**General Performance Tuning**

1.**Session Metrics**

Collect the session metrics like below

* Total count of session objects stored for each session.
* Object Type and Object size stored in session.
* Add,Remove,Modify session data & Count
* Timestamp of this session Operations (Add,Remove,Modify)

**Data Analysis on session Metrics**

* Identify frequent operations (ADD,DELETE,MODIFY) executed on session objects
* Identify the particular Session object size are consumed high.
* Which session objects are frequently Replaced and size based on timestamp.
* Each use case to identify session objects size,frequent modification.

**Actions**

For Each use case, try to reduce the session object size, frequent replacement of session objects without application impact.

(includes impact analysis)

2. **EHCache Metrics**

Analysis and actions to be implemented like session metrics.

Additionally, The frequently used static data of webservice/ejb responses to be cached at the start or load of the application.

3. **Minification of JS/CSS**

Minimized version of js/css load into the application.

4.**No of UIcomponents loaded**. (Component Tree)

For each use cases, Identify the no.of UIComponents in the application.

Have Java code to count and print no. of UIComponents.

Action : Since its single page application, May be unused UIComponents are loaded.

5. Analyse initial request and post back request is called at the start of the application.

Action: The code is executed twice if the same code present in initial request and post back request. Analysis required.

6. Avoid using Reflection

On the fly, the java class is created and manipulated in the application.

7. Using jvisualVM, Identify the no of instances are created for each class.

(Eg) Java classes or user defined class

Action : Minimize the creation of instances.

8.InpectIT tool is used to identify the high transaction time.

Action : Minimize the transaction time taken

9.SQL Tuning

Find high Cost and execution plan for the complex queries and rewrite to minimize the cost

Use Native queries instead of named queries with select statement.

Use index and partition in the tables.

10.Batch process - Use parallel processing of batch data.

11.Static code Analysis tool like sonar qube is used to improve the code Quality.

12.