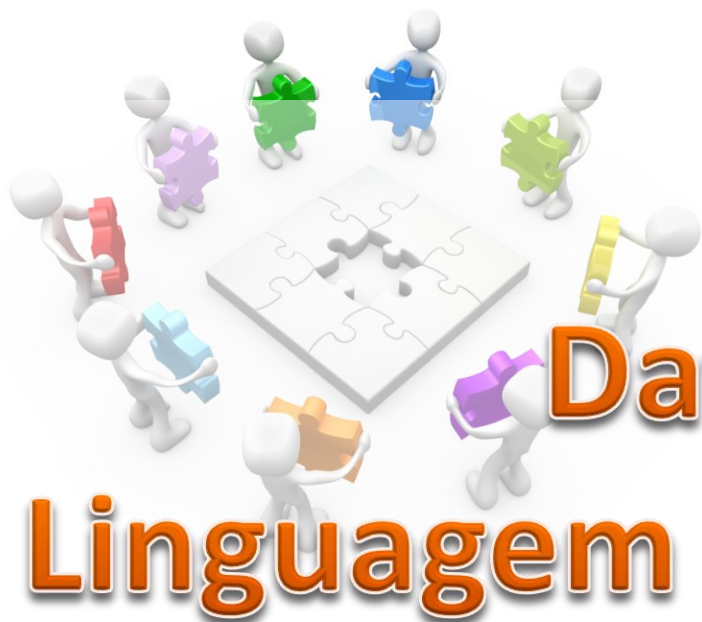


# Banco de Dados



**SQL – DML**

**Data Manipulation Language**  
**Linguagem de Manipulação de Dados**

**\*\*\* Terceira Parte \*\*\***



# MySQL – Data Manipulation Language



- Para atender o empório de bebidas, a seguinte estrutura foi modelada:

Bebida	
idBebida	SMALLINT(5)
Nome	VARCHAR(45)
Volume	SMALLINT
TeorAlcoolico	DECIMAL(3,1)
TemperaturaMinima	TINYINT
TemperaturaMaxima	TINYINT
PaisOrigem	CHAR(3)
Indexes	
PRIMARY	



Bebida - Table


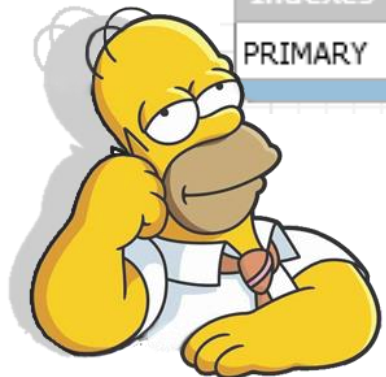
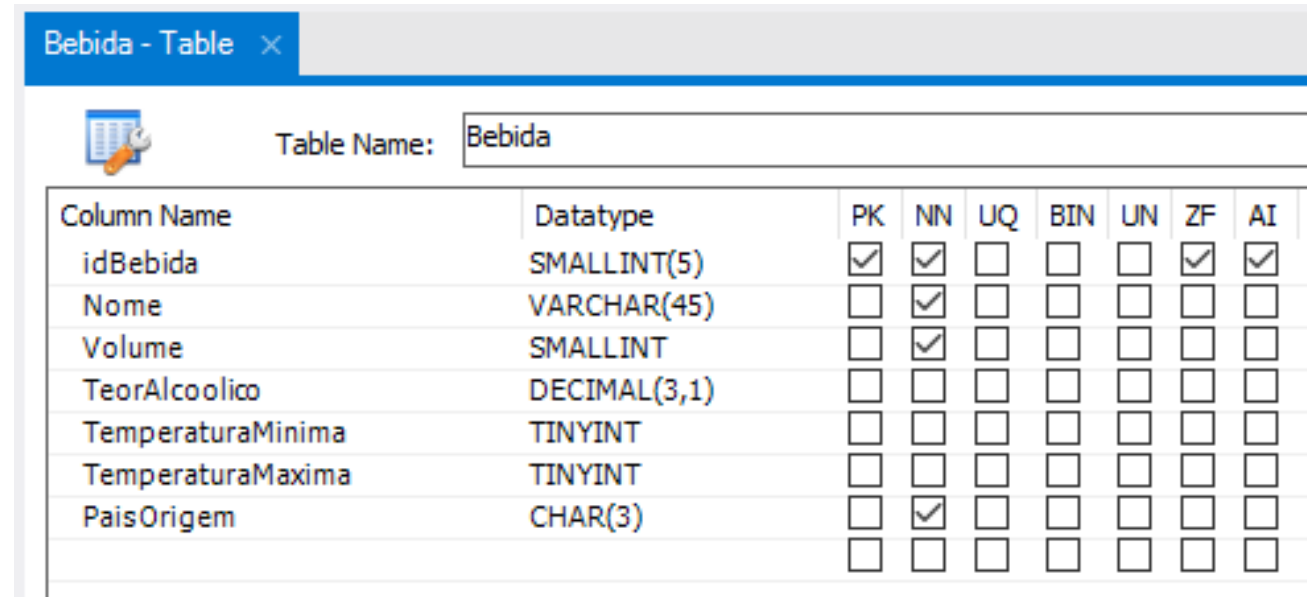


