Newexer Inc.
June 22, 2025

Assignment – Software Engineering Internship

Dear fellow engineer,

Sooner or later in your professional journey, you will face challenging questions about the nature of your work. We are already living in a fast-changing time when software engineering is getting downgraded to a blue-collar job (at least in the U.S.), upper management sending constant threads from about LLMs automating away all software development, and optimism being in a short supply, despite all the hype and excitement about software growing smarter and more advanced.

To explore some answers together, let's take a quick trip to Osaka, Japan!

The Tower of the Sun

Open in Google Street View ↗

Yes, it looks very much different. This otherworldly avant-garde sculpture with whimsical interior calmly rests in an Osaka park, its arms stretched wide like it's swaying in the spring breeze and enjoying the soft sunlight falling down on its three faces.

The most prominent front face between the two arms symbolizes the present. The "golden mask" on top represents the future. And the "black sun" in the back of the sculpture visualizes the past.

The cracked concrete skin of the sculpture and the surreal faces feel like a question carved into the sky. Even now, over 50 years later since it got built, it doesn't quite explain itself. It dares you to ask better questions…

Expo '70

Open YouTube Music Video ↗

As you have perhaps discovered by now, the sculpture was originally created for Expo '70 – the first World Expo ever held in Asia. The exhibition fair featured many inventions from across 77 countries, with innovations such as early mobile phones, magnetic levitation trains, as well as moving walkways. From the soaring Tower of the Sun to the first-ever IMAX system, the event showcased Japan's meteoric rise in the high-tech industry and make the world publicly declare that *we're not afraid to invent what doesn't yet exist*.

As a modern-day software developer, you have millions of tools, frameworks, LLMs, and platforms at your fingertips, many promising to do all the "heavy lifting" on your behalf. It is tempting to just glue everything together. It is tempting to live the comfortable life of an

integrator who does not dive much deeper into the tools used in one's everyday work. Unfortunately, the harsh truth is that integration without innovation is merely a treadmill – you are moving, but you are not going anywhere. You are solving short-term problems without pushing long-term progress.

Expo '70 reminds us what it looks like when people dare to build things that haven't been built before. If you are an ambitious developer today, don't just use tools – question them. Push them or break them if you have to. Build your own when what exists falls short.

Are you going to be an integrator or an innovator? At Newexer, you will be able to push the boundaries and engage in a truly inventive backend & DevOps engineering – in the long term, we may go as far as writing our own full-stack framework to replace Next.js. We believe work should be about investing in the skills and the mindset that will let you create something worth showcasing at your Expo.

Guess where is this year's Expo 2025 happening again? ... Yes, you got that right.

Your Assignment

Getting to the actual assignment:

1. The source code of this PDF file contains an unused object. That object contains encoded text of what you need to research/write about in the next step. This is your first task – find the object, decode it, and proceed to step (2).

2. Take a blank sheet of paper and prepare a handwritten response to the task description you found in step (1). Take a clear photo of the paper using your phone – please make sure not to resize or digitally alter the photo in any way.

3. For the final step, write a small script that takes your photo, deflates its raw binary data (without resizing), and adds it as another unused new object into the PDF, with the encoding parameters same as for the object discovered in step (1). You can choose any language (JavaScript/Python/CLI) or third-party packages to make this process work.

When you are done, please send an email response to tom@newexer.com, with attachments including the following:

- the assignment text you identified in the original PDF file,

- the unmodified photo of your handwritten response to the assignment text,

- and the updated PDF with the embedded image in a new object, alongside your code to make this image insertion work. If you did not complete this task in time, don't worry – send over what you have.

Thank you & looking forward to connecting soon again!
Tom