**Research/Prototype - How to create Statistic Charts with data in ES - external visualization technology**

**Main Topics:**

1. Get data for statistics from ES
   1. Important is to consider also "permission stuff"
   2. Answer the question “How can we query data related to one user from ES”
2. Try to use ChartJs to visualize data
   1. If ChartJs does not work, research for an alternative. Maybe Google Chart?
3. Create 1 bar chart defining the x-axis and y-axis in UI
   1. The new concept needs the flexibility to define the relevant KPI/inputs for each axis and maybe additional input parameters.

**Details:**

Approach: Logstash → Elasticsearch → (ES Java Rest ClientApi) → ChartJs

1. Logstash imports data from IvySystem DB to Elasticsearch
   1. Import by JDBC input.
   2. Currently, testing on PostgreDB
2. From Portal: use Elasticsearch Java Rest Client to access ES and query data
   1. ES Java Rest Client is a powerful API, can search, get, filter, sum, delete, insert … with good documentation so easy to develop
   2. Doc: Java High-Level REST Client | Java REST Client [7.15] | Elastic <https://www.elastic.co/guide/en/elasticsearch/client/java-rest/current/java-rest-high.html>
3. ChartJs: Uses Primefaces ChartJS that is the standard lib we use on Portal
   1. After defining some criteria on the UI, search data on ES by that criteria data
   2. Then build a ChartJs as what user selected

**The limitation from Portal scope:**

Logstash:

* How we run Logstash automatic: currently I’m running the command line when want to sync data from ivy system data to Elactisearch:
  + Defined a pipeline and config files
  + .\bin\logstash.bat
* How to import data: I’m using a raw SQL to join the table and select
* How to combine data of case/task with custom-fields table: I’m using join manually
* => Can the ivyCore support sync data from IvySystem DB to Elasticsearch?

Elasticsearch Java Rest API:

* Java High-Level REST Client is easy to start to query/search data from ES, but it will **deprecate** on 7.15.0
* I need to import ES Rest client libs in pom’s dependency of Portal project
  + => Can ivyCore provide it
* Alternative Rest-client: I know **Jest – Elasticsearch Java Client** is the good one to replace ES Java High-Level REST Client
  + => Can ivyCore consider providing it?
* How to create an ES Rest client with the correct ES port configured in ivy yaml? Currently, I hardcode with 9200, need support from the ivyCore
* How to query task/case correctly:
  + Example:
    - I want to query the case/task in which I am involved. Currently, I’m just comparing creatorId, activatorId, and workingId
    - Also can work on task/case
    - How to query task by case data correctly? Current I need to send 2 ES search requests, one on the case end then another on task-> can Ivy core provide a suggestion
  + It will very nice if ivyCore provides a **Jest ES** public APIs and some related APIs such as to get involved task/case

ChartJS:

* What thing customers want to customize the chart: x-aris, y-aris, chart legend, label, data, filters, color
  + We need some use cases
* Can we support customers extend chart?
* Drill-down chart: How many levels of drill-down we should support

**Attachment:**

