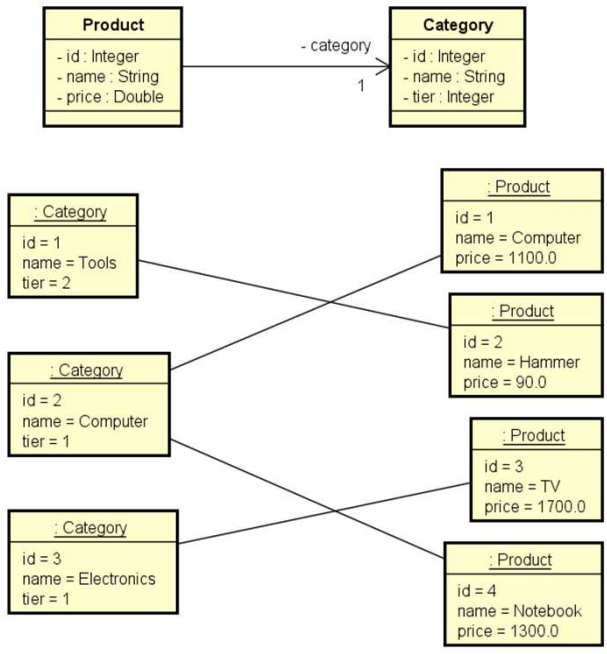
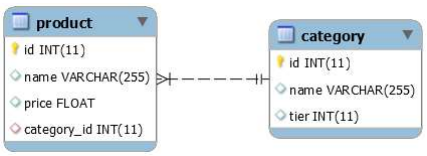
Nivelamento:
Álgebra Relacional e SQL

http://devsuperior.com.br

Prof. Dr. Nelio Alves





CATEGORY

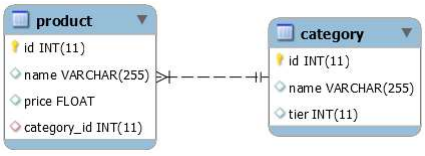
ID	NAME	TIER
1	Tools	2
2	Computers	1
3	Electronics	1

PRODUCT

ID	NAME	PRICE	CATEGORY_ID
1	Computer	1100.0	2
2	Hammer	90.0	1
3	TV	1700.0	3
4	Notebook	1300.0	2

Operações básicas da álgebra relacional

- Restrição
- Projeção
- Produto cartesiano
- Junção (produto cartesiano + restrição de chaves correspondentes)



CATEGORY

ID	NAME	TIER
1	Tools	2
2	Computers	1
3	Electronics	1

PRODUCT

ID	NAME	PRICE	CATEGORY_ID
1	Computer	1100.0	2
2	Hammer	90.0	1
3	TV	1700.0	3
4	Notebook	1300.0	2

Operação "produto cartesiano":

```
SELECT *
FROM PRODUCT, CATEGORY
```

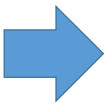
ID	NAME	TIER	ID	NAME	PRICE	CATEGORY_ID
1	Tools	2	1	Computer	1100.0	2
1	Tools	2	2	Hammer	90.0	1
1	Tools	2	3	TV	1700.0	3
1	Tools	2	4	Notebook	1300.0	2
2	Computers	1	1	Computer	1100.0	2
2	Computers	1	2	Hammer	90.0	1
2	Computers	1	3	TV	1700.0	3
2	Computers	1	4	Notebook	1300.0	2
3	Electronics	1	1	Computer	1100.0	2
3	Electronics	1	2	Hammer	90.0	1
3	Electronics	1	3	TV	1700.0	3
3	Electronics	1	4	Notebook	1300.0	2

Operação "junção":

```
SELECT *
FROM PRODUCT, CATEGORY
WHERE
  PRODUCT.CATEGORY_ID = CATEGORY.ID
```

```
SELECT *
FROM PRODUCT
INNER JOIN CATEGORY cat
  ON PRODUCT.CATEGORY_ID = cat.ID
```

