



MTurk basics: a tutorial

Anna Di Natale



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1. Introduction



What is MTurk?



“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”

Crowdsourcing platform - used for surveys and labelling



Why to use MTurk?

AMT can be **cheaper** than other traditional ways of data collection (traditional surveys and experiments)

Your survey can reach a **broader audience**

You can select some features of the participants

It is **flexible** in the layouts

It can be **fast**, especially for experienced requesters

BUT

It is not easy to learn, especially when accessing it through the API



Other platforms



Ethical approval

You are performing experiments with **real human beings** therefore consider if your study requires an ethical approval





Terminology

Worker



Terminology

Worker: person with MTurk worker account





Terminology

Worker: person with MTurk worker account

Qualification

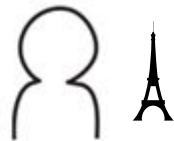




Terminology

Worker: person with MTurk worker account

Qualification

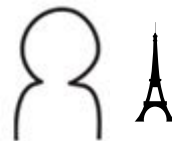




Terminology

Worker: person with AMT worker account

Qualification

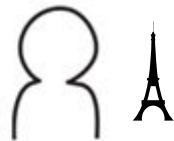




Terminology

Worker: person with MTurk worker account

Qualification





Terminology

Worker: person with MTurk worker account

Qualification

HIT





Terminology

Worker: person with MTurk worker account

Qualification

HIT - Human Intelligence Task: single survey or task



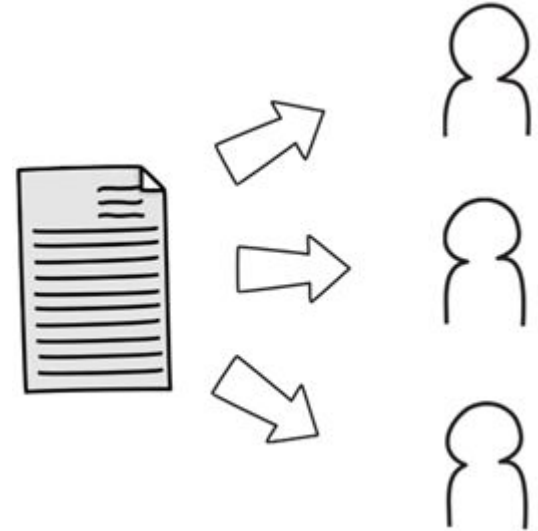
Terminology

Worker: person with MTurk worker account

Qualification

HIT - Human Intelligence Task or just task: single survey or task

Assignment - copy of HIT: how many workers will take the same HIT



How does it work?

People sign up as **workers** and complete tasks that have been uploaded by **requesters**.

Requesters can decide which categories of workers can preview and take the survey. They also decide how much to pay workers for their work (on top of this, a fixed fee goes to AMT).





How does it work?

Looking to work on tasks? [Sign in as a Worker](#) | [Learn more](#)

[Sign in as a Requester](#)

amazon **mechanical turk**

Overview

Features

Pricing

Help

Developer Resources

Customers

Amazon Mechanical Turk

Access a global, on-demand, 24x7 workforce

Get started with Amazon Mechanical Turk

<https://www.mturk.com/>



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amazonmechanical turk

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Fees

You decide how much to pay the workers (per approved assignment).



Fees

You **decide** how much to pay the workers (per approved assignment).

You pay only the assignments you **approve**.



Fees

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It is possible to reject assignments, but workers can appeal



Fees

You **decide** how much to pay the workers (per approved assignment).

You pay only the assignments you **approve**.

It is possible to give **bonuses**.



It is possible to reject assignments, but workers can appeal



Fees

You decide how much to pay the workers (per approved assignment).

You pay only the assignments you **approve**.



It is possible to reject assignments, but workers can appeal

It is possible to give **bonuses**.

AMT gets **20%** on the reward and bonus amounts (if < 10 assignments, otherwise an additional 20% is paid).



Fees

You **decide** how much to pay the workers (per approved assignment).

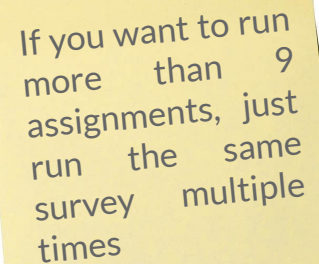
You pay only the assignments you **approve**.



It is possible to reject assignments, but workers can appeal

It is possible to give **bonuses**.

AMT gets **20%** on the reward and bonus amounts (if < 10 assignments, otherwise an additional 20% is paid).

A yellow sticky note with a slight shadow, tilted at an angle. It contains the text: 'If you want to run more than 9 assignments, just run the same survey multiple times'.

If you want to run more than 9 assignments, just run the same survey multiple times



Fees

You decide how much to pay the workers (per approved assignment).

You pay only the assignments you **approve**.

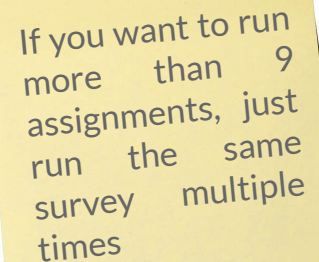


It is possible to reject assignments, but workers can appeal

It is possible to give **bonuses**.

AMT gets **20%** on the reward and bonus amounts (if < 10 assignments, otherwise an additional 20% is paid).

If you use Premium Qualifications, you pay a fixed amount per approved assignment.

A yellow sticky note with a slight shadow, tilted at an angle. It contains the text: 'If you want to run more than 9 assignments, just run the same survey multiple times'.

If you want to run more than 9 assignments, just run the same survey multiple times



Qualifications and Premium Qualifications

Workers can be selected on the basis of their qualifications.

The basic ones (**free of charge**): location, percentage of assignments that have been accepted (=quality of the work), number of completed assignments (=experience of the worker)

Premium, for example: kind of job, household income, fluency of the language they speak, whether they voted in the US presidential elections of 2016.

