

Programa de Estágio MMA 2022 3ª Semana



- Estrutura de Dados e bibliotecas nativas Java

- Estrutura de Dados:
 - Armazenamento Sequencial e Vetores
 - Array, ArrayList
 - Listas Ligadas (simples e dupla)
 - Pilhas (FILO), Queue.class
 - Filas (FIFO), Stack.class
 - Conjuntos (Set)
- Java e java.util:
 - Array, sintaxe, literais
 - Cast implícito e explícito:
 - Primitivos
 - Referencias
 - java.lang.ClassCastException
 - ArrayList, foreach, Generics
 - LinkedList vs Vector (threads)
 - Wrappers, autoboxing, unboxing
 - Collection (singular), ordem:
 - A
 - Classes anônimas e lambdas

Principais características: Vector e Listas

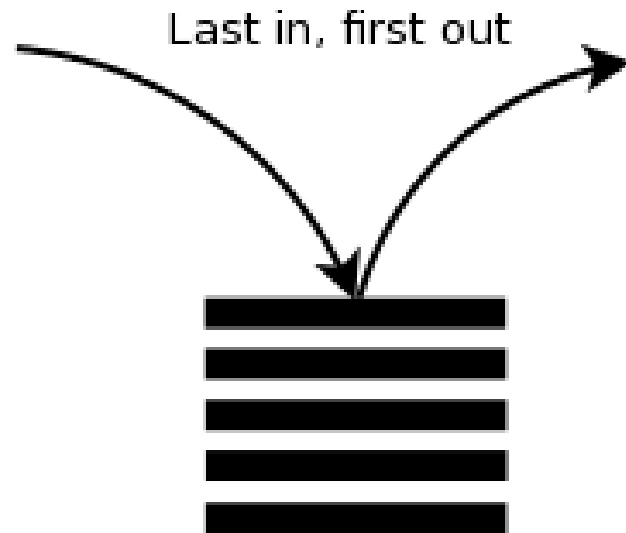
0	1	2	3	4
23	3	17	9	42



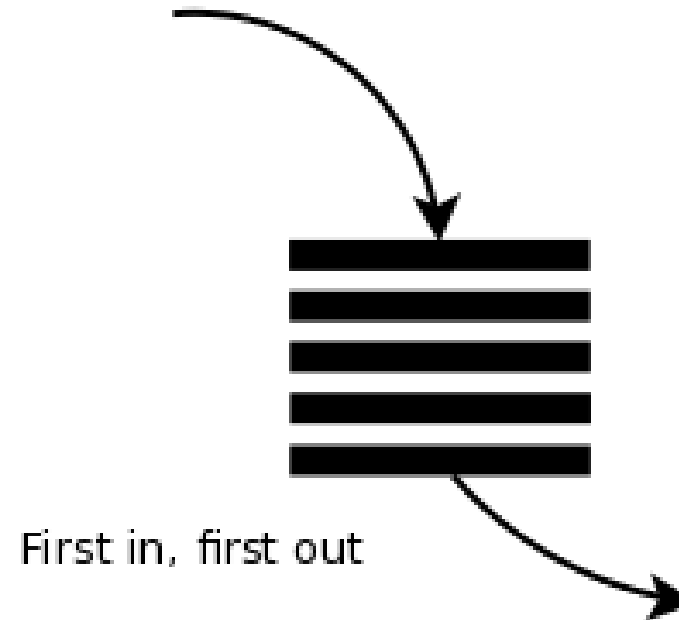
<https://medium.com/zero-equals-false/arraylist-vs-linkedlist-vs-vector-22e1721a66b0>

Principais características: Pilhas e filas

Stack:



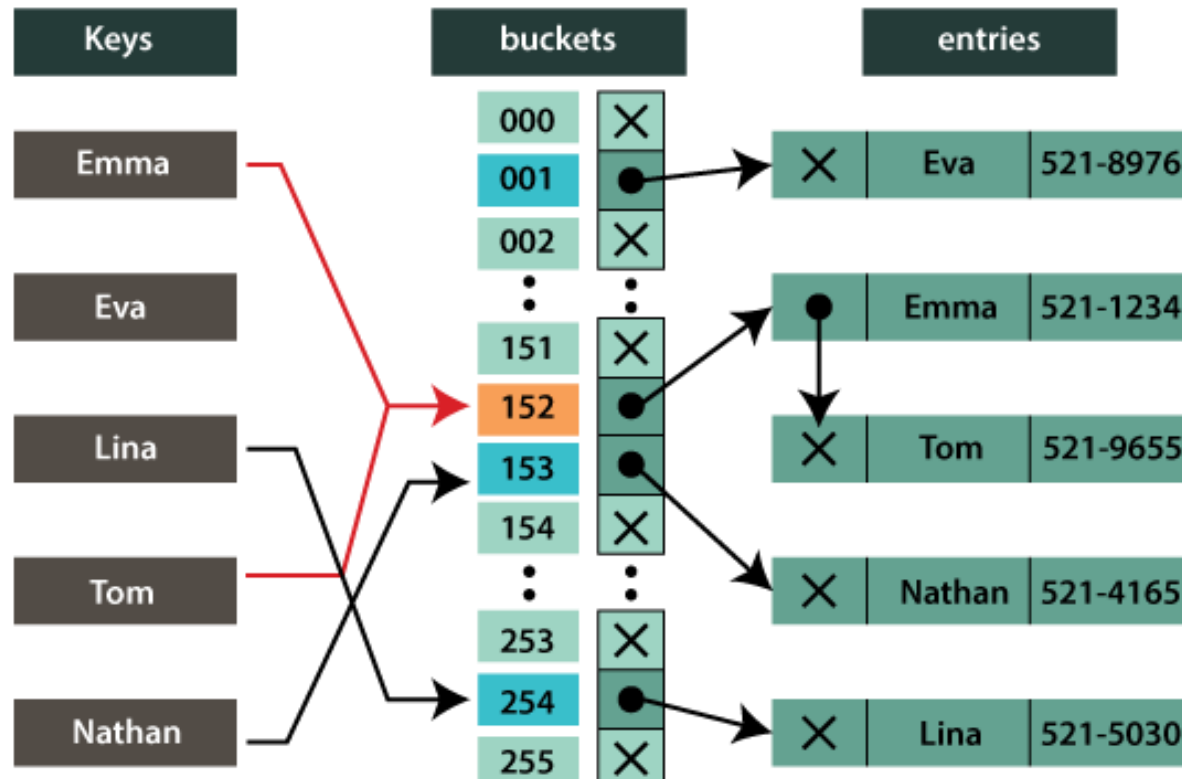
Queue:



<https://www.atechdaily.com/posts/difference-between-Stack-and-Queue-in-java>

Principais características: extra (Sets, Maps, Pair)

How HashMap works internally in Java?



