# How to use Amazon Mechanical Turk to run digitally powered surveys

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### **Schedule**

13:00-14:00 introduction to Amazon Mechanical Turk

14:00-15:00 creation of the survey

15:00-15:30 answers to survey of other groups

15:30-15:45 closing remarks

### Table of contents

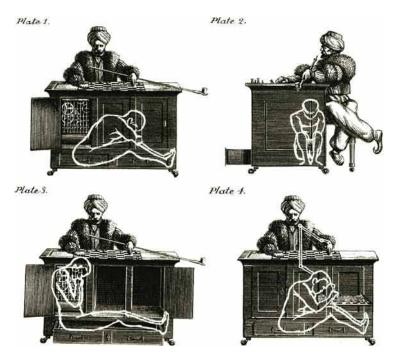
- 1. Introduction
- 2. How to run a survey on MTurk
- 3. Survey like a pro the API
- 4. Q&A
- 5. Hands on exercise

# 1. Introduction

### What is the Mechanical Turk?



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### 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

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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

There are also quality concerns

## Other platforms







# **Ethical approval**

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



Worker

Worker: person with MTurk worker account



Worker: person with MTurk worker account







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Worker: person with MTurk worker account

Qualification

HIT



Worker: person with MTurk worker account

Qualification

HIT - Human Intelligence Task: single survey or task

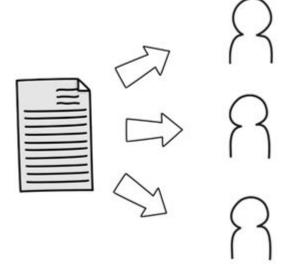


Worker: person with MTurk worker account

Qualification

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

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



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Qualification

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Requester



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

**Requester** - person with MTurk requester account. The one who plans and pays for annotations



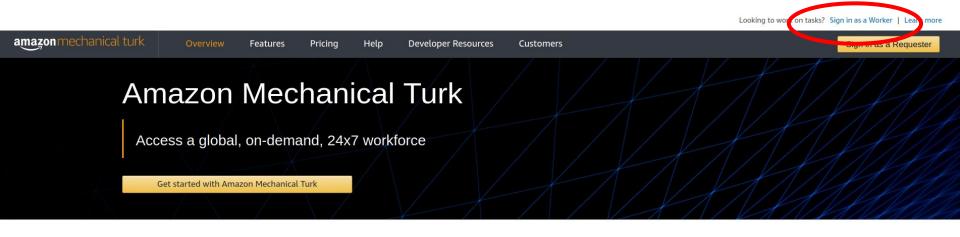
### How does it work?

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).

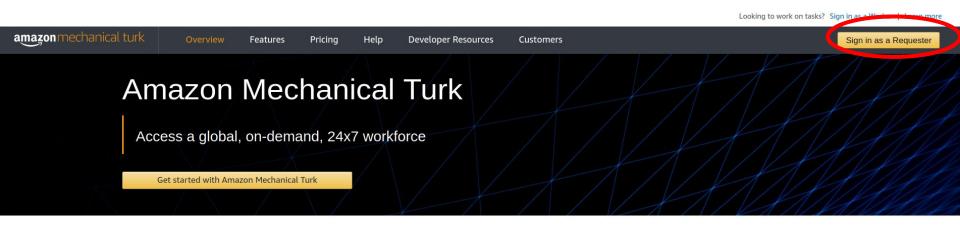


### How does it work?



https://www.mturk.com/

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https://www.mturk.com/

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

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You pay only the assignments you approve.

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It is possible to give **bonuses**.

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

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

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It is possible to give **bonuses**.

It is possible to reject assignments, but workers can appeal

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

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

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.

MTurk 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 AND 5% more to MTurk.

### **Qualifications and Premium Qualifications**

Workers can be selected on the basis of their qualifications.

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

**Premium**, for example: age, kind of job they have, household income, gender, marital status, languages they speak, whether they voted in the US presidential elections of 2016.

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100

https://requester.mturk.com/pricing

## Why should I reject an assignment?

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

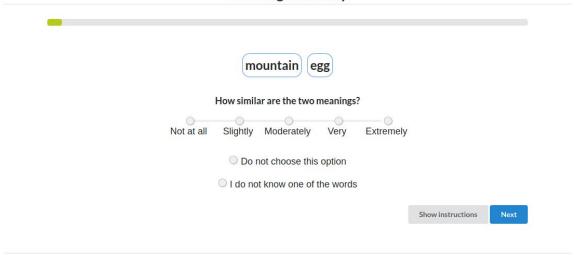
BUT when you reject an assignment, the worker will not be paid either. Workers that feel they are being treated unfairly can **appeal** to your decision.

