i>category_id</i></b>	<b><i>price</i></b>	<b><i>stock_q</i></b>	<b><i>created_at</i></b>
2	Ultra Speaker	13	672.33	55	2023-11-22 07:05:49
3	Mega Laptop	11	904.69	121	2023-11-22 07:05:49
4	Smart Monitor	5	338.47	84	2023-11-22 07:05:49
5	Magic Watch	13	543.99	0	2023-11-22 07:05:49
6	Giga Laptop	14	747.51	30	2023-11-22 07:05:49
7	Eco Speaker	11	612.53	0	2023-11-22 07:05:49
8	Super Printer	11	605.90	145	2023-11-22 07:05:49

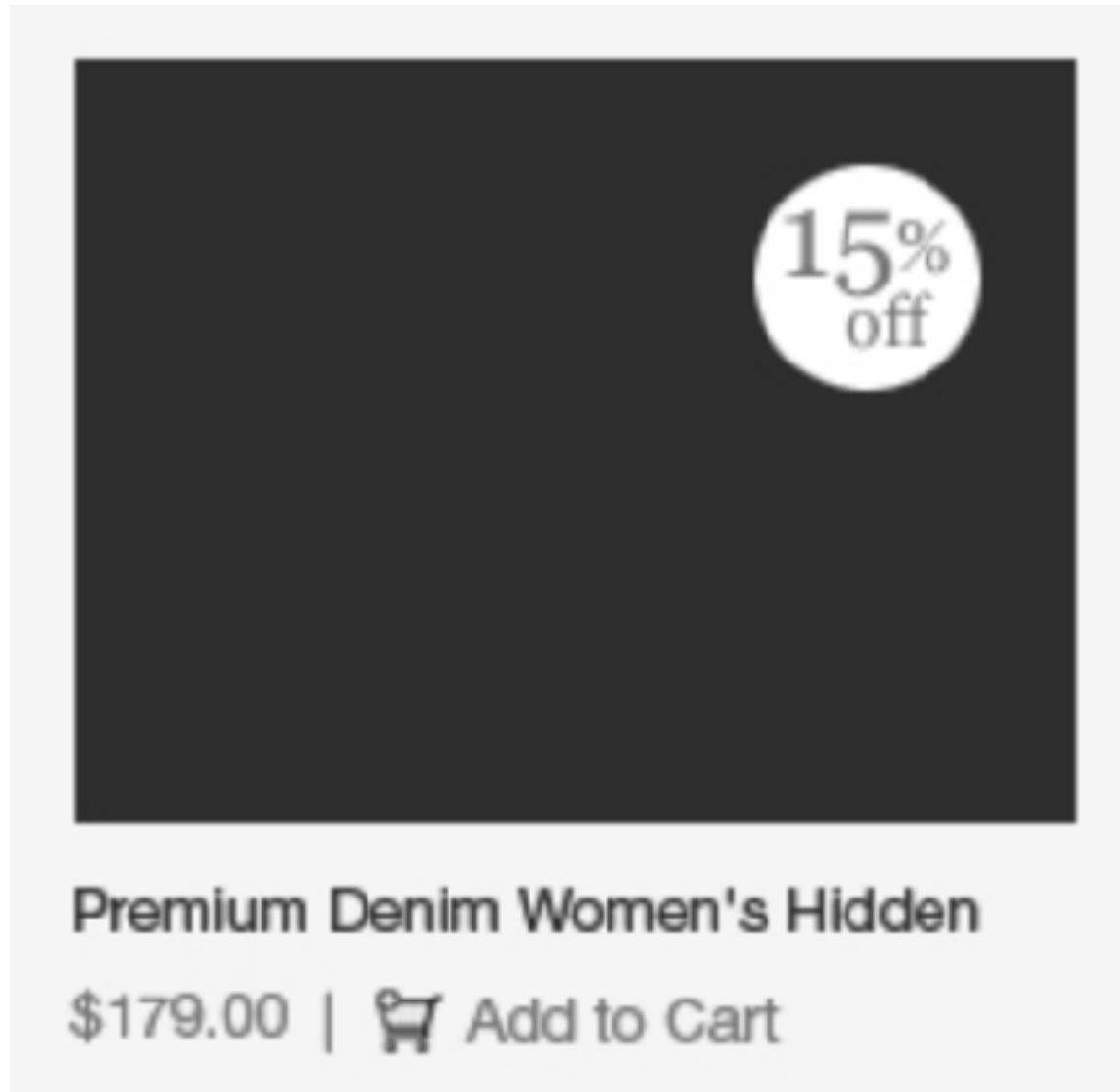
```
SELECT *  
FROM products  
WHERE {conditions};
```



## products

<b><i>id</i></b>	<b><i>name</i></b>	<b><i>category_id</i></b>	<b><i>price</i></b>	<b><i>stock_q</i></b>	<b><i>created_at</i></b>
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8	Super Printer	11	605.90	145	2023-11-22 07:05:49

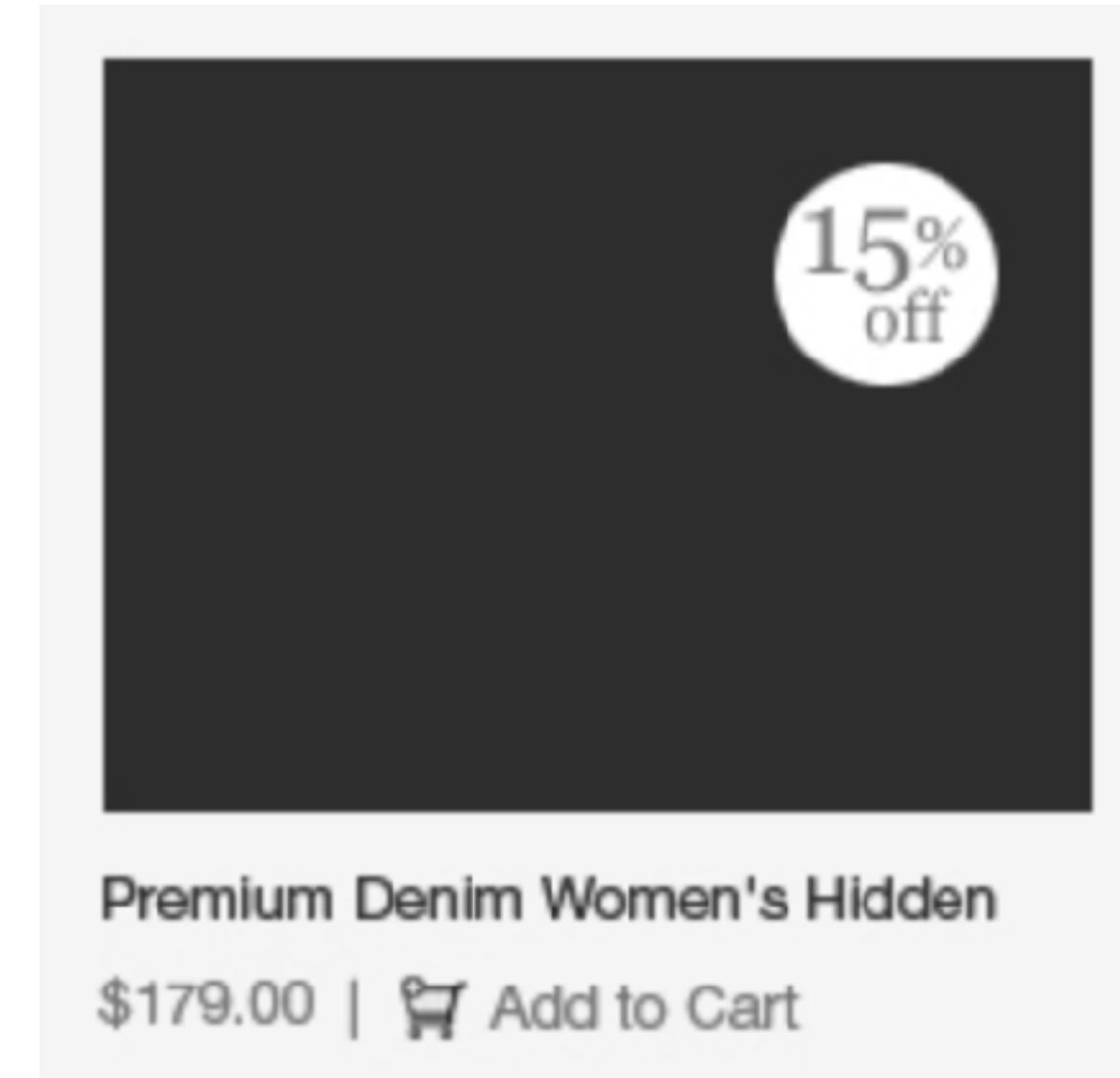
```
SELECT *  
FROM products  
WHERE {conditions};
```



