

Code Tester

CodeTester.org is a company that teaches software engineering online. They require you to build a solution that will allow students and professionals to test code they have written. There is a set of predefined tests that will run for at most 1 hour. So, the software should run the users code and evaluate the results based on the tests.

They also want to have software for quizzing previous knowledge to guide their users to the right set of code evaluations

The company wants to have a strong presence on the internet, and they want to start with free trials for the first version of the software.

Requirements:

1. A website to access the lessons and allow the users to upload code.
2. A user should get the results of the tests in the platform and through email.
3. A user can take a quiz to assess their knowledge and the result suggests what lesson the user can take.
4. The users should be able to download the lessons for local reading
5. The app will interact with users in the US and Europe

Chat Application

Sunny Lake Bank wants to improve their customer service by allowing their users to chat to their bank employees. They want to start with a web application that is linked to their main website.

Requirements:

1. A chat application that can be accessed with a link from the bank's main webpage
2. The chat application should display a list of bank officials and their status (online, last time online)
3. Users should be able to send files as attachments

Dating App

You have a client that wants to implement the best dating app in the world. He wants to start with an application as similar as the common dating apps, where people swipe left or right to like or dislike other people.

Requirements:

1. Any person can join the application and will get a list of people nearby.

2. Only people who were nearby in the last days should count.
3. Once matched, the users can chat only with the ones they matched with

Live user analytics tool

A delivery company wants to implement an analytics solution in their platform. They have thousands of users using the application in a single day. They have multiple applications, like

- An app to allow clients to search and request deliveries
- An app that allows companies to list their products and prices
- An app to allow delivery people to coordinate the deliveries and deliver the products
- Etc.

The company wants to analyze user activity, they want to analyze information like how long the user is logged, where they click, how many steps and how long they take in the site, etc. For the most part they want to aggregate this data and have it available for analysis later.

They also want to run some analytics software to detect malicious users or bots that could be interfering with the site. The analytics tools for this are already implemented, they just need to be sent the data to an endpoint.

Voting Validator

The last major election at your country has had a big backlash by the citizenship. Evidence has emerged of fraud and manipulation of votes across the country. That's why a group of businesspeople wants you to build a third-party voting validation system.

Votes are casted in ballots and manually counted by election officials. Each voting booth's ballots are publicly counted, and an official document is produced from those votes with the results from that booth. That last step is the problem, it seems that some people have been tampering with the official document, since it is a manual process there is little validation that can be done.

Here's what the software should do:

- Allow the public to take a picture of the official document and update them to the system
- A piece of AI software should grab these pictures and collect the data from them, which is how many votes there is for each candidate for the given official document

- Then the system should compare our results with the government's official results through API calls and flag any document that is not matching.
- The media will be involved too, so we need to enable an API to have the live data as it is being populated, so they can inform the public.
- There should be a strong accountability system to prove that the system is not flawed, we should record every step of how records got flagged and from how many people.

There are some additional considerations:

- There are 5 million people officially registered to vote, normally at least 70% of them vote.
- We expect the software to run for at least 3 hours, which is the time elections end and votes get counted.
- We expect some users to use the software multiple times to register multiple booths around them.
- Some nonprofit organizations will also use the software to register booths in far located villages or communities.