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Profiling

Introduction

Recalling the performance testing, I selected for the profiling the US-17 (Owners sees vets personal information).
The reason to that is, when comparing with others us, its performance was very low compared with the rest of them, taking into account that not only the performance was done with less users than the others and at the same time taking longer to perform the request. Later in the profiling I discovered the reason of that but at the beginning this was the US I had taken to perform a profiling.
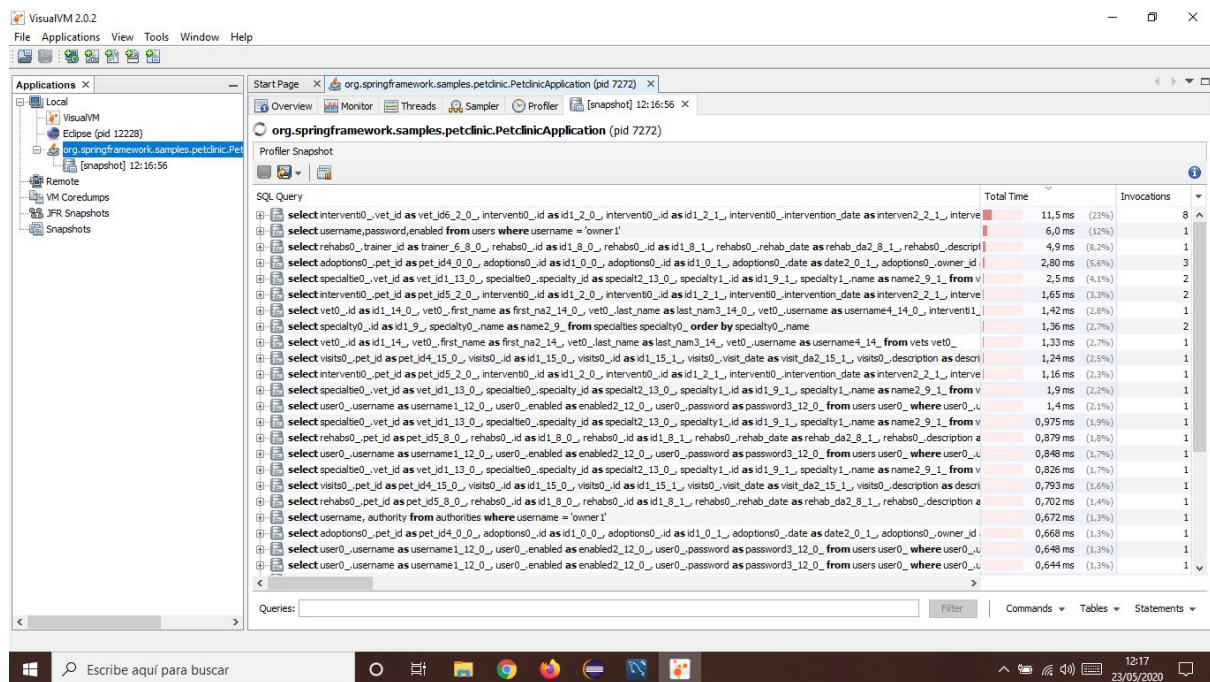
The feature is simple, is just a show view of the data of the chosen vet.

Visualvm profiling

The reason to use Visualvm was its simplicity and also it was straightforward when installing it, were as glowroot gave me errors and I had to lose some time to make it work, visualvm allowed me to start working from the beginning.