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%)

# Why should I reject an assignment?

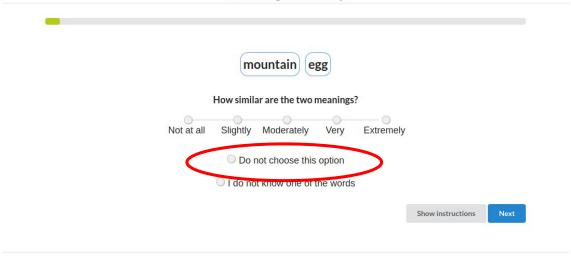
### Meaning similarity



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

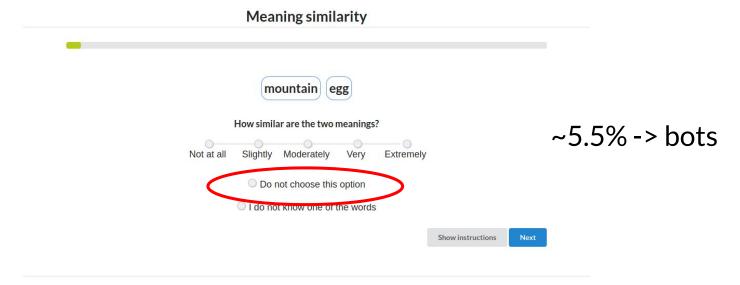
# Why should I reject an assignment?

## Meaning similarity



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

# Why should I reject an assignment?



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

# Why should I reject an assignment?

**5.5%** of the respondents to my survey are bots

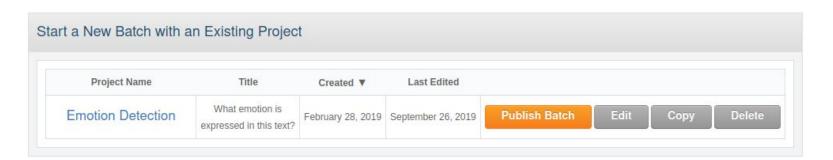
In addition to this, 30% did not pass the control questions (whose answers are given in the instruction page as examples)

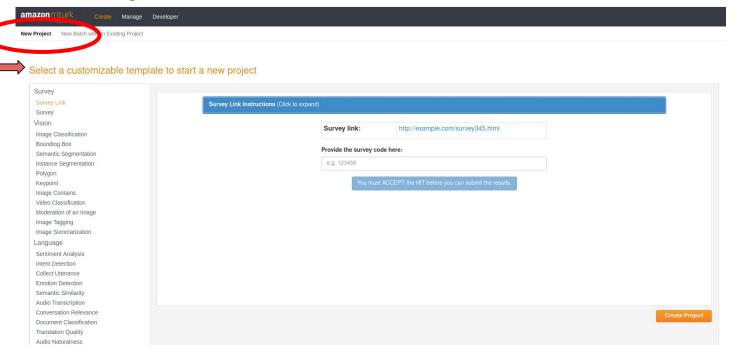
As a consequence, more than 35% of the answers collected is not viable for analysis

