

Crowdsourcing



Overview

- Crowdsourcing = Crowd + Outsourcing
 - Forced cooperation
 - Volunteer cooperation
 - Incented cooperation
 - Competitions
 - Paid microtasks

reCAPTCHA



- CAPTCHA

- Completely Automated Public Turing test to tell Computer and Humans Apart
- Challenge response test to prevent bots

- reCAPTCHA

- Originally CMU project, acquired by Google
- Helps digitize books, newspapers, old time radio
- 200 million CAPTCHAs / day



Submit

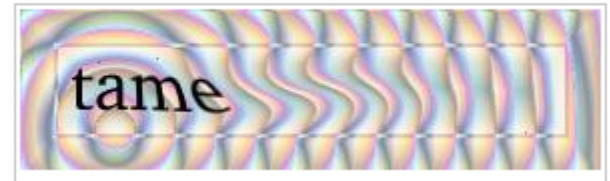
The words above come from scanned books.
By typing them, you help to digitize old texts.

CAPTCHA

- Accessibility
 - Audio version
- Defeating CAPTCHA
 - Use computer vision/
machine learning
 - Replay to humans to solve
 - Sweat shop somewhere,
\$4/day
 - Replay on high volume
site



Enter the word as it is shown in the box below.





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For Wikipedia's non-encyclopedic visitor introduction, see [Wikipedia:About](#).

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Wikipedia (/wɪkiˈpiːdiə or /wɪkiˈpiːdiə *WIK-i-PEE-dee-ə*) is a *free*, collaborative, multilingual Internet encyclopedia supported by the non-profit [Wikimedia Foundation](#). Its 20 million articles (over 3.8 million in [English](#) alone) have been written collaboratively by [volunteers](#) around the world. Almost all of its articles can be edited by anyone with access to the site,^[3] and it has about 100,000 regularly active contributors.^[4] As of January 2012, there are [editions of Wikipedia](#) in 283 languages. It has become the largest and most popular general [reference work](#) on the Internet,^{[5][6][7][8]} ranking sixth globally among all websites on [Alexa](#) and having an estimated 365 million readers worldwide.^{[5][9]} It is estimated that Wikipedia receives 2.7 billion monthly pageviews from the United States alone.^[10]

Wikipedia was launched in January 2001 by [Jimmy Wales](#) and [Larry Sanger](#).^[11] Sanger coined the name *Wikipedia*,^[12] which is a [portmanteau](#) of *wiki* (a technology for creating websites collaboratively, from the [Hawaiian](#) word *wiki*, meaning "quick")^[13] and *encyclopedia*.

Wikipedia's departure from the expert-driven style of encyclopedia building and the presence of a large body of unacademic content has received ample attention in

Wikipedia



WIKIPEDIA

The [logo of Wikipedia](#), a globe featuring [glyphs](#) from many different writing systems

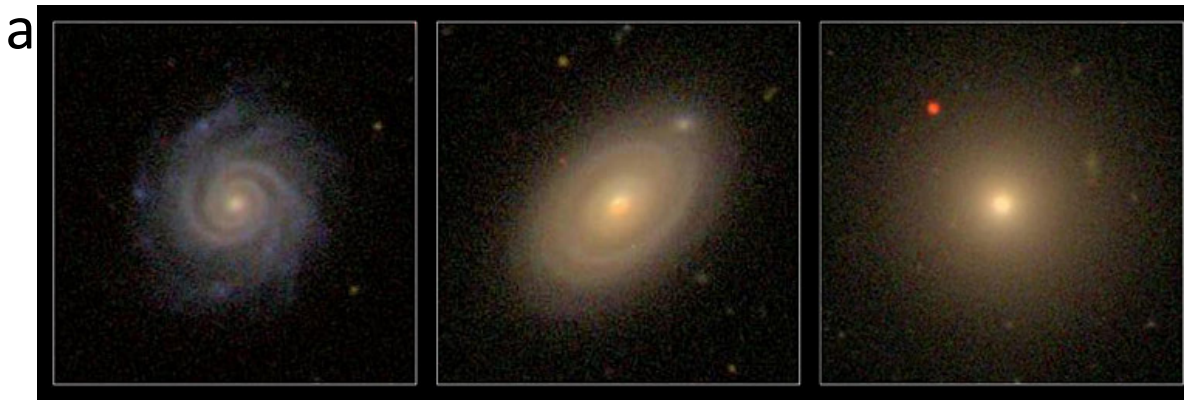
Screenshot [\[show\]](#)

