AI for PRODUCT MANAGERS ND

Workflow For A Parking Sign Identification Annotation Job

This document is a step by step guideline for using Figure-Eight's website to design a job for identifying parking signs from a given dataset of images, to help you as guide in completing project 1 : Create a Medical Image Annotation Job of AI for Product Managers ND. You can find the data set here.

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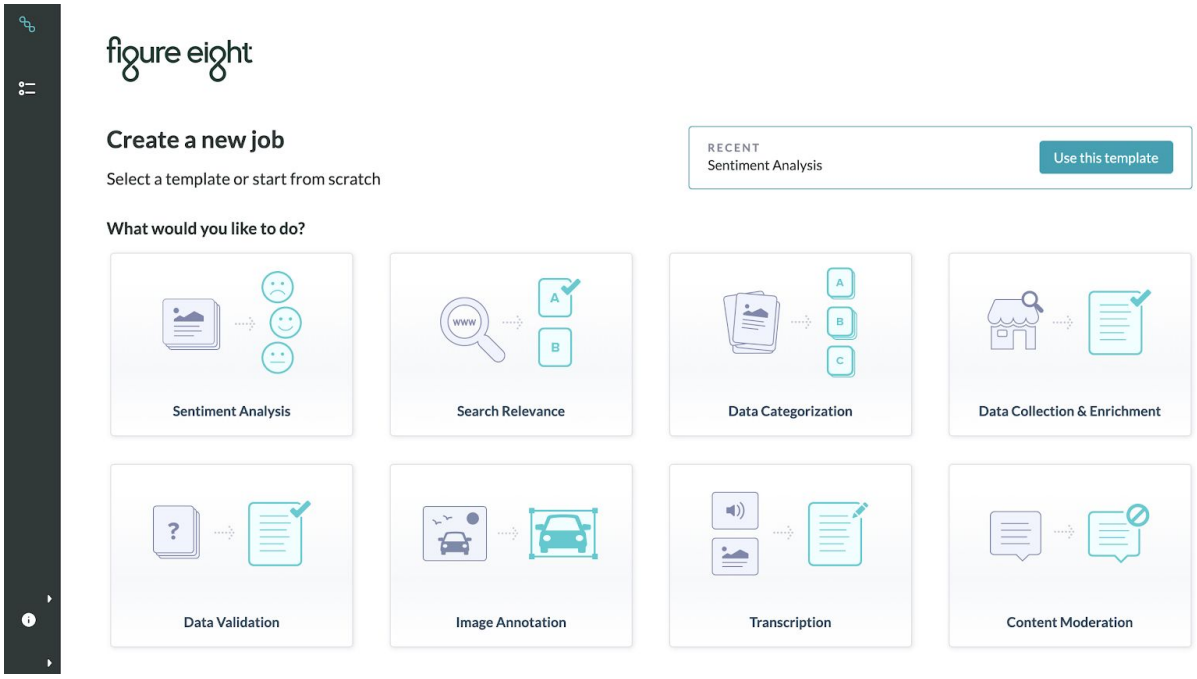
Step 1 :

Login to Figure-eight using your credentials.You will see the following landing page. On the basis of the kind of job that you want to create, select one of the following options :



Step 2 :

I want to create a job for ***Image Annotation***, where the annotators will check the presence of parking signs in the set of images given to them.

Step 3:

Under the ***Image Annotation*** category, you need to select a template, which you think will be best suited for creating the annotation job. Using the ***Preview*** section while screening for templates will give you a fair idea of how useful a template is for your given job. Here, I want to identify whether any given image contains a parking image or not, so I use the image categorization template under the image annotation category.

Annotate And Categorize Objects In An Image Using Ellipses

Contributors annotate images by placing ellipses around objects of interest and choosing the correct class for the object from an ontology.

Preview | Use this template

Minimum 1 column with suggested name:

- image_url

For each image, whether the image has the target objects

If the image can be marked up:

- For each ellipse, the center x,y coordinates, the x radius, and y radius in a JSON array, along with the class applied to the ellipse

Image Categorization

Contributors categorize full-size images given a short list of options you provide

Preview | Use this template

Minimum 1 column with suggested name:

- image_url

For each image, a category name, or an "Other" answer where the image does not fit any provided category

Image Moderation

Contributors categorize full-size images given a short list of options you provide

Preview | Use this template

Minimum 2 columns with suggested names:

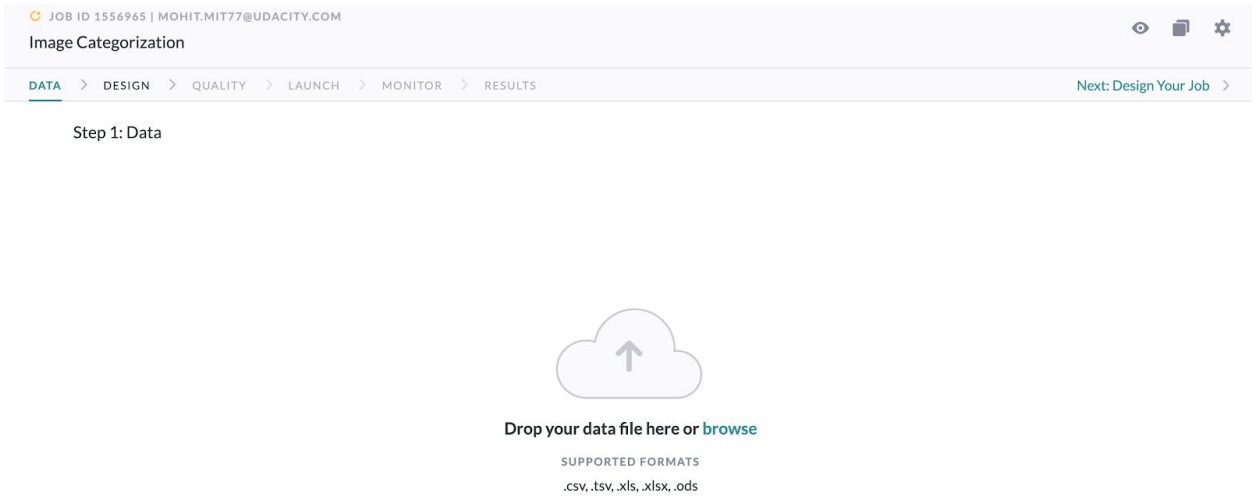
- image_url
- id

For each image, a category given guidelines you provide, e.g.:

- This image is appropriate; it doesn't violate any of the rules
- Sexual Content
- Crotch or pelvic shot/content
- Nudity or innapropriate dress
- Violent or illegal material
- Ads or copyrighted material
- The image is not being shown (broken)

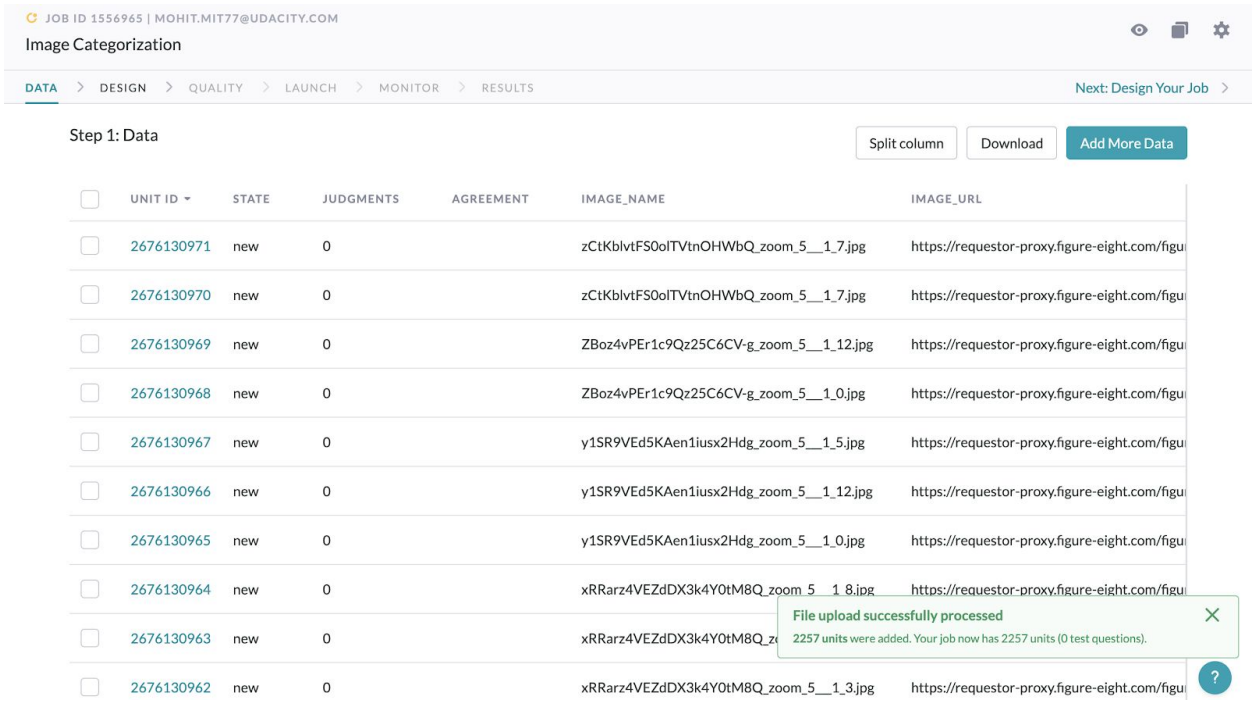
Step 4 :

On selecting ***Use this template*** under ***Image Categorization*** category, you are prompted to upload your dataset as seen in the step below, here we can click on ***browse*** button and upload the required dataset.



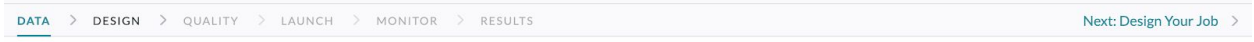
Step 5:

On successful upload of the dataset, you will see the entire dataset, in this format as shown below.