## products

<i><b>id</b></i>	<i><b>name</b></i>	<i><b>category_id</b></i>	<i><b>price</b></i>	<i><b>stock_q</b></i>	<i><b>created_at</b></i>
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8	Super Printer	11	605.90	145	2023-11-22 07:05:49

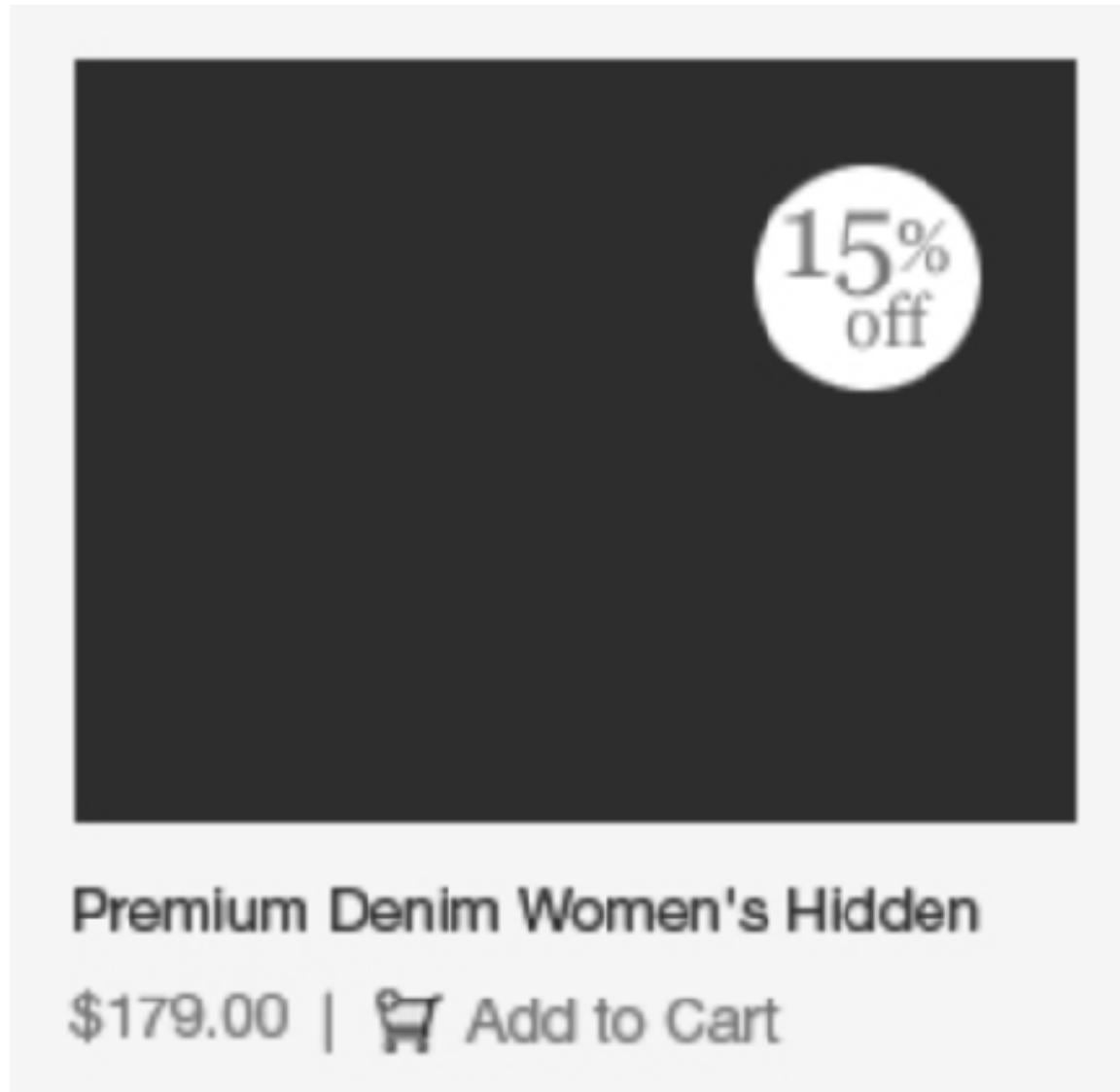
```
SELECT id, name, price, image_url  
FROM products  
WHERE {conditions};
```



## products

<b><i>id</i></b>	<b><i>name</i></b>	<b><i>category_id</i></b>	<b><i>price</i></b>	<b><i>stock_q</i></b>	<b><i>created_at</i></b>
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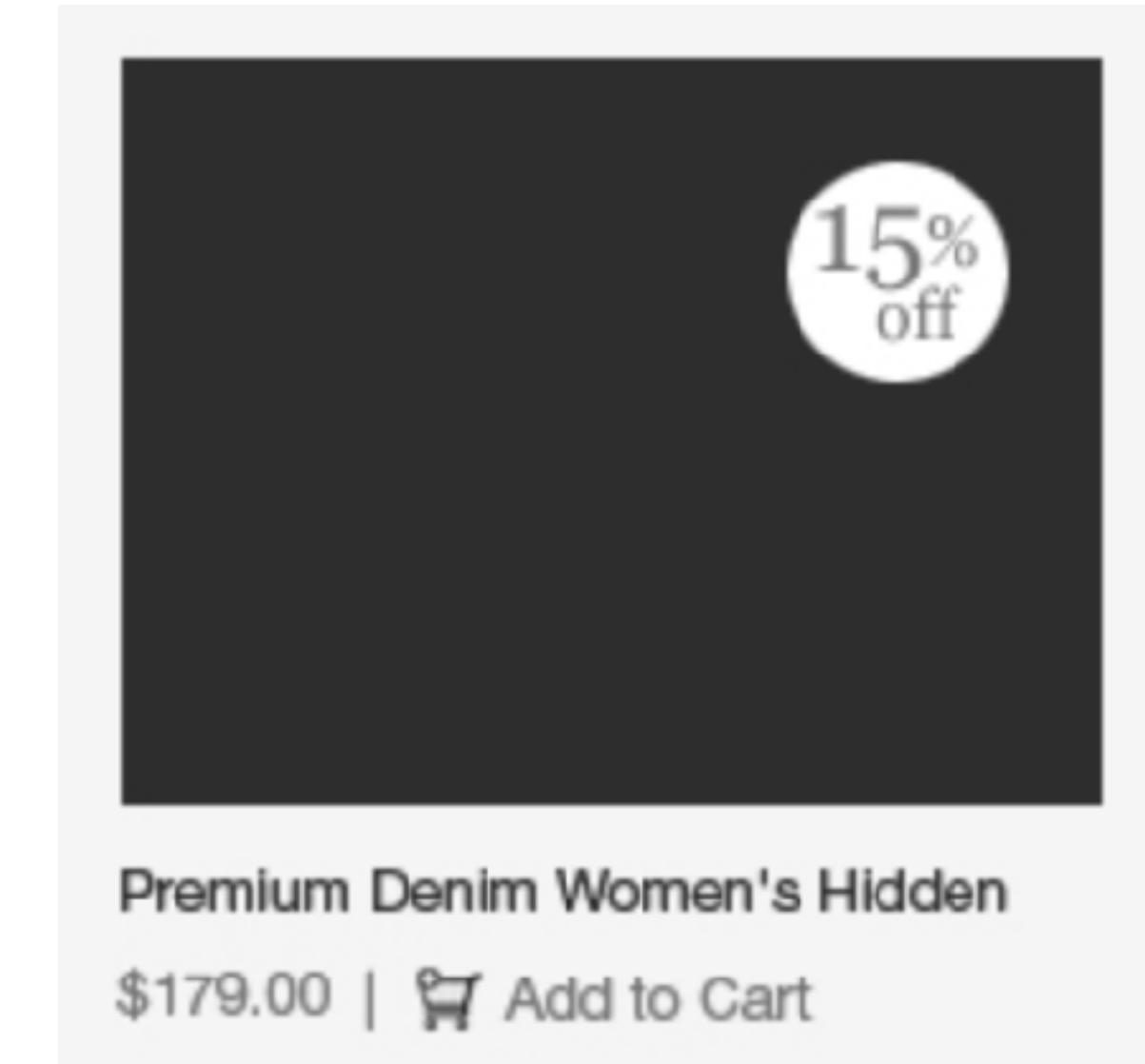
```
SELECT id, name, price, image_url  
FROM products  
WHERE {conditions};
```