# 2. How to run a survey on MTurk

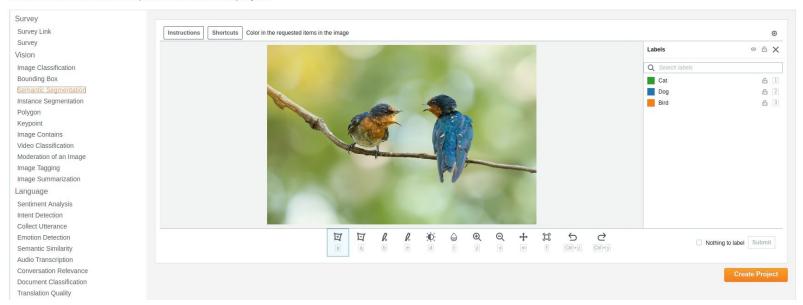
| My Account | Sign Out | Help



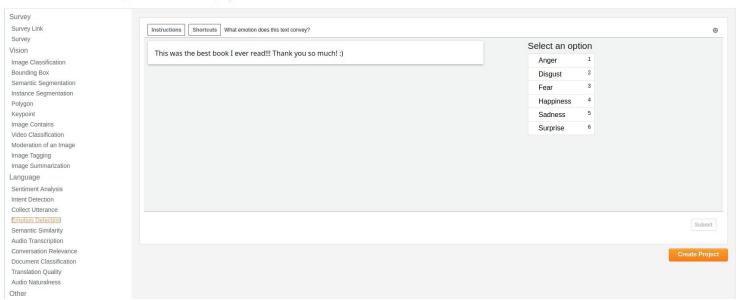




# MTurk survey - template examples



# MTurk survey - template examples



# MTurk survey - template examples

Survey	
Survey Link	Instructions: Click the link below to review the Website. Collect the following information if it's available
Survey	Link to the Website:
Vision	
Image Classification	https://example.com
Bounding Box	Name of the Company:
Semantic Segmentation	
Instance Segmentation	1001
Polygon	e.g. ABC Inc.
Keypoint	Address:
Image Contains	Address:
Video Classification	
Moderation of an Image	Address Line 1
Image Tagging	
Image Summarization	
Language	Address Line 2
Sentiment Analysis	Treat est since
Intent Detection	
Collect Utterance	City / Town
Emotion Detection	Cty / town
Semantic Similarity	
Audio Transcription	
Conversation Relevance	Create Project
Document Classification	
Translation Quality	
Audio Naturalness	
Other	

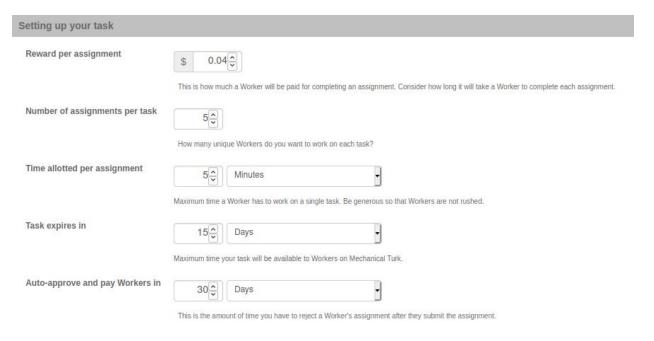
# **MTurk survey - specifications**



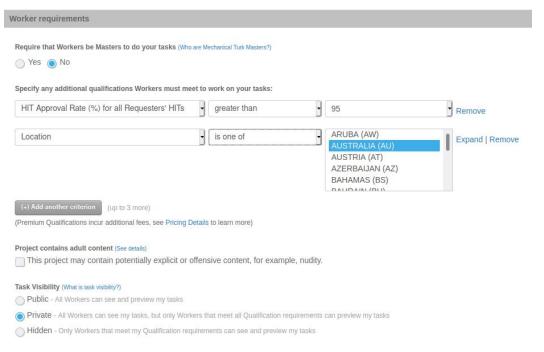
# **MTurk survey - specifications**

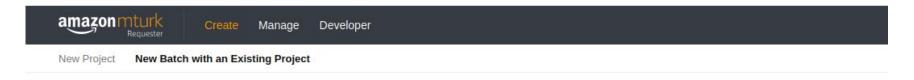
Project Name	Semantic Similarity  This name is not displayed to Workers.
Describe you	r task to Workers
Title	Rating word similarity
	Describe the task to Workers. Be as specific as possible, e.g. "answer a survey about movies", instead of "short survey", so Workers know what to expect.
Description	How similar are the meanings of these two words?
	Give more detail about this task. This gives Workers a bit more information before they decide to view your task.
Keywords	word meaning, semantic similarity, word
	Provide keywords that will help Workers search for your tasks.