<https://requester.mturk.com/pricing>



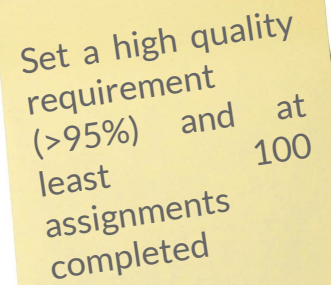
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<https://requester.mturk.com/pricing>



Set a high quality
requirement
(>95%) and at
least 100
assignments
completed



2. Lazy survey

Lazy approach

[My Account](#) | [Sign Out](#) | [Help](#)

amazonmturk
Requester

Create

Manage

Developer

[New Project](#)

[New Batch with an Existing Project](#)

Start a New Batch with an Existing Project

Project Name	Title	Created ▼	Last Edited				
Emotion Detection	What emotion is expressed in this text?	February 28, 2019	September 26, 2019	Publish Batch	Edit	Copy	Delete

Lazy approach

amazonmturk Create Manage Developer

New Project New Batch with Existing Project

Select a customizable template to start a new project

Survey

Survey Link

Survey

Vision

Image Classification

Bounding Box

Semantic Segmentation

Instance Segmentation

Polygon

Keypoint

Image Contains

Video Classification

Moderation of an Image

Image Tagging

Image Summarization

Language

Sentiment Analysis

Intent Detection

Collect Utterance

Emotion Detection

Semantic Similarity

Audio Transcription

Conversation Relevance

Document Classification

Translation Quality

Audio Naturalness

Survey Link Instructions (Click to expand)

Survey link:

Provide the survey code here:

You must ACCEPT the HIT before you can submit the results.

Create Project

Lazy approach - template examples

Select a customizable template to start a new project

Survey

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Translation Quality

Instructions

Shortcuts

Color in the requested items in the image



p

q

b

e

d

t

z

a

m

f

Ctrl+Z

Ctrl+Y

☐ Nothing to label

Submit

Labels

Cat

Dog

Bird

1

2

3

Create Project

Lazy approach - template examples

Select a customizable template to start a new project

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Audio Naturalness

Other

Instructions

Shortcuts

What emotion does this text convey?

This was the best book I ever read!!!! Thank you so much! :)

Select an option

Anger	1
Disgust	2
Fear	3
Happiness	4
Sadness	5
Surprise	6

Submit

Create Project



Lazy approach - template examples

Select a customizable template to start a new project

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Other

Instructions: Click the link below to review the Website. Collect the following information if it's available

Link to the Website:

<https://example.com>

Name of the Company:

e.g. ABC Inc.

Address:

Address Line 1

Address Line 2

City / Town

Create Project

Lazy approach - specifications

Enter PropertiesDesign LayoutPreview and Finish

Project Name: Semantic SimilarityThis name is not displayed to Workers.

Describe your task to Workers

Task

Rating word similarity

Describe the task to Workers. Be as specific as possible, e.g. "Answer is a word about 'meat'" instead of "What word?". no Workers know what to expect.

Description

How similar are the meanings of these two words?

Give more detail about the task. The given Workers is to make assignments before they decide to take your task.

Keywords

word meaning, semantic similarity, word

Provide keywords that will help Workers accept or reject your task.

Setting up your task

Reward per assignment

\$ 0.10

This is how much a Worker will be paid for completing an assignment. Consider how long it will take a Worker to complete each assignment.

Number of assignments per task

1

Maximum of how many Workers you want to work on each task?

Time allowed per assignment

10 minutes

Maximum time a Worker has to work on a single task. Be generous as the Workers are not paid.

Task expires in

1 day 0 days

Maximum time your task will be available to Workers as 'Available Task'.

Auto approve and pay Workers in

1 day 0 days

This is the amount of time you have to reject a Worker's assignment after they submit the assignment.

Worker requirements

Requires that Workers be Masters to do your task. (See our Reference Task System.)

☐ YES☒ NO

Specify any additional qualifications Workers must meet to work on your task:

HIT Approval Rate (%) for all Reputable HITs

greater than

95

Remove

Location

is one of

ANTARCTICA (AQ)
ANTIGUA AND BARBUDA (AG)
ARGENTINA (AR)
ARMENIA (AM)
ARUBA (AW)

ExpandRemove

All worker counts

(see in 2 weeks)

(Previous qualifications show additional fees, see Pricing Details in User Guide.)

Project content where content (See notes)

This project may contain potentially explicit or offensive content, for example, nudity

☐


Task Visibility (How is your task?)

☐ Public - All Workers can see and provide my tasks

☒ Private - All Workers can see my tasks, but only Workers that meet all Qualification requirements can provide my tasks

☐ Hidden - Only Workers that meet my Qualification requirements can see and provide my tasks.

SaveDesign Layout



Lazy approach - specifications


Project Name: This name is not displayed to Workers.

Describe your task to Workers

Title
Describe the task to Workers. Be as specific as possible, e.g. "answer a survey about movies", instead of "short survey", so Workers know what to expect.

Description
Give more detail about this task. This gives Workers a bit more information before they decide to view your task.

Keywords
Provide keywords that will help Workers search for your tasks.



Lazy approach - specifications

Setting up your task

Reward per assignment

This is how much a Worker will be paid for completing an assignment. Consider how long it will take a Worker to complete each assignment.

Number of assignments per task

How many unique Workers do you want to work on each task?

Time allotted per assignment

Maximum time a Worker has to work on a single task. Be generous so that Workers are not rushed.

Task expires in

Maximum time your task will be available to Workers on Mechanical Turk.

Auto-approve and pay Workers in

This is the amount of time you have to reject a Worker's assignment after they submit the assignment.



