

AIQ – Assignment for ML Engineer Roles



Dear Candidate

Thank you for your interest in joining AIQ. As part of the hiring process, we invite you to complete the two technical challenges described below **within 7 calendar days from receipt**.

Challenge 1

Suppose we have the following image of circular objects on a brown background:



The challenge requires you to write a solution that separates the circular objects in the foreground. Display the mask and the image in the same display window. You may find the following hints helpful:

- Create endpoint to upload image and store into persistent storage.
- Assign unique reference identifier to each circular object.
- Create endpoint to retrieve list of all circular objects (id and bounding box) for queried image.
- Create endpoint to find bounding box, centroid and radius for queried circular object.
- Create model(algo) evaluation strategy.
- The solution should be based in Python.
- Containerize the solution.

Challenge 2

Attached is a csv file which contains image data referenced by the column depth. The rest of the columns (200) represents image pixel values from 0 to 255 at each depth.

The challenge consists of the following requirements:

- The image size is relatively big. Therefore, there is a need to resize the image width to 150 instead of 200.
- The resized image has to be stored in a database.
- An API is required to request image frames based on depth_min and depth_max.
- Apply a custom color map to the generated frames.
- The solution should be based in Python.
- Containerize the solution.

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Guidelines

- We would like you to submit a minimal, self-contained solution for each using github/gitlab.
- Readiness of the code is very important.
- Demonstration of great understanding of the requirements is extremely important.
However, reasonable assumptions are very welcome, though it must remain within the required scope.
- We appreciate candidates that do just the extra mile to anticipate further changes in their solution.
- Both challenges must be completed within 7 calendar days from the time you receive this document.

If you have any questions, please feel free to reach out to us.

We wish you best of luck!