Table Name: Bebida

Column Name	Datatype	PK	NN	UQ	BIN	UN	ZF	AI
idBebida	SMALLINT(5)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Nome	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volume	SMALLINT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TeorAlcoolico	DECIMAL(3,1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TemperaturaMinima	TINYINT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TemperaturaMaxima	TINYINT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PaisOrigem	CHAR(3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>







# MySQL – Data Manipulation Language



Bebida	
idBebida	SMALLINT(5)
Nome	VARCHAR(45)
Volume	SMALLINT
TeorAlcoolico	DECIMAL(3,1)
TemperaturaMinima	TINYINT
TemperaturaMaxima	TINYINT
PaisOrigem	CHAR(3)
Indexes	
PRIMARY	



```
CREATE TABLE Bebida (  
    idBebida SMALLINT(5) UNSIGNED ZEROFILL NOT NULL AUTO_INCREMENT,  
    Nome VARCHAR(45) NOT NULL,  
    Volume SMALLINT NOT NULL,  
    TeorAlcoolico DECIMAL(3,1) ,  
    TemperaturaMinima TINYINT(4) ,  
    TemperaturaMaxima TINYINT(4) ,  
    PaisOrigem CHAR(3) NOT NULL,  
    PRIMARY KEY (idBebida)  
);
```



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, b.Volume, b.TeorAlcoolico,  
       b.TemperaturaMinima, b.TemperaturaMaxima, b.PaisOrigem  
FROM Bebida b;
```



Result Grid       Filter Rows: <input type="text"/>   Edit:      Export/Import:     Wrap Cell Content: <input type="checkbox"/>							
	idBebida	Nome	Volume	TeorAlcoolico	TemperaturaMinima	TemperaturaMaxima	PaisOrigem
	00001	Brahma Extra Weiss	355	4.9	0	4	BRA
	00002	Antarctica Cristal	355	5.5	0	4	BRA
	00003	Bohemia Pilsen	355	5.0	0	4	BRA
	00004	Negra Modelo Long Neck	355	4.8	5	7	MEX
	00005	Budweiser	343	5.0	0	4	USA
	00006	Stella Artois	275	5.2	0	4	BEL
	00007	Coronita Extra	210	4.6	0	4	MEX
	00008	Skol Beats	330	5.2	0	4	BRA
	00009	Antarctica Original	600	5.0	0	4	BRA
	00010	Hoegaarden White	330	4.9	5	7	BEL
	00011	Nortefia	960	5.0	0	4	URY
	00012	Bourbon County Stout	360	13.0	8	12	USA



# MySQL – Data Manipulation Language



- Vamos inserir mais algumas tuplas em nossa tabela:

```
INSERT INTO Bebida (Nome, Volume, TeorAlcoolico,  
                   TemperaturaMinima, TemperaturaMaxima, PaisOrigem)  
VALUES('Quilmes', 290, Null, Null, Null, 'ARG');  
  
INSERT INTO Bebida (Nome, Volume, TeorAlcoolico,  
                   TemperaturaMinima, TemperaturaMaxima, PaisOrigem)  
VALUES('Coors Light', 340, Null, 1, 3, 'USA');  
  