The result were the next.
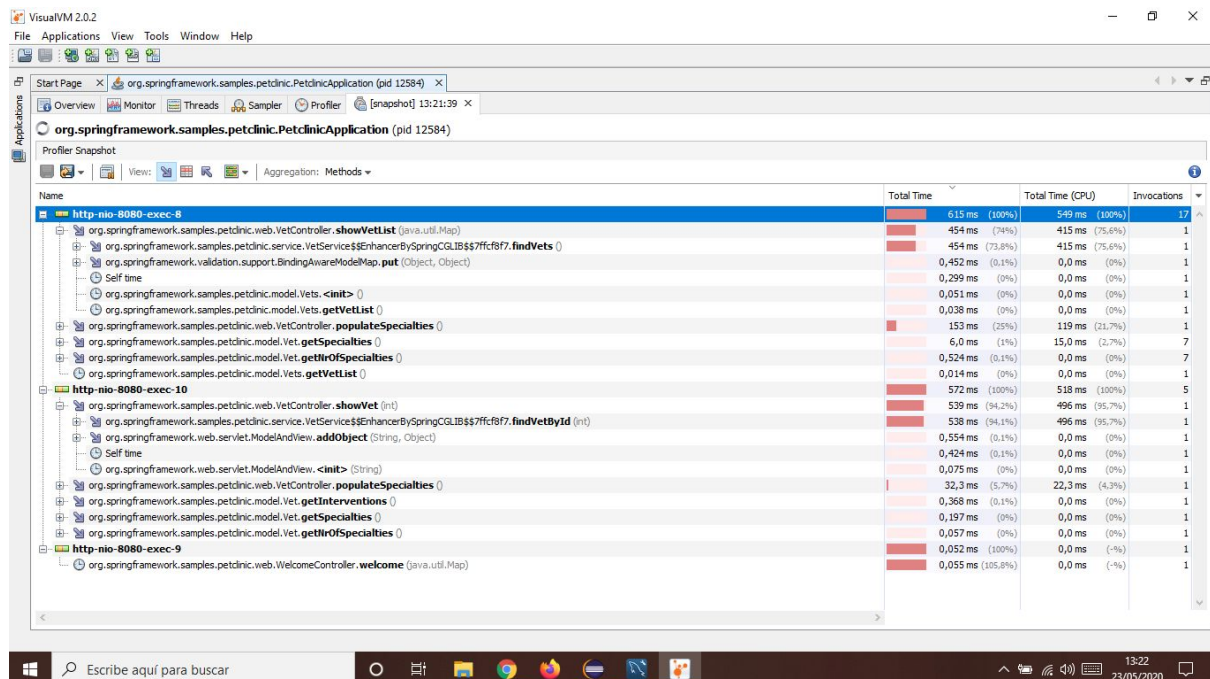
Just by looking at the lines we figure out that something is happening with a query that is called 8 times for the feature. This happens because to get to the vet show view first we have to go throw a listing of vet. The problem resides here, in the listing, there is shown part of the information of the vets, and then, when a user access to the vet show view the query is call one more time. This is a N+1 problem.

Another problem was a query regarding adoptions that was called. Although it is not wrong, it does not contribute any functionality rather than showing more things and it can be avoided.

File changes

The first step is to amend the N+1 problem. In the database there are 7 vets, so the query is executed 7 times (one for each vet) + 1 (for the show view).
The correct answer would be deleting the listing thus improving a lot the performance, but it would affect other users stories, so the solution was to minimise the data shown in the listing, giving only the strictly necessary when finding a vet (the chosen attributes were the name and the speciality).

```
vetList.jsp ✖

 8⊖ <petclinic:layout pageName="vets">
 9      <h2>Veterinarians</h2>
10
11⊖     <table id="vetsTable" class="table table-striped">
12⊖         <thead>
13⊖         <tr>
14             <th>Name</th>
15             <th>Specialties</th>
16         </tr>
17         </thead>
18⊖         <tbody>
19⊖         <c:forEach items="${vets.vetList}" var="vet">
20⊖             <tr>
21⊖                 <td>
22⊖                     <spring:url value="/vets/{vetId}" var="vetUrl">
23                         <spring:param name="vetId" value="${vet.id}"/>
24                     </spring:url>
25                     <a href="${fn:escapeXml(vetUrl)}"><c:out value="${vet.firstName} ${vet.lastName}"/></a>
26                 </td>
27⊖                 <td>
28⊖                     <c:forEach var="specialty" items="${vet.specialties}">
29                         <c:out value="${specialty.name} "/>
30                     </c:forEach>
31                     <c:if test="${vet.nrOfSpecialties == 0}">none</c:if>
32                 </td>
33             </tr>
34         </c:forEach>
35         </tbody>
36     </table>
37
38⊖     <table class="table-buttons">
39⊖         <tr>
40⊖             <td>
41                 <a href="<spring:url value="/vets.xml" htmlEscape="true" />">View as XML</a>
42             </td>
43         </tr>
44     </table>
45 </petclinic:layout>
```

The other problem, I just performed a simple change in the view file deleting the adoptions.

```
28
29              <br>
30              <h2>Interventions</h2>
31              <br>
32⊖             <c:if test="${message2 != 'This vet has no interventions'}">
33
34⊖             <table class="table table-striped">
35⊖                 <c:forEach var="intervention" items="${vet.interventions}">
36
37
38                         <th>Intervention Date</th>
39                         <td><petclinic:localDate date="${intervention.interventionDate}" pattern="yyyy-MM-dd"/></td>
40                         <th>Intervention Description</th>
41                          <td><c:out value="${intervention.interventionDescription}"/></td>
42                         <th>Intervention Time</th>
43                         <td><c:out value="${intervention.interventionTime}"/></td>
44
45                 </c:forEach>
46             </table>
47             </c:if>
48⊖             <c:if test="${message2 != 'This vet has no interventions'}">
49             <h4>This vet has no Interventions</h4>
50             </c:if>
51     </c:if>
52⊖     <c:if test="${message == 'Vet not found!'}">
53         <h3>Vet not found!</h3>
54     </c:if>
55     </petclinic:layout>
```

Result

A a result, one query that took 5.6% (4th) of the time was erased and the N+1 problem was affected from 11.5ms (21%) to 8.9ms(21%).

It is not a significant result considering the large result in the performance testing, but it couldn't been change any more code because it would affect the functionality of the feature.