Exercise task description:

*Hello, I am your new client and need your help with my issue. I am collecting photos of **gas meter** display in my garage. Based on that, I am really interested in figuring out my current **gas consumption**.*

*Can you help me with that? I can provide you a **dataset** with the mentioned photos. This dataset has images taken in the last two years (photos are taken once per week, unfortunately, due to my laziness, the image-taking frequency is inconsistent).*

Stage 1 (computer vision):

*First, I would like to **understand my data**. Unfortunately, I have only the image dataset, therefore you will have to find a way to **digitalize** it for further study. I could write the values down for example into a .csv file for you, but the dataset is quite large (and I am lazy). And you are the AI expert, it shouldn't be that difficult to create or use some tool for **text extraction** for you, right?*

*Once you have it done, would you be able to make some **statistics** about the extracted values? I have a suspicion on my wife that she is boiling the water for too long, and it does show on the gas meter values…*

*Lastly, I would like to **test it myself**, of course! Maybe you are not that lazy as I am, and you could write down all the gas meter values from the images! But that would not be any AI, wouldn't it? Unfortunately, I am not that skilled in programming and AI expertise, therefore I would beg you to receive something simple. For example, a packed solution that I can easily start within a console command that I would "send to my private, unseen dataset"! Or, if you*

want to have it even fancier, feel free to create some app or anything that my lazy head can quickly test in action!

Stage 2 (productionalization and hosting):

I have just received a SMS from my uncle! He would like to test your solution too (probably he has similar „home suspicion")! Unfortunately, I am not even sure if he has a laptop, but I am quite certain he does not know anything about consoles (maximally an Xbox!).

*Could you create your solution **internet-wide**? My uncle can surely open some **web page**, so if your solution would be **hosted** somewhere **accessible**, we can just send him a **link** and bingo, he can be your user as well! Then he can just snap a picture, send it via your web application and your AI will process it somewhere (up to you) and **send back all the results**.*

*To be able to also check the long-term statistics of the gas usage, it would be great to be able to **send multiple images**, or if your application could „remember" sent images by one user, and then **show the value statistics trends**.*

Stage 3 (deployment and scalability):

Oh, wait a minute, a phone call from my son! Well, that's awkward, seems that men in this family are all delusional about the very same problem….

*My son has come up with an idea – have **your solution as one family product**! All of us could use it at the very same time and he also mentioned that he could host the solution on his home server! A joy to have a son like that!*

*He has one proposition for your solution though. He would like to have the solution **dockerized**. That would then mean, that if he will run **a single command in his console window** (he mentioned something like **„docker-compose up",** no idea, what does that mean, something with a compost?), he should have the app **started** and ready to rock-n-roll for all of us!*

Exercise summary:

Goal:

- take provided data, try some approaches, produce some code,
- get some results,
- send us your solution,
- then let's meet again and go through your solution together and have a chat around it - show how you think about a specific problem, how you can explain what approach you used and why, think about the limitations of the approach and how things could be improved if there was more time, what you think of the results and if they make sense, etc.

Philosophy:

- the actual result is not that important – the journey there and potential future paths are more important,
- if you can follow-through with some ideas then great, if you just start something and have a clear idea on how to proceed that is also useful,
- the expectation is that you will spend around two to three evenings with the task (but there are no bounds to proactivity if you enjoy playing with the problem).

Data:

- provided dataset,
- any data online or that you will create your own.

Tools:

- we recommend using Python as a programming language,
- it is not a contest in finding the best black-box library and blindly using it, it is also important to understand it to some degree (sometimes your own solution might be better in that regard),
- how to present: up to you – slides, walking through code, drawing, …