INSERT INTO Bebida (Nome, Volume, PaisOrigem)  
VALUES('Snow Beer', 355, 'CHN'),  
      ('Yanjing', 1200, 'CHN'),  
      ('Guinness', 600, 'CHN');
```







# MySQL – Data Manipulation Language



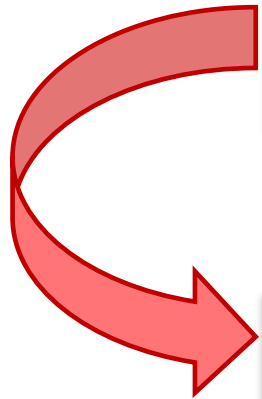
Result Grid    Filter Rows: <input type="text"/>   Edit:      Export/Import:     Wrap Cell Content: <input type="checkbox"/>							
	idBebida	Nome	Volume	TeorAlcoolico	TemperaturaMinima	TemperaturaMaxima	PaisOrigem
▶	00001	Brahma Extra Weiss	355	4.9	0	4	BRA
	00002	Antarctica Cristal	355	5.5	0	4	BRA
	00003	Bohemia Pilsen	355	5.0	0	4	BRA
	00004	Negra Modelo Long Neck	355	4.8	5	7	MEX
	00005	Budweiser	343	5.0	0	4	USA
	00006	Stella Artois	275	5.2	0	4	BEL
	00007	Coronita Extra	210	4.6	0	4	MEX
	00008	Skol Beats	330	5.2	0	4	BRA
	00009	Antarctica Original	600	5.0	0	4	BRA
	00010	Hoegaarden White	330	4.9	5	7	BEL
	00011	Norteña	960	5.0	0	4	URY
	00012	Bourbon County Stout	360	13.0	8	12	USA
	00013	Quilmes	290	NULL	NULL	NULL	ARG
	00014	Coors Light	340	NULL	1	3	USA
	00015	Snow Beer	355	NULL	NULL	NULL	CHN
	00016	Yanjing	1200	NULL	NULL	NULL	CHN
	00017	Guinness	600	NULL	NULL	NULL	CHN



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, b.TeorAlcoolico, b.PaisOrigem  
FROM bebida b  
WHERE b.Nome = 'Budweiser'
```



Result Grid			Filter Rows: <input type="text"/>	Edit:			Export/Import:		Wrap
	idBebida	Nome	Volume	TeorAlcoolico	TemperaturaMinima	TemperaturaMaxima	PaisOrigem		
	00005	Budweiser	343	5.0	0	4	USA		

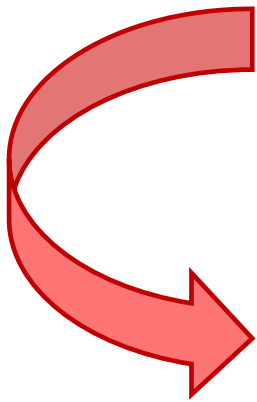




# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome  
FROM bebida b  
WHERE b.Nome LIKE '%extra%';
```



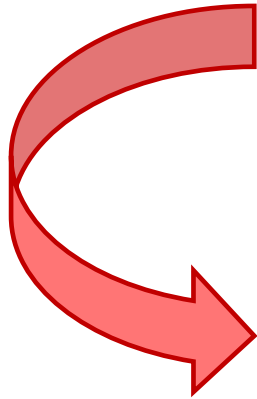
Result Grid			Filter Rows:
	idBebida	Nome	
	00001	Brahma Extra Weiss	
	00007	Coronita Extra	



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome  
FROM bebida b  
WHERE b.Nome LIKE 'antarctica%';
```



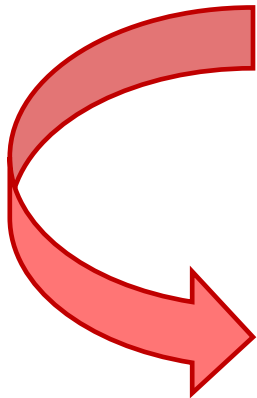
Result Grid			Filter Rows:
	idBebida	Nome	
	00002	Antarctica Cristal	
	00009	Antarctica Original	



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome  
FROM bebida b  
WHERE b.Nome LIKE '%ss';
```



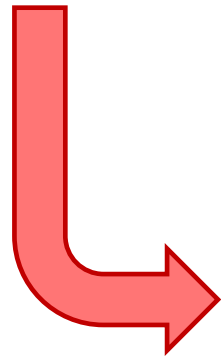
	idBebida	Nome
	00001	Brahma Extra Weiss
	00017	Guinness



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome  
FROM bebida b  
WHERE b.Nome NOT LIKE '%extra%';
```



