

- 1) Identify a classification task that is relevant to your final project. Write a paragraph answering the following questions:
  - a. What is the goal of this task?
  - b. What dataset will you use to carry out this task?
  - c. What annotations do you need to accomplish the goal identified in part a?

In our project, we are working on sentiment analysis of data that consists of tweets about the major U.S. airlines, where users expressed their opinions about them, the task is classifying these tweets as positive, negative or neutral. Tweets will be annotated manually according to the text, other metadata such as links published with the tweet might be helpful as well. The entire dataset is in in HW4 CSV file.

- 2) Write annotation instructions for Turkers given the task, goals, and dataset identified in #1. Include at least three examples of correctly annotated data for each annotation field identified in part 1c.

The screenshot shows the Amazon Mechanical Turk (MTurk) interface during the 'Enter Properties' step of creating a new HIT. The project name is 'U.S. Airlines Sentiment Analysis'. The frame height is set to 450 pixels. The instructions section contains a paragraph about sentiment analysis and a list of examples for positive, negative, and neutral classifications.

**Project Name:** U.S. Airlines Sentiment Analysis This name is not displayed to Workers.

**Frame Height:** 450 Height in pixels of the frame your HIT will be displayed in to Workers. Adjust the height appropriately to minimize scrolling for Workers.

**Instructions:**

We are working on a sentiment analysis of data that consists of tweets about the major U.S. airlines, where users expressed their opinions about them, the task is classifying these tweets as positive, negative or neutral. Tweets will be annotated manually according to the text, other metadata such as links.

**Examples of correct classifications :**

- **Positive (p)**
  - @VirginAmerica Hi Just wanted to see if you have any new routes planned this year for Newark. Love flying you guys and hope to do so more
  - @VirginAmerica happy to spend the day together. Lets do this.
  - @VirginAmerica They were very understanding and helped me out. Thx Comps
- **Negative (ng)**
  - @VirginAmerica Do you guys know your checkin links from emails are broken http://co2npXB6oBMr
  - @VirginAmerica I requested a mileage challenge for status several weeks ago online but havent heard back. How do I get help with this
  - @VirginAmerica I am deeply disappointed that your birthday promo was not applied to a trip I booked mere days before I received the email
- **Neutral (n)**
  - @VirginAmerica i would like help with some flights please.
  - @VirginAmerica Done but I need the receipt ASAP. Could you please help 150219000114
  - @VirginAmerica I just did how can I DM Do u have to also add me

- 3) Create a CSV file containing the data to be annotated. Write a HIT that randomly displays samples and, using the instructions created in part 2, requests annotations for these samples.

### Publish Batch

Choose a .csv file with the variables you specified in your project. ([learn more](#))

Choose File

US\_airlines.csv

Upload

File validation completed successfully

Validated

File Name:

US\_airlines.csv

File Validated:

Yes

File Size:

47.31 KB

Line Count:

471

Don't have a data file? [Download a sample .csv file.](#)

Secure | <https://requestersandbox.mturk.com/batches/187713>

Tweets can be annotated according to the text, other metadata such as links published with

Status

Status: In Progress

0% submitted

100% published

Assignments Completed:

38 / 14,985

Creation Time:

April 04, 2018 1:49 PM PDT

Average Time per Assi

Estimated Completion

Settings

U.S. Airlines Sentiment Analysis

Description:

Tweets can be annotated according to the text, other metadata such as links published with the tweet.

Keywords:

sentiment analysis, classification, U.S. Airlines

Qualification Requirement:

Number of Assignments per HIT:

15

Reward per Assignment:

\$0.00

Input File:

[airlines\\_tweets2.csv](#)

HIT expired on:

April 11, 2018 1:57 PM PDT (Wednesday)

Assignment duration:

1 hour

Auto Approval Delay:

3 days

Extend this batch

Preview HITs

Preview

Confirm and Publish

This is how your HIT will look to Workers. Make sure that any variables in the HIT are correctly replaced by your input data, then click "Next".