## products

<i><b>id</b></i>	<i><b>name</b></i>	<i><b>category_id</b></i>	<i><b>price</b></i>	<i><b>stock_q</b></i>	<i><b>created_at</b></i>
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8	Super Printer	11	605.90	145	2023-11-22 07:05:49

```
SELECT id, name, price, image_url  
FROM products  
WHERE {conditions};
```



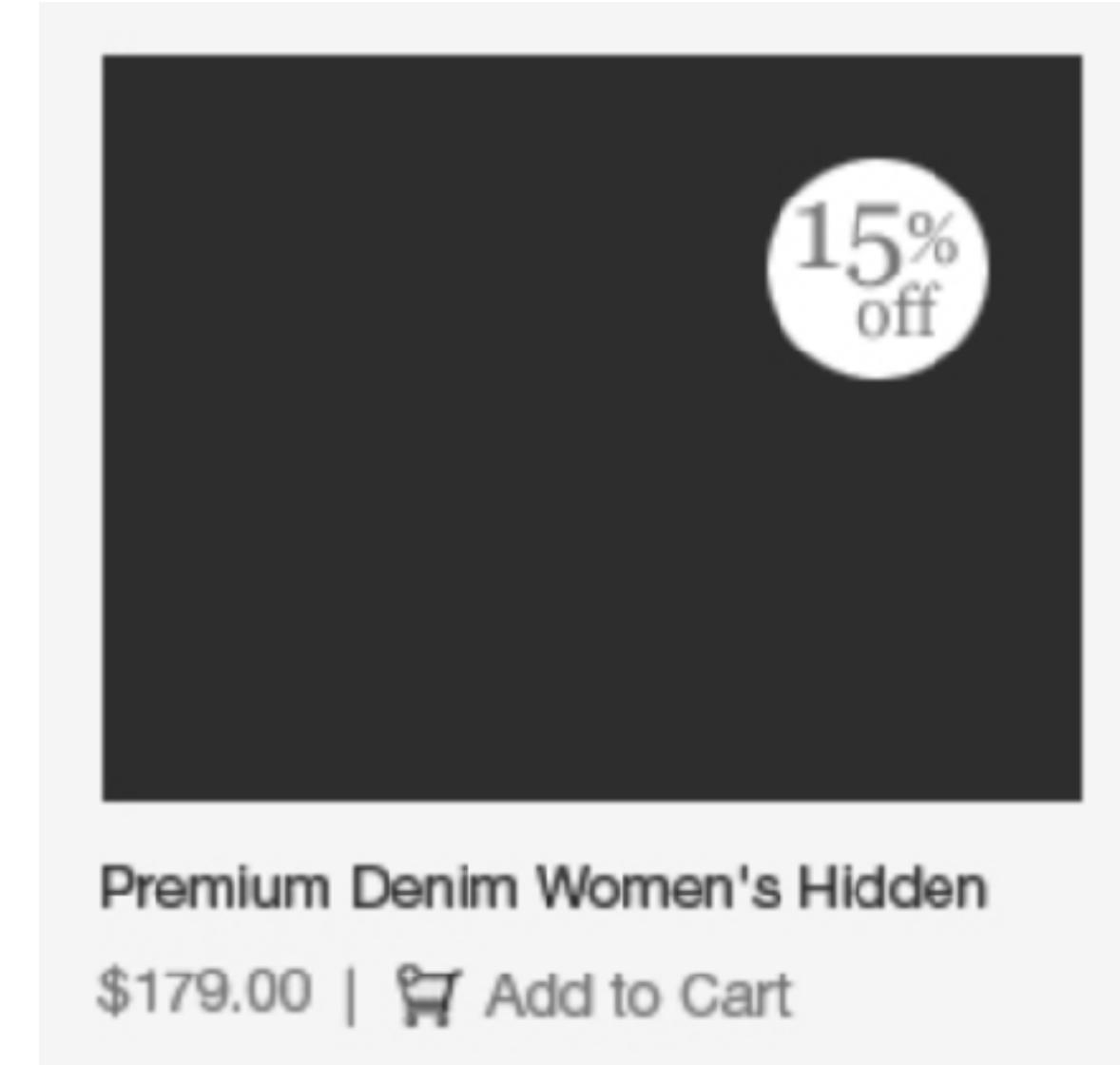
result

<i>id</i>	<i>name</i>	<i>price</i>	<i>image_url</i>
2	Ultra Speaker	672.33	/product/image/2.jpg
3	Mega Laptop	904.69	/product/image/3.jpg
4	Smart Monitor	338.47	/product/image/4.jpg
5	Magic Watch	543.99	/product/image/5.jpg
6	Giga Laptop	747.51	/product/image/6.jpg
7	Eco Speaker	612.53	/product/image/7.jpg
8	Super Printer	605.90	/product/image/8.jpg