Result Grid			Filter Rows:
	idBebida	Nome	
	00002	Antarctica Cristal	
	00003	Bohemia Pilsen	
	00004	Negra Modelo Long Neck	
	00005	Budweiser	
	00006	Stella Artois	
	00008	Skol Beats	
	00009	Antarctica Original	
	00010	Hoegaarden White	
	00011	Norteña	
	00012	Bourbon County Stout	
	00013	Quilmes	
	00014	Coors Light	
	00015	Snow Beer	
	00016	Yanjing	
	00017	Guinness	



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, b.TeorAlcoolico  
FROM bebida b  
WHERE b.TeorAlcoolico IS NULL;
```

Result Grid			
		Filter Rows:	
	idBebida	Nome	TeorAlcoolico
	00013	Quilmes	NULL
	00014	Coors Light	NULL
	00015	Snow Beer	NULL
	00016	Yanjing	NULL
	00017	Guinness	NULL



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, b.TeorAlcoolico
FROM bebida b
WHERE b.TeorAlcoolico IS NOT NULL;
```

Result Grid     Filter Rows: <input type="text"/>			
	idBebida	Nome	TeorAlcoolico
	00001	Brahma Extra Weiss	4.9
	00002	Antarctica Cristal	5.5
	00003	Bohemia Pilsen	5.0
	00004	Negra Modelo Long Neck	4.8
	00005	Budweiser	5.0
	00006	Stella Artois	5.2
	00007	Coronita Extra	4.6
	00008	Skol Beats	5.2
	00009	Antarctica Original	5.0
	00010	Hoegaarden White	4.9
	00011	Norteña	5.0
	00012	Bourbon County Stout	13.0



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, b.TeorAlcoolico  
FROM bebida b  
WHERE b.PaisOrigem = 'BRA'  
ORDER BY b.TeorAlcoolico DESC;
```

Result Grid				Filter Rows:	
	idBebida	Nome	TeorAlcoolico		
	00002	Antarctica Cristal	5.5		
	00008	Skol Beats	5.2		
	00003	Bohemia Pilsen	5.0		
	00009	Antarctica Original	5.0		
	00001	Brahma Extra Weiss	4.9		





# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, b.TeorAlcoolico
FROM bebida b
WHERE b.PaisOrigem = 'BRA'
ORDER BY b.TeorAlcoolico DESC
LIMIT 3;
```

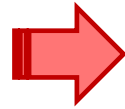
Result Grid				Filter Rows:
	idBebida	Nome	TeorAlcoolico	
	00002	Antarctica Cristal	5.5	
	00008	Skol Beats	5.2	
	00009	Antarctica Original	5.0	



# MySQL – Data Manipulation Language

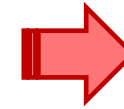


```
SELECT b.PaisOrigem  
FROM bebida b;
```



Result Grid	
	PaisOrigem
▶	BRA
	BRA
	BRA
	MEX
	USA
	BEL
	MEX
	BRA
	BRA
	BEL
	URY
	USA
	ARG
	USA
	CHN
	CHN
	CHN

```
SELECT DISTINCT b.PaisOrigem  
FROM bebida b;
```



Result Grid	
	PaisOrigem
▶	BRA
	MEX
	USA
	BEL
	URY
	ARG
	CHN



# MySQL – Data Manipulation Language




```
SELECT b.PaisOrigem, b.TemperaturaMinima  
FROM bebida b  
ORDER BY b.PaisOrigem, b.TemperaturaMinima;
```



Result Grid		 Filter Rows: <input type="text"/>
	PaisOrigem	TemperaturaMinima
▶	ARG	NULL
	BEL	0
	BEL	5
	BRA	0
	BRA	0
	BRA	0
	BRA	0
	BRA	0
	CHN	NULL
	CHN	NULL
	CHN	NULL
	MEX	0
	MEX	5
	URY	0
	USA	0
	USA	1
	USA	8

```
SELECT DISTINCT b.PaisOrigem, b.TemperaturaMinima  
FROM bebida b  
ORDER BY b.PaisOrigem, b.TemperaturaMinima;
```



Result Grid		 Filter Rows: <input type="text"/>
	PaisOrigem	TemperaturaMinima
▶	ARG	NULL
	BEL	0
	BEL	5
	BRA	0
	CHN	NULL
	MEX	0
	MEX	5
	URY	0
	USA	0
	USA	1
	USA	8