<https://www.javatpoint.com/set-vs-map-in-java>

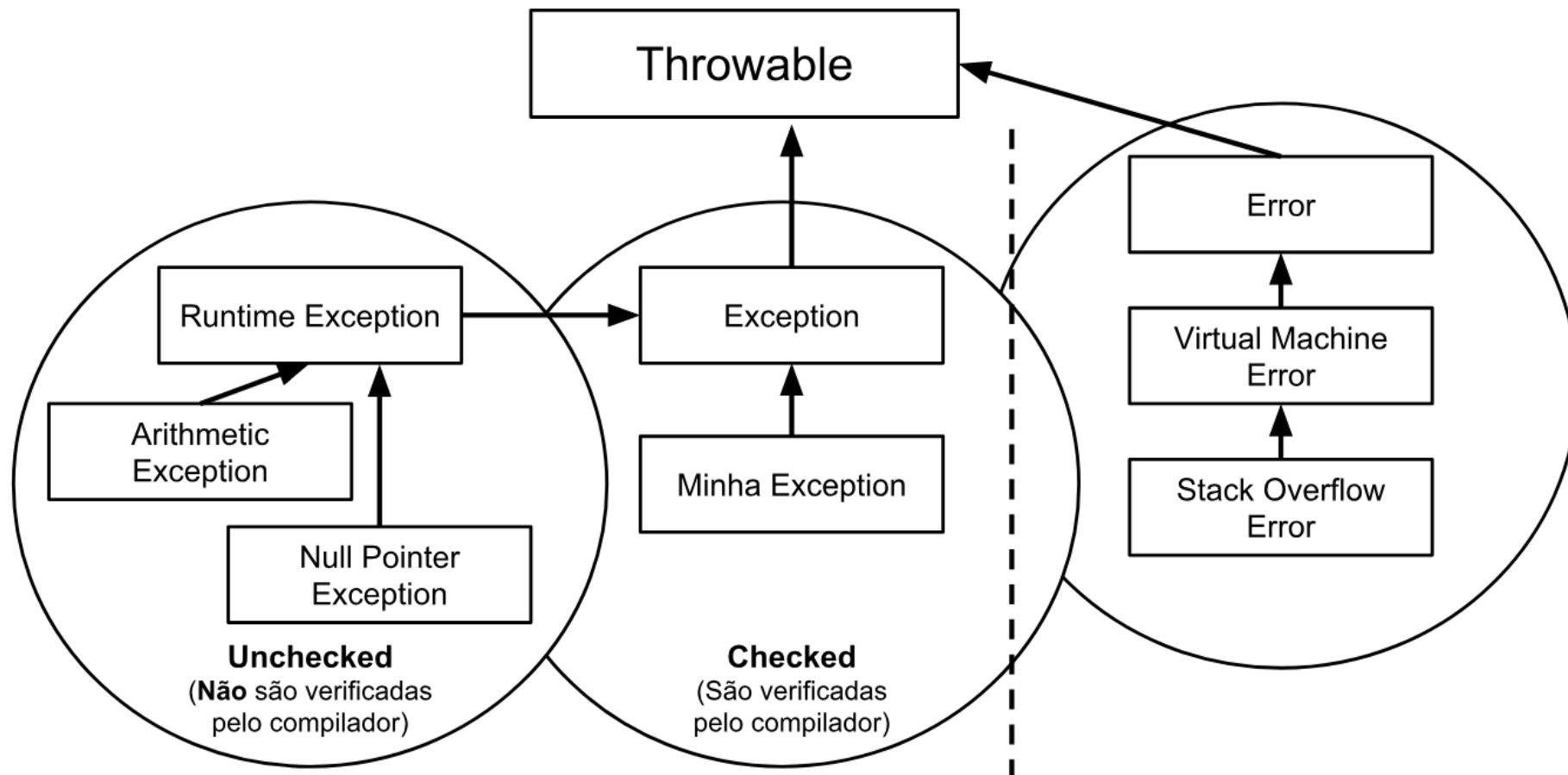
- Complementando o conhecimento:

- Java Exceções:

- Stack, HEAP, Garbage Collector
- Try, Finally, Try-with-resources, Catch, Multi-Catch
- Lançando exceções
- Checked vs Unchecked
- Exceptions vs Errors

- Java e java.lang:

- Pacotes, FQN
- Modificadores de Acesso
- Javadoc e tags, JAR, Maven
- Java.lang
- Particularidades Strings
- Classe Object, .toString()



<https://www.alura.com.br/curso-online-java-excecoes>

Desafio 2

- Modelando a solução / MVP:

- Como conectar à API?
- Como a API responde?
 - Como pedir uma busca?
 - Qual a estrutura do sistema e dos dados?
 - Como buscar uma tag?
 - Como buscar uma WebId?
 - Como buscar um valor?
 - Point vs Dataserver vs Stream
 - recorded vs interpolated, filtros
 - Qual horário do servidor?
- Como ler dados em Java?
 - Problema SSL certificate validation
 - Problema JSON
- Como guardar dados?
 - Singleton terá qual estrutura de dados?
 - Requerimentos do cache para essa aplicação
- Como limpar/aceitar datas? Como interfacear com o usuário?
 - Tratamento de entradas
 - Decisões da UI

Desafio 2: UserStory, requerimentos e “modelo”

compile -> runtime

- Start SessaoUI, Instance empty ClientCache, setup new input stream

>> Informe um ou mais tags separados por vírgula:

>> SINUSOID,CDT158

→ parse string into URL encoding, query API:
Build and open HttpClient -> Build request:
check existence -> (getWebID -> setCache , countTries)

>> Informe a data de início:

03/03/2022 12:00:00

→ check if valid -> (send to UTC, countTries)

>> Informe a data fim:

04/03/2022 15:00:00

→ check if valid ->
(check if after startDate ->
(sent to UTC & encode) , countTries)

- Close input stream, build request in buscarDados

! Handle bad requests and not founds (400 / 404), warn user

- For each tag in ClientCache (Map) -> setValues to List<PIValues> of the specific ClientCache.getTag()

- Setup new input stream

>> Dados carregados para as variáveis:

1) SINUSOID

2) CDT158

Qual variável deseja visualizar?

