Application Architecture Design for CEP and HR Portal

**Technologies:**

1. Angular 6+
2. Java - Spring Boot for REST API
3. MySQL

**Approach**:

* An Angular project for front end with multiple applications. Parent application will hold the control the basic aspects of the project.
* The applications will be like a plug and play application.
* Each application will be able to separately configured, build, and deployed. This reduces the coupling between the applications.
* Dependency between the projects will be commonly managed.
* Scalable to accommodate new requirements.
* Database will be having two separate databases respective to the number of the applications. This will help in keeping the coupling to a minimum. Only the common parts will have a shared database. E.g. Login, Sign up, etc.
* Back end will be build in Java. Java back end will cater the needs of the applications. There will be separate set of API for independent application. Shared modules will be having shared API.

**Features:**

1. **CEP Features:**
   1. Candidates will have to register and login into the portal to access.
   2. Candidate will have several categories to choose from to take up courses. These categories will be open to all so that anyone can take up the learning challenge and have an expertise in a skill.   
      e.g.: Embedded Systems, Computer Fundamentals, Frontend technologies, General Aptitude, etc.
   3. These categories will have challenges.
   4. Candidates will have a several challenges to register for. Out of which some of them will be mandatory and rest will be optional which can be taken over some span of time.
   5. Each challenge will be a set of following steps:

Tutorial

Basic evaluation using MCQs

Coding challenge(s)

* 1. For each step of the challenge (except tutorial), there will be a timer (optional feature under consideration). Planning to have this setting configurable.
  2. Candidate will submit the MCQ and/or Coding challenge question. A supervisor will then evaluate the results and can provide the feedback for the candidate on the same portal. This feedback may or may not be visible to the candidate.
  3. Candidates can have various certification programs that they need to take up at periodic interval of time (e.g. every year).
  4. The portal will have an ability to have video calls so that the candidates can be tracked to ensure complete honesty of the candidates.

1. **HR Portal Features:**

**Part A:**

* 1. Recruiter will be responsible for sourcing the profile.
  2. The recruiter will add the profile details along with the CV in the system.
  3. The added candidate will be screened by a senior member if the profile is worth to be considered.
  4. After screening the candidate profile, there will be an initial discussion with the candidate.
  5. After the initial discussion, the profile will be shared with the interview panel.
  6. The interview panel will interview the candidate and will update the feedback in the system.
  7. Based on the feedback, either the profile will be selected for further discussion or it will be dropped.
  8. This way, the profile will stay in the system for a period of 6 months. There will be an activity dedicated to the HR Admin/Senior Recruiter to filter out the profiles that are more than 6 months old. This can be a one time activity per month. The system will populate the profiles which are more than 6 months old. The profiles that are not worth to be considered, will be deleted from the system. This will be a clean up activity. Another activity the system will provide functionality to delete profiles that are one year old. The profiles will be deleted on just a button click.
  9. The entire process will comprise of end to end daily tracker for interviews. This will facilitate in removing all the tracker that are being maintained by HR team.
  10. This will also introduce a transparency in the system.
  11. The dashboards for every role in the system will also provide a metric to analyze the performance of the employees.
  12. The portal can have the entire process for on-boarding. Which means candidates can have an entire track of their application right from uploading resume to joining to conducting training. An end to end portal for employee on-boarding.

**Part B:**

* 1. Candidates training status tracker will be present in the system.
  2. Candidates will have to login into the system when they arrive in the office. This will reduce the dependency on the attendance management system. Employees can be evaluated and notified based on the login and logout time of the system. We can actually evaluate the resultant productive time of an employee.
  3. The portal can also have a feature to track the weekly status reports of the employees.
  4. Have a check list for joining formalities. This needs to be done by the HR responsible for the BGV process. The checklist needs to be verified and updated when the candidate joins and joining formalities are in progress.

**Part C:**

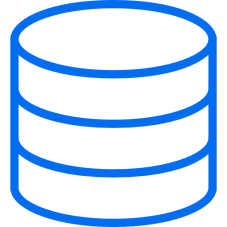
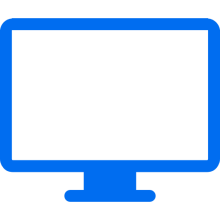
* 1. Complete employee hierarchy from the candidate to the CEO.
  2. Leave management, employee personal information, etc can be accommodated in the portal.

**Part D:**

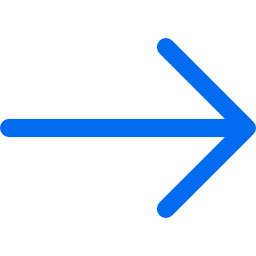
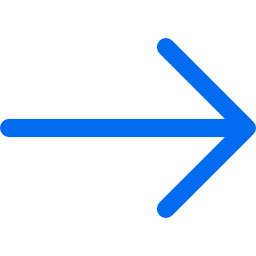
1. Asset management - HR will be responsible for allocation and deallocation the devices provided to the employees.
2. The HR will be able to add assets against the employees
3. There will be a facility to export the asset details in an Excel sheet as and when required.
4. **Architecture**:

Java – Server API

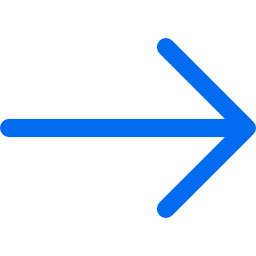
Node JS – For server side conversion from TS to JS

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Server communicates with server for data.

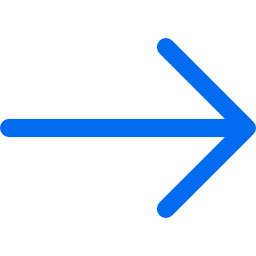
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**Server**

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**Database**

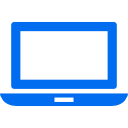
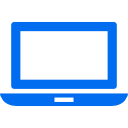
MySQL is used for database.

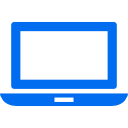
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Client communicates the server for functions like authentication.

Server replies the client with relevant data if the request is authentic. Else error is thrown.

**Client Machine**

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HTML5, CSS3, JS, Angular

**Roles in CEP Portal:**

1. Admin
2. Supervisor
3. Candidate

**Roles in HR Portal:**

1. Recruiter
2. Senior Executive / Screener - Responsible For profile screening
3. HR
4. Interviewer
5. Candidate
6. Business Development Executive
7. Director