Research Assistant Sample Tasks

# Introduction

There are 7 tasks. Please pick at least 4 tasks. Put all the created files in a compressed folder and send them to Kazon Robinson (kr2861@stern.nyu.edu).

# Task 1 Simulation

Simulated Chains of Giving Instructions

We are interested in how kindness manifests over time. Based on the provided data, please simulate chains of giving and graph these chains.

**Description of Study:**

In this study initial participants were asked to complete 20 captchas and then were given a chance to complete additional captchas (0 to 20) for the next participant as an act of kindness.

Initial participants were “seeded” with an act of kindness as well. We told them that a previous participant had already completed some of their required 20 captchas as an act of kindness, now they only had to complete the remaining captchas.

To illustrate: A participant would learn that a previous participant completed 8 captchas for them already and now they only had to complete 12 of their 20 required captchas. After this participant completed these 12 captchas, they indicated how many additional captchas they wanted to complete for the next person. This participant might indicate they want to complete 10 captchas as an act of kindness for the next participant.

Initial participants were assigned to one of 21 conditions varying the number of captchas that were initially given to them. The amounts varied from 0 (i.e., no captchas completed for them) to 20 (i.e., all of the captchas completed already).

All participants could choose anywhere from 0 to 20 captchas to complete for the next participant.

**Description of Data:**

The excel file contains the data from our experiment with the following columns:

* ID: participant ID
* Initial\_amt: condition assignment varying the initial amount of captchas completed for participant, ranges 0-20
* PIF\_amt: amount of captchas completed for next participant, ranges 0-20

**Simulation:**

Based on the amounts initial participants pay forward to the next participant, we would like you to simulate how many captchas this next participant would pay forward and so on.

Please produce the following graph of simulated chains of 6 rounds in length for initial amount conditions 0, 5, 10, 15, and 20. The x-axis should represent the round of giving, the y-axis indicates the number of captchas completed, and there should be a line for each initial amount condition.

# Task 2 Webscraping

In this task, you will try to scrape marketing relevant information from both list and product pages on 3 different websites. A list page is one containing more than one product, while a product page is one dedicated to a product.

Consider the following list page URLs:

<https://www.missetam.nl/nl/collectie/jurken/>

<https://www.gap.com/browse/category.do?cid=5664&nav=meganav%3AWomen%3ACategories%3AJeans#pageId=0&department=136>

<https://www.your-look-for-less.nl/goedkope-blouses>

For the first 10 products on these list pages, please obtain the following information available on the list page:

* Product name
* Price
* Discounted price (if available)
* Position

Consider the following product page URLs:

<https://www.missetam.nl/nl/3848152/jurk-print-paars/?soPos=467>

<https://www.gap.com/browse/product.do?pid=794603002&rrec=true&mlink=5001,1,dynamicerror_gapoos1_rr_2&clink=1#pdp-page-content>

<https://www.your-look-for-less.nl/p/99055>

And for the following product page URLs, additionally obtain:

* Brand
* Number of photos
* Colors
* Product description

Arrange output in a csv file as follows:

URL, list/product page, product name, brand, price, discounted price, position, number of photos, number of colors, product description.

# Task 3 Web Design

**Donation Webpage Set Up**

Please either create a webpage (preferred and appreciated but not required – especially if you would have to incur any monetary costs at all to acquire a domain name etc.) or write a proposal detailing how you would create a webpage according to the following specification:

* When the url is clicked, the url should randomly assign one of two versions of the webpage to the user. Ideally, it would keep track of user such that the same user always saw the same version of the webpage when they revisited.
* On both versions of the webpage, people should be able to enter a donation amount.
* Above where they enter the donation amount, they should see text that will vary according to which version of the webpage they were randomly assigned to. Either:
  + Please make a donation!
  + Make a donation!
* Once they enter their donation, they should be able to click on a “donate” button that links to a page that says “thank you for our $X donation” whether X is the amount they donated. If you could describe how you’d set up a way of actually processing their donation, that would be great.
* Find a way to collect data from this webpage including:
  + Some identifier for who visited (this may require cookies to obtain, but the idea is that we can see if the same person visited the site more than once)
  + What version of the site they visited
  + Whether they made a donation
  + If so, how large was the donation?

**You should spend no more than two or three hours on this task.** Whatever you don’t have time or the resources to implement, just describe how you would approach it. Please detail what platform you would use (e.g., google optimize). Finally, please indicate how and where the user data would be saved and how we could access it (e.g., downloadable as excel file).

# Task 4 Survey Design

Using SMARTRIQS and Qualtrics, please set up a survey in which each participant is paired with another participant, and in one question, each participant chooses what information the other participant should see in the next question (or in the question after if it’s easier), and then the participants actually see what their partner chose for them to see. On the next question, each pair of participants should get the opportunity to send messages to each other in real time for the last two minutes of the survey.

# Task 5 Economics Proof

Imagine a policymaker with the following utility function:

Where if a concave, increasing function representing the production function of a public good, *f* is a concave, increasing function representing the policymaker’s utility from the impact on the public good, is a random variable (symmetrically distributed) which constitutes the exogenous level of resources for the public good other than what the policymaker invests, represents the amount the policymaker contributes to the public good (before they know the value of ), represents the policymaker’s budget. represents the *impact* the policymaker has on the public good.

Please prove that *g* is decreasing in the variance of (given the same mean of ), or prove that *g* is decreasing in under some circumstances/assumptions which you can specify to make the problem more tractable (e.g., you can also assume Z’’’ = 0 and/or *f’’’* = 0, or even assume specific functional forms or simple distributions of *S* e.g., binomial).

Now, with similar assumptions to those you used for the last problem, please prove that *g* is *increasing* in the variance of S for this modified utility function where *f* represents utility from the total level of the public good :

# Task 6 Structural Model Estimation

In this task, you will describe code that was written to estimate a model of consumer search. To help you understand the code, you can read the papers appearing in the folder “literature”. Please open the “code” folder and do the following:

1. Please write a “READ ME” file that describes each of the files that is included in the “code” folder. Make sure to describe in as much detail as possible the main steps that each code executes, without rewriting in English every line of the code.
2. If you wanted to measure the estimation bias of assuming search costs equal zero, how would you modify the estimation code? No need to write new code, just explain briefly (in English) what steps you would take to change the code.

# Task 7 Economics Proof

Please read the paper (The Impact of Amazon Climate Pledge Friendly Badge on Sales and Seller Competition) and answer the following questions.

* What are the limitations of this paper? Could you offer suggestions to address the limitations?
* Could you come up with a game theoretical model to explain the three core findings: the climate pledge friendly badge prompted sellers to increase prices, led to higher sales, and heightened market competition?