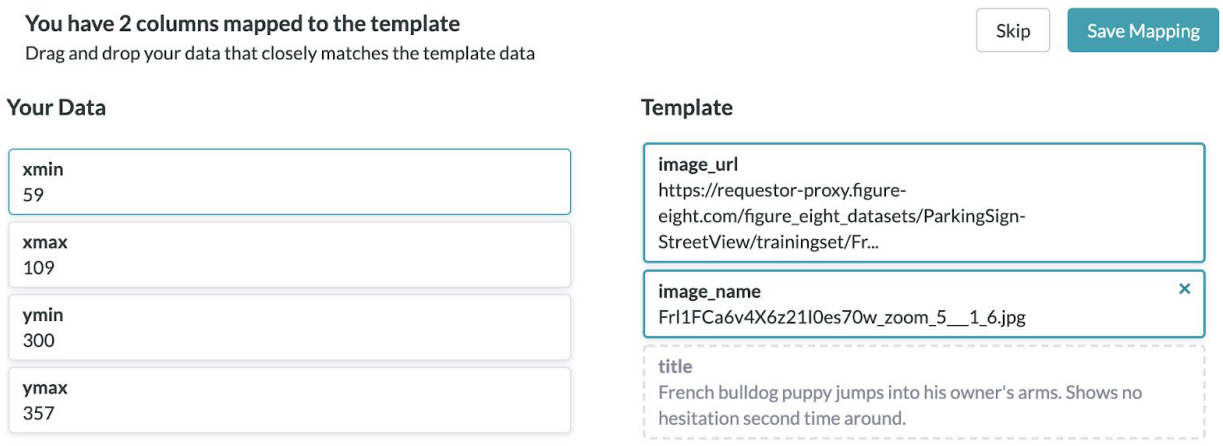
Step 6:

Now, with data at your disposal and the notification in the lower right corner (in green) stating that our file upload is processed, we want to ***DESIGN*** our job to help the annotators, so we go to the second tab above which is ***DESIGN*** as can be seen below :



Step 7:

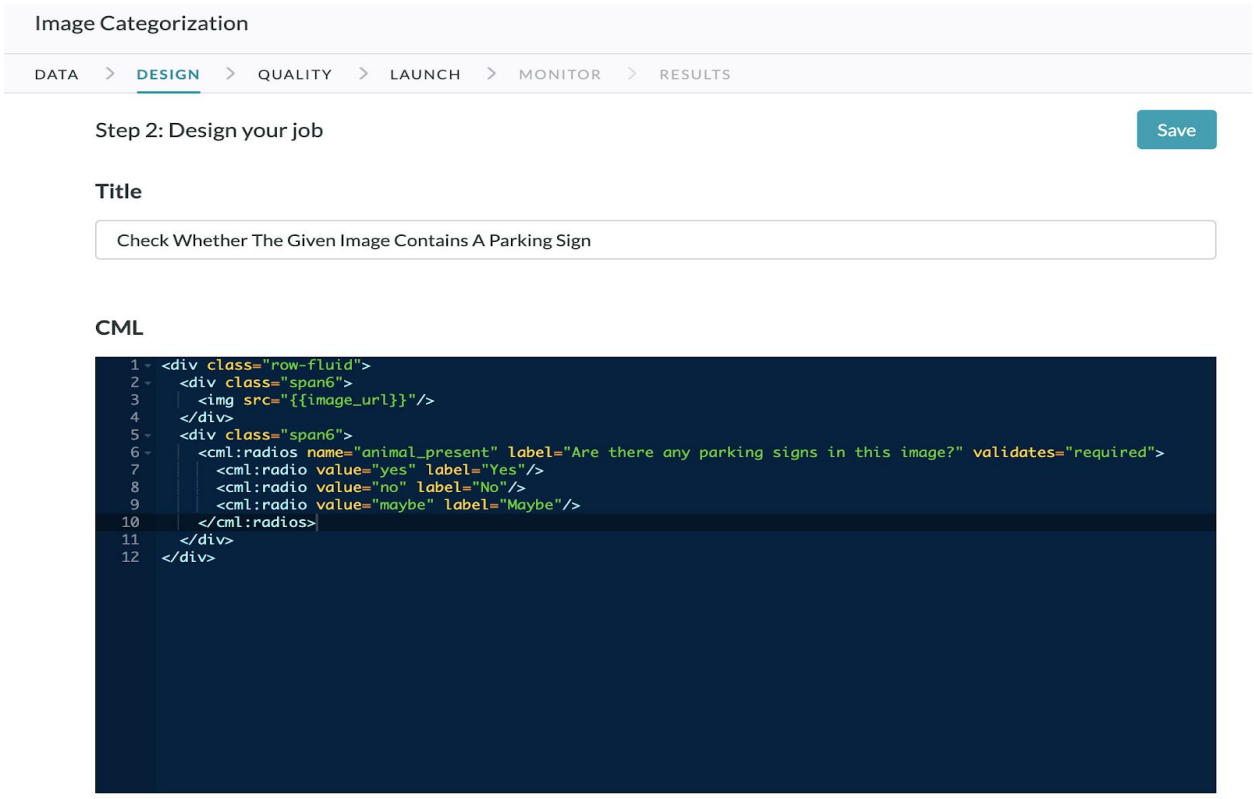
This is an important step, where we want to map our data to the existing template. Most students skip this step, but this is a crucial step which aligns the template with our data.