+

>> 1

→ -2 -> Config plot
-1 -> Exit apiclient
0 -> Add new tag

Defina origem dos valores para o gráfico:

0) Padrão (Values)
1) Do sistema (API getPlot)
2) Interpolated

- Plot data, if plotConfig -> getPlot ou getInterpolated

- Prompt for new plot or exit

- Clear cache on exit (clear map -> parte onde seria salvo na memoria local)

Desafio 2: HTTP request testing

Insomnia - PI Web API learn by testing (Basic) – get stream recorded

Application Edit View Window Tools Help

The screenshot displays the Insomnia API client interface. The top bar shows the application name and tabs for DESIGN, DEBUG, and TEST. The left sidebar lists several GET requests, with 'get stream recorded' selected. The main panel shows the details of this request, including the URL, headers, and a table of query parameters. The 'Send' button is highlighted. The right panel shows the response status (200 OK) and a preview of the JSON data.

Insomnia / PI Web API learn by testing ▾

DESIGN DEBUG TEST

Setup Git Sync

Basic ▾ Cookies

Filter ▾

GET Point GetMultiple sinusoidu

GET get SINUSOID where date

GET search SINUSOID values, count 3

GET search SINUSOID

GET search SINUSOIDU

GET search CDT158

GET search CDEP158

GET get points from CDT158

GET get stream from CDT158

GET **get stream recorded**

GET atributes test

GET recorded data test

GET ▾ `_.api_url` /streams/ `_.sinusoid_webId` /recor **Send**

200 OK 365 ms 1152 B 3 Hours Ago ▾

Body ▾ Basic ▾ Query ³ Header Docs

URL PREVIEW

`https://piafserver2018.radixpiserver.com/piwebapi/streams/F1DP72-6XV15302c_uD52V8M7AAQAAAAUE1BR1NFULZFUjIwMThcU0lOVVNPSUQ/recorded?selecte dFields=Items.Value%3BItems.Timestamp&startTim e=03%2F03%2F2021%2015%3A00%3A00&endTime=03%2F0 4%2F2021%2018%3A00%3A00`

selectedFields	Items.Value;Items.Tim	▾	☑	🗑
startTime	03/03/2021 15:00:00	▾	☑	🗑
endTime	03/04/2021 18:00:00	▾	☑	🗑
startTime	-2y	▾	☐	🗑
maxCount	100	▾	☐	🗑

Import from URL Bulk Edit

Preview ▾ Header ⁶ Cookie Timeline

```
1 ▾ [  
2 ▾ [  
3 ▾ {  
4   "Timestamp": "2021-03-03T18:35:30Z",  
5   "Value": 97.6198959350586  
6 },  
7 ▾ {  
8   "Timestamp": "2021-03-03T19:47:30Z",  
9   "Value": 79.5657958984375  
10 },  
11 ▾ {  
12   "Timestamp": "2021-03-03T22:30:30Z",  
13   "Value": 14.491045951843262  
14 },  
15 ▾ {  
16   "Timestamp": "2021-03-03T23:39:30Z",  
17   "Value": 0.7980493307113647  
18 },  
19 ▾ {  
20   "Timestamp": "2021-03-04T00:44:30Z",  
21   "Value": 3.7227861881256104  
22 },  
23 ▾ {  
$.*
```

Desafio 2: Convertendo para implementação Java

```
Iniciando Sessao Radix alexandre.caldeira #0.  
Cache local construido.
```

```
>> Informe um ou mais tags separados por virgula:  
cdep158,sinusoid,cdt158,sinusoidu
```

```
WebId:
```

```
F1DP72-6XV15302c_ud52V8M7ABQAAAAUE1BR1NFU1ZFUjIwMThcQ0RFUDE1OA
```

```
WebId:
```

```
F1DP72-6XV15302c_ud52V8M7AAQAAAAUE1BR1NFU1ZFUjIwMThcU01OVVNPSUQ
```

```
WebId:
```

```
F1DP72-6XV15302c_ud52V8M7AAwAAAAUE1BR1NFU1ZFUjIwMThcQ0RUMTU4
```

```
WebId:
```

```
F1DP72-6XV15302c_ud52V8M7AAgAAAAUE1BR1NFU1ZFUjIwMThcU01OVVNPSURV
```

```
Primeiros 10 dados da tag: CDEP158
```