**Os slides 20 a 36 não serão considerados quando as próximas atividades forem elaboradas.**



# MySQL – Data Definition Language



## Avaliando Performance

```
DESCRIBE Bebida;
```

Field	Type	Null	Key	Default	Extra
idBebida	smallint(5) unsigned zerofill	NO	PRI	NULL	auto_increment
Nome	varchar(45)	NO		NULL	
Volume	smallint(6)	NO		NULL	
TeorAlcoolico	decimal(3,1)	YES		NULL	
TemperaturaMinima	tinyint(4)	YES		NULL	
TemperaturaMaxima	tinyint(4)	YES		NULL	
PaisOrigem	varchar(45)	NO		NULL	

```
CREATE INDEX idxPaisOrigem  
ON Bebida (PaisOrigem);
```

```
CREATE INDEX idxTeorAlcoolico  
ON Bebida (TeorAlcoolico);
```



# MySQL – Data Definition Language



## Avaliando Performance

**Antes**

```
DESCRIBE Bebida;
```



Field	Type	Null	Key	Default	Extra
idBebida	smallint(5) unsigned zerofill	NO	PRI	NULL	auto_increment
Nome	varchar(45)	NO		NULL	
Volume	smallint(6)	NO		NULL	
TeorAlcoolico	decimal(3,1)	YES		NULL	
TemperaturaMinima	tinyint(4)	YES		NULL	
TemperaturaMaxima	tinyint(4)	YES		NULL	
PaisOrigem	varchar(45)	NO		NULL	

**Depois**

```
DESCRIBE Bebida;
```



Field	Type	Null	Key	Default	Extra
idBebida	smallint(5) unsigned zerofill	NO	PRI	NULL	auto_increment
Nome	varchar(45)	NO		NULL	
Volume	smallint(6)	NO		NULL	
TeorAlcoolico	decimal(3,1)	YES	MUL	NULL	
TemperaturaMinima	tinyint(4)	YES		NULL	
TemperaturaMaxima	tinyint(4)	YES		NULL	
PaisOrigem	varchar(45)	NO	MUL	NULL	



# MySQL – Data Definition Language



## Performance

```
CREATE UNIQUE INDEX idxNome  
ON Bebida (Nome);
```



**Depois**

```
DESCRIBE Bebida;
```



Result Grid   Filter Rows:   Export:   Wrap Cell Content:						
	Field	Type	Null	Key	Default	Extra
▶	idBebida	smallint(5) unsigned zerofill	NO	PRI	HULL	auto_increment
	Nome	varchar(45)	NO	UNI	HULL	
	Volume	smallint(6)	NO		HULL	
	TeorAlcoolico	decimal(3,1)	YES	MUL	HULL	
	TemperaturaMinima	tinyint(4)	YES		HULL	
	TemperaturaMaxima	tinyint(4)	YES		HULL	
	PaisOrigem	varchar(45)	NO	MUL	HULL	

- **PRI >>> Primary Key;**
- **UNI >>> Unique Key;**
- **MUL >>> Multiple Occurrences;**





# MySQL – Data Definition Language



```
SELECT b.idBebida, b.Nome FROM Bebida b  
LIMIT 5;
```



Result Grid		Filter Rows:
	idBebida	Nome
	00001	Brahma Extra Weiss
	00002	Antarctica Cristal
	00003	Bohemia Pilsen
	00004	Negra Modelo Long Neck
	00005	Budweiser



```
INSERT INTO Bebida  
(Nome, Volume, TeorAlcoolico, TemperaturaMinima, TemperaturaMaxima, PaisOrigem)  
VALUES ('Bohemia Pilsen', 355, 4.5, 1, 4, 'BRA');
```



- PRI >>> Primary Key;
- UNI >>> Unique Key;
- MUL >>> Multiple Occurrences;

```
Error Code: 1062. Duplicate entry 'Bohemia Pilsen' for key 'idxNome'
```