U.S. Airlines Sentiment Analysis

Classify the tweets about U.S. airlines as positive,negative or neutral

Requester: Amirah Alshamrani

Reward: \$0.05 per HIT

HITs available: 470

Duration: 4 Hours

Qualifications Required: None

HIT Preview

Survey Link Instructions (Click to expand)

Provide the classification here (p , ng , n) :

@VirginAmerica Do you guys know your checkin links from emails are broken <http://co2npXB6oBMr>

Submit

Previous HIT

Showing HIT 4 of 470

Next HIT

Cancel

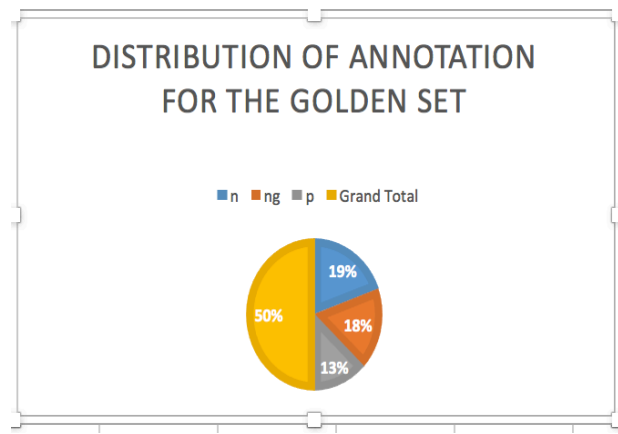
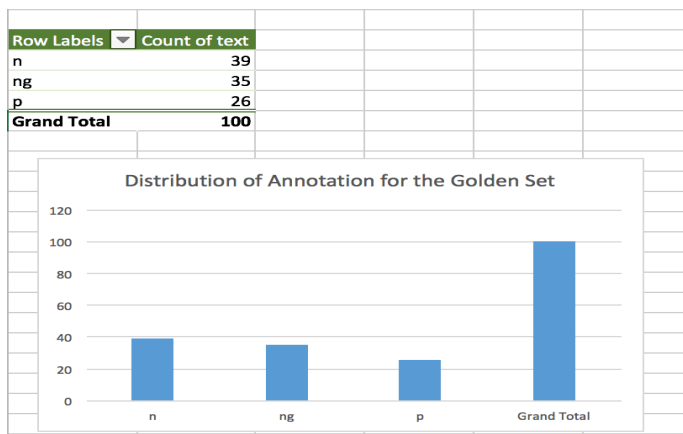
Next

- 4) Using the dataset identified in #1b, annotate 100 samples (these are your GOLD HITS).
  - a. What is the distribution of annotations in these samples?
  - b. Consider the distribution identified in part a. Is sampling necessary? If so, annotate more samples as needed.

GOLD HITS consists of 100 annotated tweets.

| A  | B      | C | D | E |
|--|--------|---|---|---|
| text   | answer |   |   |   |
| @VirginAmerica why are your first fares in May over three times more than other carriers when all seats are available to select            | ng     |   |   |   |
| @VirginAmerica @ladygaga @carrieunderwood all are great but I have to go with CarrieUnderwood  | n      |   |   |   |
| @VirginAmerica Flight 0736 DAL to DCA 224 210pm. Tried to check in could not. Status please.   | n      |   |   |   |
| @VirginAmerica What @dhepburn said.  | n      |   |   |   |
| @VirginAmerica is anyone doing anything there today Website is useless and no one is answering the phone.                                  | ng     |   |   |   |
| @VirginAmerica you guys messed up my seating.. I reserved seating with my friends and you guys gave my seat away ... I want free internet  | ng     |   |   |   |
| @VirginAmerica Random Q whats the distribution of elevate avatars I bet that kitty has a disproportionate share http://coAPtZpuROp4        | n      |   |   |   |
| @VirginAmerica its really aggressive to blast obnoxious entertainment in your guests faces amp they have little recourse                   | ng     |   |   |   |
| @VirginAmerica I didnt today... Must mean I need to take another trip  | n      |   |   |   |
| @VirginAmerica hi I just booked a flight but need to add baggage how can I do this   | n      |   |   |   |
| @VirginAmerica you know it. Need it on my spotify stat guiltypleasures   | p      |   |   |   |
| @VirginAmerica hi i did not get points on my elevate account for my most recent flight how do i add the flight and points to my account    | n      |   |   |   |
| @VirginAmerica Thanks  | p      |   |   |   |
| @VirginAmerica I cant check in or add a bag. Your website isnt working. Ive tried both desktop and mobile http://coAvyqdMpi1Y              | ng     |   |   |   |
| @VirginAmerica everything was fine until you lost my bag   | ng     |   |   |   |
| @VirginAmerica What happened 2 ur vegan food options At least say on ur site so i know I wont be able 2 eat anything for next 6 hrs fail   | ng     |   |   |   |
| @VirginAmerica I emailed your customer service team. Let me know if you need the tracking number.  | n      |   |   |   |
| @VirginAmerica Im having trouble adding this flight my wife booked to my Elevate account. Help http://copX8hQOKS3R                         | ng     |   |   |   |
| @VirginAmerica plz help me win my bid upgrade for my flight 227 LAXgtSEA   | n      |   |   |   |
| @VirginAmerica @freddieawards Done and done Best airline around hands down   | p      |   |   |   |
| @VirginAmerica @ladygaga @carrieunderwood Julie Andrews. Hands down.   | n      |   |   |   |
| @VirginAmerica What @dhepburn said.  | n      |   |   |   |
| @VirginAmerica Why is the site down When will it be back up  | ng     |   |   |   |
| @VirginAmerica hi im so excited about your 99 LGAgtdAL deal but ive been trying 2 book since last week amp the page never loads. thx       | ng     |   |   |   |
| @VirginAmerica SFOPDX schedule is still MIA.   | ng     |   |   |   |
| @VirginAmerica Let 2 scanned in passengers leave the plane than told someone to remove their bag from 1st class bin uncomfortable          | ng     |   |   |   |
| @VirginAmerica This is such a great deal Already thinking about my 2nd trip to @Australia amp I havent even gone on my 1st trip yet p      | p      |   |   |   |
| @VirginAmerica So excited for my first cross country flight LAX to MCO Ive heard nothing but great things about Virgin America. 29DaysToGo | p      |   |   |   |
| @VirginAmerica Is flight 769 on its way Was supposed to take off 30 minutes ago. Website still shows On Time not In Flight. Thanks.        | n      |   |   |   |
| @VirginAmerica @ladygaga @carrieunderwood All were entertaining  | n      |   |   |   |
| @VirginAmerica Hi Virgin Im on hold for 4050 minutes are there any earlier flights from LA to NYC tonight earlier than 1150pm              | ng     |   |   |   |
| @VirginAmerica help left expensive headphones on flight 89 IAD to LAX today. Seat 2A. No one answering LampF number at LAX                 | ng     |   |   |   |
| @VirginAmerica Congrats on winning the @Travelzoo award for Best Deals from an Airline US http://cok1lIjaebV                               | p      |   |   |   |
| @VirginAmerica I have an unused ticket but moved to a new city where you dont fly. How can I flip with you before it expires travelbale    | n      |   |   |   |

