CROSS | OVER
Tech | Trial

Congratulations on making it to this stage of the evaluation. You are obviously very talented as very few people make it to this stage. As we've stated earlier, the companies we represent receive 1000s of resumes for any given role and it is through these difficult assignments where you can differentiate yourself and be noticed. After completion of this final 'real scenario' assignment - there will be a quick technical interview on your delivery then you are ready to be hired. At that point, instead of being 1 of 1000, you will be 1 of 5 (and we'll likely hire all 5).

The project is scoped to be simple and reasonable in size to enable you to demonstrate your enterprise - class development skills. Though this is a fictitious example, this scenario is very similar to what you may encounter in your job.

Instructions

- Try to complete as much as possible within the given time frame. If you need more time, please ask for an extension. You must complete full-functionality of the application with industry-level coding style/commenting. Unfinished assignments will not be considered.
- Please note that you are expected to work on the assignment independently. Discussing assignment details with colleagues or any indication of outside help will be considered cheating.
- Please do not expect too much hand-holding as this is an evaluation assignment.
- Read the complete assignment before you start. Understand clearly what is required so that your work will be appropriate and easier.

Preconditions

1. You should work on your local machine.
2. You may use any IDE or editor for developing the application.
3. You must use the latest PHP5 version compatible with required libraries.
4. You must use Apache or IIS as the web server.
5. You must MySQL as database.
6. You must use one of these PHP frameworks:
    1. Laravel
    2. CodeIgniter
    3. Yii2
    4. Symfony2
7. You must use one of these Front End frameworks:
    1. ReactJS
    2. AngularJS (version 1 or 2)
    3. Backbone.js

Failing to follow these rules will invalidate your submission and you will not be evaluated.

Technical Trial Objective

You are required to architect, design and implement from the ground up a virtual exposition application, it will allow companies to book their place in virtual expositions in different exposition events.

Companies will choose from available events the one they want to take place in, then they will choose their stand within the exposition hall from a map and finally they will receive a report about the users who visited their stand on the event after it is over.

Functional Requirements

Create the web application with the following requirements:

1. The home screen displays a map with different event places highlighted on it.
2. Selecting an event on the map displays the event details (name, location, event dates) right below the map and the “Book your place” button become active.
3. Clicking “Book your place” will take the user to the exposition hall map, it is a virtual map for the exposition hall with different stands which he can navigate through it and book his stand.
4. Booked stands is highlighted as booked, the logo of the booking company will be displayed on top of the stand, below it the marketing documents (could be downloaded) and the contact details.
5. Free stands is highlighted as free, and on top of it the price.
6. The user can select any empty stand to book, clicking on an empty stand shows a popup with details of the stand, a real image of it and a “Reserve” button.
7. Clicking on reserve takes the user to the registration page where he supposed to provide: contact details, upload marketing documents, company admin and company logo.
8. Clicking on “Confirm Reservation” reserves the stand for the user, takes him to the exposition hall screen viewing the booked stand with the user’s company details on it.
9. Finally the company admin receives a report by mail about the users of the stand after the event is over.

Other Technical and Non-functional Requirements

The following list of technical specifications will help you, but you could choose better alternatives

1. All backend should be developed using PHP
2. You need to create the complete architecture and detailed design of the system, covering every specification mentioned above, documenting in the design document.
3. Assume details, enrich the system with your ideas. Identify missing or conflicting requirements and also mention as feedback.

What we will evaluate

1. Code quality
    1. Code modularity
    2. Application organization across files and within each file - please ensure you follow the framework standards
    3. Code documentation - balancing between self documenting code and comments
    4. Unit testing
    5. Exception handling where available and expected in the frameworks you're using
2. Design considerations
    1. Different views of the architecture/design along with all the needed UML diagrams.
    2. Detailed technical design of the system, with to-be implemented services and applications.
    3. Detailed technical design of the interfaces with any external systems.
    4. Identification of technologies and design patterns used and the rationale behind every choice.
    5. All the useful diagrams to support your design including (but not limited to).
        - use case diagrams, component diagrams, application layer diagrams, activity and sequence diagrams,
        - deployment and network diagrams, class diagrams, ER diagrams.
3. User Interface of App
    1. Easy to use
    2. UI responsiveness for mouse clicks and touches.
    3. Cross-Browser Compatibility as described in requirements.
        - *If you are unable to meet this requirement, you should document the platforms you were able to support in the time provided for the assignment.*
4. How well does your solution solve the problem described

What to deliver

Demonstration Video

Record the video demonstration of your work using a screencast tool like Wink (or any other tool) commenting on the execution of all components. Save the video to your local machine and include it with the delivery package.

Database script

Create manual steps and/or SQL script files to create the databases, their schema, stored procedures and any initial data you may use for testing.

Readme Document

Create a txt file with the following information

1. Instructions to install and configure any pre-requisites and dependencies to prepare the development environment
2. Instructions to create and initialize the databases (if any)
3. Instructions to configure and prepare the source code to build and run properly
4. Any assumptions made and missing requirements that are not covered in the specifications
5. Any issues faced and any constructive feedback you may wish to give about improving the assignment

Design Document

Create a design document containing at least the following (in not more than 10-15 pages)

1. Explain with different architectural views the composition and working of the system, in order to show the components interaction and the process, control and data flows.
2. Explain the breakdown of the system into components, with technical implementation details of each component along with the design patterns consumed, and with reasons behind your choices.
3. Use appropriate UML diagrams as necessary for the impact.

Source Code

You should deliver the implemented source code including any dependencies. For the dependencies that could not be included due to size, the readme file should have proper instructions on how to download and install them.

How to submit

Please, read this section carefully.

Failing to follow these directions will disqualify you from consideration.

You will be submitting your deliverable through the Crossover Candidate Portal. The delivery for this assignment should consist of a zip file named <your_name>.zip containing the following:

- README.txt -> containing report about work done and how to run your application.
- **Design**-> folder containing application functional and architectural design (PDF)
- **Code**-> folder contains your Code.
- **Database**> SQL or any other script required to build the database
- **Video**-> folder containing either:
    - Video demonstration of your solution recorded via some screen capturing tool and encoded in mp4 video format. Please ensure the size of the video is less than 30MB. If not - we suggest you reduce the size of the demo by removing similar frames and/or removing binary dependencies.
    - A “DemoReadme.txt” file that includes the link to a live site of your project. (Herokuapp is great for this)

ATTENTION! YOUR APPLICATION WILL BE REJECTED IF IT:

- Does not compile
- Does not contain unit tests
- Unit tests are failing