# Filtering Records



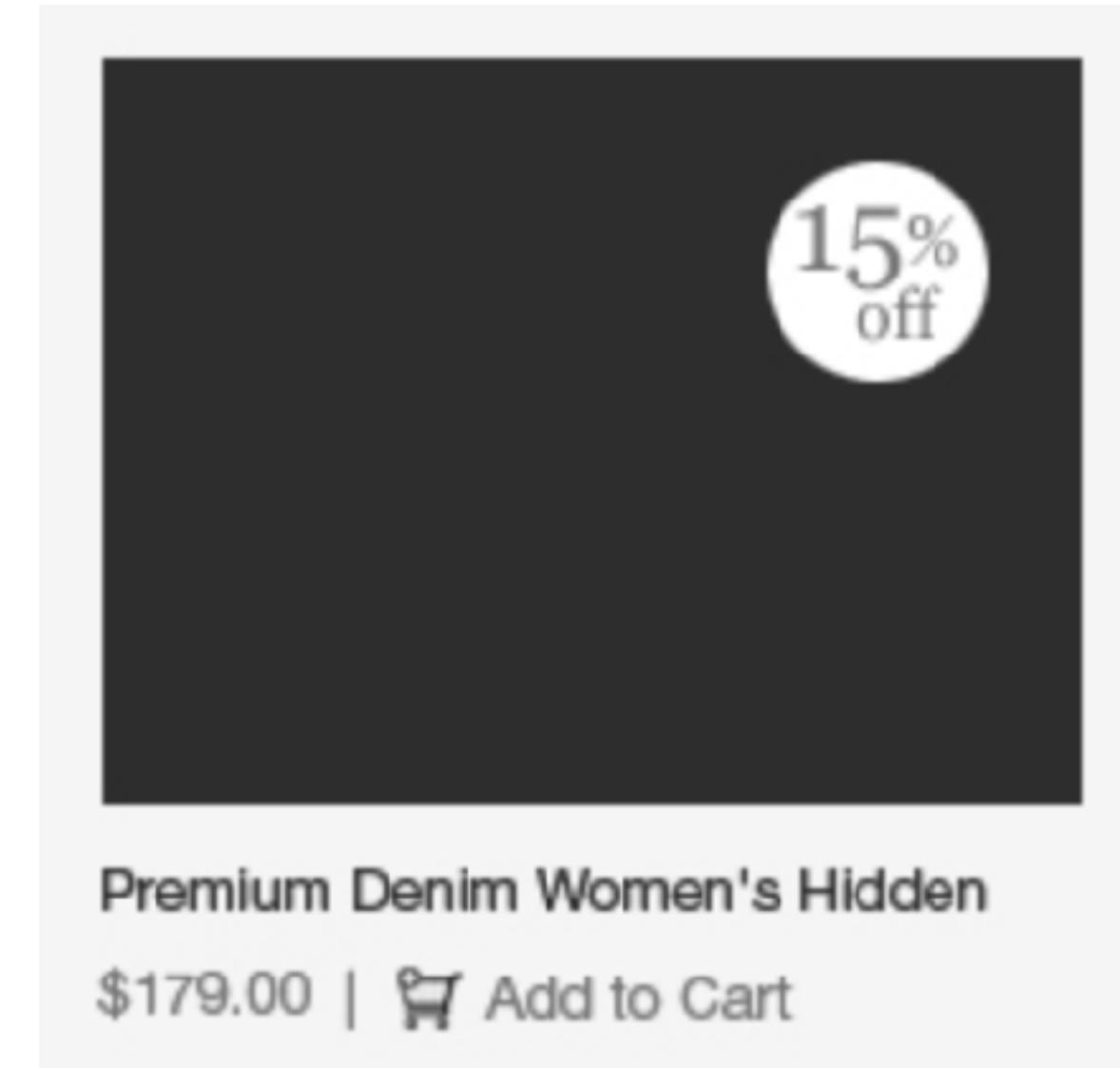
```
SELECT id, name, price, image_url  
FROM products  
WHERE {conditions};
```



## products

<i><b>id</b></i>	<i><b>name</b></i>	<i><b>category_id</b></i>	<i><b>price</b></i>	<i><b>stock_q</b></i>	<i><b>created_at</b></i>
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4	Smart Monitor	5	338.47	84	2023-11-22 07:05:49
5	Magic Watch	13	543.99	0	2023-11-22 07:05:49
6	Giga Laptop	14	747.51	30	2023-11-22 07:05:49
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8	Super Printer	11	605.90	145	2023-11-22 07:05:49

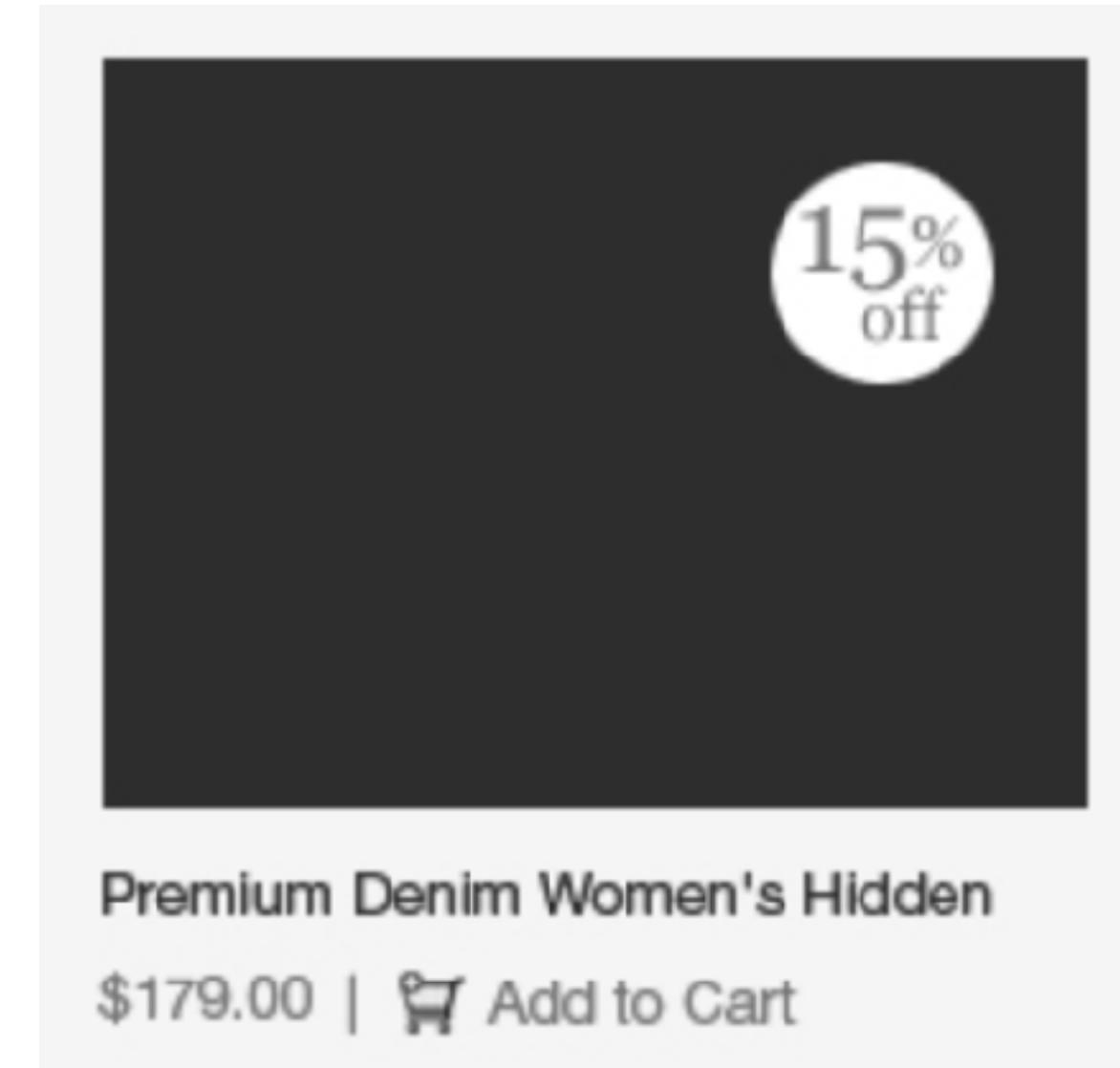
```
SELECT id, name, price, image_url  
FROM products  
WHERE {conditions};
```



