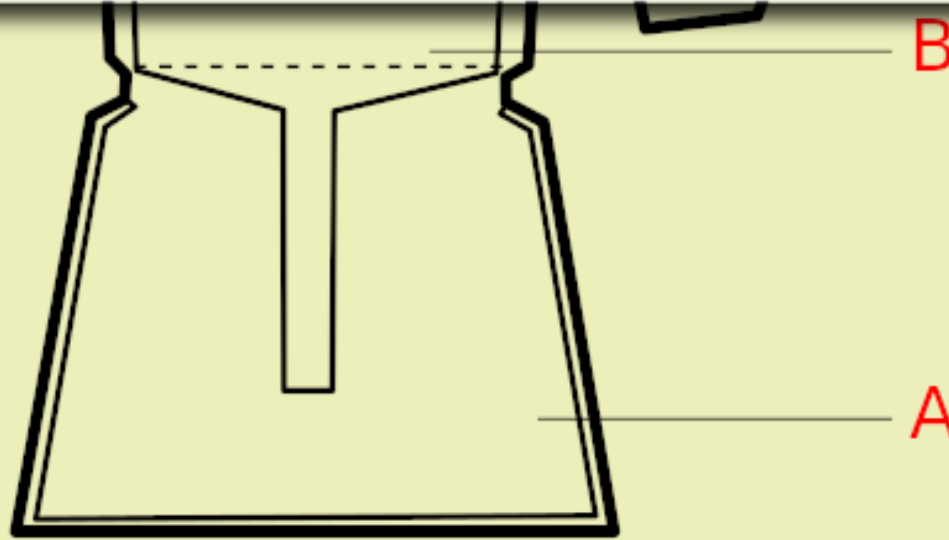


Programação Orientada a Objetos

Pacotes

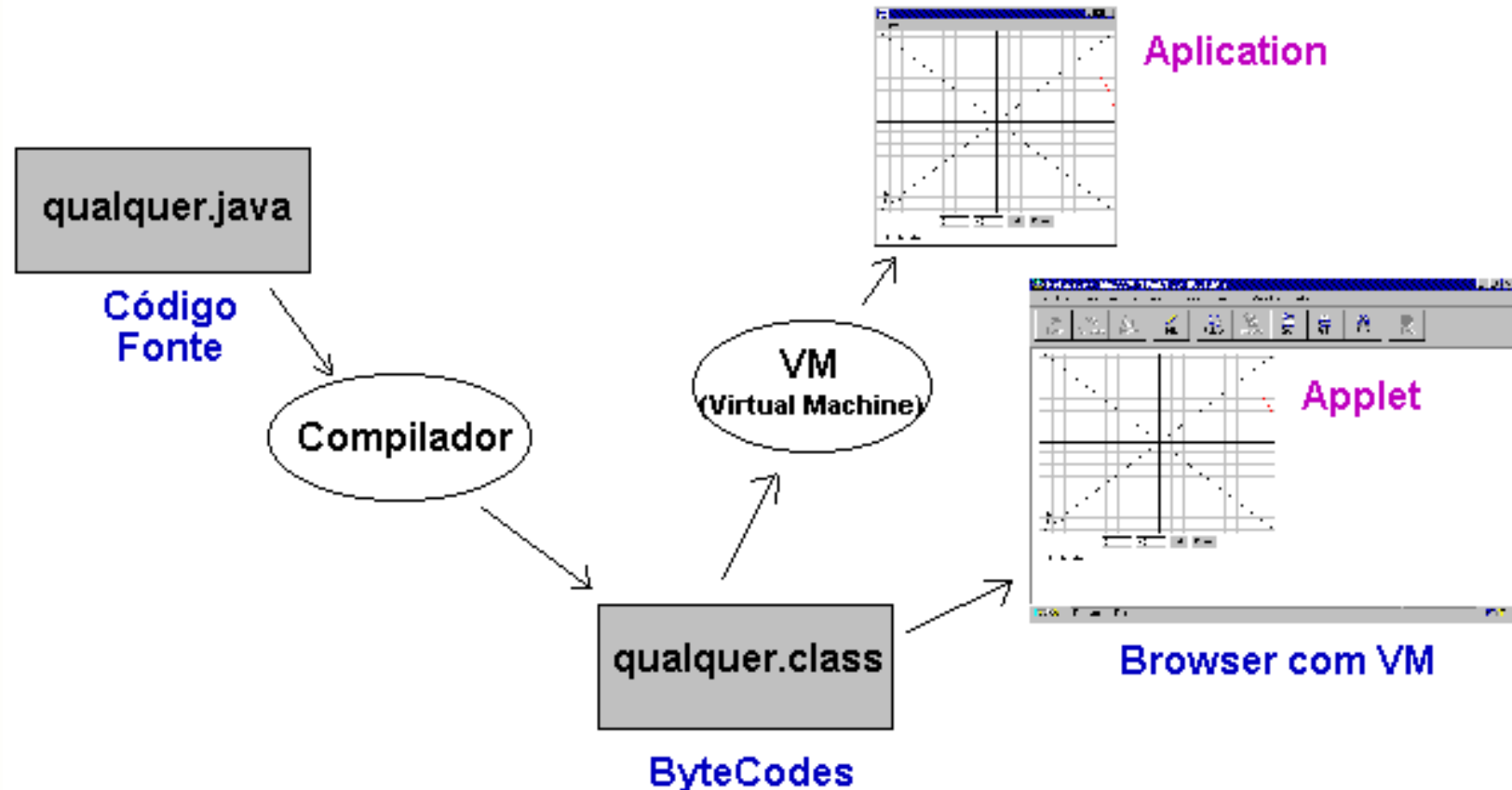
André Santanchè
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Instituto de Computação – UNICAMP
Abril 2020