a) Distribution of the annotations of the GOLD HITS with 100 tweets.

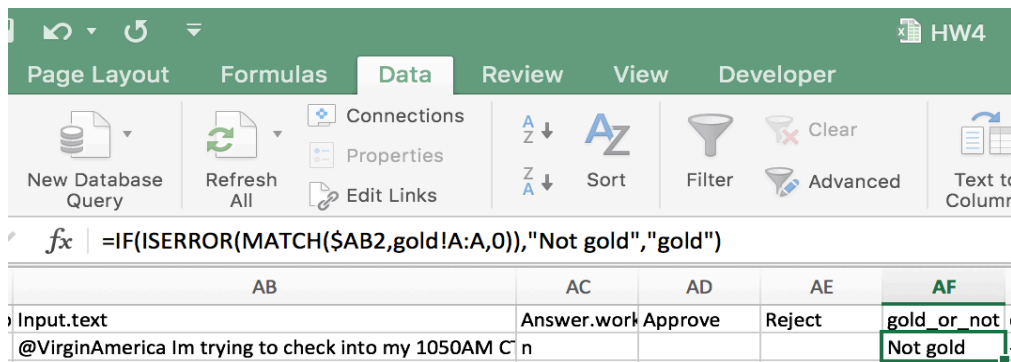


b) Since the annotations are relatively equally distributed, there is no need for further sampling.

- 5) Write a script to randomly insert the 100 samples identified in part 5 into the HIT that you created in part 3. You may create a new CSV to do this if possible. Given a set of responses from MTurk, demonstrate the ability to determine whether a given annotation refers to a GOLD HIT and, if so, whether it was annotated correctly.

Out of the dataset in the CSVfile, used the formula `=RANDBETWEEN(1,RANK($B$2:$B$1000))` get the gold sample there randomly, the formula assigns a random number within the range of the dataset, and another column with the tweets(content) of those number is added using the formula `=INDEX($B$2:$B$1000, RANK(C2,$C$2:$C$1000),1)`. Then, a copy of these gold tweets is saved separately in worksheet named "gold", then I added the column (correct answer) that has the annotation I did manually for them. After that, I downloaded the file of workers' responses from Mturk and added several columns, one to determine if the tweet is gold or not. Another column is added to the workers' file is the one that gets the correct answers of gold, named "correct\_answer\_of\_gold". To check if these two answers of a particular tweet are match (gold and workers response) indicating a correct answer by the worker, the column "answered\_correctly" is added with the formula `=IF($AD2=$AI2,"Right","Wrong")`.

- Checking if the tweets id among the gold hits or not by adding the column **gold\_or\_not** and the formula `=IF(ISERROR(MATCH($AB2,gold!A:A,0)),"Not gold","gold")`.



