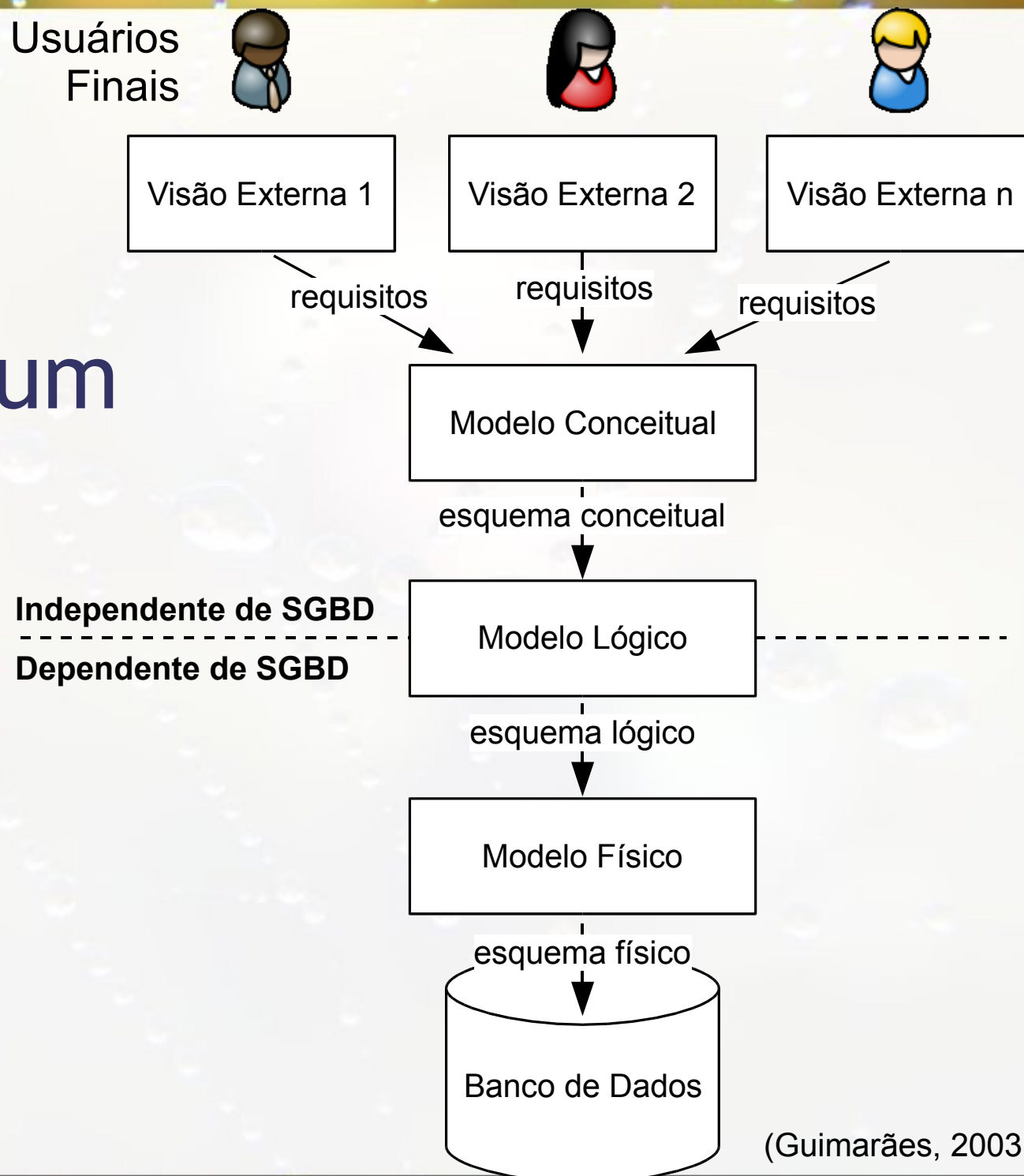


Modelo Lógico

Banco de Dados: Teoria e Prática

André Santanchè e Patrícia Cavoto
Instituto de Computação - UNICAMP
Agosto 2015

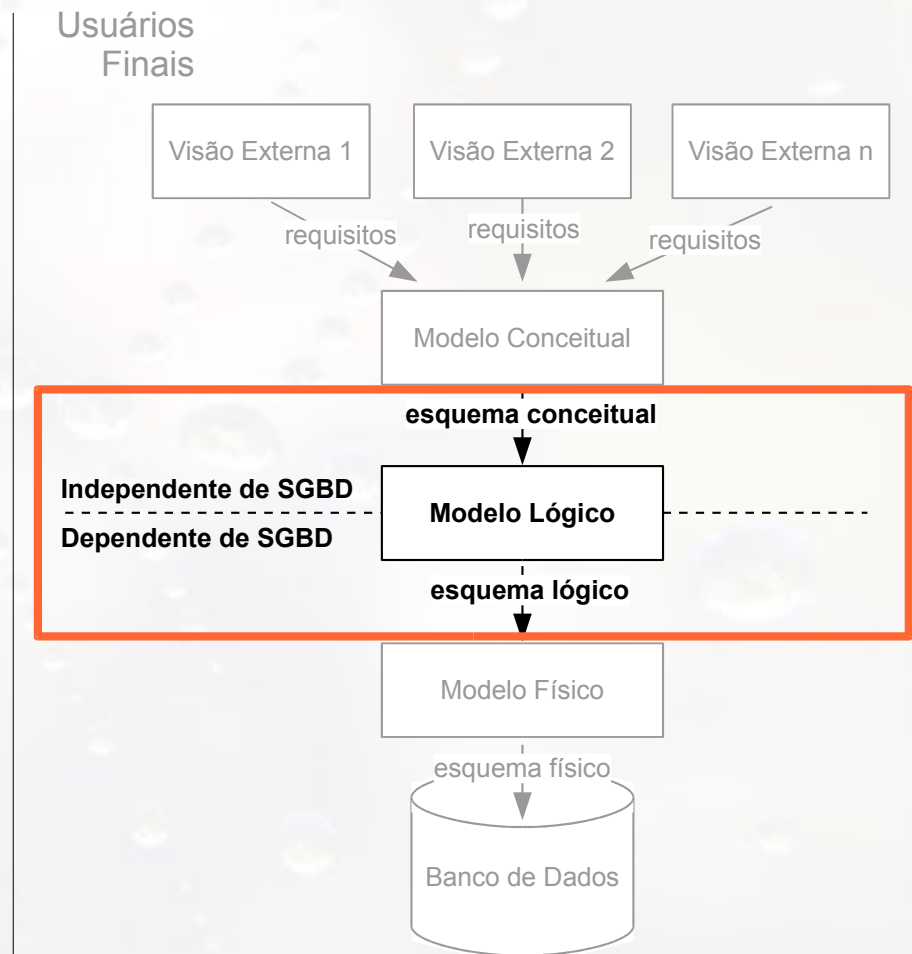
Projeto de um BD



(Guimarães, 2003)

Modelo/Esquema Lógico

- Dependente de um SGBD particular
- Associado a um “modelo de dados de implementação” (Elmasri, 2005)



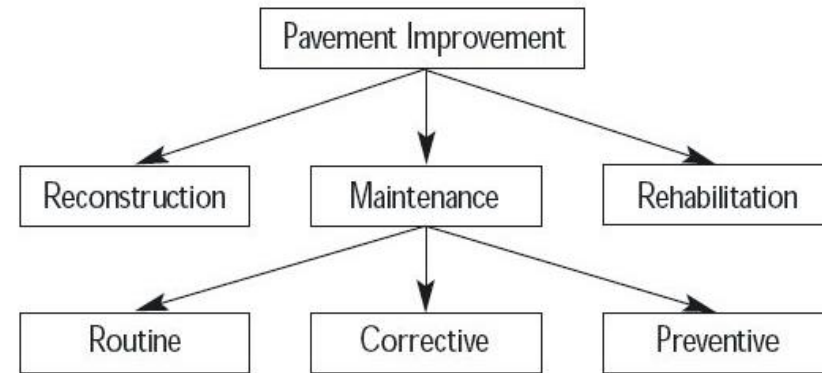
Flat File Model

	Route No.	Miles	Activity
Record 1	I-95	12	Overlay
Record 2	I-495	05	
Record 3	SR-301	33	

Relational Model