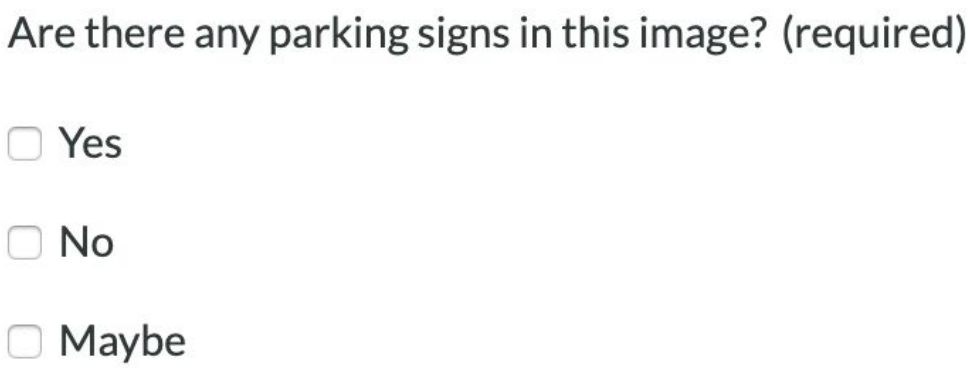
In this mapping, we match (just drag and drop) appropriate columns from ***Your data*** (on L.H.S) to the ***Template*** columns (on R.H.S) and click on ***Save Mapping***.

Step 8:

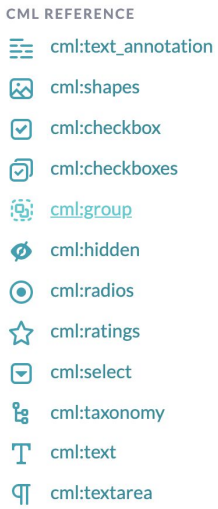
The next step is to edit the ***Title***, ***CML*** code and ***Instructions*** according to the job we have in hand. Since you want my annotators to identify whether an image contains a parking sign or not, I edit all the three accordingly, as can be seen in the snaps below.



You can see that we have edited the ***Title*** to suit our job. The next critical step is to edit the ***CML*** code for the same. We are simply asking the annotators a question whether they think that there is a parking sign in the given image or not, so we have two options ***Yes*** and ***No*** (which were already present in the template). To account for uncertainty because of lack of clarity in pictures, we add one more checkbox to the existing Yes and No called ***Maybe*** button for when the annotators are unable to figure out if a parking sign actually exists and we simply edit out the rest of the code. This is how the above CML code edit renders as UI elements :



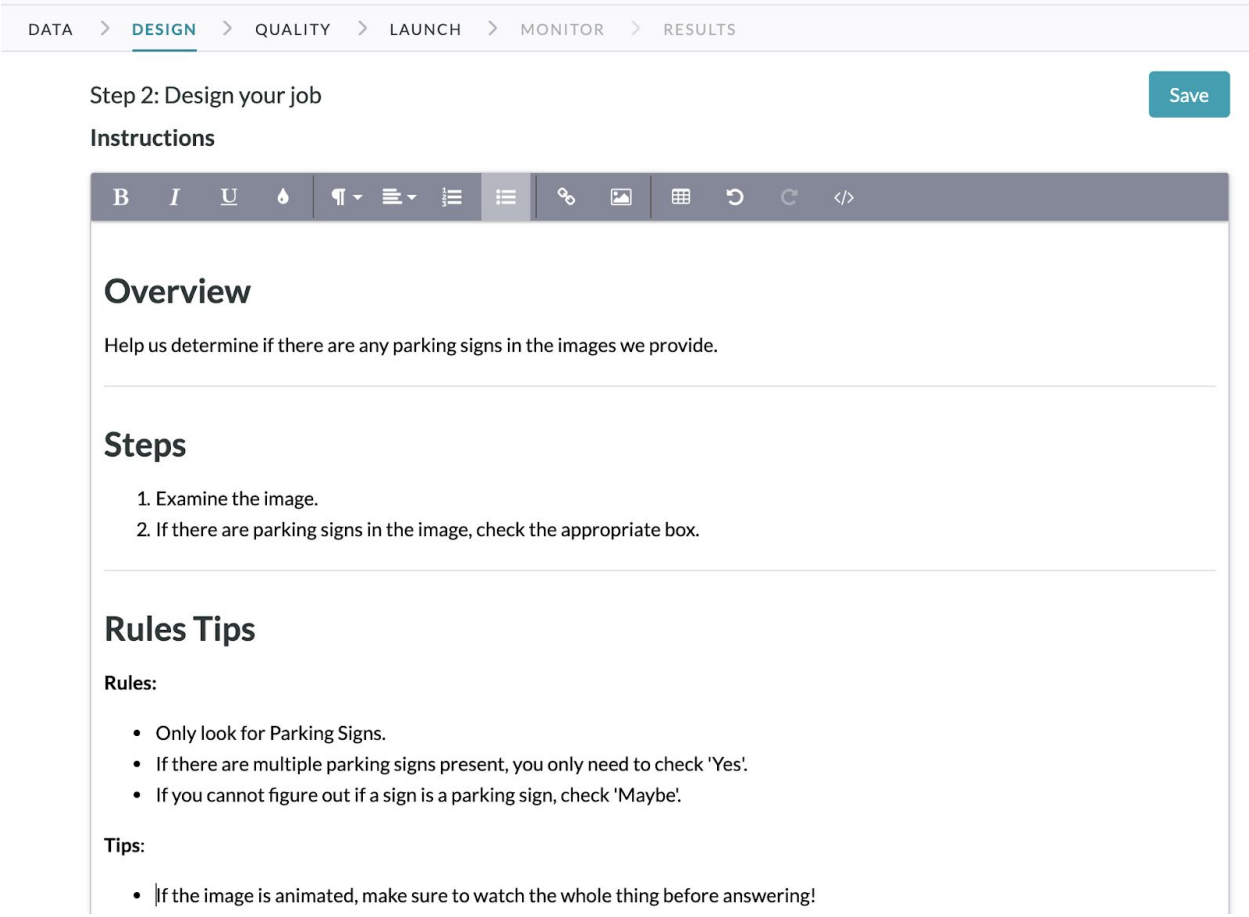
This step might be baffling at first, but on thorough observation, you will figure out how you can customise this ***CML*** code to suit your job. If it's still not clear, you can always take the help of the helper document on CML reference which is displayed to the right side of this editor as can be seen below :