The screenshot shows the Excel ribbon with the 'Data' tab selected. The formula bar contains the formula `=IF(ISERROR(MATCH($AB2,gold!A:A,0)),"Not gold","gold")`. Below the formula bar, a table snippet is visible with columns AB, AC, AD, AE, and AF. The table contains data for 'Input.text', 'Answer.work', 'Approve', 'Reject', and 'gold\_or\_not'.

| AB   | AC          | AD      | AE     | AF          |
|--|-------------|---------|--------|-------------|
| Input.text   | Answer.work | Approve | Reject | gold_or_not |
| @VirginAmerica Im trying to check into my 1050AM C | n           |         |        | Not gold    |

-To get the correct answers of gold, a column named "correct\_answer\_of\_gold" added with the formula `=IF(ISERROR(VLOOKUP($AB1603,gold!$A:$B,2,FALSE)),"--",VLOOKUP($AB1603,gold!$A:$B,2,FALSE))` and another called to check if the worker answered it correctly with the formula `=IF(ISERROR(VLOOKUP($AB1603,gold!$A:$B,2,FALSE)),"--",IF($AC1605=$AG1605,"Right","Wrong"))`

| AB   | AC          | AD      | AE     | AF          | AG                     | AH                 |
|--|-------------|---------|--------|-------------|------------------------|--------------------|
| Input.text   | Answer.work | Approve | Reject | gold_or_not | correct_answer_of_gold | answered_correctly |
| @VirginAmerica @ladygaga @carrieunderwood After p        |             |         |        | gold        | n                      | Wrong              |
| @VirginAmerica @ladygaga @carrieunderwood After p        |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica yes nearly every time I fly VX this ear   |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica yes nearly every time I fly VX this ear   |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica yes nearly every time I fly VX this ear   |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica heyyyy guyyyy.. been trying to get thi    |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica heyyyy guyyyy.. been trying to get thi    |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica heyyyy guyyyy.. been trying to get thi    |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica amazing to me that we cant get any cin    |             |         |        | gold        | ng                     | Right              |
| @VirginAmerica amazing to me that we cant get any cin    |             |         |        | gold        | ng                     | Right              |
| @VirginAmerica amazing to me that we cant get any cin    |             |         |        | gold        | ng                     | Wrong              |
| @VirginAmerica DREAM http.cooA2dRfAoQ2 httppt.cc         |             |         |        | gold        | n                      | Wrong              |
| @VirginAmerica DREAM http.cooA2dRfAoQ2 httppt.cc         |             |         |        | gold        | n                      | Right              |
| @VirginAmerica DREAM http.cooA2dRfAoQ2 httppt.cc         |             |         |        | gold        | n                      | Right              |
| @VirginAmerica are flights leaving Dallas for Seattle or |             |         |        | gold        | n                      | Right              |
| @VirginAmerica are flights leaving Dallas for Seattle or |             |         |        | gold        | n                      | Wrong              |
| @VirginAmerica are flights leaving Dallas for Seattle or |             |         |        | gold        | n                      | Wrong              |
| @VirginAmerica @ladygaga @carrieunderwood Im La p        |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica @ladygaga @carrieunderwood Im La p        |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica @ladygaga @carrieunderwood Im La p        |             |         |        | Not gold    | --                     | --                 |
| @VirginAmerica will you be making BOSgtLAS non sto       |             |         |        | gold        | n                      | Right              |
| @VirginAmerica will you be making BOSgtLAS non sto       |             |         |        | gold        | n                      | Wrong              |
| @VirginAmerica will you be making BOSgtLAS non sto       |             |         |        | gold        | n                      | Right              |

- 6) Write a script to measure the accuracy of a given annotator on the GOLD HITs. Also measure the average time spent per HIT

To measure the accuracy of a given annotator on the gold hits, I checked on doing the golds first and then divide the right answer by the total golds. For average time per hit, the sum of seconds spent on hit is divided by 3.