Activity Code	Activity Name
23	Patching
24	Overlay
25	Crack Sealing

Hierarchical Model



Object-Oriented Model

Object 1: Maintenance Report Object 1 Instance

Date	01-12-01
Activity Code	24
Route No.	I-95
Daily Production	2.5
Equipment Hours	6.0
Labor Hours	6.0

Object 2: Maintenance Activity

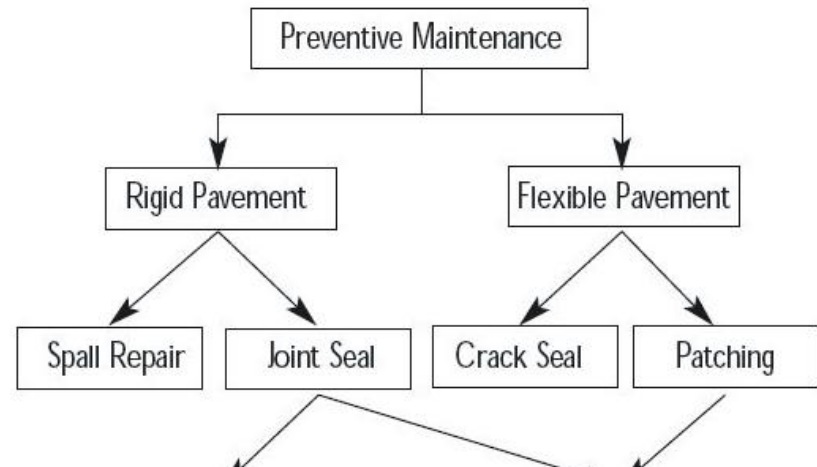
Activity Code	
Activity Name	
Production Unit	
Average Daily Production Rate	

Key = 24

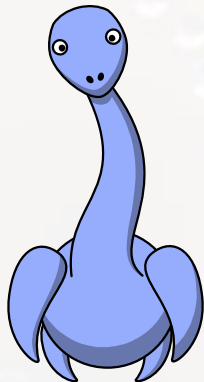
Activity Code	Date	Route No.
24	01/12/01	I-95
24	02/08/01	I-66