Lazy approach - specifications

Worker requirements

Require that Workers be Masters to do your tasks ([Who are Mechanical Turk Masters?](#))

☐ Yes ☒ No

Specify any additional qualifications Workers must meet to work on your tasks:

HIT Approval Rate (%) for all Requesters' HITs greater than 95 [Remove](#)

Location is one of

ARUBA (AW)
AUSTRALIA (AU)
AUSTRIA (AT)
AZERBAIJAN (AZ)
BAHAMAS (BS)
BALEARES (BA)

[Expand](#) | [Remove](#)

[\(+\)](#) Add another criterion (up to 3 more)

(Premium Qualifications incur additional fees, see [Pricing Details](#) to learn more)

Project contains adult content ([See details](#))

☐ This project may contain potentially explicit or offensive content, for example, nudity.

Task Visibility ([What is task visibility?](#))

☐ Public - All Workers can see and preview my tasks
☒ Private - All Workers can see my tasks, but only Workers that meet all Qualification requirements can preview my tasks
☐ Hidden - Only Workers that meet my Qualification requirements can see and preview my tasks

Lazy approach

[Create](#)[Manage](#)[Developer](#)[New Project](#)[New Batch with an Existing Project](#)

Start a New Batch with an Existing Project

Project Name	Title	Created ▼	Last Edited				
Emotion Detection	What emotion does this text convey?	February 6, 2020	February 6, 2020	Publish Batch	Edit	Copy	Delete
Semantic Similarity	Rating word similarity	November 18, 2019	December 18, 2019	Publish Batch	Edit	Copy	Delete



Lazy approach

[Create](#)[Manage](#)[Developer](#)[Results](#)[Workers](#)[Qualification Types](#)

Manage Batches

Click on the name of the batch to see more details

▼ Batches in progress (0)

▼ Batches ready for review (0)

► Batches already reviewed (0)



Lazy approach - Why (not) to choose it

If you don't want to spend much **time** to design the survey and learning the AMT API

If your experiment matches the proposed templates

If you want to display only one kind of question



Semi-lazy approach

Select a customizable template to start a new project

Survey

[Survey Link](#)

Survey

Vision

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Conversation Relevance

Document Classification

Survey Link Instructions (Click to collapse)

We are conducting an academic survey about social networks. We need to understand your opinion about social networks. Select the link below to complete the survey. At the end of the survey, you will receive a code to paste into the box below to receive credit for taking our survey.

Make sure to leave this window open as you complete the survey. When you are finished, you will return to this page to paste the code into the box.

Template note for Requesters - To verify that Workers actually complete your survey, require each Worker to enter a **unique** survey completion code to your HIT. Consult with your survey service provider on how to generate this code at the end of your survey.

Survey link:

<http://example.com/survey345.html>

Provide the survey code here:

e.g. 123456

You must ACCEPT the HIT before you can submit the results.

Create Project



3. Example



A deep dive - Word similarity

Aim: collect a score that indicates how similar are pairs of words

For example, 'aircraft' and 'plane' are very similar

'Aircraft' and 'car' are moderately similar

'Aircraft' and 'hair' are not related at all

Lazy survey

1 Enter Properties

2 Design Layout

3 Preview and Finish

Rating word similarity

Requester: Anna Di Natale

Reward: \$0.04 per task

Tasks available: 0

Duration: 5 Minutes

Qualifications Required: HIT Approval Rate (%) for all Requesters' HITs greater than 95 , Location is one of [AU](#), [GB](#), [US](#)

InstructionsShortcuts

How similar are the meanings of these words?

Instructions

How similar is the meaning of these two words? Do they refer to a similar topic or are they completely unrelated?

Word 1: \${word1}

Word 2: \${word2}

Select an option

1 - not at all similar meanings1

2 - slightly similar meanings2

3 - moderately similar meanings3

4 - very similar meanings4

5 - extremely similar meanings5

6

X - I do not understand one of the words7

More Instructions

Submit



Lazy survey

All the pages look like this - there is no possibility of having different layouts inside the same survey (eg: where to put an informed consent for the use of the data, where to collect feedback)

Small degree of freedom in designing the survey (eg: where to put the buttons, how they should look like)



API survey

https://annadinatale.eu/index_survey.html
<https://github.com/kimberli/mturk-template>

Meaning similarity

Attention! You are not allowed to take this survey more than once. If you do so, your assignment will be rejected and you will not be entitled to the monetary reward



Informed consent

You are invited to participate in a web-based online study on meaning similarity of words. It should take approximately **10** minutes to complete.

Participation

Your participation in this survey is voluntary. You may exit the survey at any time.

Confidentiality

Your survey answers will be stored by Amazon Mechanical Turk. The researchers do not have access to identifying information. The anonymous data will be used for non-profit academic research.

I give my informed consent

You are participating in this experiment voluntarily and you can leave at any time.



API survey

Meaning similarity

Instructions

How similar are the meanings of these words? Do they refer to a similar concept or are they completely unrelated?

You may rate the pairs of words you will be shown on a meaning similarity scale, where:

Not at all is for pairs of words that refer to completely different topics and carry completely different meanings;

Extremely is for pairs of words that refer to two extremely similar topics and have extremely similar meanings.

Please rate **I do not know one of the words** if you are not familiar with the meaning of one of the words or both.

Never choose 'Do not choose this option'

Examples:

The words '**aircraft**' and '**plane**' have high similarity ('Extremely') because they are two words for the same object;

the pair '**aircraft**' and '**car**' are moderately similar ('Moderately') because they are two means of transport;

the words '**aircraft**' and '**hair**' are not similar at all ('Not at all').



API survey

Meaning similarity



mountain

egg

How similar are the two meanings?

Not at all Slightly Moderately Very Extremely

☐ Do not choose this option

☐ I do not know one of the words

Show instructions

Next

You are participating in this experiment voluntarily and you can leave at any time.



API survey

Meaning similarity



drink

beverage

How similar are the two meanings?

☐ Not at all ☐ Slightly ☐ Moderately ☐ Very ☐ Extremely

☐ Do not choose this option

☐ I do not know one of the words

Show instructions

Next

You are participating in this experiment voluntarily and you can leave at any time.



API survey

Meaning similarity

Congratulations! You reached the end of the study. Here is the last question.

What is your gender?