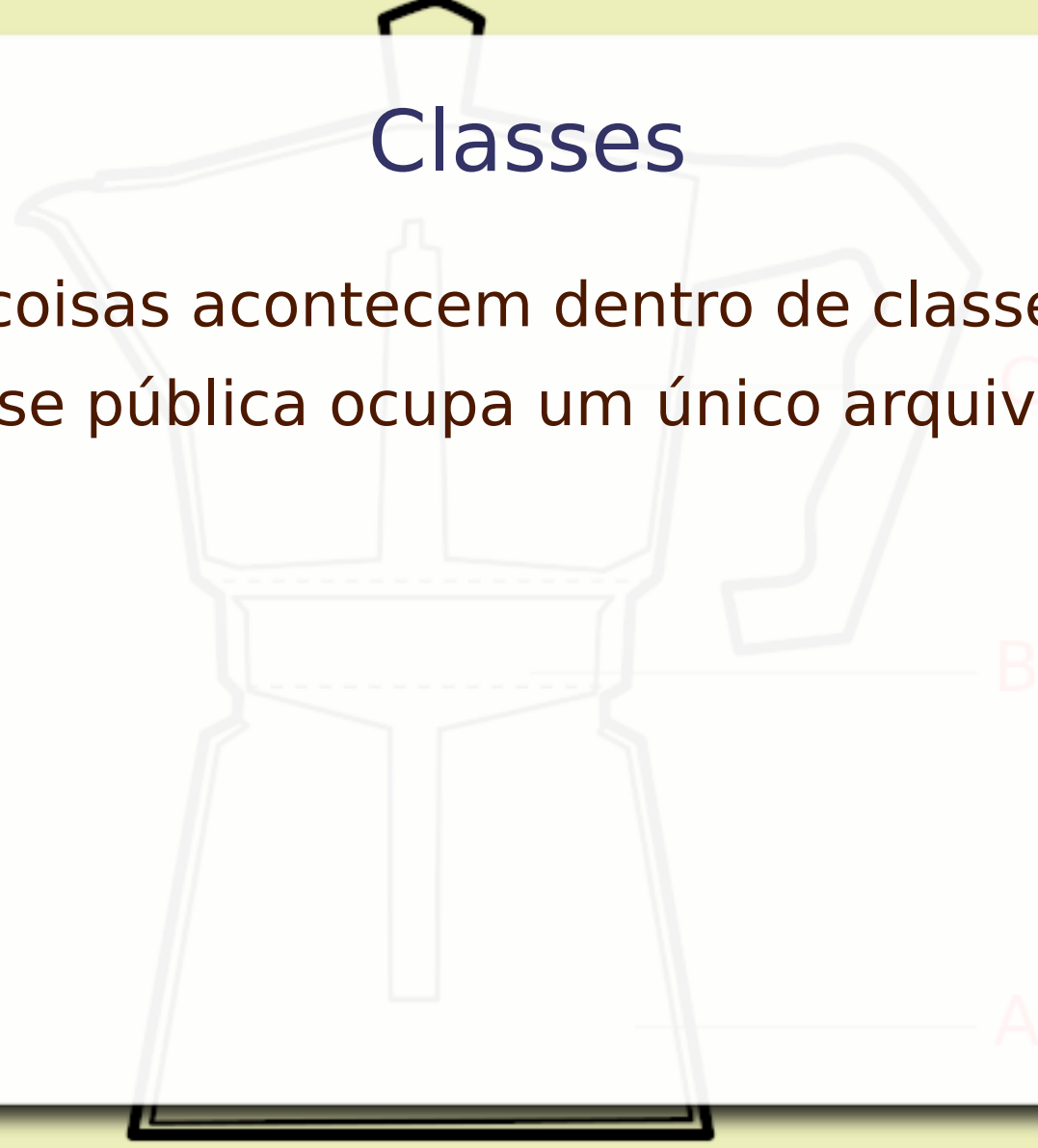
Reviendo alguns conceitos

Compilando para Bytecodes



Classes

- Todas as coisas acontecem dentro de classes
- Cada classe pública ocupa um único arquivo .java



Retomando o Exemplo das Listas

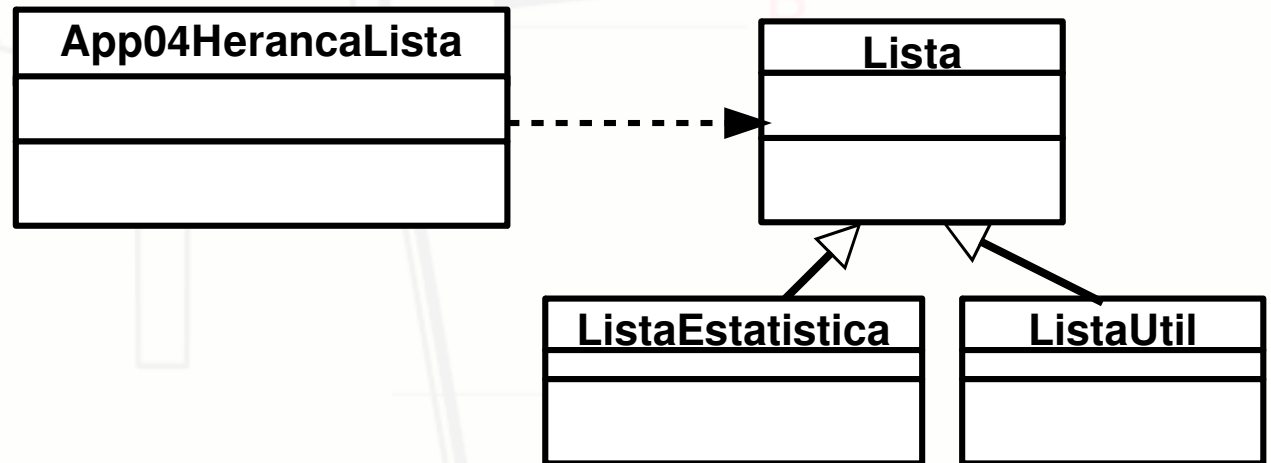
- Três classes referente à Lista e uma de Aplicação:

```
public class Lista {...}
```

```
public class ListaEstatistica extends Lista {...}
```