Clicking on any one of the items in this list will explain what, how, when and whys of the ***CML*** code elements being used in the editor here. ***Please note that what is needed here is to simply edit this basic CML code to suit our job and not to delving deep into the CML coding here.***

Step 9:

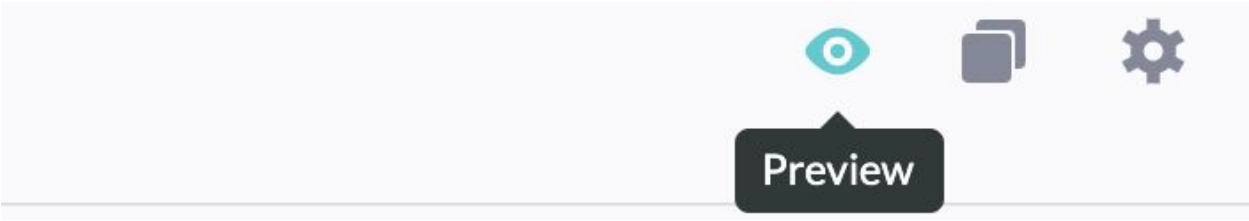
Post this, we need to edit the ***Overview***, ***Steps*** and ***Rules/Tips*** suited to our job. Remember that in this example, we are asking annotators to find whether an image contains a parking sign so we need to edit the instructions accordingly as seen below :



Step 10:

You don't need to bother about the images displayed under this section which is a part of the existing template, they can be edited out once we have our Test Questions designed. We can ignore them for now and come back to this Step later. Simply click on the ***Save*** button.

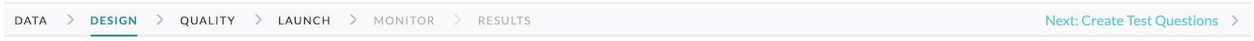
Note that we can ***Preview*** the sections we have modified here, by clicking on the 'eye' button seen on the top right corner.



Note that we can only see the modified changes in ***Preview*** if we have edited and saved our changes using the ***Save*** button, to the left of this ***Preview*** button.