Result Grid						
Filter Rows:						
Export: Wrap Cell Content:						
	Field	Type	Null	Key	Default	Extra
▶	idBebida	smallint(5) unsigned zerofill	NO	PRI	<input type="text" value="NULL"/>	auto_increment
	Nome	varchar(45)	NO	UNI	<input type="text" value="NULL"/>	
	Volume	smallint(6)	NO		<input type="text" value="NULL"/>	
	TeorAlcoolico	decimal(3,1)	YES	MUL	<input type="text" value="NULL"/>	
	TemperaturaMinima	tinyint(4)	YES		<input type="text" value="NULL"/>	
	TemperaturaMaxima	tinyint(4)	YES		<input type="text" value="NULL"/>	
	PaisOrigem	varchar(45)	NO	MUL	<input type="text" value="NULL"/>	



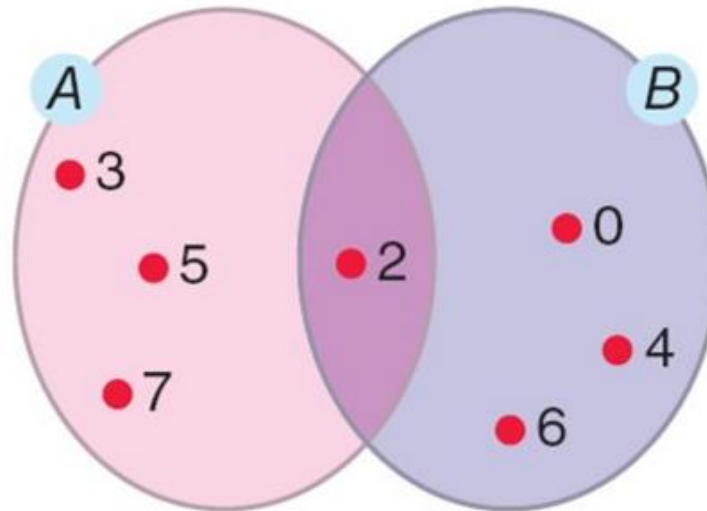
# MySQL – Data Manipulation Language



## União de Conjuntos

$$A \cup B = \{x \mid x \in A \text{ ou } x \in B\}$$

Result Grid					Filter Rows:	Edit:
	idBebida	Nome	PaisOrigem	TeorAlcoolico		
▶	00001	Brahma Extra Weiss	BRA	4.9		
	00002	Antarctica Cristal	BRA	5.5		
	00003	Bohemia Pilsen	BRA	5.0		
	00008	Skol Beats	BRA	5.2		
	00009	Antarctica Original	BRA	5.0		



Result Grid					Filter Rows:	Edit:
	idBebida	Nome	PaisOrigem	TeorAlcoolico		
	00002	Antarctica Cristal	BRA	5.5		
	00006	Stella Artois	BEL	5.2		
	00008	Skol Beats	BRA	5.2		
	00012	Bourbon County Stout	USA	13.0		

```
SELECT b.idBebida, b.Nome, b.PaisOrigem, b.TeorAlcoolico
FROM bebida b
WHERE b.PaisOrigem = 'BRA';
```

```
SELECT b.idBebida, b.Nome, b.PaisOrigem, b.TeorAlcoolico
FROM bebida b
WHERE b.TeorAlcoolico > 5.0;
```



# MySQL – Data Manipulation Language



## Avaliando Performance

Duration / Fetch  
0.047 sec / 0.000 sec

```
SELECT b.idBebida, b.Nome, b.PaisOrigem, b.TeorAlcoolico  
FROM bebida b  
WHERE b.PaisOrigem = 'BRA' OR  
       b.TeorAlcoolico > 5.0;
```

Result Grid		  Filter Rows:	<input type="text"/>	Edit: 
	idBebida	Nome	PaisOrigem	TeorAlcoolico
▶	00001	Brahma Extra Weiss	BRA	4.9
	00002	Antarctica Cristal	BRA	5.5
	00003	Bohemia Pilsen	BRA	5.0
	00006	Stella Artois	BEL	5.2
	00008	Skol Beats	BRA	5.2
	00009	Antarctica Original	BRA	5.0
	00012	Bourbon County Stout	USA	13.0

Duration / Fetch  
0.015 sec / 0.000 sec

```
SELECT b.idBebida, b.Nome, b.PaisOrigem, b.TeorAlcoolico  
FROM bebida b  
WHERE b.PaisOrigem = 'BRA';
```

Duration / Fetch  
0.016 sec / 0.000 sec

```
SELECT b.idBebida, b.Nome, b.PaisOrigem, b.TeorAlcoolico  
FROM bebida b  
WHERE b.TeorAlcoolico > 5.0;
```