## products

<i><b>id</b></i>	<i><b>name</b></i>	<i><b>category_id</b></i>	<i><b>price</b></i>	<i><b>stock_q</b></i>	<i><b>created_at</b></i>
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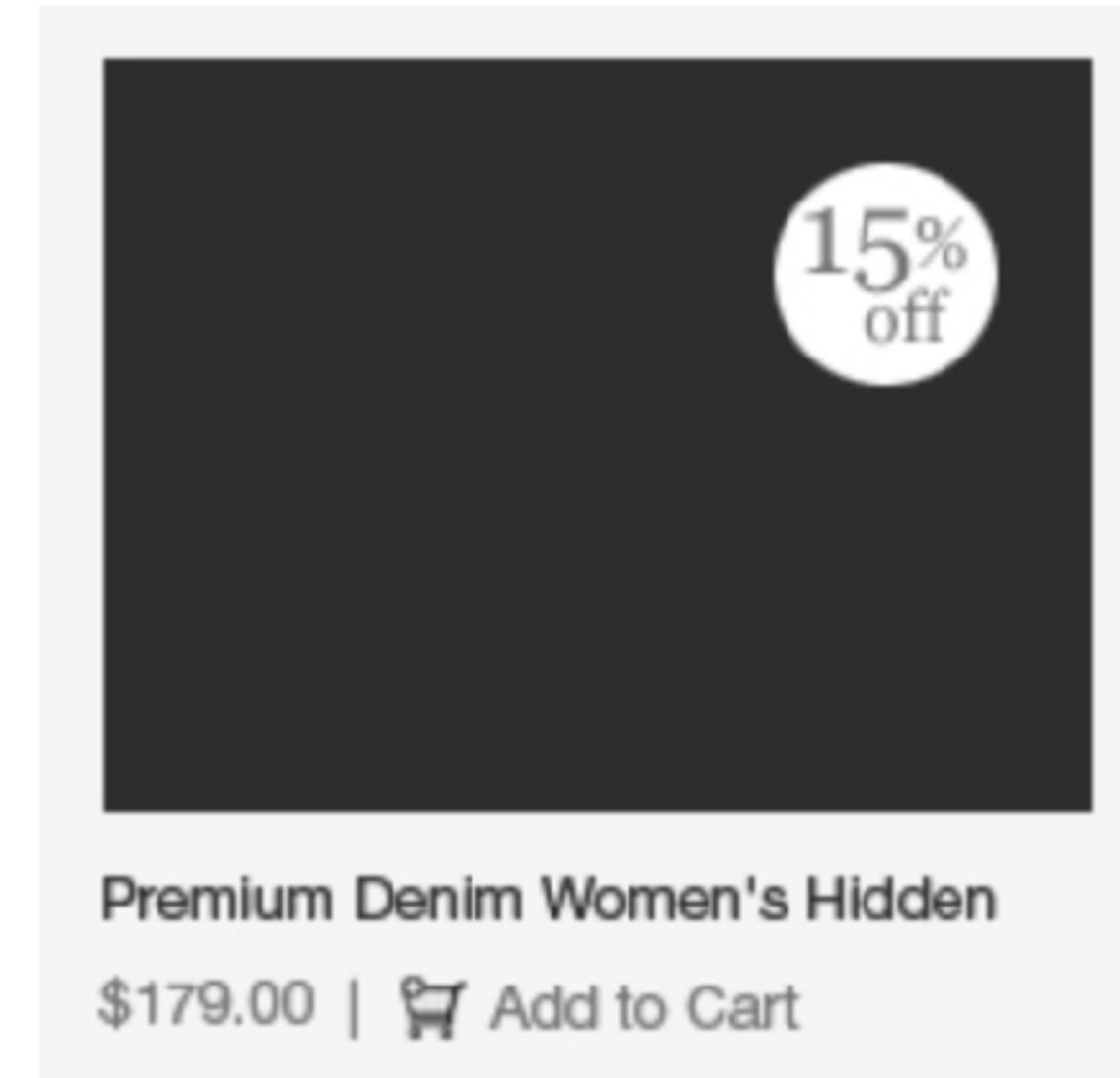
```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0 ;
```



## products

<i><b>id</b></i>	<i><b>name</b></i>	<i><b>category_id</b></i>	<i><b>price</b></i>	<i><b>stock_q</b></i>	<i><b>created_at</b></i>
2	Ultra Speaker	13	672.33	55	2023-11-22 07:05:49
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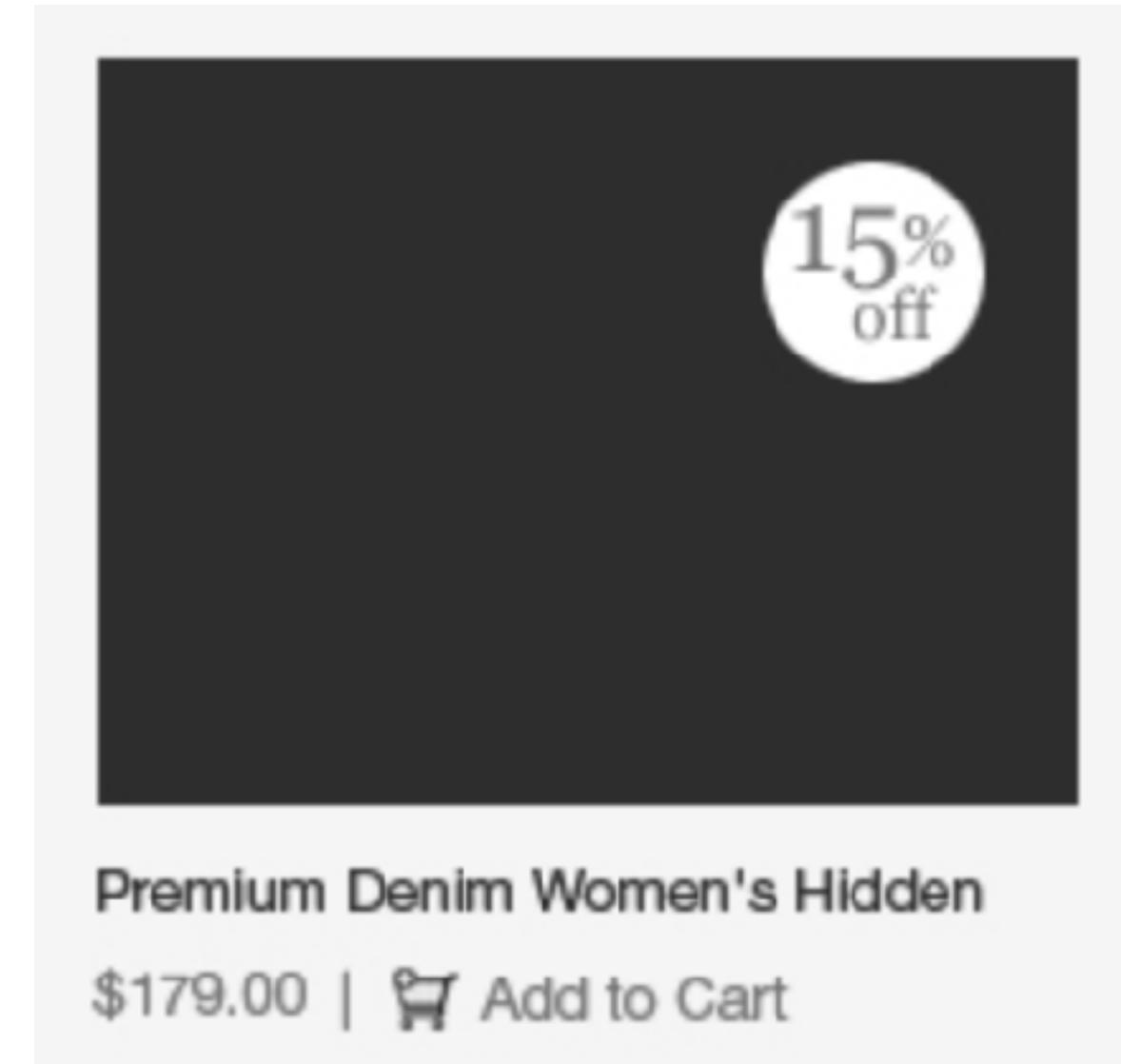
```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0 ;
```