- ☐ Female
- ☐ Male
- ☐ Other

Any comments or feedback?

Submit

You are participating in this experiment voluntarily and you can leave at any time.



4. Survey like a pro - the API



Survey like a pro - the API

More **flexible** surveys

Very **time** consuming, especially when you have to learn everything from scratch



The survey

Design and program your own survey

Put it online on your website



The survey

Design and program your own survey

Put it online on your website

https://annadinatale.eu/index_survey.html






The survey

Save the variables you want to collect (answers to the tasks, but also timestamps and other information).

When clicking the submit button a function will be called:



Submit

```
function setupButtons() {  
  $("#next-button").click(nextTask);  
  $("#consent-button").click(toggleInstructions);  
  $(".instruction-button").click(toggleInstructions);  
  → $("#submit-button").click(submitHIT);  
  if (state.assignmentId == "ASSIGNMENT_ID_NOT_AVAILABLE") {  
    $("#submit-button").remove();  
  }  
}
```


The survey

```
function submitHIT() {
  var submitUrl = config.hitCreation.production ? MTURK_SUBMIT : SANDBOX_SUBMIT;
  state.gender.push($("#gender").val());
  saveTaskData();
  clearMessage();
  $("#submit-button").addClass("loading");
  var form = $("#submit-form");
  for (var i = 0; i < config.meta.numSubtasks; i++) {
    var err = custom.validateTask(getTaskInputs(i), i, getTaskOutputs(i));
    if (err) {
      $("#submit-button").removeClass("loading");
      generateMessage("negative", err);
      return;
    }
  }

  addHiddenField(form, 'assignmentId', state.assignmentId);
  addHiddenField(form, 'workerId', state.workerId);
  var results = {
    'inputs': state.taskInputs,
    'outputs': state.taskOutputs
  };
  addHiddenField(form, 'results', JSON.stringify(results));
  var times = {
    'time': state.timeOutputs,
    'actions': state.action
  };
  addHiddenField(form, 'times', JSON.stringify(times));
  addHiddenField(form, 'feedback', $("#feedback-input").val());
  addHiddenField(form, 'gender', state.gender);

  → $("#submit-form").attr("action", submitUrl);
  $("#submit-form").attr("method", "POST");
  $("#submit-form").submit();
  $("#submit-button").removeClass("loading");
  generateMessage("positive", "Thanks! Your task was submitted successfully.");
  $("#submit-button").addClass("disabled");
}
```



The survey

```
/* MAIN */
$(document).ready(function() {
    $.getJSON("config.json").done(function(data) {
        config = data;
        if (config.meta.aggregate) {
            state.taskOutputs = {};
        }
        custom.loadTasks(config.meta.numSubtasks).done(function(taskInputs) {
            $.getJSON("questions.json").done(function(data) { questions=data;
                state.taskInputs = questions.quest;
                populateMetadata(config);
                setupButtons(config);
            });
        });
    });
});
```



The API



Getting Started as an Amazon Mechanical Turk Developer

Build applications or custom solutions as an Amazon MTurk Developer. Along with a robust set of SDKs, we provide detailed [documentation](#) so you can easily create and manage your tasks.

STEP 1 **Create an Amazon Web Services (AWS) Account**

To use the MTurk Application Programming Interface (API), you will need an AWS Account. MTurk uses your AWS account information to identify you as a developer when you make calls to the MTurk API. If you do not already have an AWS Account, please click [Create an AWS Account](#).

[Create an AWS Account](#)

To create an AWS Account, provide your contact information, payment information, verify your account and select a support plan to continue. You will receive an e-mail from AWS once you have completed registration and your account is ready to use.

Learn more about [AWS](#) »



The API

STEP 2 Link Your AWS Account with Your MTurk Requester Account

Next, you will need to link your MTurk Requester Account with your AWS Account. Please click [Link your AWS Account](#) and sign-in with your [AWS Root User](#) credentials. Once your accounts are linked, you will be redirected back to this page.

[Link your AWS Account](#)

Learn more about [AWS Root Users](#) »

Using the [MTurk API with your AWS IAM credentials](#) »

STEP 3 Register for the MTurk Developer Sandbox

The [MTurk Developer Sandbox](#) is a test environment that has full functional parity with the MTurk production environment, including the Requester UI, Worker UI and the API. This allows you to test your application without making your work generally available to Workers or incurring fees and payments.

[Register for Requester Sandbox](#)

You will need to register as a Requester in the Developer Sandbox just like you do in the production environment. Click [MTurk Developer Sandbox](#) to register and get started in the Developer Sandbox.



Sandbox

Developer tool, interface that allows you to visualize your survey exactly in the same way the workers will see it.

‘Mock’ HITs with interesting possibilities

- See what the workers see
- Test the functionalities of your HIT (with the help of your colleagues)

Sandbox

You are using the Mechanical Turk Developer Sandbox. This site is for test and development only. [Learn more](#)

Worker ID: A31V6K05FUAUMY [?](#)


HITS Goal


0 / set goal

Reward Goal

0 / set goal

Hello, Anna Di Natale | [Sign Out](#)

 [HITS](#) [Dashboard](#) [Qualifications](#)



All HITS Your HITS Queue

HIT Groups (1-20 of 2605)

[Show Details](#) [Hide Details](#) Items Per Page:

20

Requester	Title	HITS	Reward	Created	Actions	
Data Science Group, The New York Times	Article Emotion Tagging	6,983	\$0.04	2h ago	Preview	Accept & Work
MaterialEyes	material image retrieval	3,444	\$0.00	9/25/2020	Preview	Accept & Work
Rece Capture	Receipt Transcription	3,295	\$0.03	1m ago	Preview	Quality
Luca Marchesotti	Sound Classification	2,320	\$0.02	13d ago	Preview	Accept & Work
A2Z	Data Entry from images - new test task (S628-1176)	2,035	\$0.08	1h ago	Preview	Accept & Work
Kristian Kolthoff	Write Android GUI Screenshot Descriptions	1,913	\$0.05	13d ago	Preview	Accept & Work
Leonard	Polarization Classification	1,818	\$0.00	7/28/2020	Preview	Accept & Work
Tyson Quick	Sandbox: Classify section of a web page with multiclass labels	1,043	\$0.02	6d ago	Preview	Accept & Work
Mihail	Evaluate the responses for a given dialogue context	998	\$0.00	3d ago	Preview	Accept & Work
Bruna Vaz	Landing Pages Multi-class Image Classification	940	\$0.01	7d ago	Preview	Accept & Work
salathegroup	Twitter - Use of face masks during COVID-19 pandemic	911	\$0.06	1/14/2021	Preview	Quality
BH	Job Requirements Annotation	760	\$0.02	6d ago	Preview	Accept & Work
Brandin Arseneault	Classify a search query	602	\$0.01	1/17/2018	Preview	Accept & Work



The API

STEP 4 Download an AWS Software Development Kit (SDK)

Simplify using AWS services, including MTurk, in your applications with an API tailored to your programming language or platform. These SDKs are designed to work with all AWS services.

Browser

[Install »](#)
[Documentation »](#)
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STEP 5 Make Your First API Call

To verify you have setup everything correctly, you can use the SDK to call [GetAccountBalance](#).

Insert your [AWS Access Key](#) and [AWS Secret Key](#) then execute the code using

Python

The API

STEP 4 Download an AWS Software Development Kit (SDK)

Simplify using AWS services, including MTurk, in your applications with an API tailored to your programming language or platform. These SDKs are designed to work with all AWS services.

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STEP 5 Make Your First API Call

To verify you have setup everything correctly, you can use the SDK to call [GetAccountBalance](#).

Insert your [AWS Access Key](#) and [AWS Secret Key](#) then execute the code using

Python



The API - boto

```
In [ ]: 1 from boto3 import client
        2 import json
        3 import xmltodict
        4 import pickle
```



The API - boto

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In [ ]: 1 from boto3 import client
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```
In [12]: 1 data=open('../config.json', 'r').read()
        2 config = json.loads(data)['hitCreation']
```



The API - boto

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In [ ]: 1 from boto3 import client
        2 import json
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        4 import pickle
```

```
In [12]: 1 data=open('../config.json', 'r').read()
        2 config = json.loads(data)['hitCreation']
```

```
In [13]: 1 if config['production']:
        2     endpoint_url = 'https://mturk-requester.us-east-1.amazonaws.com'
        3 else:
        4     endpoint_url = 'https://mturk-requester-sandbox.us-east-1.amazonaws.com'
        5 print(config['production'])
        6 print(config['numAssignments'])
        7 #cl = client('mturk', region_name='us-east-1', endpoint_url=endpoint_url)
```



The API - boto

```
In [ ]: 1 from boto3 import client
        2 import json
        3 import xmltodict
        4 import pickle
```

```
In [12]: 1 data=open('../config.json', 'r').read()
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        7 #c1 = client('mturk', region_name='us-east-1', endpoint_url=endpoint_url)
```



The API - boto

```
In [ ]: 1 from boto3 import client
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```



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In [12]: 1 data=open('../config.json', 'r').read()
        2 config = json.loads(data)['hitCreation']
```

```
In [13]: 1 if config['production']:
        2     endpoint_url = 'https://mturk-requester.us-east-1.amazonaws.com'
        3 else:
        4     endpoint_url = 'https://mturk-requester-sandbox.us-east-1.amazonaws.com'
        5 print(config['production'])
        6 print(config['numAssignments'])
        7 #c1 = client('mturk', region_name='us-east-1', endpoint_url=endpoint_url)
```

```
False
9
```



The API - boto

```
In [14]: 1 cl = client('mturk',  
2     aws_access_key_id = [REDACTED],  
3     aws_secret_access_key = [REDACTED],  
4     region_name='us-east-1',  
5     endpoint_url = endpoint_url  
6     )
```


Secret!
It allows to connect to your
own AMT requester profile

The API - create_hit

```
In [ ]: 1 def create_hit():
2     quals = [
3         {
4             'QualificationTypeId': '00000000000000000071',
5             'Comparator': 'EqualTo',
6             'LocaleValues': [{
7                 'Country': 'US',
8             }],
9         },
10        {
11            'QualificationTypeId': '000000000000000000L0',
12            'Comparator': 'GreaterThanOrEqualTo',
13            'IntegerValues': [
14                97
15            ],
16        },
17        {
18            'QualificationTypeId': '00000000000000000040',
19            'Comparator': 'GreaterThanOrEqualTo',
20            'IntegerValues': [
21                100
22            ],
23        },
24    ]
25    questionText = "<ExternalQuestion xmlns='\"http://mechanicalturk.amazonaws.com/AWSMechanicalTurkDataSchemas/\""
26    questionText += "2006-07-14/ExternalQuestion.xsd\">\n<ExternalURL>" + config['taskUrl']
27    questionText += "</ExternalURL>\n <FrameHeight>700</FrameHeight>\n</ExternalQuestion>"
28    new_hit=cl.create_hit(
29        MaxAssignments=config['numAssignments'],
30        AutoApprovalDelayInSeconds=604800,
31        LifetimeInSeconds=config['lifetime'],
32        AssignmentDurationInSeconds=config['duration'],
33        Reward=config['rewardAmount'],
34        Title=config['title'],
35        Keywords=config['keywords'],
36        Description=config['description'],
37        Question=questionText,
38        QualificationRequirements=quals,
39    )
40    hit_id=new_hit['HIT']['HITId']
41    print(hit_id)
42    return(new_hit)
43
```


