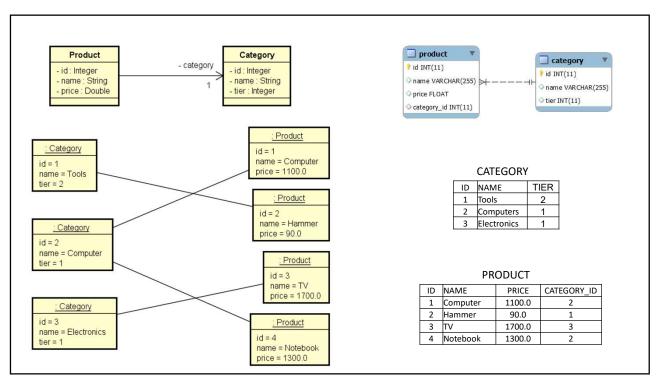
Nivelamento: Álgebra Relacional e SQL

http://devsuperior.com.br

Prof. Dr. Nelio Alves

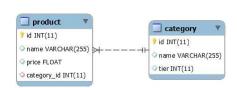
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Operações básicas da álgebra relacional

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

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CATEGORY

NAME	TIER
Tools	2
Computers	1
Electronics	1
	Tools Computers

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

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



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

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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

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



1 Computer 1100.0 2 Computer	
	ers
4 Notebook 1300.0 2 Compute	ers