## products

<i><b>id</b></i>	<i><b>name</b></i>	<i><b>category_id</b></i>	<i><b>price</b></i>	<i><b>stock_q</b></i>	<i><b>created_at</b></i>
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8	Super Printer	11	605.90	145	2023-11-22 07:05:49

```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0 ;
```



## Result

<i><b>id</b></i>	<i><b>name</b></i>	<i><b>price</b></i>	<i><b>image_url</b></i>
2	Ultra Speaker	672.33	/product/image/2.jpg
3	Mega Laptop	904.69	/product/image/3.jpg
4	Smart Monitor	338.47	/product/image/4.jpg
6	Giga Laptop	747.51	/product/image/5.jpg
8	Super Printer	605.90	/product/image/6.jpg

# Operators of WHERE Clause

Operator	Description	Example
=	Equal	name = 'Rahim'
>	Greater than	age > 6
<	Less than	total < 300
>=	Greater than or equal	marks ≥ 33
<=	Less than or equal	total_cost ≤ 300
<>	Not equal. <b>Note:</b> In some versions of SQL this operator may be written as !=	status <> 'archived'
BETWEEN	Between a certain range	Price BETWEEN 0 AND 99
LIKE	Search for a pattern	name like 'Power%'
IN	To specify multiple possible values for a column	id IN (2,3,4,5,6,7)

# Operators of WHERE Clause

Operator	Description	Example
=	Equal	name = 'Rahim'
>	Greater than	age > 6
<	Less than	total < 300
>=	Greater than or equal	marks ≥ 33
<=	Less than or equal	total_cost ≤ 300
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BETWEEN	Between a certain range	Price BETWEEN 0 AND 99
LIKE	Search for a pattern	name like 'Power%'
IN	To specify multiple possible values for a column	id IN (2,3,4,5,6,7)

# Combining Multiple Conditions

Operator	Description	Example
AND	All conditions must be matched	price > 300 AND shipment_type = 'physical'
OR	Matching of one condition is sufficient	shipment_type = 'digital' OR stock_quantity > 0
NOT	Takes only unmatched records	id NOT IN(3,5,6,7,9);
Brackets ()	Grouping and combining multiple condition groups	price > 400 AND (shipment_type = 'digital' OR stock_quantity > 0)

# Combining Multiple Conditions

## Order of Precedence

- ☒ Price must be > 400,
- ☒ Then either 'digital' or in stock

# Combining Multiple Conditions

## Order of Precedence

- ☑ Price must be > 400,
- ☑ Then either 'digital' or in stock

```
WHERE price > 400 AND shipment_type = 'digital' OR stock_quantity > 0;
```

# Combining Multiple Conditions

## Order of Precedence

- ☑ Price must be > 400,
- ☑ Then either 'digital' or in stock

```
WHERE price > 400 AND shipment_type = 'digital' OR stock_quantity > 0;
```

---

# Combining Multiple Conditions

## Order of Precedence

- ☑ Price must be > 400,
- ☑ Then either 'digital' or in stock

In MySQL, AND operator takes precedence over the OR operator

```
WHERE price > 400 AND shipment_type = 'digital' OR stock_quantity > 0;
```

# Combining Multiple Conditions

## Order of Precedence

- ☑ Price must be > 400,
- ☑ Then either 'digital' or in stock

In MySQL, AND operator takes precedence over the OR operator

---

```
WHERE price > 400 AND shipment_type = 'digital' OR stock_quantity > 0;
```

---

---

```
WHERE price > 400 AND shipment_type = 'digital' OR stock_quantity > 0;
```

---

# Combining Multiple Conditions

## Order of Precedence

- ✓ Price must be > 400,
- ✓ Then either 'digital' or in stock

In MySQL, AND operator takes precedence over the OR operator

```
WHERE price > 400 AND shipment_type = 'digital' OR stock_quantity > 0;
```

```
WHERE price > 400 AND shipment_type = 'digital' OR stock_quantity > 0;
```

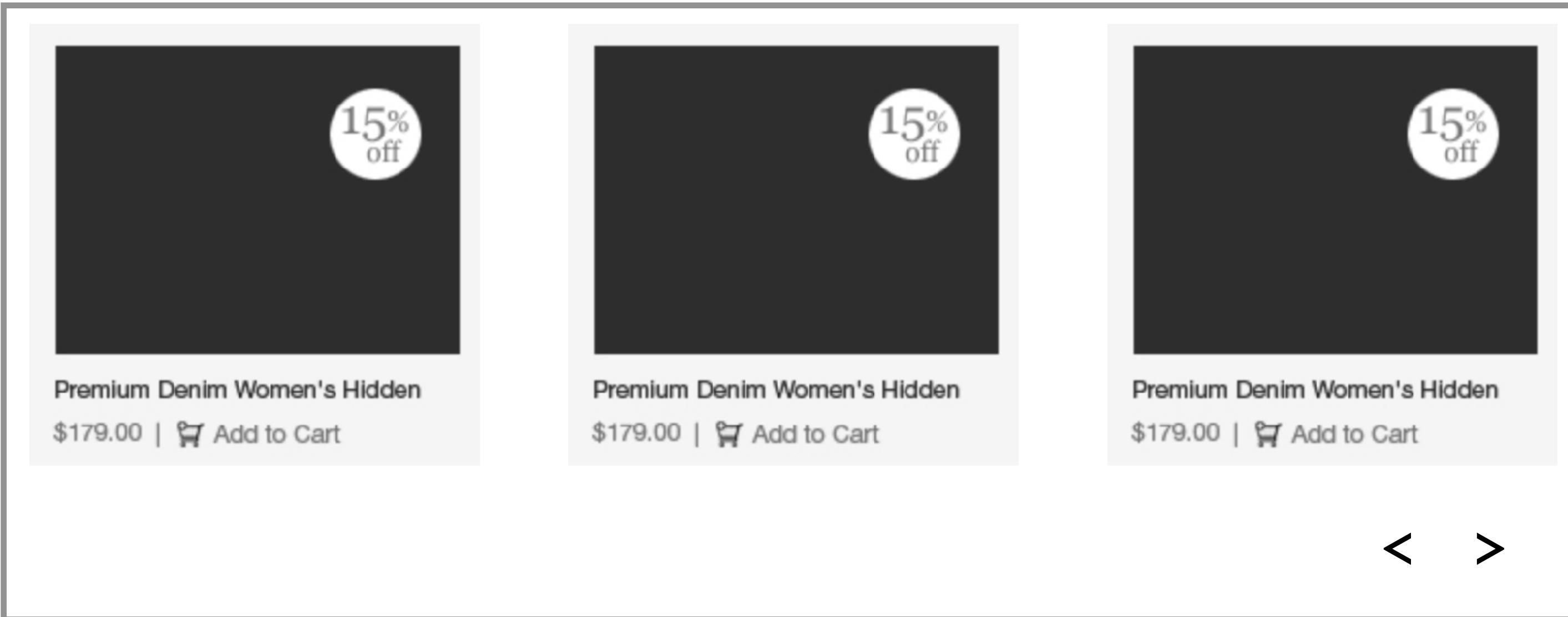
```
WHERE price > 400 AND (shipment_type = 'digital' OR stock_quantity > 0);
```

