



BRAC IT Services Limited

Practical Exam for the position of Sr. Software Development Specialist

Department: Product Development

Instructions:

Please review the information below before proceeding to take the exam:

During this exam you will be guided through designing and implementing a small but complete web application using either:

- Java Spring framework, preferably using Spring boot (for Java developers)
- PHP Symfony framework (for PHP developers)

You are encouraged to use any good coding techniques, design patterns, or methods that you may know.

This is an opportunity to show off your Software Architecture, JAVA/PHP, HTML, CSS and JavaScript skills. But do complete the minimum requirements in the question first.

The exam will test your skills in the following:

- ✓ Understanding requirements specifications
- ✓ Designing application architecture and business logic
- ✓ Working knowledge of Java/PHP and Frameworks
- ✓ Working knowledge of
 - Spring JPA and Spring Security (Java)
 - Doctrine and Symfony Security (PHP)
- ✓ Working knowledge of HTML5 and CSS3
- ✓ Working knowledge of basic JavaScript
- ✓ Usage of security best practices

Read the entire question paper before writing any code. Ask any clarifying questions that you may have at this point. Write code on the computer.

When you are ready, Begin! Good luck!

User Requirements mini-specification

You will be creating a simple Web-based application for employee profile management

User Stories

The high level functional requirements are as follows.

- No anonymous users are allowed to use the system. They will be redirected to login page for login. You can use dummy user credentials for login (no need to load that information from DB, but bonus points if you can do that using DB).
- After login, show a list of employees in the user's dashboard. The page will show:
 - list of employee page-by-page (per page 2 employees), filter by
 - i. Name: text input, default empty
 - ii. Age: text input, default empty
 - A 'add new employee' button to allow the authenticated users to create new employee which will be saved in DB. You can use in-memory db or any other db of your choice. Note that you should show proper error messages on form submission when invalid data is submitted.
 - The employee entity will contain:
 - iii. employee Name (text, mandatory)
 - iv. Date of birth (date, valid date, mandatory)
 - v. Gender (select box, mandatory)
 - vi. Profile picture (image file only, optional)
 - vii. Note: (Text area, optional)
- Allow user to edit an employee entry
- Allow user to delete an employee entity
- Create a report screen: Gender wise employee count. Sample output:

Gender	Employee Count
Male	12
Female	10
Other	1

- Create a REST API to get employee list (GET /api/v1/employee) which will return employee list as JSON, paginated
- Consume this 3rd party REST API, show some of the fields in tabular format in a page in your application: <https://rxnav.nlm.nih.gov/REST/interaction/interaction.json?xcui=341248>
- Write test code for the REST API you created (GET /api/v1/employee)

Bonus points:

- Make the UI responsive and beautiful. You can use any UI framework of your choice.
- Make form validation in client side too using JavaScript

Point distribution:

- Completeness: 50%
- Code quality: 20%
- Architectural design: 15%
- Security practices: 15%

How to submit your solution:

- Please double check that you have done all tasks. Create a Readme.txt file in your project root and write your comments there if you want to communicate anything to us.
- Please create a new git repository in your github/gitlab/bitbucket account and upload the project there and share us the link to your git repository.
- Please make sure that the link is valid and accessible to us