# MTurk survey- specifications

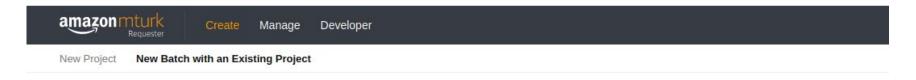


# **MTurk survey - specifications**

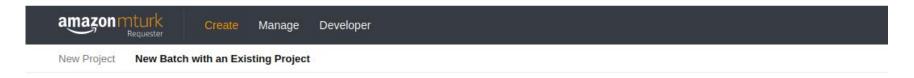


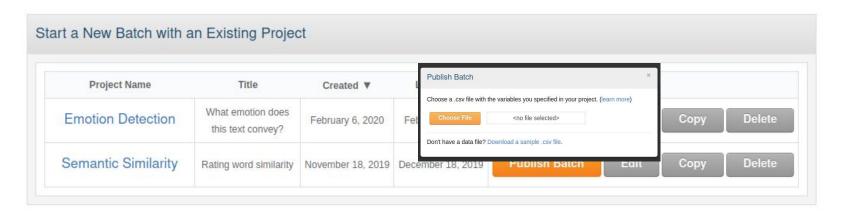




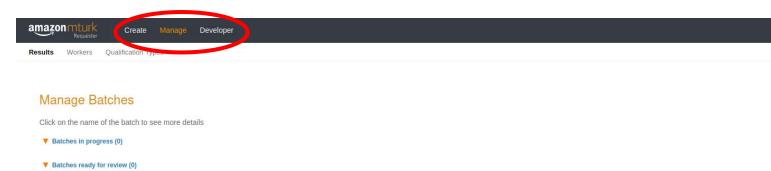








Batches already reviewed (0)

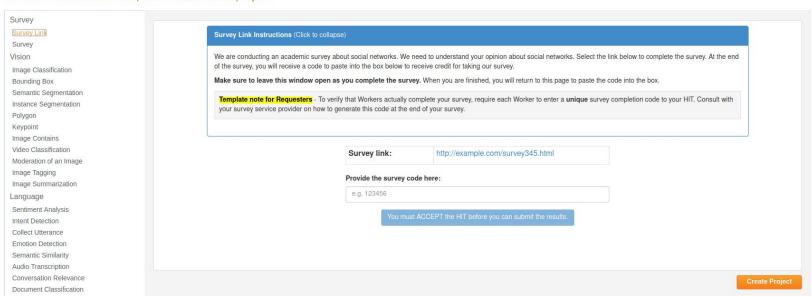


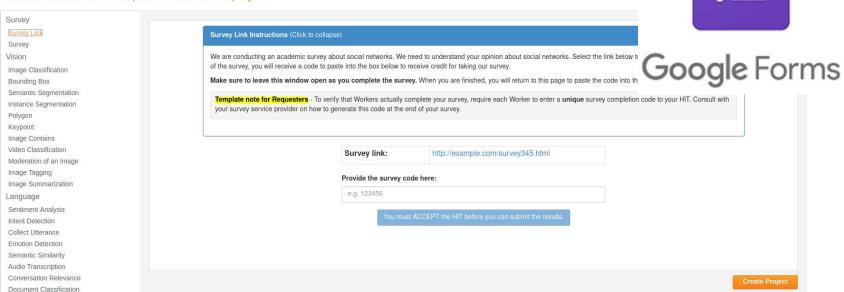
# Why (not) to choose it

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





# 3. Survey like a pro - the API

# An example - Word similarity

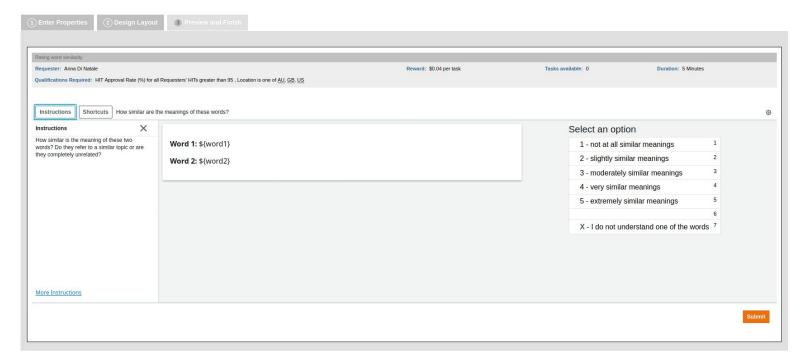
Aim: collect a score that indicates how similar are pairs of words

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

'Aircraft' and 'car' are moderately similar

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

## **MTurk interface**



## **MTurk interface vs API**

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)

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

## 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'

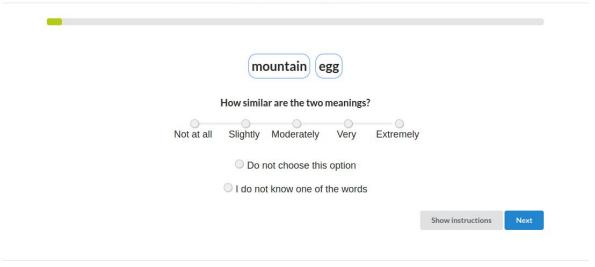
#### **Examples:**

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').

## Meaning similarity



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



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

## Meaning similarity

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

What is your gender?

