Centare Take-Home Coding Exercise

Thank you for your interest in working at Centare! For the next step, we’d like to learn more about how you like to write code and what patterns you’re experienced with. Rather than ask you a series of puzzles and trivia questions, we’d like you to tackle some real-world problems. And rather than have us hovering over you for an hour or more, you can work at your best pace in an environment you’re comfortable with--just like our developers do.

# Instructions

* Choose a few of the requests in the list below to complete. **We neither expect you to nor intend for you to complete them all.** Spend only a couple hours implementing the requests that you feel demonstrate **your** level of skill and experience.
* You are, of course, welcome to use the Internet as a resource. You can also contact Centare team members to ask clarifying questions or get more information. We can even offer hints if you are stuck!
* You should be able to complete any of the tasks using only the free Visual Studio Community edition and the included LocalDB, but you are welcome to use whichever tools you prefer. If you have issues getting your development environment set up, let us know and we can spin up a remote virtual machine for you.
* Once you’re done, send your code back to us and let us know which tasks you completed. If everything works, we’ll schedule an in-person follow-up to review your approach and your decisions.

# Introduction to the Application

We’re making a simple Check-In application. Users can view a list of Locations, choose one to check-in to, and view the list of their previous check-ins. There is also an Achievements feature.

The application is built using ASP.NET MVC 5, with the UI styling all coming from Bootstrap. The data backend is Entity Framework Code First and we have Automatic Migrations turned off. Take a look at the CheckInWeb.Data.Migrations.Configuration class for the default username(s) and password(s).

You can run the command “update-database” on the CheckInWeb.Data project in the package manager console to generate sample data.

# Requests

1. Can you add some color to the site? Make the background of the top navigation bar your favorite color.

\*\*Yes, I did this.

1. Awarding achievements on check-in does not seem to be working correctly. Could you investigate what is/are the issue(s) and make any necessary fixes?

\*\*The “all locations” logic switches hasAll to true before all comparisons are complete. Investigating.

1. We want to add more achievements in the future, but our check-in method is growing and becoming tough to maintain. Can you improve this code?

\*\*I would remove these and make each Achievement its own method (so it is Unit Test-able), then create a separate action CheckForAchievements() which runs when a new check in occurs.

* 1. We also want to be confident that the business logic around check-ins works correctly. Can you make sure that section of code is testable and add one or more unit tests to validate the logic?

\*\*Do you mean the logic around the Awarding of Achievements? I intend to write tests for those once I finish extracting the Achievements into their own class.

1. We want to add a new achievement type, “Check in Together”. If you check in at the same location as someone else within an hour of each other, each user should receive this achievement.

\*\*Use CheckIn.Time.Subtract() on previous CheckIns. Check the .TotalHours property on the resulting DateTime to see if <= 1.

1. We would like to be able to add new Locations from the Web interface. Can you create a page that only lets users with the role “Admin” add a new Location? We only need to store the Location’s name, and we don’t need to edit or delete them after they’re added.

\*\*(Is this role already created?) If not, I would create roles and assign an Admin. I have started the beginnings of the logic for access to that page, and can validate functionality one I have ensured the roles are created and assigned.

* 1. Can you make this submit via JavaScript instead of a full post back?

\*\*Review AJAX module for syntax to submit to a database

1. On the home page, we would like to display the top 10 locations for the past month (the ones with the most check-ins) and the user with the most check-ins at each.

\*\*Query the CheckIns repository with COUNT and get the top result. Save that subset as a variable and search that with COUNT on the UserId’s, return that result and display in Home Index View

1. The check-in page only displays the 10 most recent check-ins. Can you add an [Older] and a [Newer] button to page through the check-ins? Please implement the solution client-side in VueJS, or swap in your preferred JavaScript framework.

\*\*Started looking into pagination with Vue; found some starter code, and looking into exactly how to incorporate.