Result Grid



Filter Rows:

Edit: 

	idBebida	Nome	PaisOrigem	TeorAlcoolico
▶	00001	Brahma Extra Weiss	BRA	4.9
	00002	Antarctica Cristal	BRA	5.5
	00003	Bohemia Pilsen	BRA	5.0
	00008	Skol Beats	BRA	5.2
	00009	Antarctica Original	BRA	5.0




Result Grid			 Filter Rows:	<input type="text"/>	Edit: 
	idBebida	Nome	PaisOrigem	TeorAlcoolico	
	00002	Antarctica Cristal	BRA	5.5	
	00006	Stella Artois	BEL	5.2	
	00008	Skol Beats	BRA	5.2	
	00012	Bourbon County Stout	USA	13.0	



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, b.PaisOrigem, b.TeorAlcoolico
FROM bebida b
WHERE b.PaisOrigem = 'BRA'
UNION ALL
SELECT b.idBebida, b.Nome, b.PaisOrigem, b.TeorAlcoolico
FROM bebida b
WHERE b.TeorAlcoolico > 5.0;
```

Result Grid   Filter Rows: <input type="text"/> Edit: 				
	idBebida	Nome	PaisOrigem	TeorAlcoolico
▶	1	Brahma Extra Weiss	BRA	4.9
	2	Antarctica Cristal	BRA	5.5
	3	Bohemia Pilsen	BRA	5.0
	8	Skol Beats	BRA	5.2
	9	Antarctica Original	BRA	5.0
	2	Antarctica Cristal	BRA	5.5
	6	Stella Artois	BEL	5.2
	8	Skol Beats	BRA	5.2
	12	Bourbon County Stout	USA	13.0



# MySQL – Data Manipulation Language



```
SELECT DISTINCT Tab01.idBebida, Tab01.Nome, Tab01.PaisOrigem, Tab01.TeorAlcoolico
FROM (SELECT b.idBebida, b.Nome, b.PaisOrigem, b.TeorAlcoolico
      FROM bebida b
      WHERE b.PaisOrigem = 'BRA'
      UNION ALL
      SELECT b.idBebida, b.Nome, b.PaisOrigem, b.TeorAlcoolico
      FROM bebida b
      WHERE b.TeorAlcoolico > 5.0
     ) Tab01;
```



Result Grid					Filter Rows:	Export:
	idBebida	Nome	PaisOrigem	TeorAlcoolico		
▶	1	Brahma Extra Weiss	BRA	4.9		
	2	Antarctica Cristal	BRA	5.5		
	3	Bohemia Pilsen	BRA	5.0		
	8	Skol Beats	BRA	5.2		
	9	Antarctica Original	BRA	5.0		
	6	Stella Artois	BEL	5.2		
	12	Bourbon County Stout	USA	13.0		



# MySQL – Data Manipulation Language



```
SELECT b.Nome, b.TeorAlcoolico, TRUNCATE(b.TeorAlcoolico,1), TRUNCATE(b.TeorAlcoolico,2)
FROM bebida b
WHERE b.PaisOrigem = 'BRA'
ORDER BY b.TeorAlcoolico DESC
LIMIT 3;
```

	Nome	TeorAlcoolico	TRUNCATE(b.TeorAlcoolico,1)	TRUNCATE(b.TeorAlcoolico,2)
▶	Antarctica Cristal	5.5	5.5	5.50
	Skol Beats	5.2	5.2	5.20
	Antarctica Original	5.0	5.0	5.00



# MySQL – Data Manipulation Language



```
SELECT b.Nome, b.TeorAlcoolico, ROUND(b.TeorAlcoolico)
FROM bebida b
WHERE b.PaisOrigem = 'BRA'
ORDER BY b.TeorAlcoolico DESC
LIMIT 3;
```

Result Grid			
Filter Rows: <input type="text"/>			
Export: <input type="text"/>			
	Nome	TeorAlcoolico	ROUND(b.TeorAlcoolico)
▶	Antarctica Cristal	5.5	6
	Skol Beats	5.2	5
	Antarctica Original	5.0	5





# MySQL – Data Manipulation Language