# Sorting Records



```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0  
ORDER BY {field} {order}  
;
```

## Latest Products

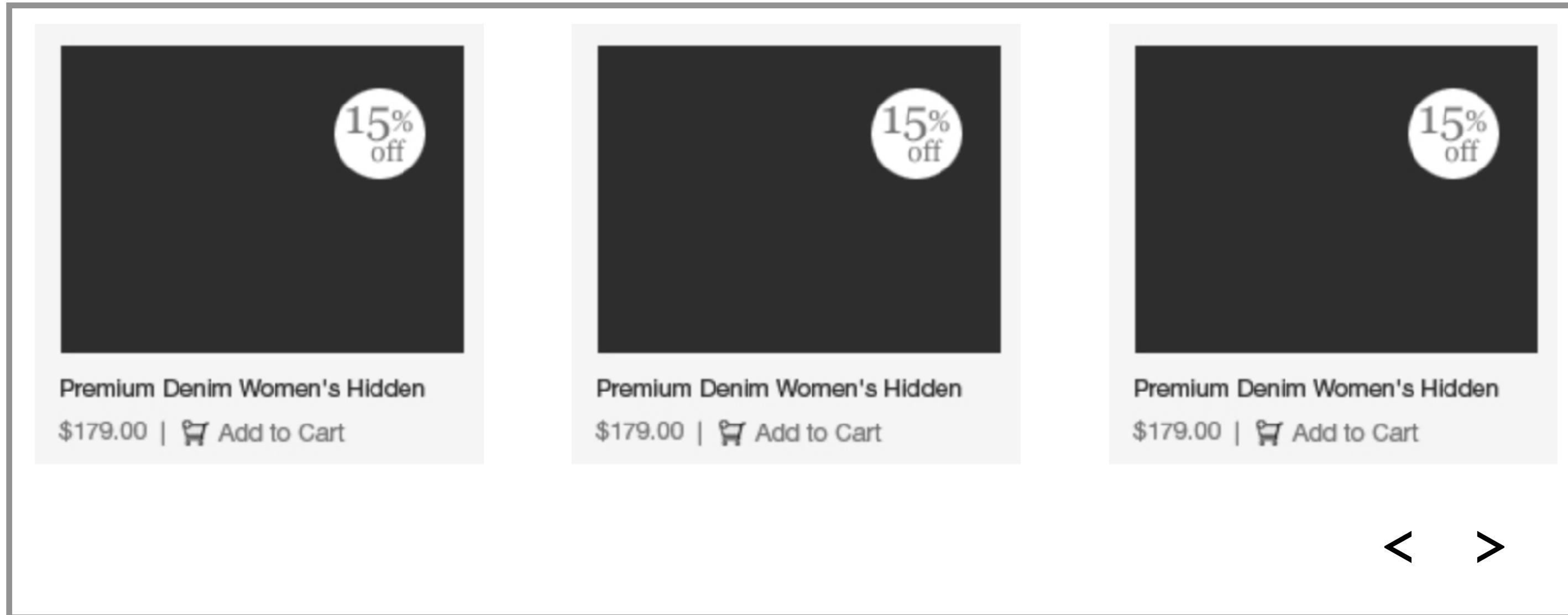


```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0  
ORDER BY {field} {order}  
;
```

	ASC (Ascending)	DESC (Descending)
1		401
2		300
300		2
401		1

```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0  
ORDER BY created_at DESC  
;
```

## Latest Products



# Sorting by Multiple Fields?

```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0  
ORDER BY  
    created_at DESC,  
    price ASC  
;
```

# Sorting by Multiple Fields?

Natural order

<b>id</b>	<b>name</b>		<b>price</b>	<b>stock_quantity</b>	<b>created_at</b>	<b>shipment_type</b>
3	Mega	Laptop	904.69	121	2023-11-17 07:05:49	digital
13	Smart	Speaker	916.13	19	2023-11-22 07:05:49	physical
16	Super	Printer	973.22	26	2023-11-20 07:05:49	physical
27	Smart	Headphone	989.35	189	2023-11-17 07:05:49	digital
28	Eco M	ouse	961.50	108	2023-11-20 07:05:49	physical
29	Ultra	Watch	978.89	147	2023-11-22 07:05:49	physical
35	Hyper	Monitor	932.12	112	2023-11-14 07:05:49	physical
43	Might	y Camera	926.41	112	2023-11-22 07:05:49	physical
55	Smart	Speaker	928.19	122	2023-11-14 07:05:49	physical
82	Might	y Camera	910.39	181	2023-11-20 07:05:49	physical

# Sorting by Multiple Fields?

ORDER BY `shipment_type`

<b>id</b>	<b>name</b>	<b>price</b>	<b>stock_quantity</b>	<b>created_at</b>	<b>shipment_type</b>
13	Smart Speaker	916.13	19	2023-11-22 07:05:49	physical
16	Super Printer	973.22	26	2023-11-20 07:05:49	physical
28	Eco Mouse	961.50	108	2023-11-20 07:05:49	physical
29	Ultra Watch	978.89	147	2023-11-22 07:05:49	physical
35	Hyper Monitor	932.12	112	2023-11-14 07:05:49	physical
43	Mighty Camera	926.41	112	2023-11-22 07:05:49	physical
55	Smart Speaker	928.19	122	2023-11-14 07:05:49	physical
82	Mighty Camera	910.39	181	2023-11-20 07:05:49	physical
3	Mega Laptop	904.69	121	2023-11-17 07:05:49	digital
27	Smart Headphone	989.35	189	2023-11-17 07:05:49	digital

# Sorting by Multiple Fields?

ORDER BY `shipment_type`, `price DESC`

<b>id</b>	<b>name</b>	<b>price</b>	<b>stock_quantity</b>	<b>created_at</b>	<b>shipment_type</b>
29	Ultra Watch	978.89	147	2023-11-22 07:05:49	physical
16	Super Printer	973.22	26	2023-11-20 07:05:49	physical
28	Eco Mouse	961.50	108	2023-11-20 07:05:49	physical
35	Hyper Monitor	932.12	112	2023-11-14 07:05:49	physical
55	Smart Speaker	928.19	122	2023-11-14 07:05:49	physical
43	Mighty Camera	926.41	112	2023-11-22 07:05:49	physical
13	Smart Speaker	916.13	19	2023-11-22 07:05:49	physical
82	Mighty Camera	910.39	181	2023-11-20 07:05:49	physical
27	Smart Headphone	989.35	189	2023-11-17 07:05:49	digital
3	Mega Laptop	904.69	121	2023-11-17 07:05:49	digital



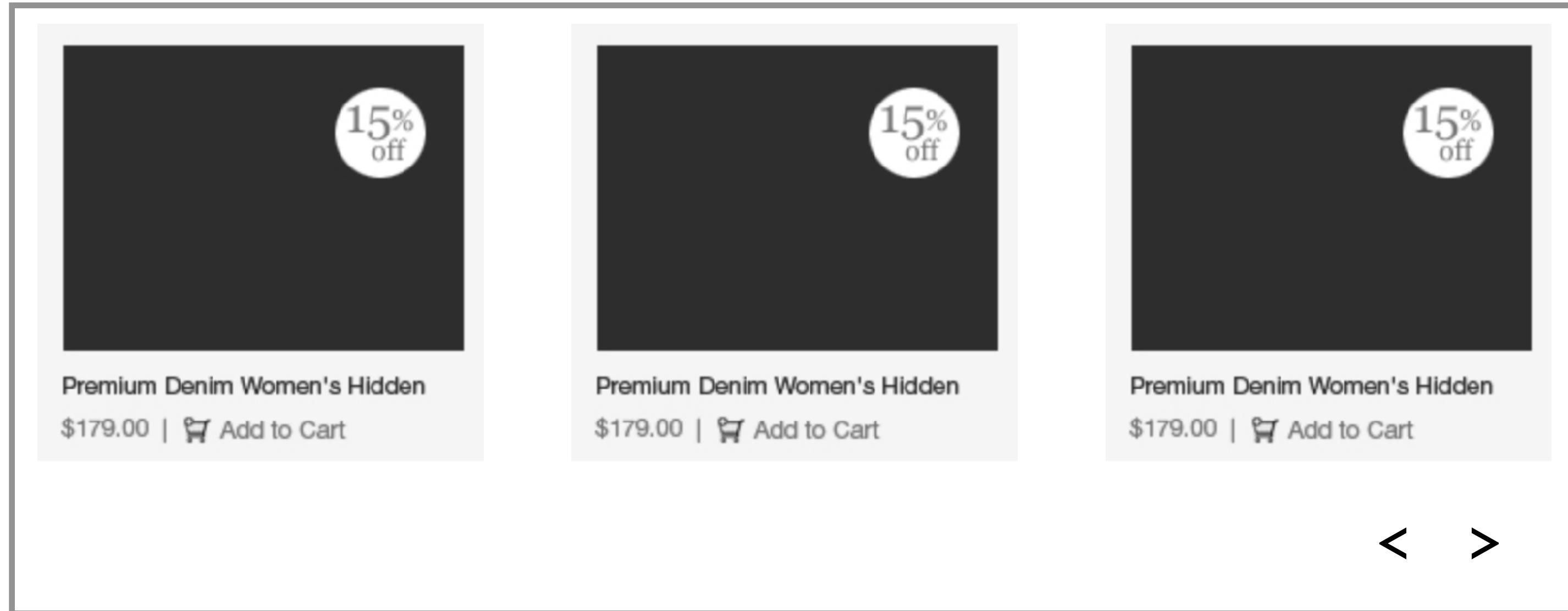
# Getting a Slice of Records



```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0  
ORDER BY created_at DESC  
LIMIT {num} [OFFSET {num}]
```