ID	NAME	PRICE	CATEGORY_ID	ID	NAME	TIER
1	Computer	1100.0	2	1	Tools	2
2	Hammer	90.0	1	1	Tools	2
3	TV	1700.0	3	1	Tools	2
4	Notebook	1300.0	2	1	Tools	2
1	Computer	1100.0	2	2	Computers	1
2	Hammer	90.0	1	2	Computers	1
3	TV	1700.0	3	2	Computers	1
4	Notebook	1300.0	2	2	Computers	1
1	Computer	1100.0	2	3	Electronics	1
2	Hammer	90.0	1	3	Electronics	1
3	TV	1700.0	3	3	Electronics	1
4	Notebook	1300.0	2	3	Electronics	1



ID	NAME	PRICE	CATEGORY_ID	ID	NAME	TIER
2	Hammer	90.0	1	1	Tools	2
1	Computer	1100.0	2	2	Computers	1
4	Notebook	1300.0	2	2	Computers	1
3	TV	1700.0	3	3	Electronics	1

5

Operação "restrição":

```
SELECT *
FROM PRODUCT
INNER JOIN CATEGORY cat ON PRODUCT.CATEGORY_ID = cat.ID
WHERE CATEGORY.NAME = 'Computers'
```

ID	NAME	PRICE	CATEGORY_ID	ID	NAME	TIER
1	Computer	1100.0	2	1	Tools	2
2	Hammer	90.0	1	1	Tools	2
3	TV	1700.0	3	1	Tools	2
4	Notebook	1300.0	2	1	Tools	2
1	Computer	1100.0	2	2	Computers	1
2	Hammer	90.0	1	2	Computers	1
3	TV	1700.0	3	2	Computers	1
4	Notebook	1300.0	2	2	Computers	1
1	Computer	1100.0	2	3	Electronics	1
2	Hammer	90.0	1	3	Electronics	1
3	TV	1700.0	3	3	Electronics	1
4	Notebook	1300.0	2	3	Electronics	1

ID	NAME	PRICE	CATEGORY_ID	ID	NAME	TIER
2	Hammer	90.0	1	1	Tools	2
1	Computer	1100.0	2	2	Computers	1
4	Notebook	1300.0	2	2	Computers	1
3	TV	1700.0	3	3	Electronics	1

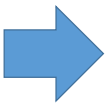
ID	NAME	PRICE	CATEGORY_ID	ID	NAME	TIER
1	Computer	1100.0	2	2	Computers	1
4	Notebook	1300.0	2	2	Computers	1

6

Operação "projeção":

```
SELECT PRODUCT.*, CATEGORY.NAME
FROM PRODUCT
INNER JOIN CATEGORY cat ON PRODUCT.CATEGORY_ID = cat.ID
WHERE CATEGORY.NAME = 'Computers'
```

ID	NAME	PRICE	CATEGORY_ID	ID	NAME	TIER
1	Computer	1100.0	2	1	Tools	2
2	Hammer	90.0	1	1	Tools	2
3	TV	1700.0	3	1	Tools	2
4	Notebook	1300.0	2	1	Tools	2
1	Computer	1100.0	2	2	Computers	1
2	Hammer	90.0	1	2	Computers	1
3	TV	1700.0	3	2	Computers	1
4	Notebook	1300.0	2	2	Computers	1
1	Computer	1100.0	2	3	Electronics	1
2	Hammer	90.0	1	3	Electronics	1
3	TV	1700.0	3	3	Electronics	1
4	Notebook	1300.0	2	3	Electronics	1



ID	NAME	PRICE	CATEGORY_ID	ID	NAME	TIER
2	Hammer	90.0	1	1	Tools	2
1	Computer	1100.0	2	2	Computers	1
4	Notebook	1300.0	2	2	Computers	1
3	TV	1700.0	3	3	Electronics	1

ID	NAME	PRICE	CATEGORY_ID	ID	NAME	TIER
1	Computer	1100.0	2	2	Computers	1
4	Notebook	1300.0	2	2	Computers	1

ID	NAME	PRICE	CATEGORY_ID	NAME
1	Computer	1100.0	2	Computers
4	Notebook	1300.0	2	Computers