By Marcel Douwe Dekker
https://en.wikipedia.org/wiki/File:Database_models.jpg

Network Model



Describing Prehistoric Animals



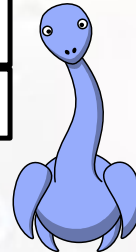
MNHN A. C. 8592

Is a	Plesiosaurus dolichodeirus	
Origin	Lyme Regis	England
Recognized	1824	
Size	5	

Describing Prehistoric Animals



SIPB R 90		
Is a	Plesiosaurus dolichodeirus	
Origin	Lyme Regis	England
Recognized	1830	
Size	5	



STC223		
Is a	Plesiosaurus gurgitis	
Origin	St. Croix	Switzerland
Recognized	1964	
Size	3.5	



MNHN 1912.20		
Is a	Triceratops horridus	
Origin	Lance Creek	EUA
Recognized	1889	
Size	9	



Sue

FMNH PR2081		
Is a	Tyrannosaurus rex	
Origin	Hell Creek	EUA
Recognized	1990	
Size	12.3	

Modelo Relacional

Cliente (C)

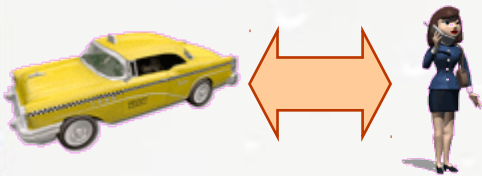
<u>ClId</u>	Nome	CPF
1532	Asdrúbal	448.754.253-65
1755	Doriana	567.387.387-44
1780	Quincas	546.373.762-02



Táxi (TX)



<u>Placa</u>	Marca	Modelo	AnoFab
DAE6534	Ford	Fiesta	1999
DKL4598	Wolkswagen	Gol	2001
DKL7878	Ford	Fiesta	2001
JDM8776	Wolkswagen	Santana	2002
JJM3692	Chevrolet	Corsa	1999



Corrida (R1)

<u>ClId</u>	<u>Placa</u>	<u>DataPedido</u>
1755	DAE6534	15/02/2003
1982	JDM8776	18/02/2003

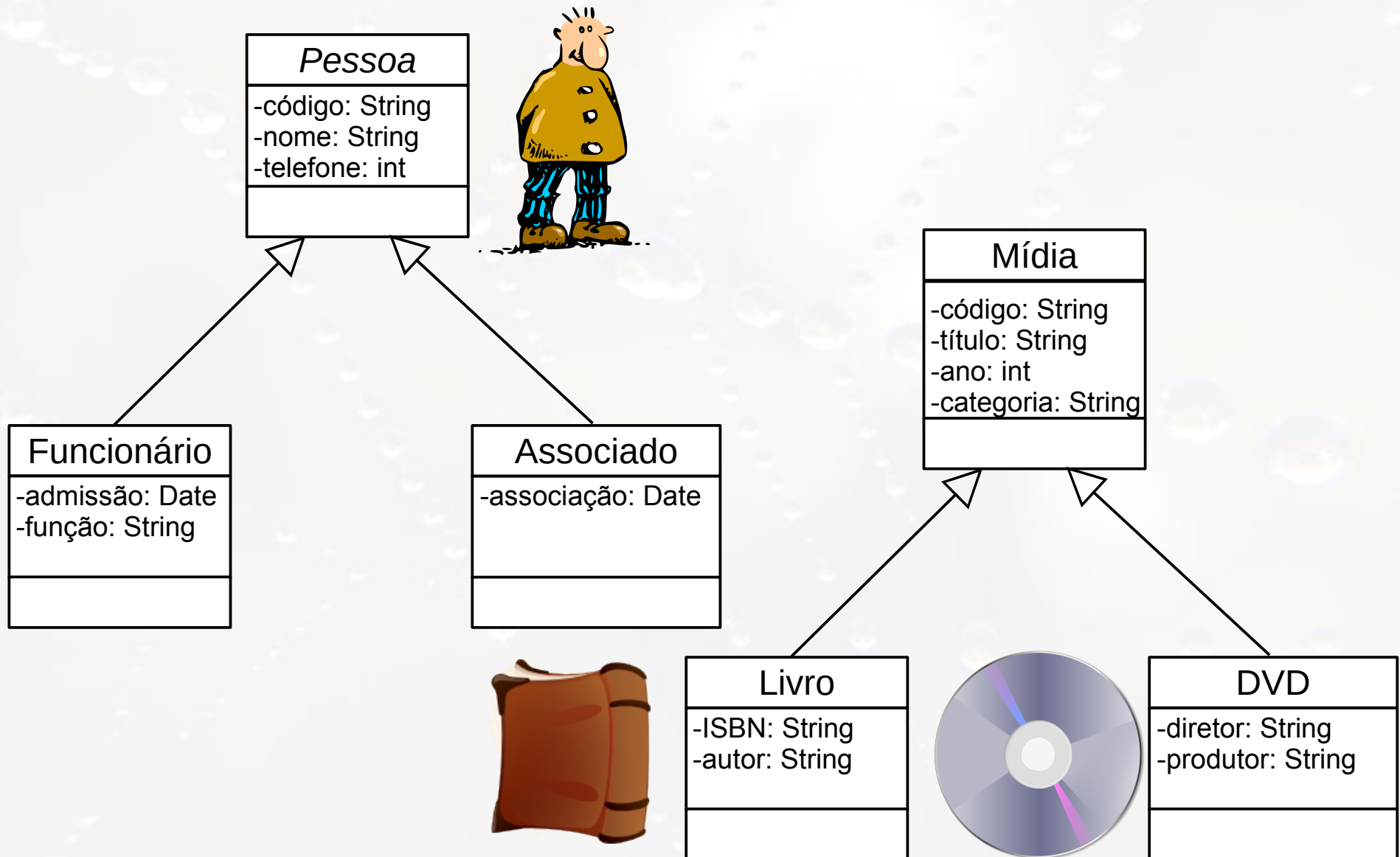
Modelo original
por prof. Geovane
Cayres Magalhães