```
SELECT b.Nome, b.Volume, b.Volume + 150, b.Volume - 100, b.Volume * 2, b.Volume / 2
FROM bebida b
WHERE b.PaisOrigem = 'USA';
```

Result Grid     Filter Rows: <input type="text"/>   Export:    Wrap Cell Content:						
	Nome	Volume	b.Volume + 150	b.Volume - 100	b.Volume * 2	b.Volume / 2
▶	Budweiser	343	493	243	686	171.5000
	Bourbon County Stout	360	510	260	720	180.0000
	Coors Light	340	490	240	680	170.0000



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, b.Volume, b.Volume DIV 1000, b.Volume MOD 1000
FROM bebida b
WHERE b.PaisOrigem = 'CHN';
```

Result Grid					
Filter Rows: <input type="text"/>					
Export:  Wrap Cell C					
	idBebida	Nome	Volume	b.Volume DIV 1000	b.Volume MOD 1000
▶	00015	Snow Beer	355	0	355
	00016	Yanjing	1200	1	200
	00017	Guinness	600	0	600



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome,  
       SUBSTRING(b.Nome, 8, 5),  
       SUBSTRING(b.Nome, 5),  
       SUBSTRING(b.Nome, -5)  
FROM Bebida b  
LIMIT 3;
```




Result Grid       Filter Rows: <input type="text"/>   Export:    Wrap Cell Content:    Fetch rows:					
	idBebida	Nome	SUBSTRING(b.Nome, 8, 5)	SUBSTRING(b.Nome, 5)	SUBSTRING(b.Nome, -5)
▶	00001	Brahma Extra Weiss	Extra	ma Extra Weiss	Weiss
	00002	Antarctica Cristal	ica C	rctica Cristal	istal
	00003	Bohemia Pilsen	Pils	mia Pilsen	ilsen



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, INSTR(b.Nome, "Weis")  
FROM Bebida b  
LIMIT 5;
```

Result Grid     Filter Rows: <input type="text"/>   Export: 			
	idBebida	Nome	INSTR(b.Nome, "Weis")
▶	00001	Brahma Extra Weiss	14
	00002	Antarctica Cristal	0
	00003	Bohemia Pilsen	0
	00004	Negra Modelo Long Neck	0
	00005	Budweiser	4



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, LENGTH(b.Nome)
FROM Bebida b
LIMIT 5;
```

Result Grid				Filter Rows:	Exp
	idBebida	Nome	LENGTH(b.Nome)		
▶	00001	Brahma Extra Weiss	18		
	00002	Antarctica Cristal	18		
	00003	Bohemia Pilsen	14		
	00004	Negra Modelo Long Neck	22		
	00005	Budweiser	9		



# MySQL – Data Manipulation Language



```
SELECT b.Nome, UPPER(b.Nome), LOWER(b.Nome)
FROM Bebida b
LIMIT 5;
```

Result Grid       Filter Rows: <input type="text"/>   Export:    Wrap Cell Contents			
	Nome	UPPER(b.Nome)	LOWER(b.Nome)
▶	Brahma Extra Weiss	BRAHMA EXTRA WEISS	brahma extra weiss
	Antarctica Cristal	ANTARCTICA CRISTAL	antarctica cristal
	Bohemia Pilsen	BOHEMIA PILSEN	bohemia pilsen
	Negra Modelo Long Neck	NEGRA MODELO LONG NECK	negra modelo long neck
	Budweiser	BUDWEISER	budweiser



# MySQL – Data Manipulation Language



```
SELECT b.idBebida, b.Nome, CONCAT('Nome: ', b.Nome, ' - Oferta')
FROM Bebida b
LIMIT 3;
```

Result Grid			
Filter Rows: <input type="text"/>			
Export: <input type="button" value="Export"/> Wrap			
	idBebida	Nome	CONCAT('Nome: ', b.Nome, ' - Oferta')
▶	00001	Brahma Extra Weiss	Nome: Brahma Extra Weiss - Oferta
	00002	Antarctica Cristal	Nome: Antarctica Cristal - Oferta
	00003	Bohemia Pilsen	Nome: Bohemia Pilsen - Oferta





# MySQL – Data Manipulation Language



## Exercícios

### DER, DDL e DML (Filmes) - 03 de 04

Exercícios - DER, DDL e DML (Filmes) - 03 de 04 – Questões.pdf

- Leia o enunciado com atenção;
- Mantenha a concentração;
- Avance gradativamente;
- Verifique o resultado a cada etapa.