| H49                                  |                      |               |            |          |                |             |            |
|--------------------------------------|----------------------|---------------|------------|----------|----------------|-------------|------------|
| =IF(ISERROR(B49/D49),"-", (B49/D49)) |                      |               |            |          |                |             |            |
|                                      | A                    | B             | C          | D        | E              | F           | G          |
| 1                                    |                      |               |            |          |                |             |            |
| 2                                    |                      |               |            |          |                |             |            |
| 3                                    | Count of gold_or_not | Column Labels |            |          |                |             |            |
| 4                                    |                      | gold          | gold Total | Not gold | Not gold Total | Grand Total |            |
| 5                                    | Row Labels           | Right         | Wrong      |          |                |             |            |
| 6                                    | A100Y89FZ04J0B       |               |            | 1        | 1              | 1           | --         |
| 7                                    | A104V8NZQFJ2F        |               |            | 27       | 27             | 27          | --         |
| 8                                    | A111ZFNLK1TCO        |               |            | 13       | 13             | 13          | --         |
| 9                                    | A13VU7G997ZCY        | 6             | 3          | 9        | 72             | 81          | 0.66666667 |
| 10                                   | A149ROBL26WJP        |               |            | 1        | 1              | 1           | --         |
| 11                                   | A14IPKOBOPID9H       | 1             |            | 1        |                | 1           | 1          |
| 12                                   | A177EXELDLWTWV       |               |            | 18       | 18             | 18          | --         |
| 13                                   | A181CR55SRWU2V       | 21            | 15         | 36       | 32             | 68          | 0.58333333 |
| 14                                   | A19HF68K3BLVW        |               |            | 7        | 7              | 7           | --         |
| 15                                   | A19M85A1C6HJHM       | 2             | 3          | 5        | 22             | 27          | 0.4        |
| 16                                   | A1APYL04DUK33J       | 2             | 1          | 3        | 33             | 36          | 0.66666667 |
| 17                                   | A1876WV2478QJ        |               |            | 5        | 5              | 5           | --         |
| 18                                   | A1C49NSY2OWZ8H       |               |            | 19       | 19             | 19          | --         |
| 19                                   | A1EN99INLYD1G        |               | 1          | 1        |                | 1           | 0          |
| 20                                   | A1ET2J1PIPORGO       | 6             | 1          | 7        | 8              | 15          | 0.85714286 |
| 21                                   | A1FL6P1JMXSM         |               |            | 6        | 6              | 6           | --         |
| 22                                   | A1G94QON7A9QON       |               |            | 67       | 67             | 67          | --         |
| 23                                   | A1IOMFFKCKWOIT       |               | 1          | 1        |                | 1           | 0          |
| 24                                   | A1J0G26323WVA        | 2             | 1          | 3        | 5              | 8           | 0.66666667 |
| 25                                   | A1KEA224753UPI       |               |            | 4        | 4              | 4           | --         |
| 26                                   | A1L1SQ48BYCCFJ       |               |            | 1        | 1              | 1           | --         |
| 27                                   | A1LR0VQIHQUJAM       | 3             | 2          | 5        | 38             | 43          | 0.6        |
| 28                                   | A1NM72P23NH412       | 14            | 7          | 21       | 92             | 113         | 0.66666667 |
| 29                                   | A1N9V6LPHCYADS       |               |            | 17       | 17             | 17          | --         |
| 30                                   | A1ODGBU73J85         |               |            | 39       | 39             | 39          | --         |
| 31                                   | A1OSRAP5RT934Z       | 2             |            | 2        | 3              | 5           | 1          |
| 32                                   | A1P6OXEJ86HQRM       |               |            | 13       | 13             | 13          | --         |
| 33                                   | A20NITCOB4775        |               |            | 4        | 4              | 4           | --         |
| 34                                   | A219VCQZADQ45W       |               |            | 27       | 27             | 27          | --         |
| 35                                   | A24UET676090         |               |            | 6        | 6              | 6           | --         |