The API - create_hit

```
In [ ]: 1 def create_hit():
2     quals = [
3         {
4             'QualificationTypeId': '0000000000000000071',
5             'Comparator': 'EqualTo',
6             'LocaleValues': [{
7                 'Country': 'US',
8             }],
9         },
10        {
11            'QualificationTypeId': '00000000000000000L0',
12            'Comparator': 'GreaterThanOrEqualTo',
13            'IntegerValues': [
14                97
15            ],
16        },
17        {
18            'QualificationTypeId': '0000000000000000040',
19            'Comparator': 'GreaterThanOrEqualTo',
20            'IntegerValues': [
21                100
22            ],
23        },
24    ]
25    questionText = "<ExternalQuestion xmlns='\"http://mechanicalturk.amazonaws.com/AWSMechanicalTurkDataSchemas/\"
26    questionText += \"2006-07-14/ExternalQuestion.xsd\">\n<ExternalURL>\" + config['taskUrl']
27    questionText += \"</ExternalURL>\n <FrameHeight>700</FrameHeight>\n</ExternalQuestion>\"
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38        QualificationRequirements=quals,
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The API - create_hit


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In [ ]: 1 def create_hit():
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35        Keywords=config['keywords'],
36        Description=config['description'],
37        Question=questionText,
38        QualificationRequirements=quals,
39    )
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```



Quality

The API - create_hit

```
In [ ]: 1 def create_hit():
2     quals = [
3         {
4             'QualificationTypeId': '0000000000000000071',
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9         },
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12            'Comparator': 'GreaterThanOrEqualTo',
13            'IntegerValues': [
14                97
15            ],
16        },
17        {
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27    questionText += \"</ExternalURL>\n <FrameHeight>700</FrameHeight>\n</ExternalQuestion>\"
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29        MaxAssignments=config['numAssignments'],
30        AutoApprovalDelayInSeconds=604800,
31        LifetimeInSeconds=config['lifetime'],
32        AssignmentDurationInSeconds=config['duration'],
33        Reward=config['rewardAmount'],
34        Title=config['title'],
35        Keywords=config['keywords'],
36        Description=config['description'],
37        Question=questionText,
38        QualificationRequirements=quals,
39    )
40    hit_id=new_hit['HIT']['HITId']
41    print(hit_id)
42    return(new_hit)
43
```



Quality

Experience



The API - create_hit

Creation of the HIT