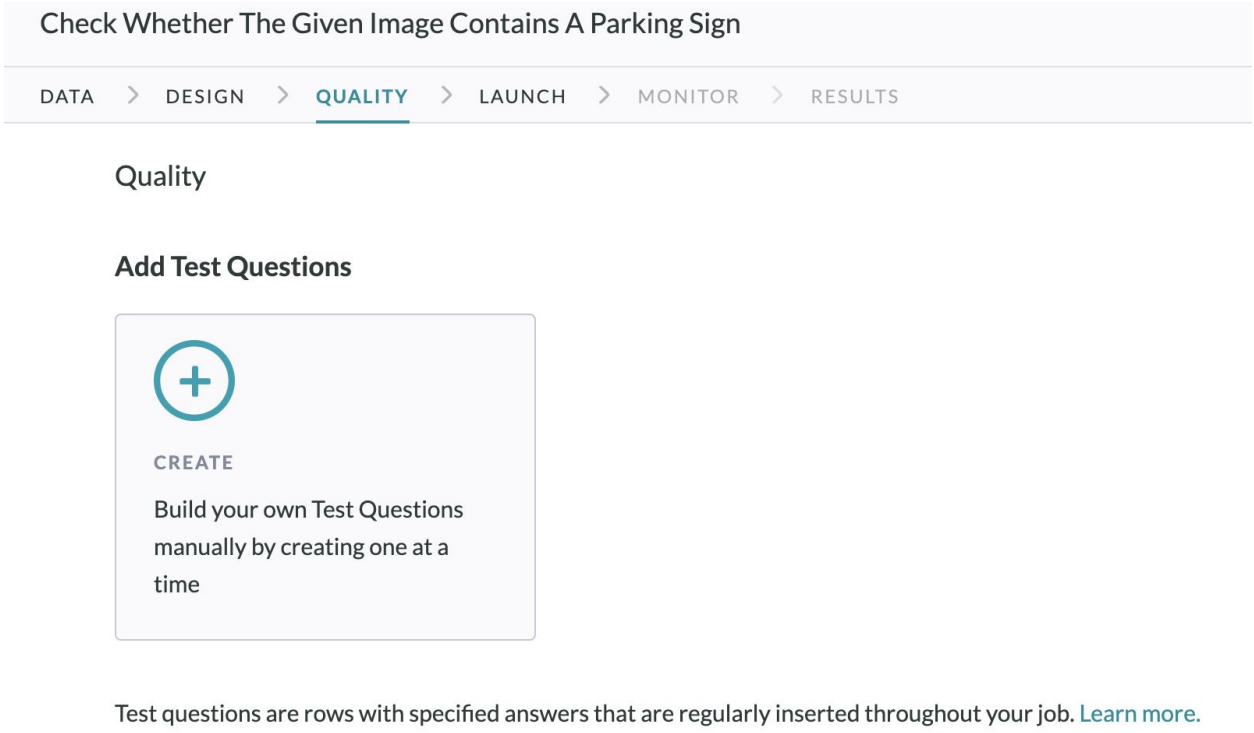
Step 11:

The next step is to ***Create Test Questions***, so click on this button which can be found right under the Preview button.



Step 12:

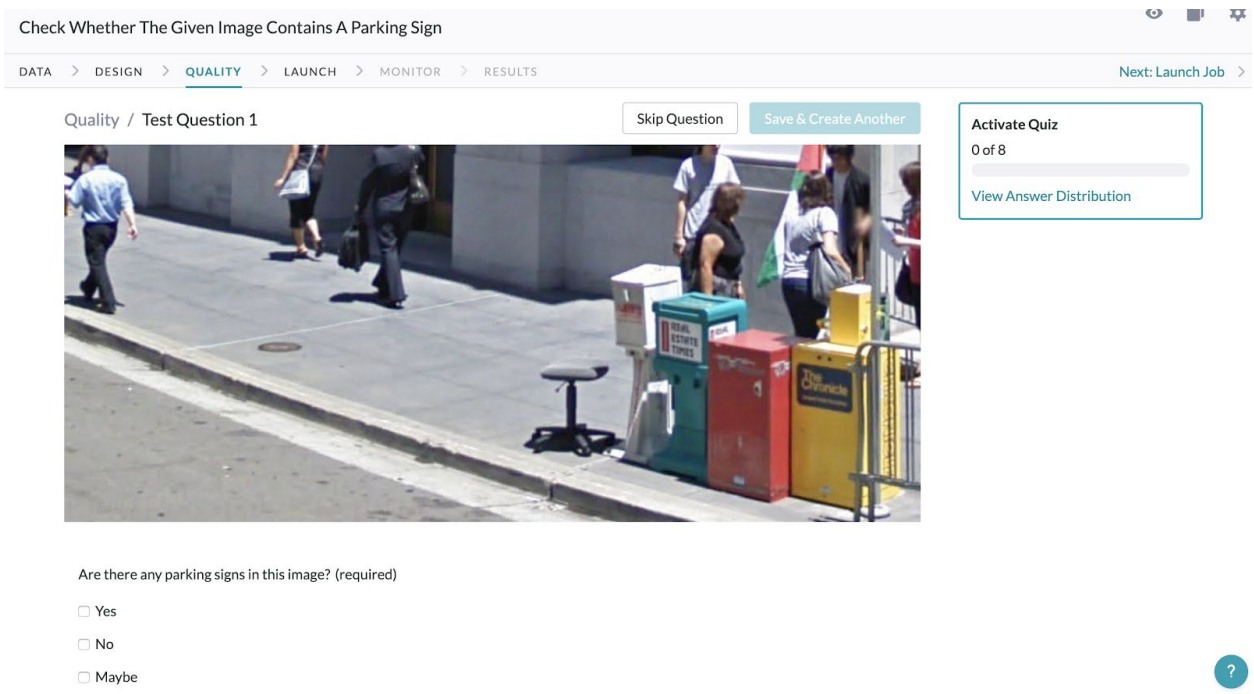
On clicking the button on *Step 11*, we see this page :



Click on the ***CREATE*** button, to create our own test questions.