Fe	m	2	l۵

Male

Other

Any comments or feedback?
Submit

# Survey like a pro - the API

More **flexible** surveys

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

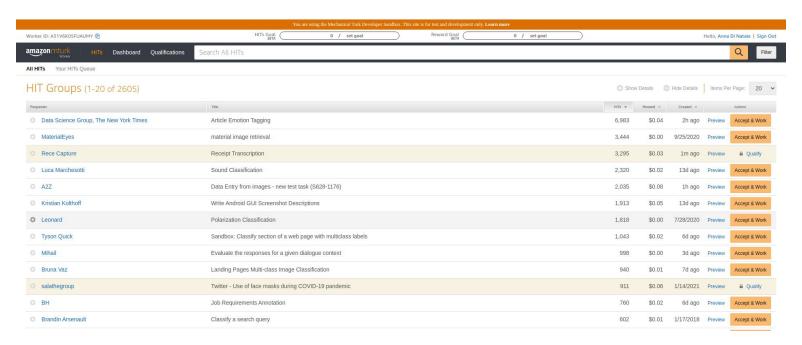
## **Sandbox**

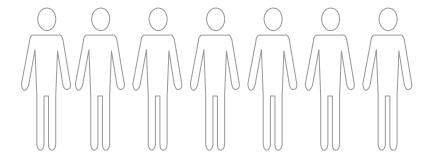
Developer tool, interface that allows you to visualize your survey exactly in the same way the workers will see it.

'Mock' HITs with interesting possibilities

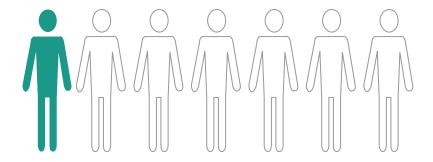
- See what the workers see
- Test the functionalities of your HIT (with the help of your colleagues)

## **Sandbox**





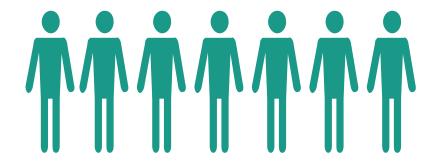














Time Allotted 20 Min

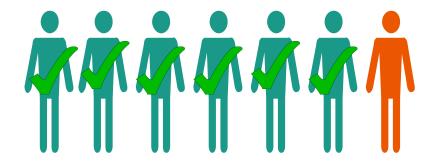
















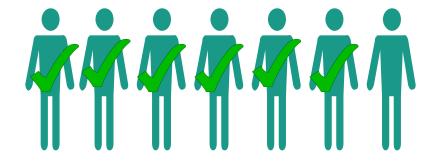






















Time Allotted 20 Min Time Taken 45 Min

#### The wait

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.

# 4. Q&A

# 5. Hands on exercise

## Set up

Groups of 3-4 people

Every group will design ONE survey (approx. 10 minutes of completion time 7-10 questions) on Sandbox (Developer > Sandbox) <a href="https://requestersandbox.mturk.com/">https://requestersandbox.mturk.com/</a>

Each person with a Sandbox account will answer to the surveys of the other groups