;

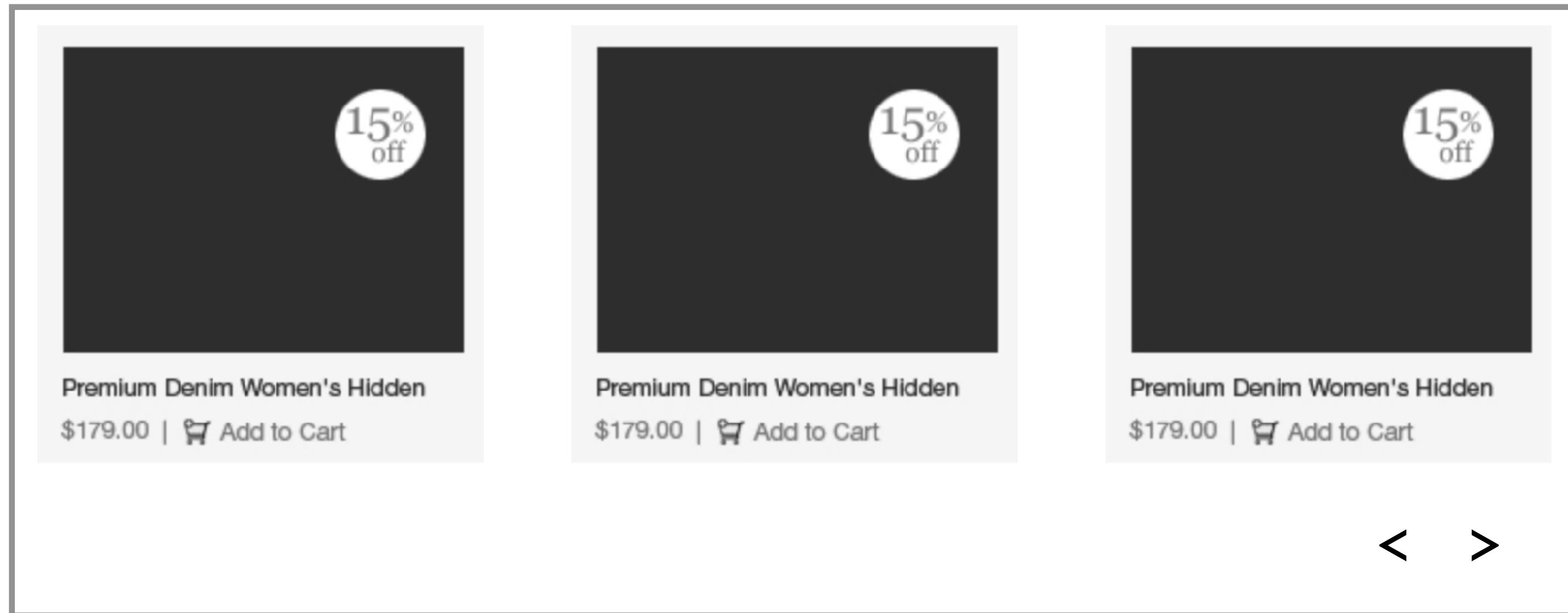
## Latest Products



```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0  
ORDER BY created_at DESC  
LIMIT 3 [OFFSET {num}]
```

;

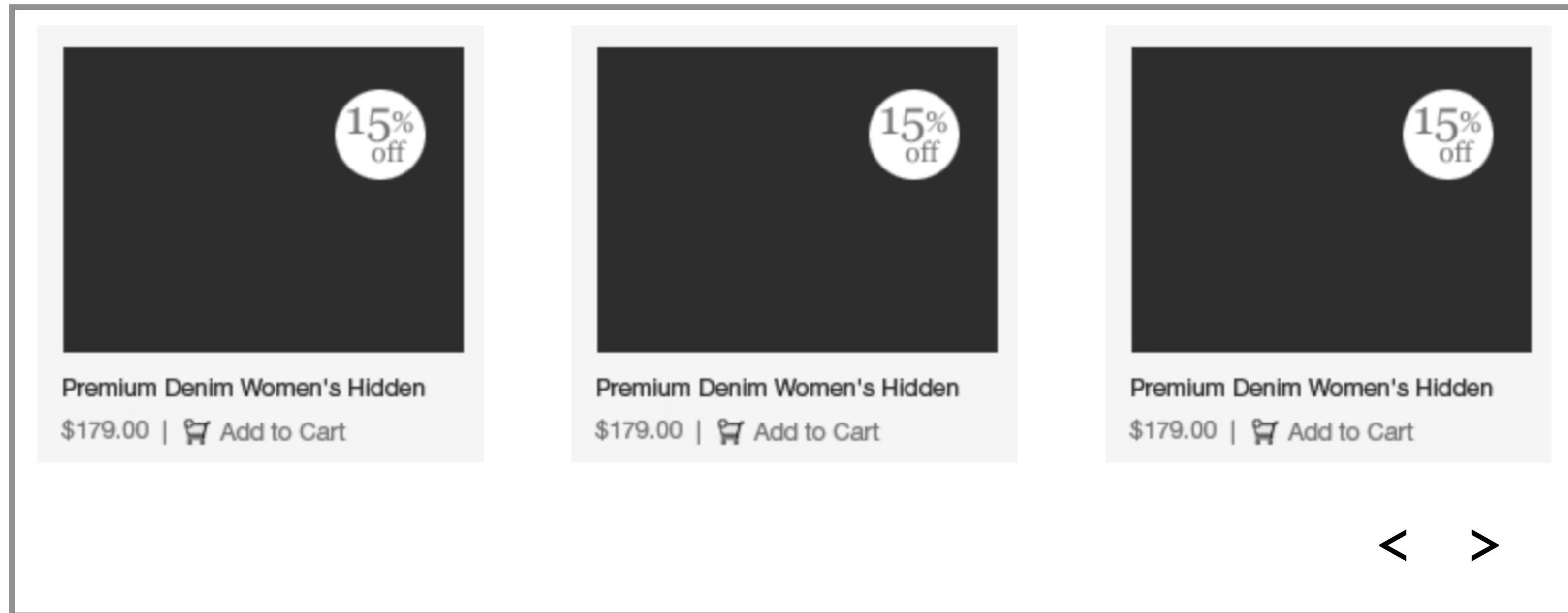
## Latest Products



```
SELECT id, name, price, image_url  
FROM products  
WHERE stock_quantity > 0  
ORDER BY created_at DESC  
LIMIT 3 OFFSET 3
```

;

## Latest Products



?