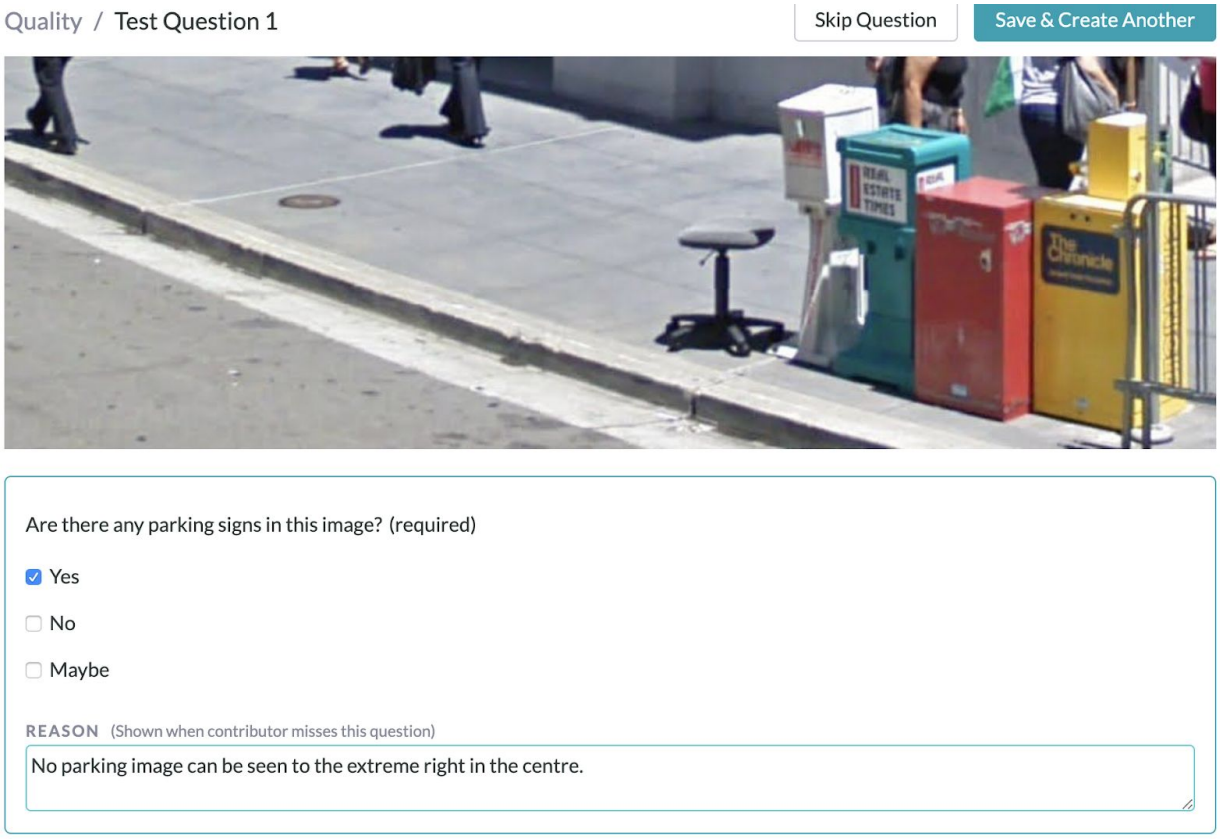
Step 13:

Now we will start seeing images from the dataset that we just uploaded and we need to answer **8** questions (they are displayed to us similar to how annotators who we have created the job for would see), which would act as a guide to test the annotator's competency when we are onboarding them. Below is an example of above mentioned view of test :



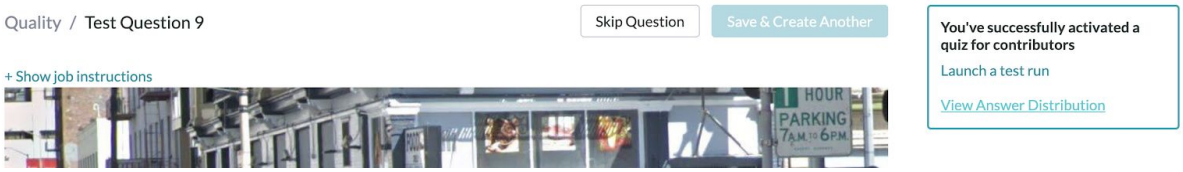
The idea here is to have the entire range of reference test images divided equally among the number of options we are providing. Since we are required to have 8 test images, we will find and answer such images so that the tally for each possible option that we have designed (Yes or No or Maybe) here is **equal**. This is to make sure that our job isn't biased towards accepting and validating one specific option from the annotators.You can ***Skip Question*** (using the button of the same name on top) if you feel that the responses are getting biased towards one specific option. You can keep answering and checking the ***View Answer Distribution*** button (on top right) to keep a tally of whether every option is being given a fair weightage in our designed test. Remember that for each test question answered, we need to give a reason for why we chose that option, so that if the test takers falter, they have a clear understanding of why they faltered and which images did they annotate incorrectly. After checking the correct option and listing the reason, you click on ***Save and Create Another.***

NOTE : As you go about answering these questions, remember to take a few (2 or 3 max) screenshots of the images displayed (one for each option would be ideal) and the options provided below them separately, to use them as preview in ***Step 10***, that we had ignored until now.