```
In [12]: 1 url=create_hit()
          2 print("A new HIT has been created. You can preview it here:")
          3 if config['production']:
          4     print("https://worker.mturk.com/mturk/preview?groupId=" + url['HIT']['HITGroupId'])
          5 else:
          6     print("https://workersandbox.mturk.com/mturk/preview?groupId=" + url['HIT']['HITGroupId'])
          7
          8 print ("HITID = " + url['HIT']['HITId'] + " (Use to Get Results)")
```

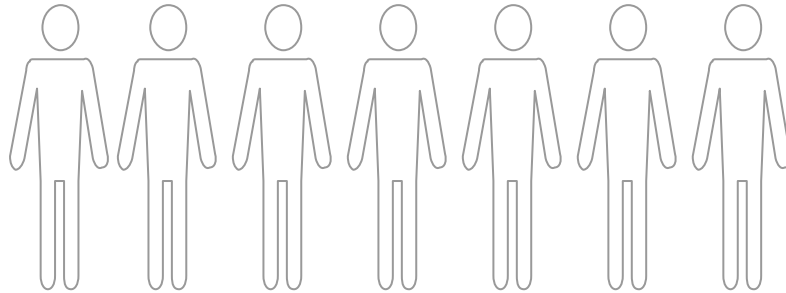
A new HIT has been created. You can preview it here:

<https://workersandbox.mturk.com/mturk/preview?groupId=3GSJT927Q5F13YURZSQ4TS0CIV9MXD>
HITID = 3MJ28H2Y1E8FWIXIOXCCIUUCKS7A050 (Use to Get Results)





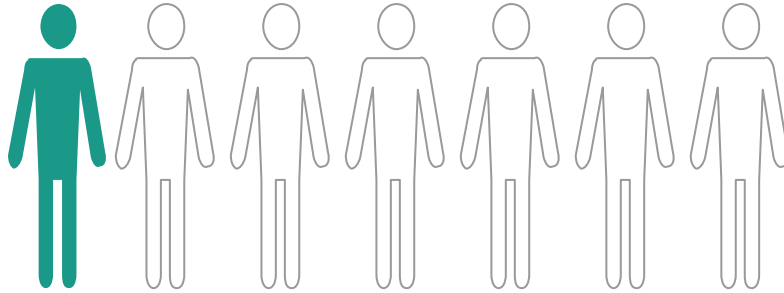
The waiting



00:00



The waiting



00:01



The waiting



00:07



The waiting



Time Allotted 20 Min

00:07



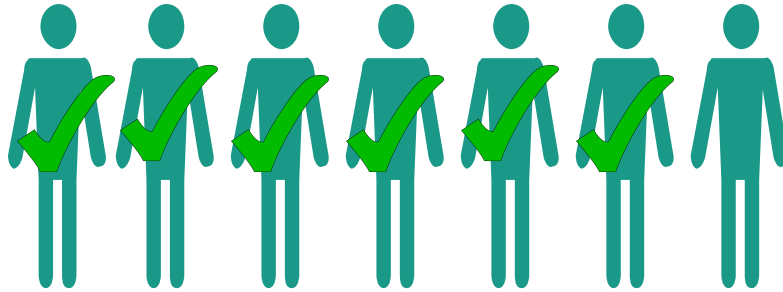
The waiting



00:15



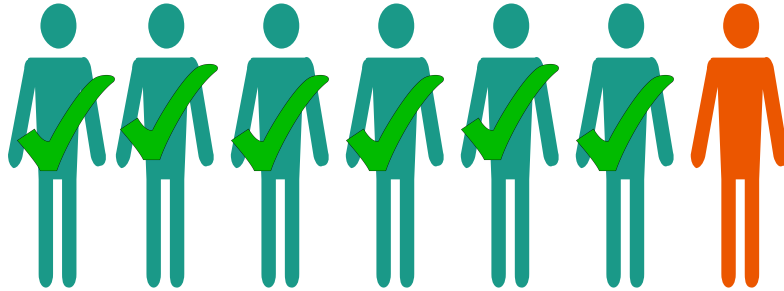
The waiting



00:25



The waiting



00:25



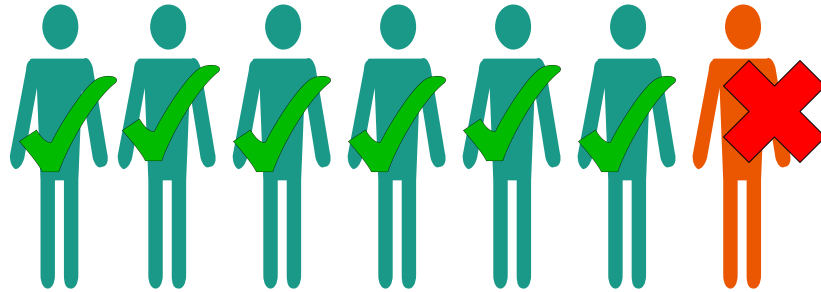
The waiting



00:26



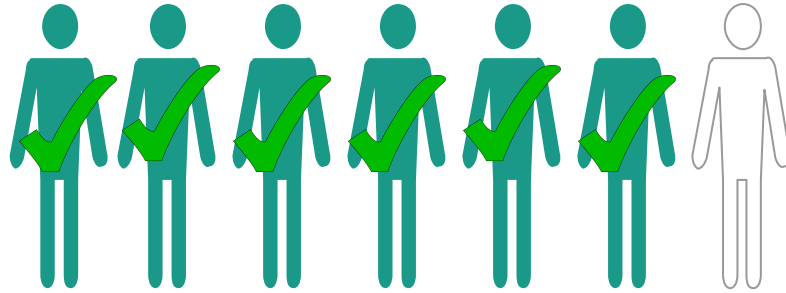
The waiting



00:27



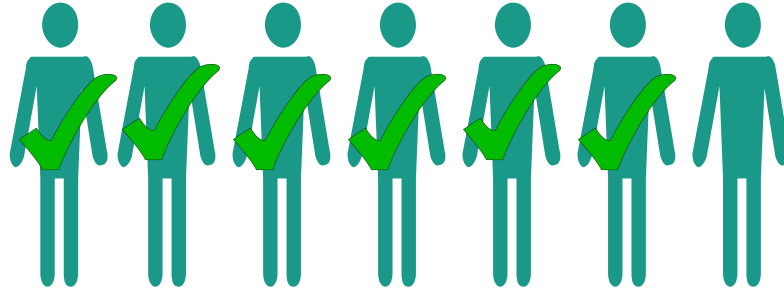
The waiting



00:30



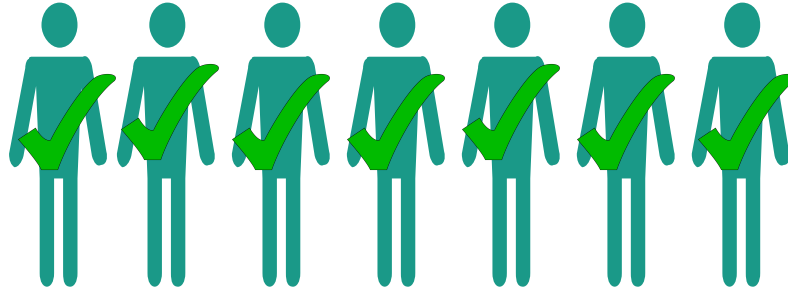
The waiting



00:32



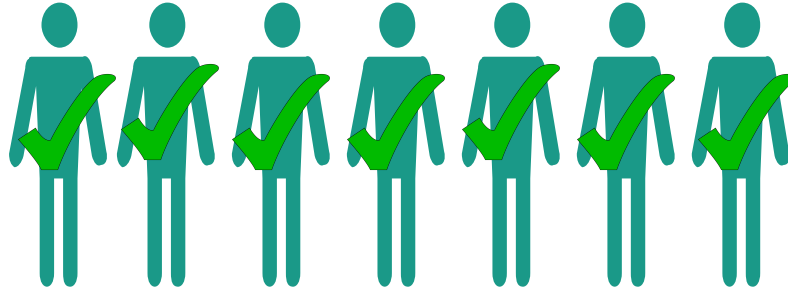
The waiting



00:45



The waiting



00:45

Time Allotted 20 Min
Time Taken 45 Min



The waiting

Most of the workers take less time than what you allocated for the survey.

Some of the workers are **terribly slow**, and the time allocated will run out. In this case, the job will be put back to the AMT market, and another worker will pick it up. In this moment, the stopwatch will start ticking again.

The API - list_hits

Lists the last HITs requested

```
In [14]: 1 cl.list_hits(MaxResults=1)

Out[14]: {'NextToken': 'p1:h9f+VdiIWfMKrg6lGvUrJTeJkwlq0Lp2V26t2HMjtGhQJu3709sXlnZUufYR',
  'NumResults': 1,
  'HITS': [{'HITId': '3MJ28H2Y1E8FWIXIOXCCIUCKS7A050',
    'HITTypeId': '37UC2S9IBM1BM6K0592GA6G5EOCM53',
    'HITGroupId': '3G5JT927Q5F13YURZSQ4TS0CIV9MXD',
    'CreationTime': datetime.datetime(2021, 2, 8, 13, 29, 59, tzinfo=tzlocal()),
    'Title': 'Meaning similarity',
    'Description': 'How similar are the meanings of these two words?',
    'Question': '<ExternalQuestion xmlns="http://mechanicalturk.amazonaws.com/AWSMechanicalTurkDataSchemas/2006-07-14/ExternalQuestion.xsd">\n<ExternalURL>https://annadinatale.github.io/index_survey.html</ExternalURL>\n <FrameHeight>\n</FrameHeight>\n</ExternalQuestion>',
    'Keywords': 'meaning, words, labeling, semantic similarity',
    'HITStatus': 'Assignable',
    'MaxAssignments': 9,
    'Reward': '1.00',
    'AutoApprovalDelayInSeconds': 604800,
    'Expiration': datetime.datetime(2021, 2, 9, 13, 29, 59, tzinfo=tzlocal()),
    'AssignmentDurationInSeconds': 1200,
    'QualificationRequirements': [],
    'HITReviewStatus': 'NotReviewed',
    'NumberOfAssignmentsPending': 0,
    'NumberOfAssignmentsAvailable': 8,
    'NumberOfAssignmentsCompleted': 0}],
  'ResponseMetadata': {'RequestId': 'afbb31ac-e454-4f1f-8797-7bb722808266',
    'HTTPStatusCode': 200,
    'HTTPHeaders': {'x-amzn-requestid': 'afbb31ac-e454-4f1f-8797-7bb722808266',
      'content-type': 'application/x-amz-json-1.1',
      'content-length': '1008',
      'date': 'Mon, 08 Feb 2021 12:47:03 GMT'},
    'RetryAttempts': 0}]}
```

The API - boto

Lists the last HITS requested