|    | A                               | B                        | C           |
|----|---------------------------------|--------------------------|-------------|
| 1  |                                 |                          |             |
| 2  |                                 |                          |             |
| 3  | Row Labels                      | Sum of WorkTimeInSeconds | average     |
| 4  | 301K60KX9DOFEAU6PM70OVBGTGW2HW  | 368                      | 122.6666667 |
| 5  | 302U8RURJ04GLXEJGUMOVK50ZSUVN2  | 249                      | 83          |
| 6  | 302U8RURJ04GLXEJGUMOVK50ZSXNVX  | 397                      | 132.3333333 |
| 7  | 304QEQWKZQNIHDFECYCPGFFV6PO0L   | 22                       | 7.33333333  |
| 8  | 306996CF6XNYYC9O6QXQX1YQITZD1BY | 21                       | 7           |
| 9  | 306996CF6XNYYC9O6QXQX1YQITZD1B8 | 428                      | 142.6666667 |
| 10 | 306W7JMRYZ1G9CT95B65CBLV75J8BS  | 328                      | 109.3333333 |
| 11 | 306W7JMRYZ1G9CT95B65CBLV75J8BS  | 304                      | 101.3333333 |
| 12 | 3087LXLJ6NJ044OMF9FM2M6135ZDFC  | 59                       | 19.66666667 |
| 13 | 308KJXFUJS9UOMG52VH48WFX30ITA3  | 205                      | 68.33333333 |
| 14 | 308KJXFUJS9UOMG52VH48WFX30IATL  | 24                       | 8           |
| 15 | 30EMX9PEVLMZLCCPMP3554P6TYKSK   | 6875                     | 2291.666667 |
| 16 | 30EMX9PEVLMZLCCPMP3554P6TYKSK   | 1568                     | 522.6666667 |
| 17 | 30EV7DVJ1TWYP1E3WMDNOR08N8JAY67 | 691                      | 230.3333333 |
| 18 | 30IRMPJWDOMNKKCZAXPY2VZTKRFRVR  | 227                      | 75.66666667 |
| 19 | 30P89JJOOCV88DCUQ2135E87XV5F    | 21                       | 7           |
| 20 | 30QQTYS6MLNR5XKVVXU31HRL6H7UF   | 41                       | 13.66666667 |
| 21 | 30U1YOGZGBZR7T62X53GOS9ZMK1SDF  | 991                      | 330.3333333 |
| 22 | 30U1YOGZGBZR7T62X53GOS9ZMK2DS1  | 577                      | 192.3333333 |
| 23 | 30U2JB2POIFSJZ6SKKW18DVHN253Q   | 231                      | 77          |
| 24 | 30Y6N4AHYZQF6E6PIG3BY1430UDRD   | 37                       | 12.33333333 |
| 25 | 30Z7M1Q8UZNBQ2OZH2X69H01SPNY8AU | 124                      | 41.33333333 |
| 26 | 30ZK0GOW2X9ITF24W0CXU2QEK8H51A3 | 133                      | 44.33333333 |
| 27 | 311H0E18RTJ8RW61KU2KTW6NOW724   | 909                      | 303         |
| 28 | 31ANT7FQNS57D7DT759YM2E50S5SH0  | 267                      | 89          |
| 29 | 31D02WOD082T8DJE4TTUOLV6PJ0AW   | 401                      | 133.6666667 |
| 30 | 31GN6YMHLLQVQZ6TE086GGYKT07SWO  | 423                      | 141         |
| 31 | 31GN6YMHLLQVQZ6TE086GGYKT07WSS  | 170                      | 56.66666667 |
| 32 | 31HLTK48MYAB5XXTQ9T50W3YGBVGU   | 130                      | 43.33333333 |
| 33 | 31HLTK48MYAB5XXTQ9T50W3YGBVGX   | 36                       | 12          |
| 34 | 31J7RYECZMTABLVOX3MKB4UV5TQL14  | 31                       | 10.33333333 |
| 35 | 31UB0G0G7344E1WNU7F6U17T191     | 136                      | 45.33333333 |

- 7) Once you have convinced yourself that you can adequately identify cheaters, and that the instructions for your HIT are clear, copy your HIT to the MTurk worker website (not the Sandbox).

Secure | [https://requester.mturk.com/manage?openid.pape.max\\_auth\\_age=43200&openid.identity=https%3A%2F%2F...](https://requester.mturk.com/manage?openid.pape.max_auth_age=43200&openid.identity=https%3A%2F%2F...)

← go to MTurk.com

Amirah Alshamrani | My Account | Sign Out | Help

amazonmechanical turk REQUESTER

Home Create Manage Developer Help

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 (2)

U.S. Airlines Sentiment Analysis 18

Results

Created: April 09, 2018

Time Elapsed: 1 day

Assignments Completed: 1,410 / 1,410

Estimated Completion Time: COMPLETE

Batch Progress: 100% submitted 100% published

- 8) Given the timing data provided by your fellow students in part 7, decide on the payment rate per HIT (for a reasonable response rate, you should pay at least \$6 per hour). Also decide on worker qualifications for your HIT (suggestion: >95% HIT approval rate).

Average time is 14 seconds, I assumed that workers might need more time and spend between 30 to 60 seconds to annotate each tweet, therefore, I decided to assign 0.05 \$ per each.

Secure | <https://requestersandbox.mturk.com/batches/187713>

Tweets can be annotated according to the text, other metadata such as links published with the tweet .

Status

Status: In Progress

0% submitted 100% published

Assignments Completed: 38 / 14,985 Average Time per Assignment: 14 seconds  
Creation Time: April 04, 2018 1:49 PM PDT Estimated Completion Time: Not yet available

Setting up your HIT

Reward per assignment \$ 0.05  
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 HIT 3  
How many unique Workers do you want to work on each HIT?

Time allotted per assignment 4 Hours  
Maximum time a Worker has to work on a single task. Be generous so that Workers are not rushed.

HIT expires in 1 Days  
Maximum time your HIT will be available to Workers on Mechanical Turk.