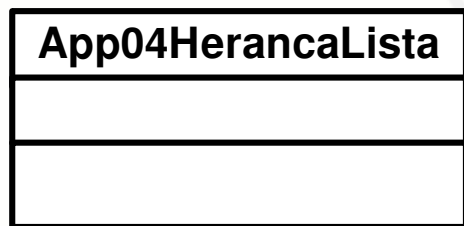
```
public class ListaUtil extends Lista {...}
```

```
public class App04HerancaLista {...}
```



Retomando o Exemplo das Listas

- Quatro classes públicas – quatro arquivos:



`App04HerancaLista.class`



`Lista.class`



`ListaEstatistica.class`



`ListaUtil.class`

C

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Pacotes

- Estrutura de organização de código em Java
- Classes estão organizadas em uma estrutura hierárquica de pacotes

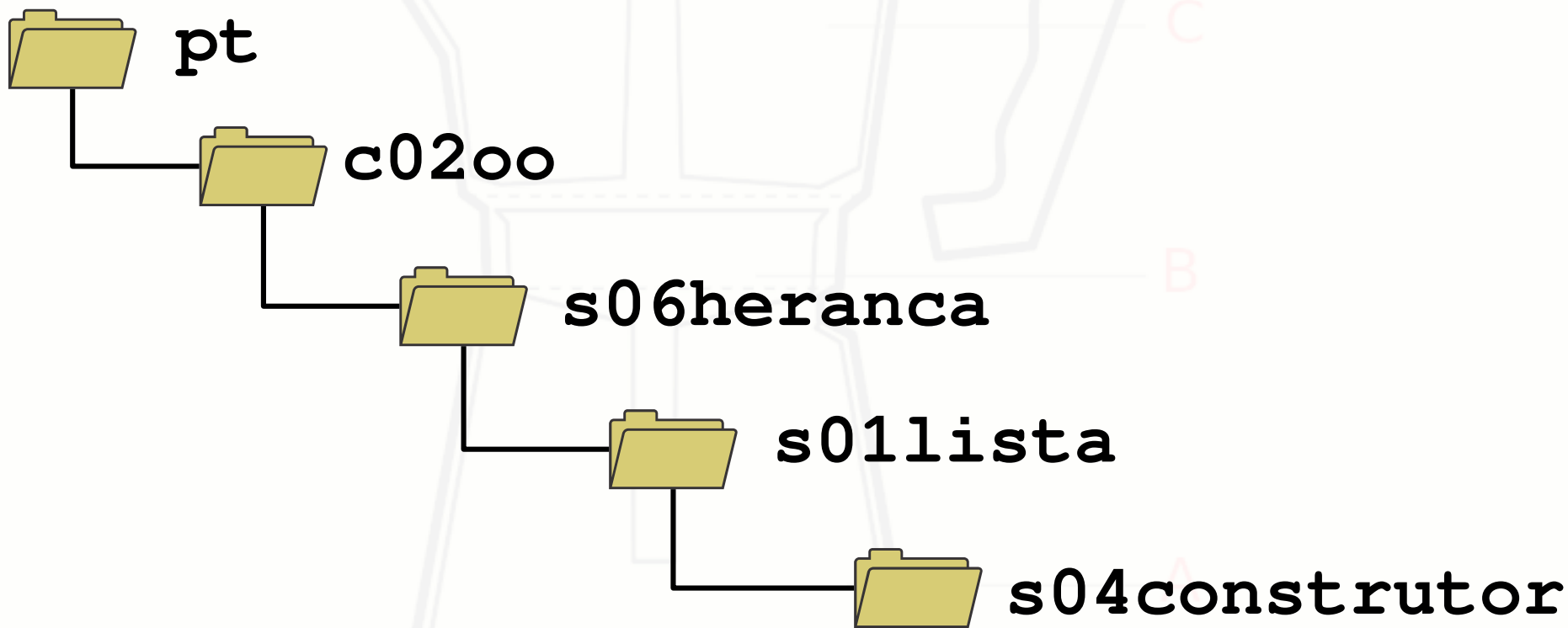
B

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Pacotes x Pastas

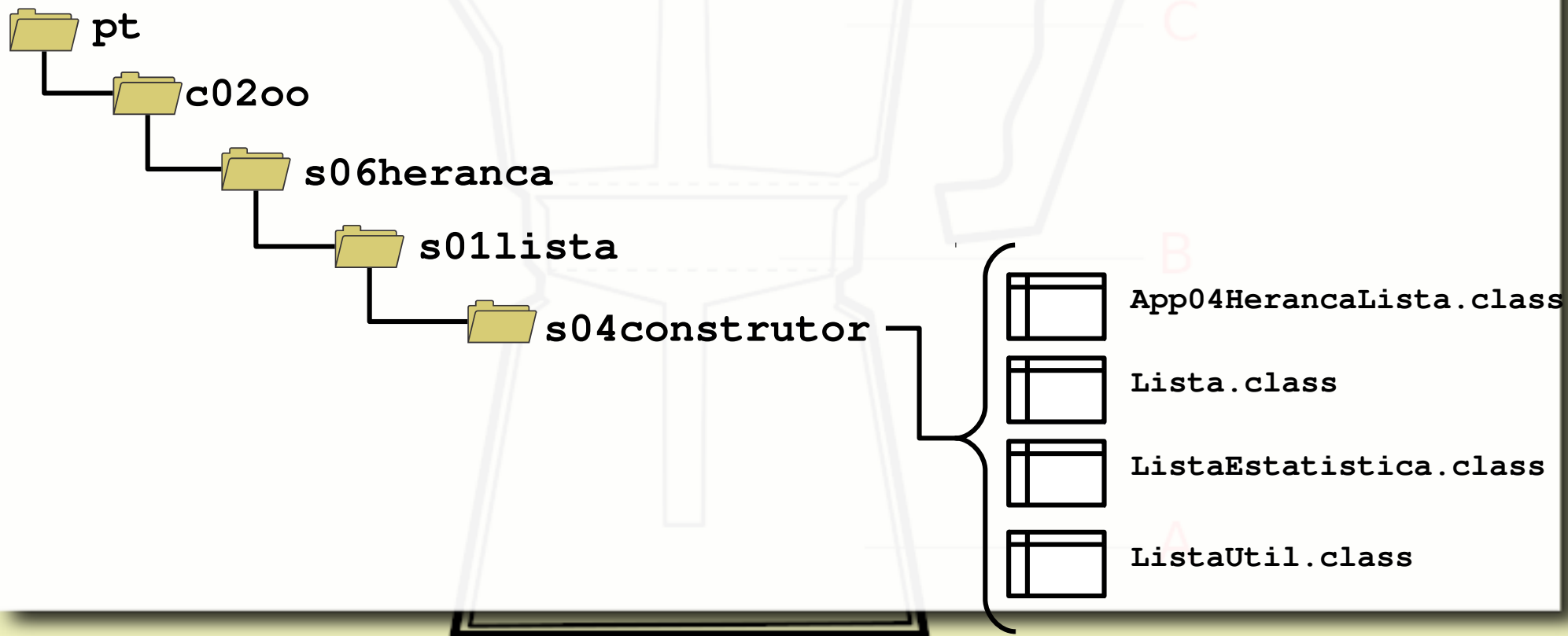
- Hierarquia de pacotes é igual a estrutura de pastas:

package pt.c02oo.s06heranca.s01lista.s04construtor



Pacotes x Pastas

- Classes no mesmo pacote se reconhecem automaticamente

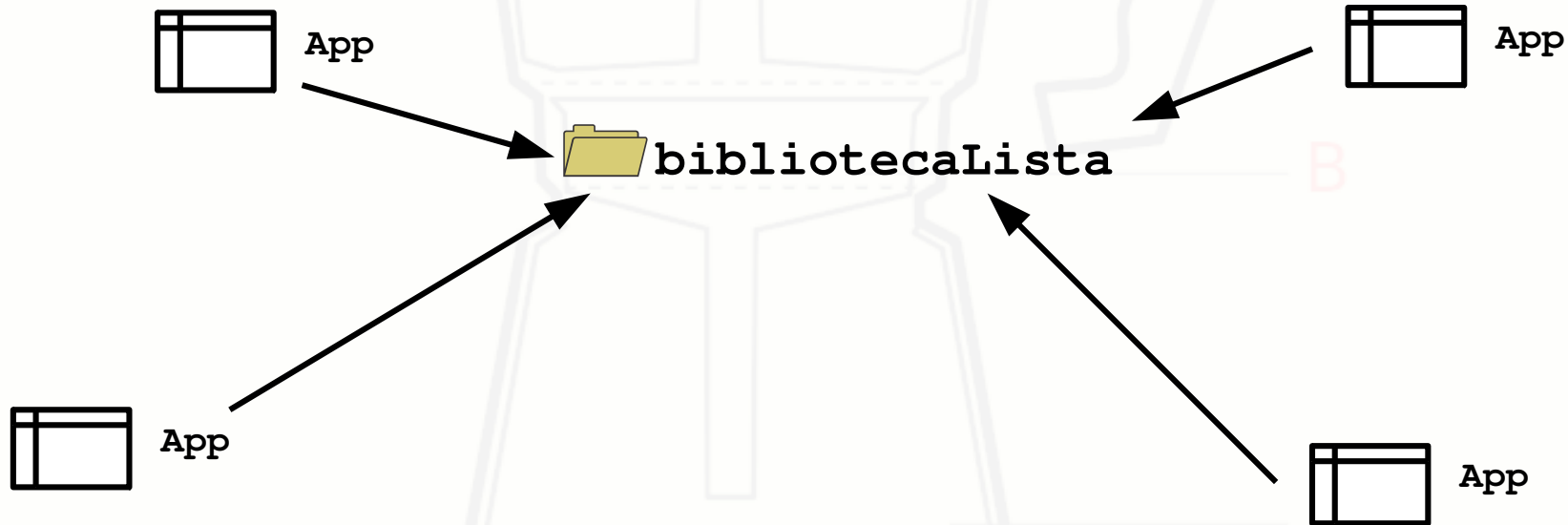


Por que Dividir o Código em Pacotes Diferentes?