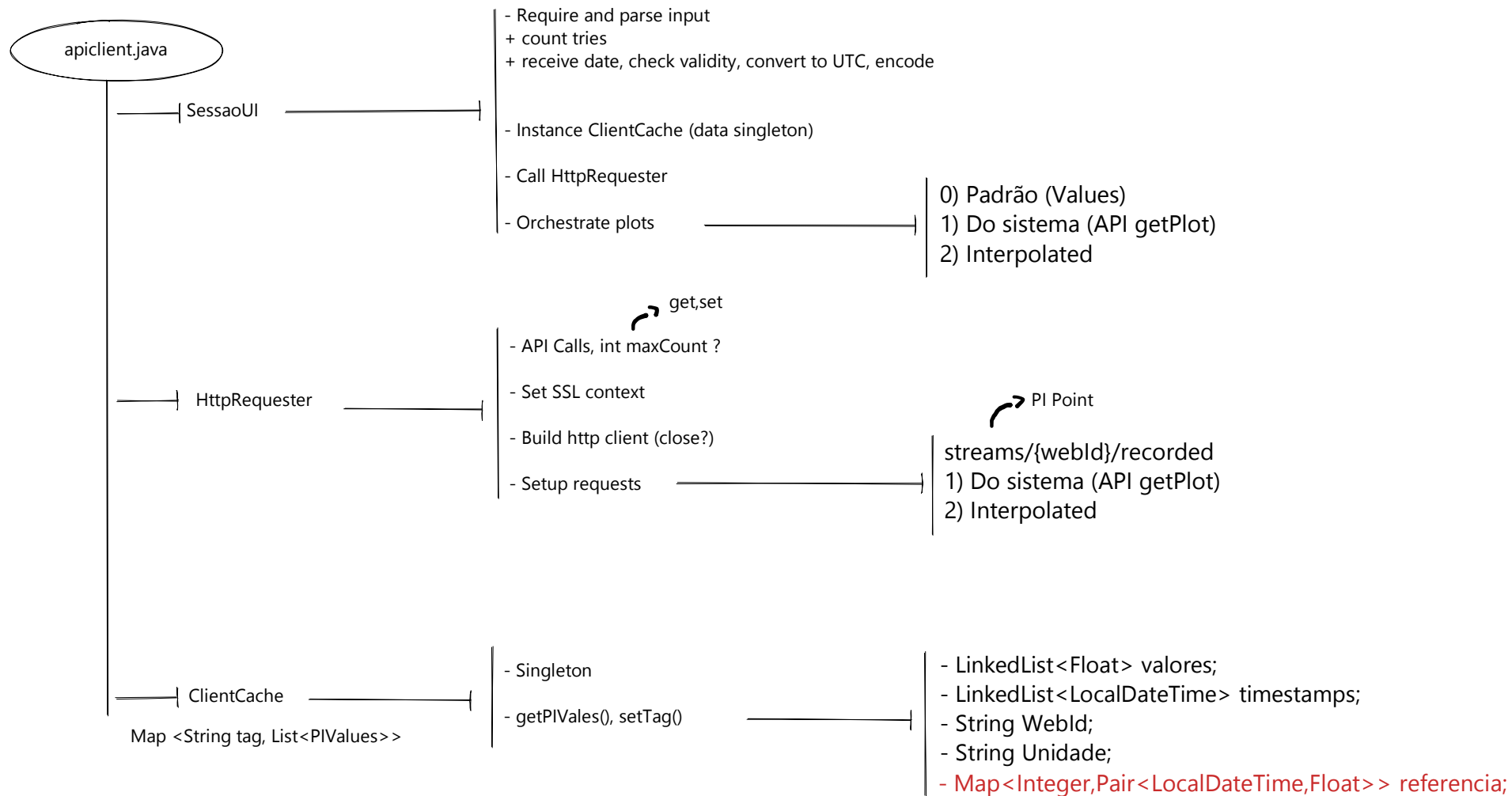
```
2022-03-03T12:21:15 -> 128.0  
2022-03-03T13:05:15 -> 129.0  
2022-03-03T14:58:15 -> 129.0  
2022-03-03T15:48:15 -> 143.0  
2022-03-03T16:52:15 -> 136.0  
2022-03-03T18:16:15 -> 155.0  
2022-03-03T19:25:45 -> 140.0  
2022-03-03T20:45:45 -> 136.0  
2022-03-03T21:38:15 -> 110.0  
2022-03-03T23:24:45 -> 131.0
```

```
Primeiros 10 dados da tag: SINUSOID
```

```
2022-03-03T12:44:15 -> 3.681697  
2022-03-03T13:57:45 -> 24.15444
```

```
<
```

Desafio 2: Rascunho da hierarquia resultante



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Obrigado pela atenção! Dúvidas? Feedback?