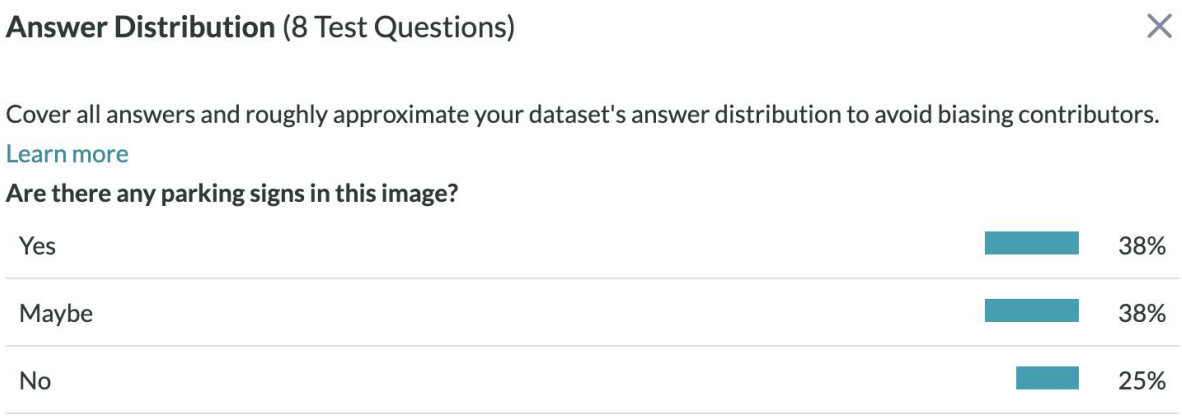


Step 14:

Once you have successfully answered the **8** test questions, you will see this message to the right.



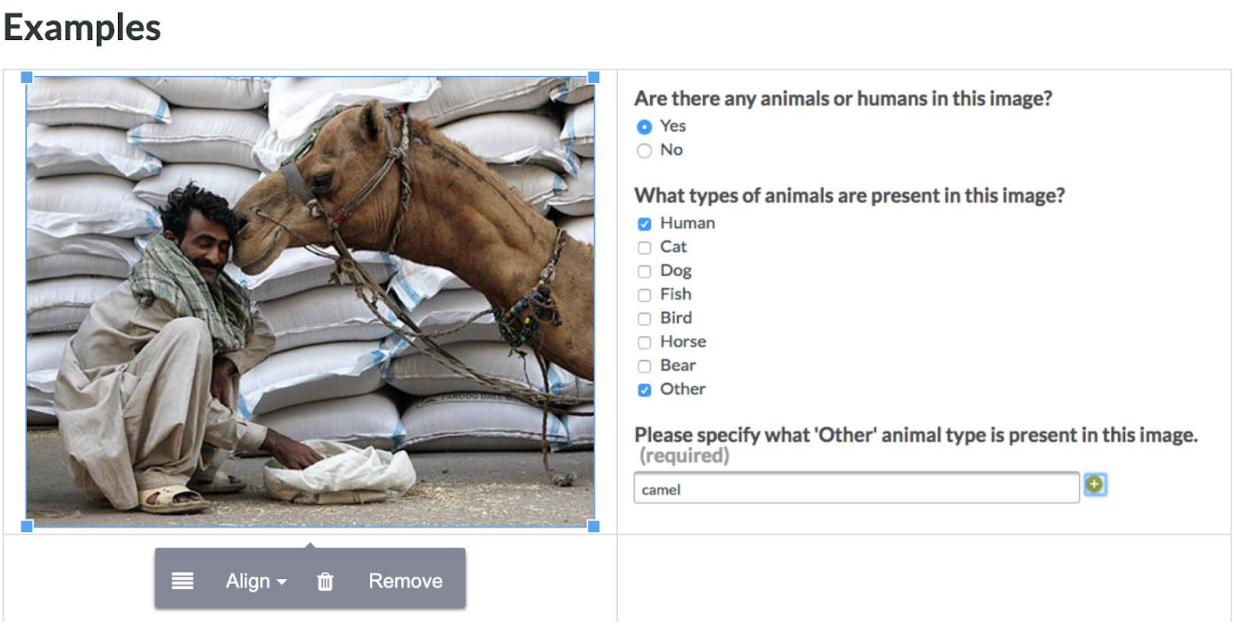
You can click on ***View Answer Distribution*** to check whether each option has been given a fair chance. The following is the distribution of my test questions.



We see here that the questions are fairly equally distributed among the three options, if you want to still refine the weightages to equality, you can answer a few more questions and check the answer distribution for the same.

Step 15:

As the last step, we go back to the **DESIGN** tab (the second tab) on top, to eliminate the pictures from the templates and insert the pictures that we just took while answering the test question in **Step 13,** as can be seen below :



Here, we have the option to eliminate both the existing images and add and Align the newer images from our dataset to be displayed as preview.Once we have those images here, we can

Save the preview page as **.html** and CHEERS! have the file that we need to submit along with the proposal.