URL wikipedia.org 

Slogan The Free Encyclopedia

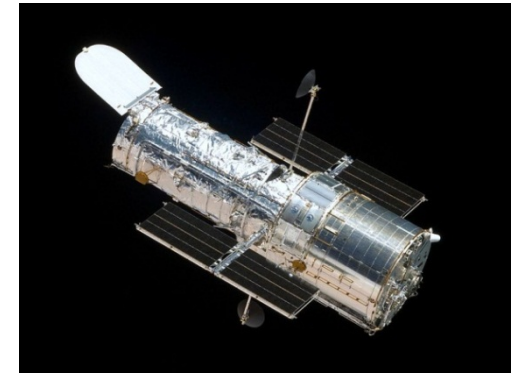
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- Online astronomy project
 - Volunteers classify galaxies, citizen science
- 2007 version
 - Sloan Digital Sky Survey, 1M image galaxies
 - Classify: elliptical/spiral, clockwise/anti-clockwise
 - 24 hours after launch, 70,000 classification / hour
 - 50M classifications / year from 150K people
 - Multiple volunteers = good as professional



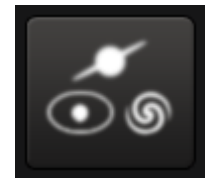
- Galaxy Zoo 2

- 250K brightest galaxies from Galaxy Zoo
- More detailed classification:
 - Shape/intensity, oddities
- 60M classifications



- Galaxy Zoo Hubble

- Images from NASA Hubble telescope
- Many more questions
 - Is it smooth with no sign of a disk?
 - How rounded is it?
 - Could this be a disk viewed edge-on?



Crowdsourced games

- ESP game

- Pairs of players try and guess same word for image
- "Labeling Images with a Computer Game"
 - Luis von Ahn and Laura Dabbish, CHI 2004



Player 1 guesses: purse
Player 1 guesses: bag
Player 1 guesses: brown

Success! Agreement on "purse"



Player 2 guesses: handbag

Player 2 guesses: purse
Success! Agreement on "purse"

Figure 1. Partners agreeing on an image. Neither of them can see the other's guesses.



Figure 2. The ESP Game. Players try to "agree" on as many images as they can in 2.5 minutes. The thermometer at the bottom measures how many images partners have agreed on.

Crowdsourced games

- Foldit
- EteRNA



– Games related to folding of RNA molecules

Shake sidechains to improve the protein.
Hotkey: S

Shake Sidechains Wiggle Backbone Clear Locks and Bands Reset Puzzle Mouse Help

▲ Actions ▶ History ▶ View ▶ File

Rank: 17 Score: 9092
48: Pro Peptide

▼ Group Competition

#	Group Name	Score
1	The Lone Folder	9388
2	Street Smarts	9367
3	Illinois	9303
4	Berkeley	9255

▼ Player Competition

16	psen	-	9098
17	kathleen	9092	9092
18	versat82	-	9091
19	darktorres	-	9081
20	ccarrico	9032	9066
21	mbjorkegren	-	9048
22	sslickerson	-	9038

▶ Chat

Pull Tool

A real-world task

- 2009 DARPA network challenge
 - Defense Advanced Research Projects Agency
 - 40th anniversary of the Internet
 - \$40,000 first team to locate
 - 10 moored, 8 foot, red, weather balloons
 - 10 previously undisclosed locations
 - 4,000 teams competed





MIT team's strategy

- Multi-level marketing
 - \$2000 to whoever sends correct coordinates
 - \$1000 to whoever invited them
 - \$500 whoever invited person who invited them
 - \$250 ...
- Mobilizing large groups requires the right incentive
- Georgia Tech
 - Promised to donate proceeds to charity
 - 2nd place

Netflix prize

- \$1M prize
- Predict ratings given past ratings
 - 10% improvement over Netflix's algorithm
 - Started Oct 2006, won in Sept 2009
- Data:
 - Training: 100M ratings, 480K users, 18K movies
 - $\langle \text{user, movie, data of grade, grade} \rangle$
 - Quiz set (1.4M), Test set (1.4M)



Paid crowdsourcing

amazonmechanical turk
beta Artificial Intelligence

text

Your Account

HITs

Qualifications

Introduction | Dashboard | Status | Account Settings

Mechanical Turk is a marketplace for work.

We give businesses and developers access to an on-demand, scalable workforce. Workers select from thousands of tasks and work whenever it's convenient.

417,411 HITs available. [View them now.](#)

Make Money
by working on HITs

Get Results
from Mechanical Turk Workers

CrowdFlower

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Products

Solutions

Customers

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The world's largest enterprise
crowdsourcing platform.

With access to more than 1.5 Million Contributors worldwide, our technology platform offers quality-assured crowdsourcing at unprecedented scale.

PICK A SOLUTION ▼



Amazon Mechanical Turk

- Human Intelligence Task (HIT)
 - Workers and requestors
 - Web-based
 - HTML + JavaScript if hosted entirely on MTurk
 - Price per HIT
 - # of workers per HIT
 - Qualifications for workers
 - Accept/reject work

<http://www.behind-the-enemy-lines.com/2010/03/new-demographics-of-mechanical-turk.html>

http://waxy.org/2008/11/the_faces_of_mechanical_turk/