Modelo Relacional

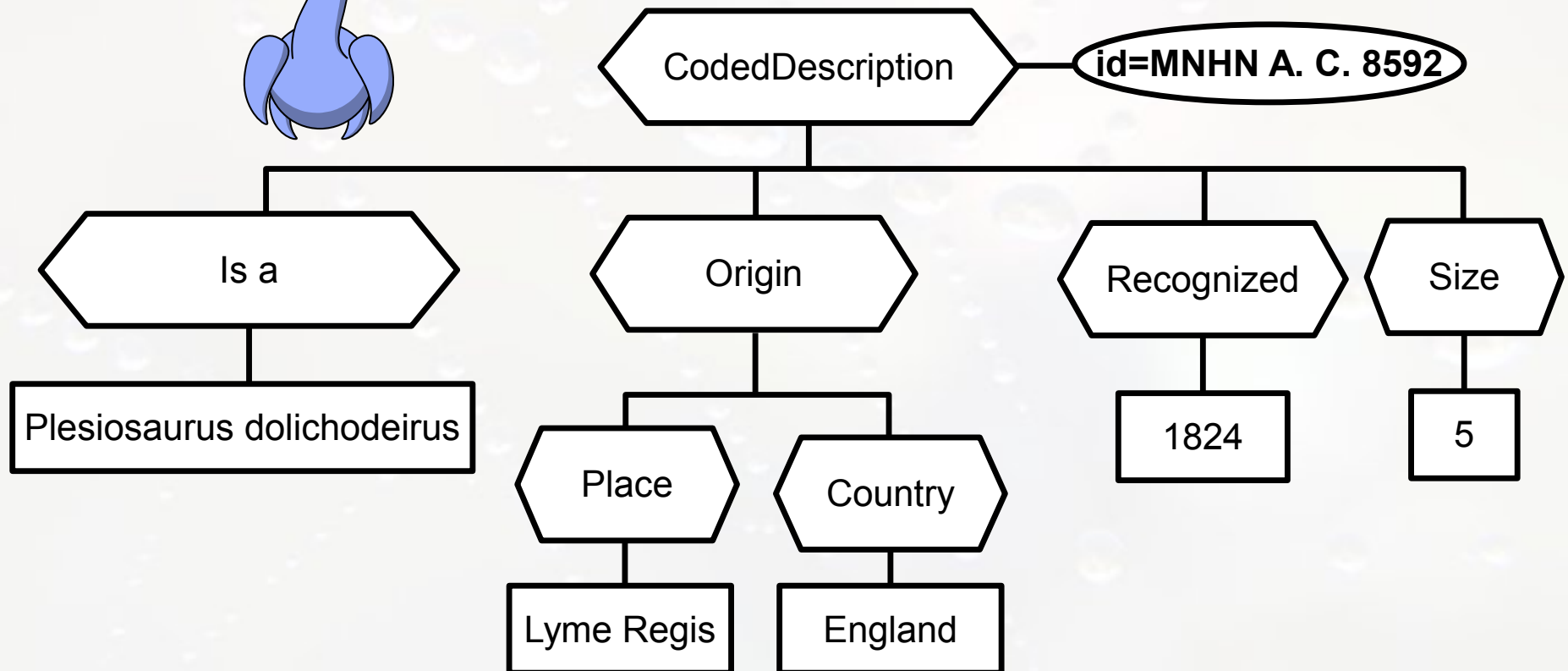
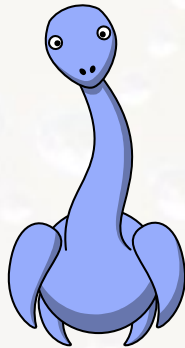
Id	Is a	Origin Place	Origin Country	Recognized	Size
MNHN A. C. 8592	Plesiosaurus dolichodeirus	Lyme Regis	England	1824	5
SIPB R 90	Plesiosaurus dolichodeirus	Lyme Regis	England	1830	5
STC223	Plesiosaurus gurgitis	St. Croix	Switzerland	1964	3.5
MNHN 1912.20	Triceratops horridus	Lance Creek	EUA	1889	9
FMNH PR2081	Tyrannosaurus rex	Hell Creek	EUA	1990	12.3