- Construção de bibliotecas que são reusadas de forma independente
- Separação de partes independentes do código
 - Importante quando pessoas diferentes trabalham no mesmo sistema
 - Permite reduzir o grau de interdependência e complexidade

Transformando a Hierarquia de Lista em uma Biblioteca

- Separar as classes de `Lista` em um pacote permitirá que ela seja reusada por várias aplicações



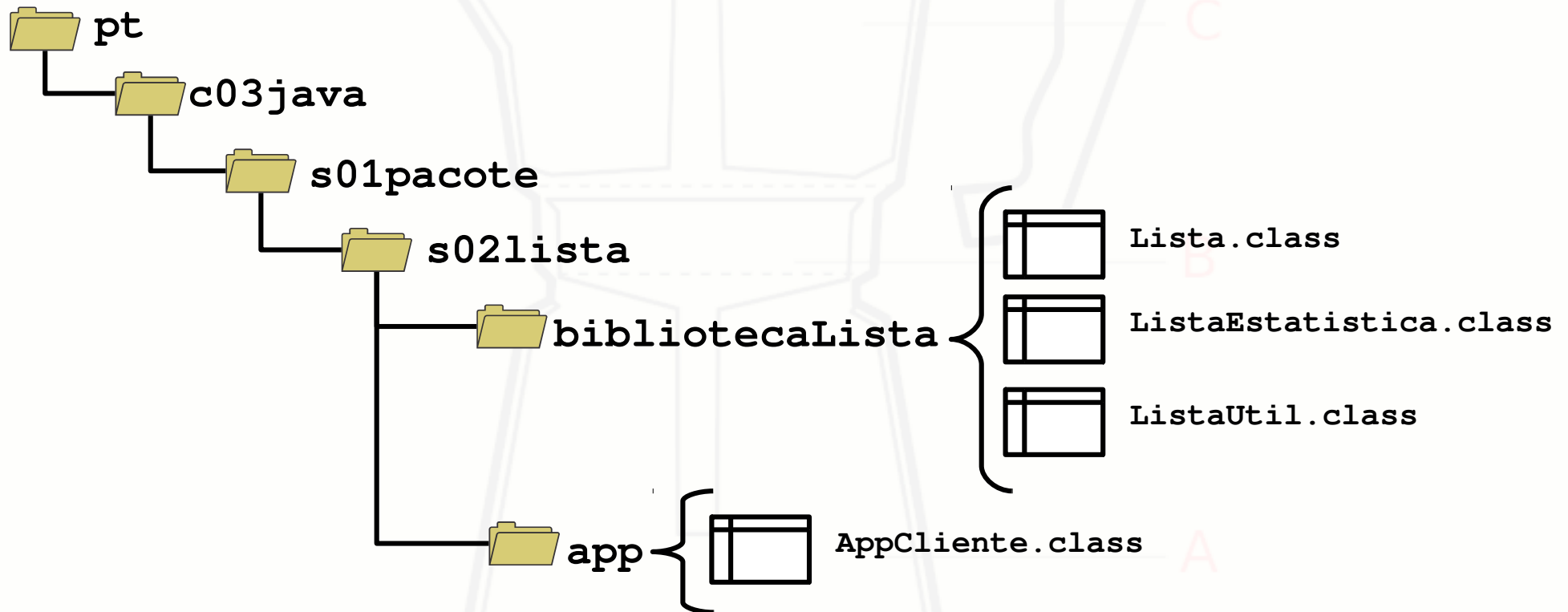