### **Schedule**

14:00-15:00 creation of the survey

15:00-15:30 answers to surrey of other groups

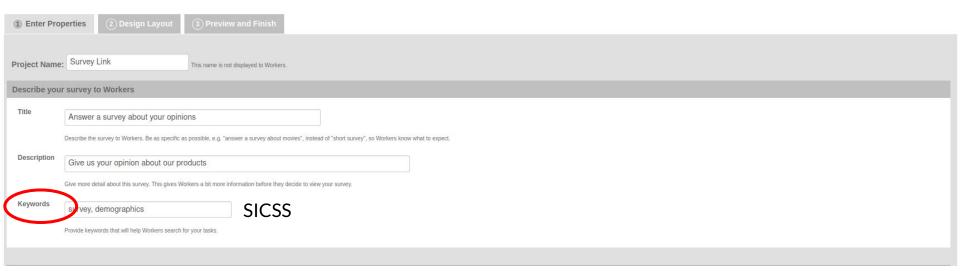
15:30-15:45 closing remarks

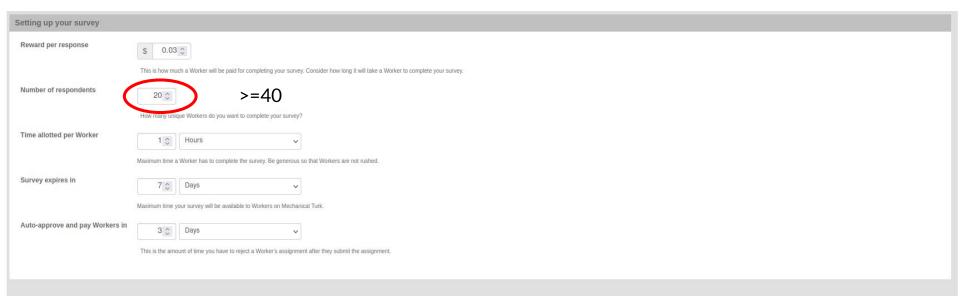
### **Steps - creation of the survey**

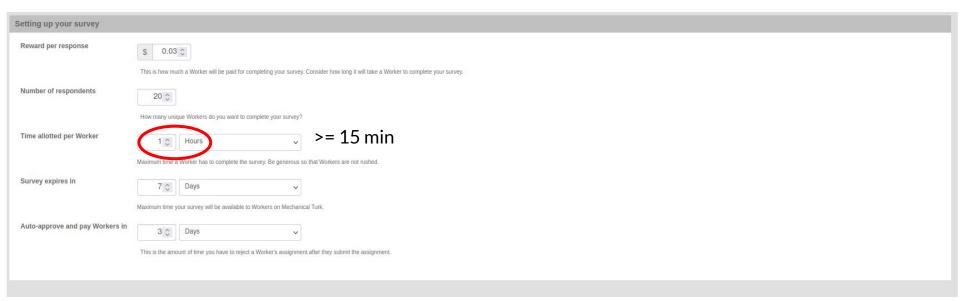
- 1. Login to requester Sandbox (Developer > Sandbox) <a href="https://requestersandbox.mturk.com/">https://requestersandbox.mturk.com/</a>
- 2. Design the survey (use the predefined templates or Google Forms)

If you decided to use Google Forms, here is a short tutorial: <a href="https://blog.mturk.com/tutorial-getting-great-survey-results-from-mturk-and-google-forms-da49">https://blog.mturk.com/tutorial-getting-great-survey-results-from-mturk-and-google-forms-da49</a> 93d878df

- 3. Select the specifications of the survey (time allocated, pay, etc)
- 4. Publish









Save

Design Layout

### **Steps - answering to surveys**

- 1. Login to worker Sandbox <a href="https://workersandbox.mturk.com/">https://workersandbox.mturk.com/</a>
- 2. Look for surveys with keyword 'SICSS'
- 3. Answer to all the surveys of your colleagues

#### Developer Sandbox

A simulated environment for testing your tasks.

#### **Sandbox**

#### About the Sandbox

The Mechanical Turk Developer Sandbox is a simulated environment that lets you test your applications and tasks prior to publication in the marketplace.

#### Benefits:

- Free to use for registered Mechanical Turk requesters. Fees will not be withdrawn and payments are not made to Worker accounts.
- . Has functional parity with the production website.
- Requires only a URL change to configure your application to work against the developer sandbox or the production website.

#### **Get Started**

To access the sandbox, you will need a Mechanical Turk Requester account and, in order to access the sandbox programmatically, you will need an Amazon Web Services (AWS) account.

Requester Sandbox

#### Requester Site Sandbox

You can create test tasks in the Requester Sandoox to make sure your design or application works.

Visit the Requester Sandbox »

#### Worker Site Sandbox

You can view tasks created in the Requester Sandbox to see how they will appear to Workers.

Visit the Worker Sandbox »

#### 2

#### Developer Forum

Have a question about the Application
Program Interface (API) or Command Line
Tools (CLTs)? Post your questions and
comments in the developer forum.

Visit the Developer Forum »

Create your own survey

#### Sandbox FAQs

How do I use the MTurk Developer Sandbox?

How do I configure my application to use the MTurk Developer Sandbox?

What features of MTurk are not supported in the MTurk Developer Sandbox?

What are the guidelines and policies for the MTurk Developer Sandbox?

#### Answer to the surveys

### Ideas for surveys

- Affective emotions in words (e.g. positive or negate)
- Misinfo behaviour (do you fact check your news? Or only the ones found on social media?)
- Climate change and green transition (How scared are you of climate change? Are you taking active steps to contrast it?)
- Social media and mood (How much time do you spend on social media? Which social? Do you think it affects your mood? In which way?)

#### Homework

Retrieve the data from the MTurk platform or the Google form if you used it. You will be using the data tomorrow!

# Thank you!

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GitHub: AnnaDiNatale/MTurk-tutorial