Auto-approve and pay Workers in 4 Days  
This is the amount of time you have to reject a Worker's assignment after they submit the assignment.

[Manage Batches](#) > Batch Details

### U.S. Airlines Sentiment Analysis 18

View the latest status of this batch, make changes, or get results.

Tweets can be annotated according to the text, other metadata such as links published with the tweet and emoji's.

Status

Status: Pending Review

100% submitted 100% published

Assignments Completed: 1,410 / 1,410 Average Time per Assignment: 3 minutes 44 seconds  
Creation Time: April 09, 2018 2:12 PM PDT Completion Time: April 09, 2018 4:29 PM PDT

| Settings   | Results   |
|--|---|
| <p><a href="#">U.S. Airlines Sentiment Analysis</a></p> <p>Description: Tweets can be annotated according to the text, other metadata such as links published with the tweet and emoji's.</p> <p>Keywords: sentiment analysis, classification, U.S. Airlines</p> <p>Qualification Requirement:</p> <p>Number of Assignments per HIT: 3</p> <p>Reward per Assignment: \$0.05</p> <p>Input File: <a href="#">all_airlines.csv</a></p> <p>HIT expired on: April 10, 2018 2:13 PM PDT (TODAY)</p> <p>Assignment duration: 4 hours</p> <p>Auto Approval Delay: 4 days</p> | <p>Assignments pending review: 1,410</p> <p>Assignments approved: 0</p> <p>Assignments rejected: 0</p> <p><b>Cost Summary</b></p> <p>Estimated Total Reward: \$70.50</p> <p>Estimated Fees to Mechanical Turk: \$14.10 (<a href="#">fee details</a>)</p> <p>Estimated Total Cost: \$84.60</p> <p><small>These costs are only an estimate until all of the assignments have been submitted and reviewed.</small></p> |

**Worker requirements**

Require that Workers be Masters to do your HITs (Who are Mechanical Turk Masters?)

☐ Yes ☒ No

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

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

[\(+ Add another criterion](#) (up to 4 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.

HIT Visibility (What is HIT visibility?)

☒ Public - All Workers can see and preview my HITs

☐ Private - All Workers can see my HITs, but only Workers that meet all Qualification requirements can preview my HITs

☐ Hidden - Only Workers that meet my HIT Qualification requirements can see and preview my HITs

[Save](#) [Design Layout](#)

- 9) Launch your HIT on MTurk and collect the results. Each HIT should be completed at least three times, but do not spend more than \$100 for this assignment (you may spend more for your final project if you wish). Pay good workers (those that have not been identified as cheaters) promptly.
  - a. How many workers did your algorithm identify as cheaters? Do NOT automatically reject HITs from workers that your algorithm identified as cheaters. Instead, examine these cases individually and, if necessary, re-evaluate. NOTE: you may want to install the TurkOpticon plugin for Google Chrome in order to keep track of your reputation in the event that you decide not to pay workers.

For identifying cheaters, I decided to check the workers who did 10 tweets or more, the number of correctly annotated ones has to be larger than 2/3 of the total done by that worker, otherwise the worker is considered to be a cheater. In total the number of cheaters is 6.