Pacote da Biblioteca

package pt.c03java.s01pacote.s02lista.bibliotecaLista



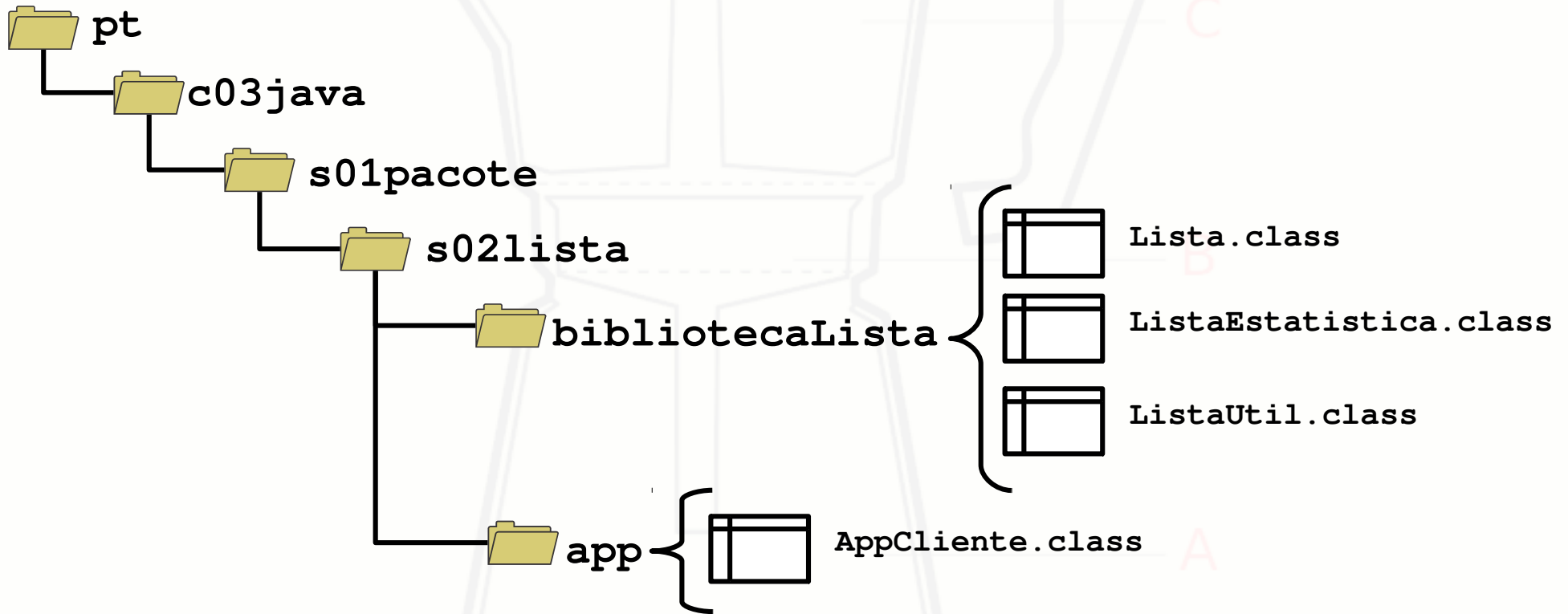
Pacote da Aplicação

package pt.c03java.s01pacote.s02lista.app



Importando Pacotes

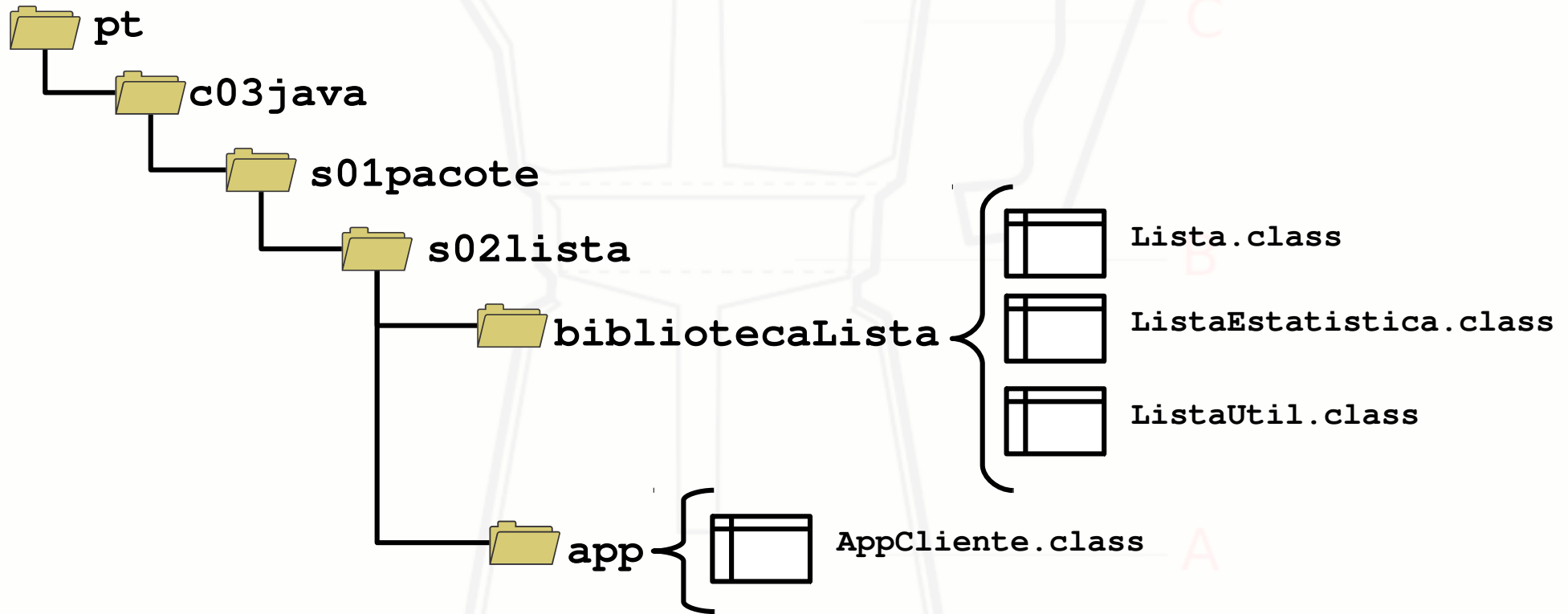
- Classes em pacotes diferentes não se reconhecem (encontram) automaticamente



Importando Pacotes

`import`

- Cláusula `import` permite que uma classe referencie outra que está em outro pacote