```
In [14]: 1 cl.list_hits(MaxResults=1)

Out[14]: {'NextToken': 'p1:h9f+VdiIWfMKrg6lGvUrJTeJkwlq0Lp2V26t2HMjtGhQJu3709sXlnZUufYR',
  'NumResults': 1,
  'HITS': [{'HITId': '3MJ28H2Y1E8FWIXIOXCCIUCKS7A050',
    'HITTypeId': '37UC2S9IBM1BM6K0592GA6G5EOCM53',
    'HITGroupId': '3G5JT927Q5F13YURZSQ4TS0CIV9MXD',
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    'MaxAssignments': 9,
    'Reward': '1.00',
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    'Expiration': datetime.datetime(2021, 2, 9, 13, 29, 59, tzinfo=tzlocal()),
    'AssignmentDurationInSeconds': 1200,
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      'content-type': 'application/x-amz-json-1.1',
      'content-length': '1008',
      'date': 'Mon, 08 Feb 2021 12:47:03 GMT'},
    'RetryAttempts': 0}]
```




The API - approve and reject assignment

```
In [ ]: 1 cl.approve_assignment(AssignmentId='3NGMS9VZTLIFFMB7L8CQAM01065FFR',RequesterFeedback="Thank you!")
```




The API - approve and reject assignment

```
In [ ]: 1 cl.approve_assignment(AssignmentId='3NGMS9VZTLIFFMB7L8CQAM01065FFR',RequesterFeedback="Thank you!")
```

```
In [53]: 1 cl.reject_assignment(AssignmentId='3DHE4R90CWB1SSVQ8X318060YUPG2S',RequesterFeedback="You failed the control ques")
```

```
Out[53]: {'ResponseMetadata': {'RequestId': '3c4ca299-fa64-47d0-9394-edc1c9f7540c',  
    'HTTPStatusCode': 200,  
    'HTTPHeaders': {'x-amzn-requestid': '3c4ca299-fa64-47d0-9394-edc1c9f7540c',  
    'content-type': 'application/x-amz-json-1.1',  
    'content-length': '2',  
    'date': 'Fri, 13 Nov 2020 14:13:04 GMT'},  
    'RetryAttempts': 0}}
```



The API - approve and reject assignment

```
In [ ]: 1 cl.approve_assignment(AssignmentId='3NGMS9VZTLIFFMB7L8CQAM01065FFR',RequesterFeedback="Thank you!")
```

```
In [53]: 1 cl.reject_assignment(AssignmentId='3DHE4R90CWB1SSVQ8X318060YUPG2S',RequesterFeedback="You failed the control ques")
```

```
Out[53]: {'ResponseMetadata': {'RequestId': '3c4ca299-fa64-47d0-9394-edc1c9f7540c',  
    'HTTPStatusCode': 200,  
    'HTTPHeaders': {'x-amzn-requestid': '3c4ca299-fa64-47d0-9394-edc1c9f7540c',  
    'content-type': 'application/x-amz-json-1.1',  
    'content-length': '2',  
    'date': 'Fri, 13 Nov 2020 14:13:04 GMT'},  
    'RetryAttempts': 0}}
```

```
1 cl.approve_assignment(AssignmentId='xxx',RequesterFeedback="Thank you!",OverrideRejection=True)
```



The API - why should I reject an assignment?

If you reject an assignment, you will **not pay** for it, and fees will not apply

BUT when you reject an assignment, the worker will not be paid either. Workers that feel they are being treated unfairly can **appeal** to your decision.

As a consequence, requesters decide not to reject any worker -> workers have a rate of accepted assignments fairly **high**

-> I had to higher my quality requirements (now: 97%)



The API - why should I reject an assignment?

Meaning similarity



mountain egg

How similar are the two meanings?

Not at all Slightly Moderately Very Extremely

- ☐ Do not choose this option
- ☐ I do not know one of the words

Show instructions

Next

You are participating in this experiment voluntarily and you can leave at any time.



The API - why should I reject an assignment?

Meaning similarity



mountain egg

How similar are the two meanings?

Not at all Slightly Moderately Very Extremely

☒ Do not choose this option

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The API - why should I reject an assignment?

Meaning similarity

mountain egg

How similar are the two meanings?

Not at all Slightly Moderately Very Extremely

☒ Do not choose this option

☐ I do not know one of the words

~5.7% -> bots

Show instructions

Next

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The API - why should I reject an assignment?

5.7% of the respondents to my survey are bots

In addition to this, more than **33.7%** did not pass the control questions (whose answers are given in the instruction page as examples)

As a consequence, up to now more than **39%** of the answers collected is not viable for analysis



Thank you!

Email: dinatale@csh.ac.at

Website: <https://annadinatale.eu>

GitHub (personal): <https://github.com/AnnaDiNatale/MTurk-tutorial>

GitHub (CSH): https://github.com/complexity-science-hub/skillup/tree/master/MTurk_tutorial