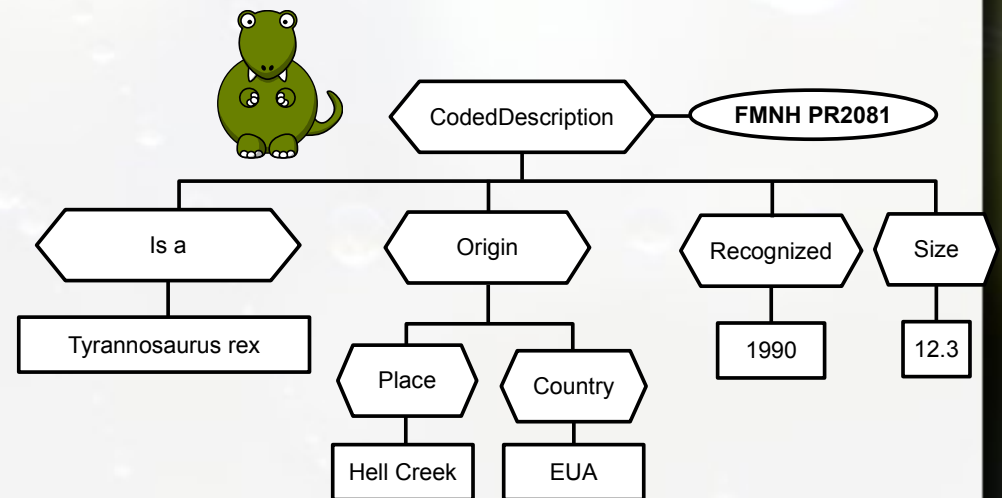
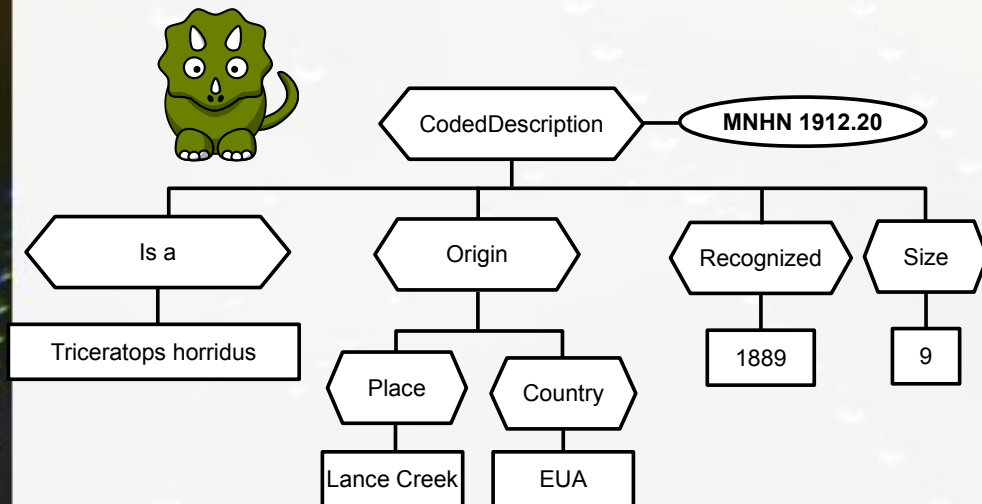
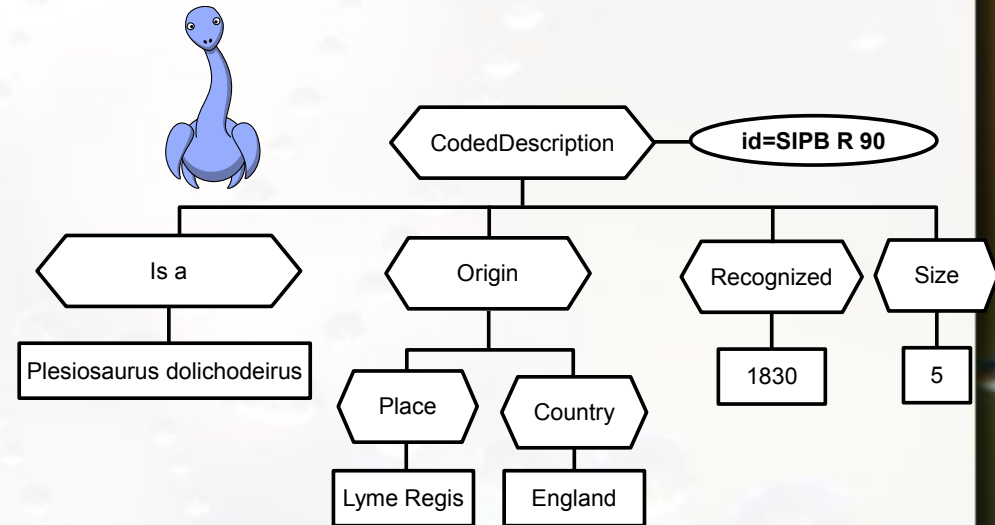
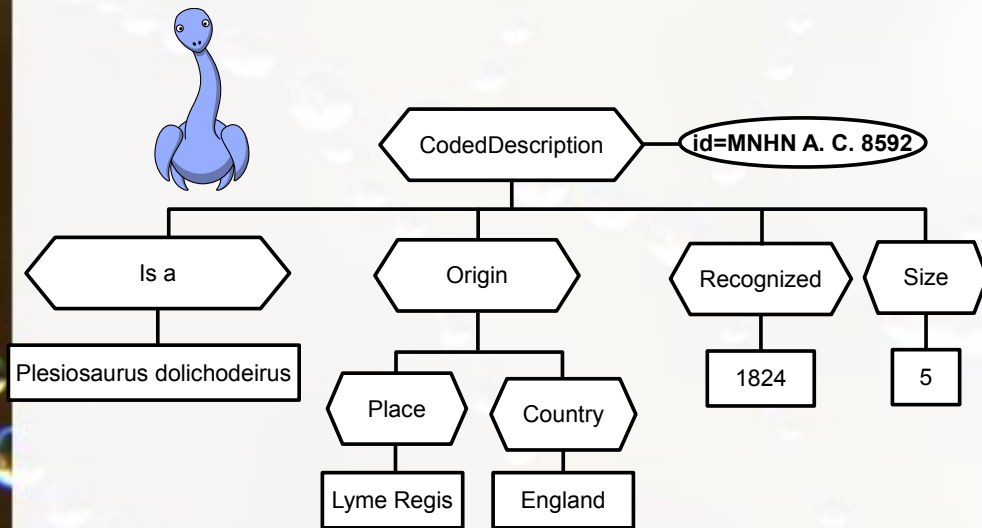
Modelo Orientado a Objetos