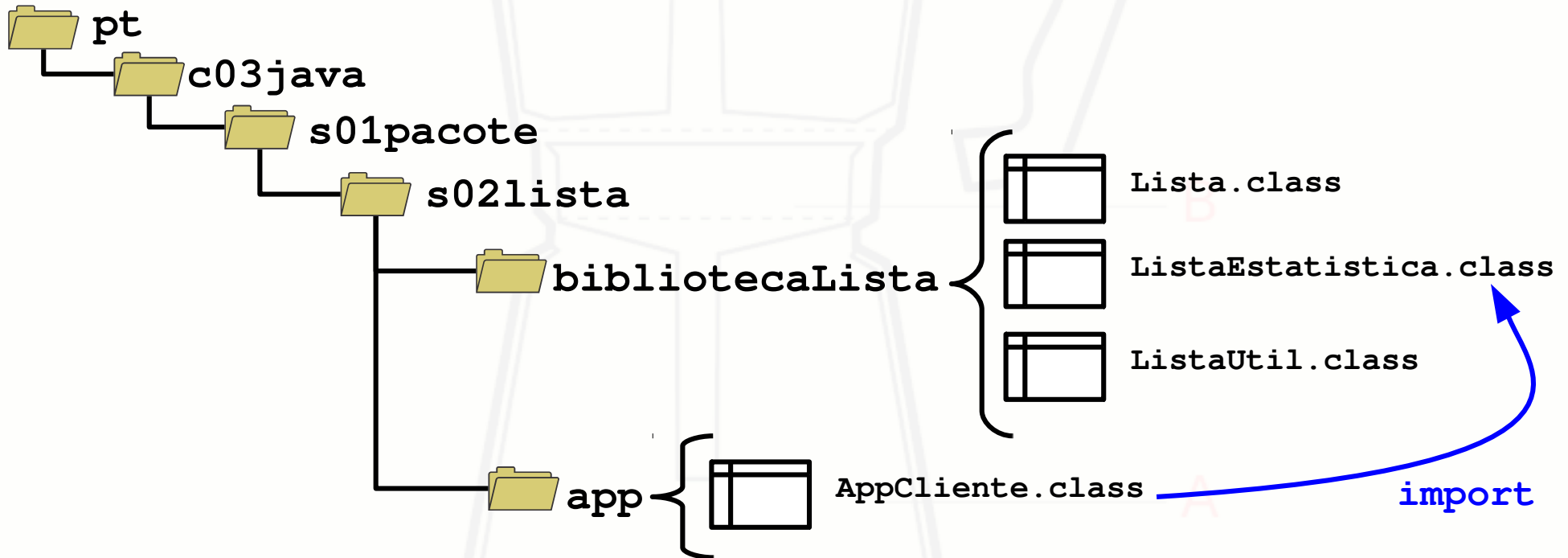


Importando Pacotes

```
package pt.c03java.s01pacote.s02lista.app;
```

```
import pt.c03java.s01pacote.s02lista.bibliotecaLista.ListaEstatistica;
```

```
public class AppCliente {...}
```



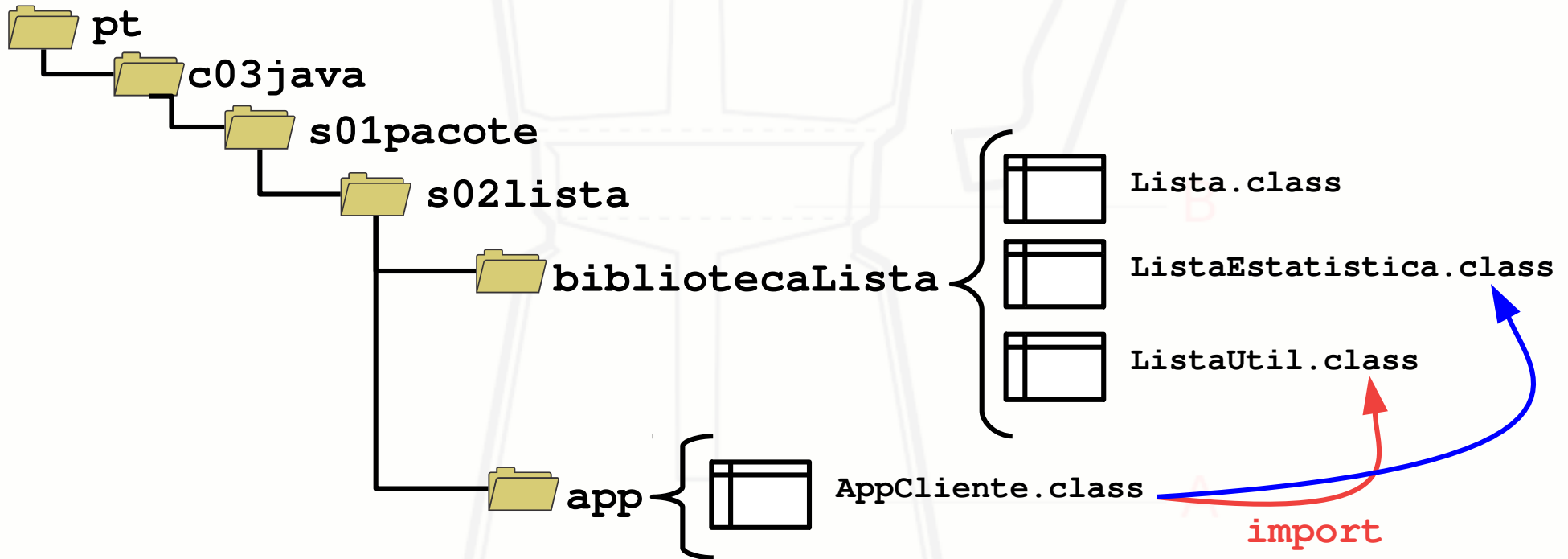
Importando Pacotes

```
package pt.c03java.s01pacote.s02lista.app;
```

```
import pt.c03java.s01pacote.s02lista.bibliotecaLista.ListaEstatistica;
```

```
import pt.c03java.s01pacote.s02lista.bibliotecaLista.ListaUtil;
```

```
public class AppCliente {...}
```



Referência a Todas as Classes

*

- * pode ser usado para referenciar todas as classes dentro de um pacote:

C

B

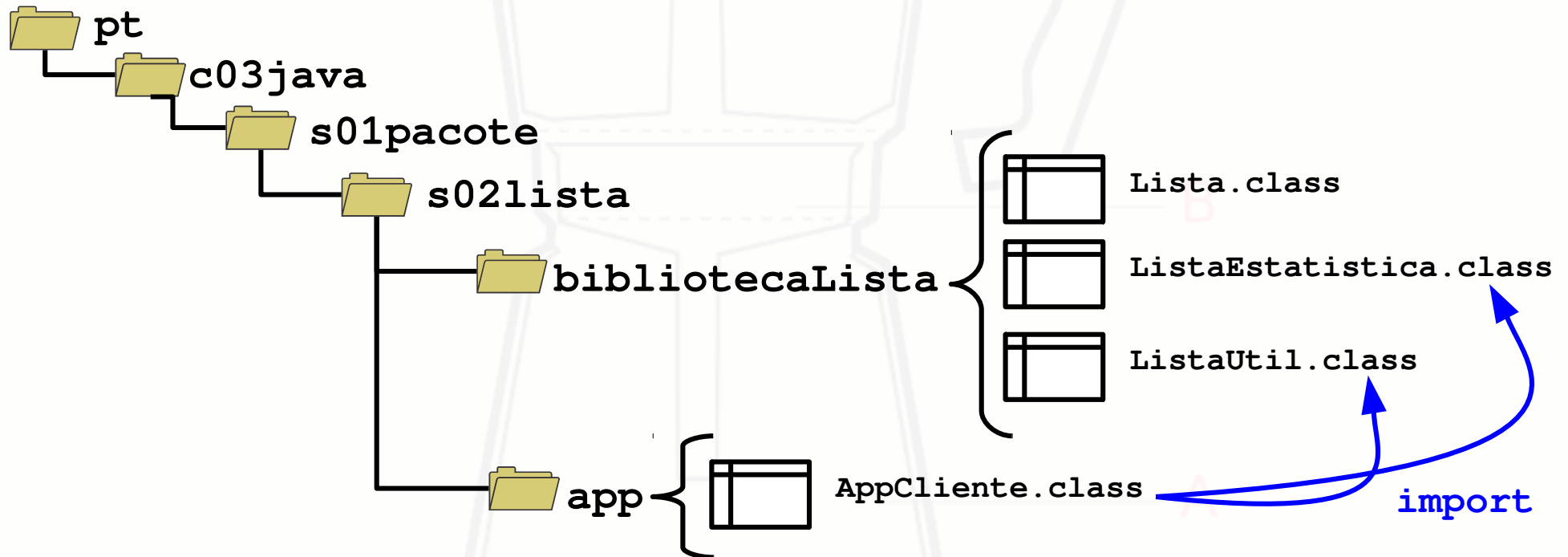
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Importando Pacotes

```
package pt.c03java.s01pacote.s02lista.app;
```

```
import pt.c03java.s01pacote.s02lista.bibliotecaLista.*;
```

```
public class AppCliente {...}
```



Documentação Java

<https://docs.oracle.com/en/java/javase/14/docs/api/>

OVERVIEW

MODULE

PACKAGE

CLASS

USE

TREE

DEPRECATED

INDEX

HELP

Java SE 14 & JDK 14

SEARCH: Search

Java® Platform, Standard Edition & Java Development Kit Version 14 API Specification

This document is divided into two sections:

Java SE

The Java Platform, Standard Edition (Java SE) APIs define the core Java platform for general-purpose computing. These APIs are in modules whose names start with `java`.

JDK

The Java Development Kit (JDK) APIs are specific to the JDK and will not necessarily be available in all implementations of the Java SE Platform. These APIs are in modules whose names start with `jdk`.

All Modules

Java SE

JDK

Other Modules

Module	Description
<code>java.base</code>	Defines the foundational APIs of the Java SE Platform.
<code>java.compiler</code>	Defines the Language Model, Annotation Processing, and Java Compiler APIs.
<code>java.datatransfer</code>	Defines the API for transferring data between and within applications.
<code>java.desktop</code>	Defines the AWT and Swing user interface toolkits, plus APIs for accessibility, audio, imaging, printing, and JavaBeans.
<code>java.instrument</code>	Defines services that allow agents to instrument programs running on the JVM.
<code>java.logging</code>	Defines the Java Logging API.
<code>java.management</code>	Defines the Java Management Extensions (JMX) API.
<code>java.management.rmi</code>	Defines the RMI connector for the Java Management Extensions (JMX) Remote API.
<code>java.naming</code>	Defines the Java Naming and Directory Interface (JNDI) API.
<code>java.net.http</code>	Defines the HTTP Client and WebSocket APIs.
<code>java.prefs</code>	Defines the Preferences API.
<code>java.rmi</code>	Defines the Remote Method Invocation (RMI) API.

Biblioteca Organizada em Pacotes

Module `java.base`

Package `java.util`

Contains the collections framework, some internationalization support classes, a service loader, properties, random number generation, string parsing and scanning classes, base64 encoding and decoding, a bit array, and several miscellaneous utility classes. This package also contains legacy collection classes and legacy date and time classes.

Java Collections Framework

For an overview, API outline, and design rationale, please see:

- [Collections Framework Documentation](#)

For a tutorial and programming guide with examples of use of the collections framework, please see:

- [Collections Framework Tutorial](#)

Since:

1.0

Interface Summary

Interface	Description
<code>Collection<E></code>	The root interface in the <i>collection hierarchy</i> .
<code>Comparator<T></code>	A comparison function, which imposes a <i>total ordering</i> on some collection of objects.

André Santanchè

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

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