|    |   |      |              |          |        |                  |        |                         |   |   |                   |  |  |
|----|---|------|--------------|----------|--------|------------------|--------|-------------------------|---|---|-------------------|--|--|
| H9 | =IF(AND((D9 > 9), ( (\$C9>= (D9/3))), "cheater", "not") |      |              |          |        |                  |        |                         |   |   |                   |  |  |
|    | A   | B    | C            | D        | E      | F                | G      | H                       | I | J | K                 |  |  |
| 3  | Count of Answer.worker's response                       |      |              |          |        |                  |        |                         |   |   |                   |  |  |
| 4  | Column Labels   |      |              |          |        |                  |        |                         |   |   |                   |  |  |
| 5  | Row Labels  | gold | Not gold     | Not gold | Total  | Grand Total      |        |                         |   |   |                   |  |  |
| 6  | A100Y89FZO4IOB  |      |              |          | 1      | 1                | 1      | not                     |   |   |                   |  |  |
| 7  | A104V8NZIQFN2F  |      |              |          | 27     | 27               | 27     | not                     |   |   |                   |  |  |
| 8  | A111ZFNLXK1TCO  |      |              |          | 13     | 13               | 13     | not                     |   |   |                   |  |  |
| 9  | A13VU7G997ZCY   | 6    | 3            | 9        | 72     | 72               | 81     | not                     |   |   |                   |  |  |
| 10 | A149ROBL26JWPJ  |      |              |          | 1      | 1                | 1      | not                     |   |   |                   |  |  |
| 11 | A14IPKOBOPID9H  | 1    |              | 1        |        |                  | 1      | not                     |   |   |                   |  |  |
| 12 | A177EXELD.LWTWV   |      |              |          | 18     | 18               | 18     | not                     |   |   |                   |  |  |
| 13 | A18TCR555RWU2V  | 21   | 15           | 36       | 32     | 32               | 68     | cheater                 |   |   |                   |  |  |
| 14 | A19HF68K3BLYW   |      |              |          | 7      | 7                | 7      | not                     |   |   |                   |  |  |
| 15 | A19M85A1CSHUHM  | 2    | 3            | 5        | 22     | 22               | 27     | not                     |   |   |                   |  |  |
| 16 | A1APYLD4DUK33J  | 2    | 1            | 3        | 33     | 33               | 36     | not                     |   |   |                   |  |  |
| 17 | A1B76WY2478QJ   |      |              |          | 5      | 5                | 5      | not                     |   |   |                   |  |  |
| 18 | A1C49NSY2OWZ8H  |      |              |          | 19     | 19               | 19     | not                     |   |   |                   |  |  |
| 19 | A1ENE99INLYD1G  |      | 1            | 1        |        |                  | 1      | not                     |   |   |                   |  |  |
| 20 | A1ET2J1PIPORGO  | 6    | 1            | 7        | 8      | 8                | 15     | not                     |   |   |                   |  |  |
| 21 | A1FL6P1JMXSM  |      |              |          | 6      | 6                | 6      | not                     |   |   |                   |  |  |
| 22 | A1G94QON7A9K0N  |      |              |          | 67     | 67               | 67     | not                     |   |   |                   |  |  |
| 23 | A1IOMFFEKWCWOIT   |      | 1            | 1        |        |                  | 1      | not                     |   |   |                   |  |  |
| 24 | A1J0GU26323WVA  | 2    | 1            | 3        | 5      | 5                | 8      | not                     |   |   |                   |  |  |
| 25 | A1KEA224753UPJ  |      |              |          | 4      | 4                | 4      | not                     |   |   |                   |  |  |
| 26 | A1L15Q48BYCCFJ  |      |              |          | 1      | 1                | 1      | not                     |   |   |                   |  |  |
| 27 | A1LROVQHUIQJAM  | 3    | 2            | 5        | 38     | 38               | 43     | not                     |   |   |                   |  |  |
| 28 | A1NM7ZP23NH412  | 14   | 7            | 21       | 92     | 92               | 113    | cheater                 |   |   |                   |  |  |
| 29 | A1NYY6LPHCYADS  |      |              |          | 17     | 17               | 17     | not                     |   |   |                   |  |  |
| 30 | A1ODGBU73JERS   |      |              |          | 39     | 39               | 39     | not                     |   |   |                   |  |  |
| 31 | A1OSRAP5RT934Z  | 2    |              | 2        | 3      | 3                | 5      | not                     |   |   |                   |  |  |
| 32 | A1P6OXEJ86HQRM  |      |              |          | 13     | 13               | 13     | not                     |   |   |                   |  |  |
| 33 | A20NITCOBY4775  |      |              |          | 4      | 4                | 4      | not                     |   |   |                   |  |  |
| 34 | A219VCQZADQ45W  |      |              |          | 27     | 27               | 27     | not                     |   |   |                   |  |  |
| 35 | A24UKTT6T6029   |      |              |          | 6      | 6                | 6      | not                     |   |   |                   |  |  |
| 36 | A27QBYDLSV11F   |      |              | 2        | 2      |                  | 2      | not                     |   |   |                   |  |  |
| 37 | all data  | gold | gold results | Sheet5   | Sheet6 | analysisOfResult | Sheet8 | Inter rater reliability |   |   | cheaters checking |  |  |







The result of Fleiss' Kappa shows moderate agreement, with a value of 0.5 indicating that the task might be to some degree an easy one to be done, as such, the approach of majority is chosen instead of the complete consensus which is better for higher values of inter-rater reliability than .5.

12) Use the output from your MTurk HIT as training data for your classification task. Using 10-fold cross validation on a metric of your choice, pick a classification technique. Justify your choice of metric.

13) Write a short paragraph indicating whether your crowdsourced data was successful in accomplishing the goal defined in #1. Indicate how you might modify your approach to increase your success rate.

In general, and based on factors such as the metric of inter-rater reliability, the very small number of cheaters, and the similarity between the distribution of GOLD HITs and the ones done by the workers, I evaluate my first experience with the crowdsourcing to be successful. For future, I might increase the number of assignments per hit to get a more accurate results, I might also add more examples in instructions for more challenging tasks, I noticed the difference it makes when provided clearly.