Modelo Hierárquico (Documentos/XML)

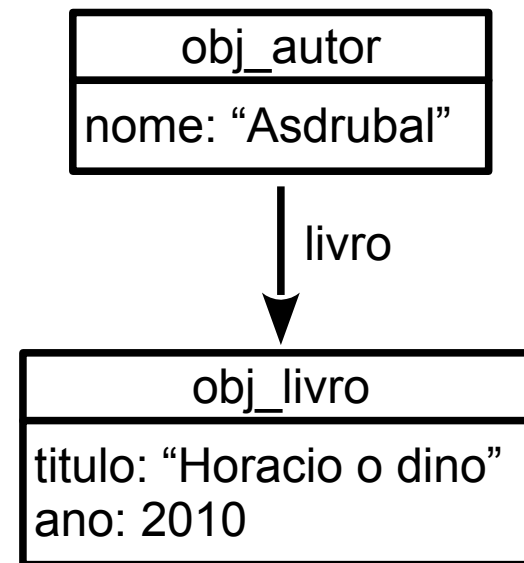


Modelo Hierárquico (Documentos/XML)

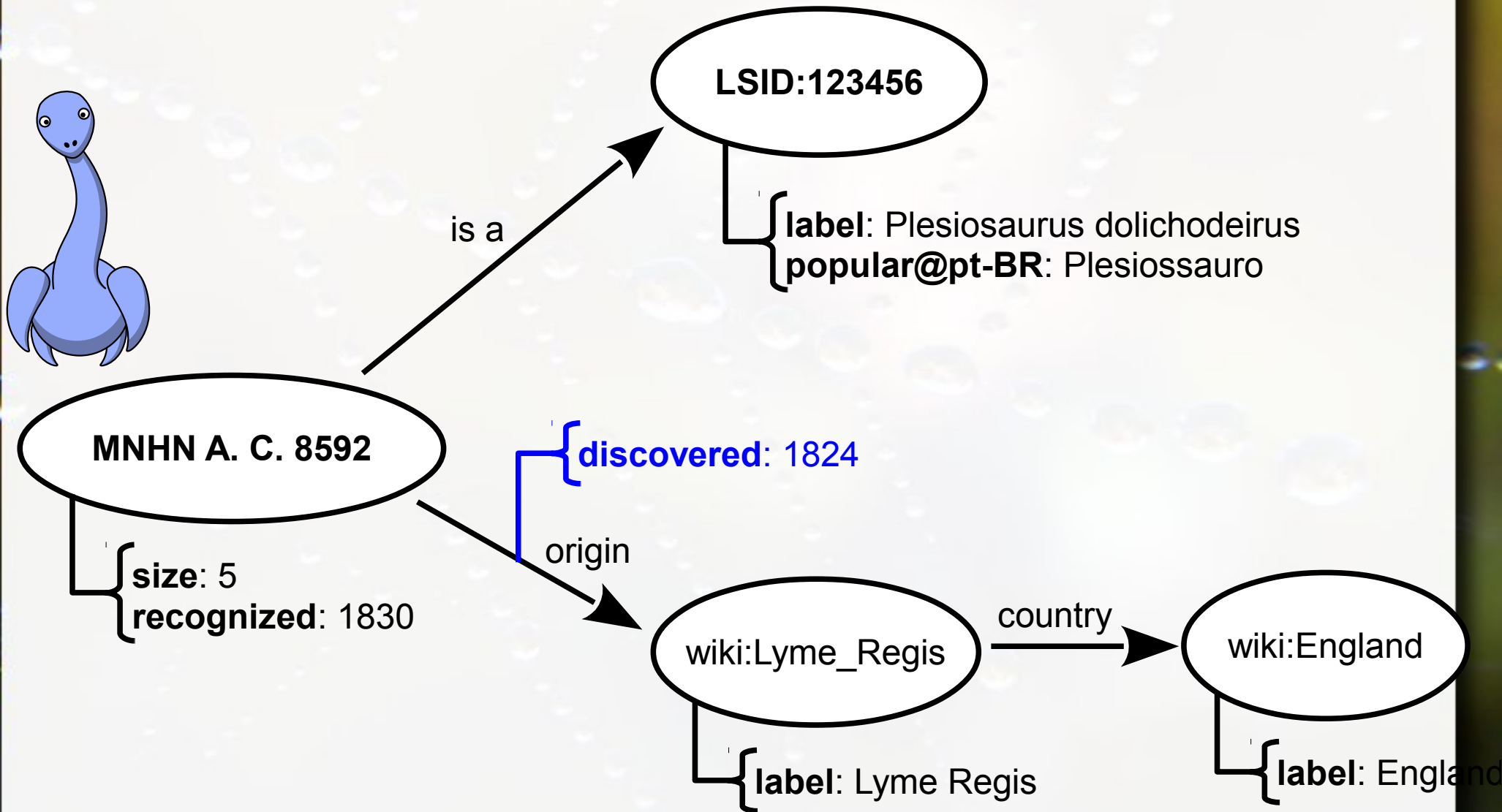


