# Amazon Mechanical Turk

### Overview

Amazon Mechanical Turk (MTurk) as defined by themselves "is a crowdsourcing marketplace that makes it easier for individuals and businesses to outsource their processes and jobs to a distributed workforce who can perform these tasks virtually". This could include anything from conducting simple data validation and research to more subjective tasks like survey participation, content moderation, and more. MTurk enables companies to harness the collective intelligence, skills, and insights from a global workforce to streamline business processes, augment data collection and analysis, and accelerate machine learning development.

# **Terminology**

### Requesters

A requester creates tasks on Mechanical Turk for workers to work on. Requesters can use the Requester User Interface (RUI) to create tasks, check the status of tasks, and accept or reject work performed on tasks.

## Human Intelligence Tasks (HITs)

A Human Intelligence Task (HIT) is a single, self-contained task a requester creates on Mechanical Turk, for example, "Identify the color of the car in the photo."

### Assignment

You can assign many Workers to work on the same HIT, which is a useful way of getting consensus on a subject by many workers giving the same answer. A worker can only accept a HIT once and can only submit one assignment per HIT. This guarantees that multiple workers must complete a HIT that has multiple assignments.

If a worker fails to complete an assignment before the time frame specified (i.e., the worker abandons the HIT), or if the worker chooses not to complete it after accepting it (i.e., the worker returns the HIT), the assignment becomes available for other workers to work on.

#### Workers

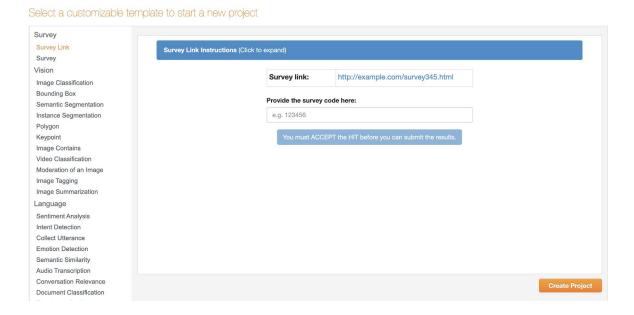
A worker is a person who completes assignments. Workers use the Mechanical Turk website to find assignments to work on, submit responses, and manage their account. Master workers are

workers who have demonstrated the ability to provide successful results for specific types of tasks across multiple requesters on the Mechanical Turk Marketplace.

# Setting up a new MTurk project

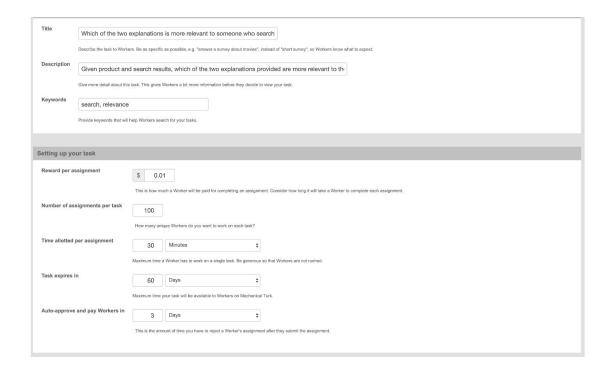
### Choose template

Amazon MTurk provides a set of templates for various labeling/evaluation tasks that are widely used in crowdsourcing. For our use case of evaluating explanations for product search, the image classification template was used and the layout was modified as specified in the next section.



### Update settings

As seen in the below image, Amazon Mturk provides a way for us to specify how many workers we would need to work on this task, what would be the pay and time for the completion of the task. We could also specify a title, description and keywords for our task so that workers can find our task based on relevance.

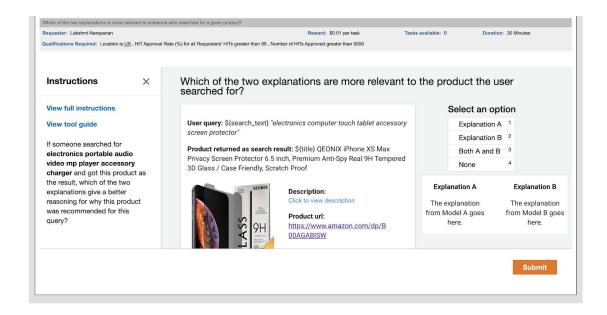


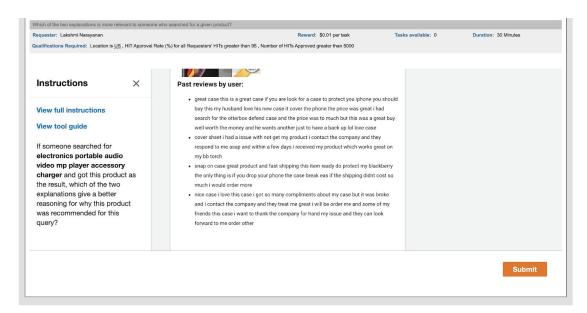
### Design layout

The design layout section helps us design the User interface/ layout of our task. Amazon MTurk uses CrowdHTML for the layout. This layout designer works with all HTML syntaxes. There are additional MTurk specific templates that the requesters can find at

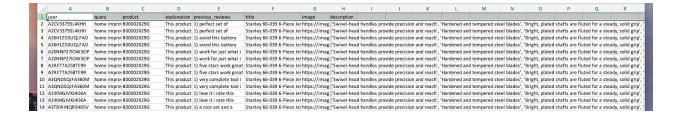
(https://docs.aws.amazon.com/sagemaker/latest/dg/sms-ui-template-reference.html). Any CSS can be added to style the layout.

Since our tasks involve evaluating search result explanations, we create a layout like the below where the worker can choose which of the two explanations are more relevant to the search result. In order to provide context into the purchasing behavior of the particular user shown in this task, we provide the last 5 reviews written by the user. With this information, the workers can get an understanding of how relevant the explanations are for a particular user.

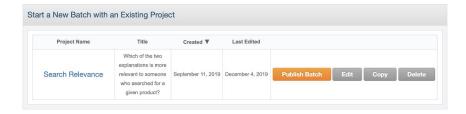




From the above images, we see that we have product query, product title, description, image, url and user views apart from two explanations. All this information would be fed to Mturk by using a CSV file. While designing the Mturk layout, we specify placeholder for these variable fields, which will be filled in with values from the CSV file. A sample CSV file has the following columns:



The CSV file will be fed in as batch input which we can publish through the Mturk UI as shown below. Hence, with the same project, we can publish multiple batches of task with multiple CSV files. Each row in the CSV file will be created as a HIT with the same layout as shown earlier.



Once the task has been published and workers have completed the HITs, the results can be exported through a CSV file which contains the HIT id, Worker ID, Approval rate of worker and the result chosen by each user.