Modelo Hierárquico (JSON - Documentos + OO)

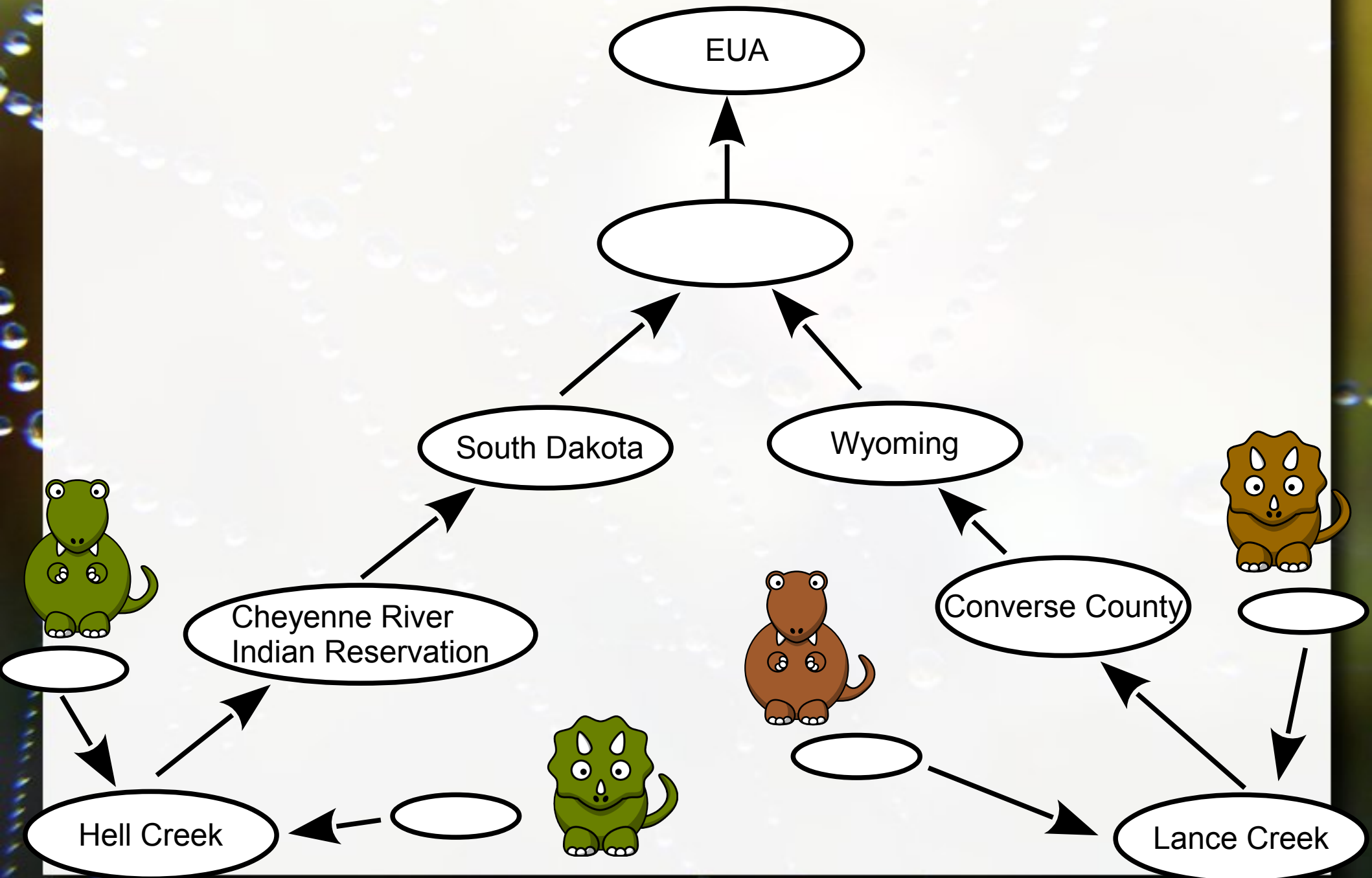
```
{  
  "nome": "Asdrubal",  
  "livro": {  
    "titulo": "Horacio o dino",  
    "ano": 2010  
  }  
}
```



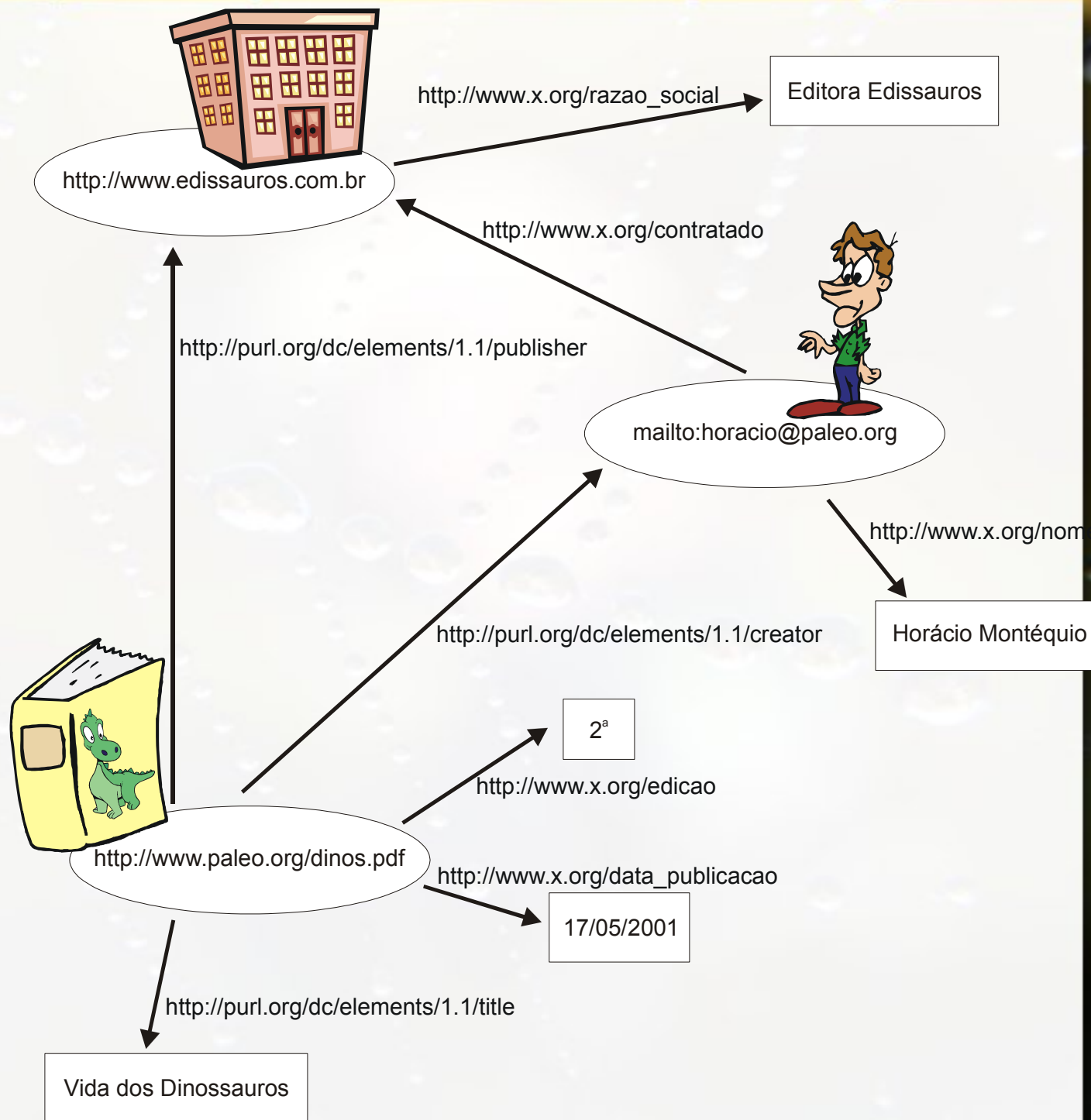
Modelo de Grafos



Modelo de Grafos



Modelo de Grafos



Modelo Chave/Valor

<code>setItem(chave, valor)</code>	adiciona/atualiza par chave-valor
<code>getItem(chave)</code>	recupera o valor associado à chave
<code>key(n)</code>	recupera a enésima chave
<code>removeItem(chave)</code>	remove o par que possui a chave
<code>length</code>	indica o número de pares chave-valor
<code>clear()</code>	remove todos os dados do repositório

Referências

- Heuser, Carlos Alberto (2004) **Projeto de Banco de Dados**. Editora Sagra Luzzato, 5^a edição.
- Ramakrishnan, Raghu; Gehrke, Johannes (2003) **Database Management Systems**. McGraw-Hill, 3rd edition.

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André Santanchè

<http://www.ic.unicamp.br/~santanche>

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