

Perceived Effort Required in Dataset Feature Mutations

Introduction

Thank you for your interest in helping us quantify the perceived human effort required in making some feature changes. This survey should take about 10-15 *minutes* to complete. Your answers will be anonymous and solely used for research purposes. Your participation is completely voluntary and you can end your participation or revoke your consent at any time. We appreciate your input!

* 1. Check the appropriate box below to consent to the survey

☐ I agree and provide my consent as per above

Perceived Effort Required in Dataset Feature Mutations

Instructions

You are going to be shown 18 questions. There will be 3 datasets, each with 6 questions.

Each question will have two people, Alex and Jaden, and their associated features (e.g., their salary, education... etc...)

Alongside this, you will see two scenarios of Alex and Jaden, representing changes they could take (e.g., increasing their salary etc..)

Your task is to pick which of these two scenarios requires more effort. [i.e., how difficult it is for "the average individual" to change this feature(s)]

In addition, with the help of the slider on a scale of 1 (Almost no difference) to 7 (Really large difference), select the difference in effort you think exists between the two.

For example, if you feel one is just slightly more effort compared to the other, select 1, otherwise if you feel there is a massive difference in effort, please select 7.

For example, consider Alex here:

Alex	Age	Work class	Education Level	Hours per week
Features	30	Self-Employed	High School	20
Change(s) to Make				40

The proposed change for Alex is "Hours per week" from 20 to 40

Now consider Jaden here:

Jaden	Age	Work Class	Education Level	Hours per week
Features	45	Self-Employed	High School	20
Change(s) to Make	46			40

The proposed changes for Jaden - "Age" from 45 to 46 and "Hours per week" from 20 to 40

Your task is to compare both of these changes for Alex and Jaden and pick the one

which requires a higher effort to achieve in your opinion. Then, you should try to quantify this difference on a scale of 1-7.

Note: You may personally feel some changes are impossible, if so, simply consider these to be higher effort.

Click Next to begin the Survey

Perceived Effort Required in Dataset Feature Mutations

HELOC Dataset

Data Description:

The FICO HELOC dataset contains anonymized information about home equity line of credit (HELOC) applications made by real homeowners. The customers in this dataset have requested a credit line in the range of USD 5,000 - 150,000.

Selected Features:

1. **Months Since Recent Inquiries:** Number of months passed since the last credit inquiry on the individual.
2. **Number of Credit Accounts with Balances:** The number of the individual's current credit accounts (e.g. credit cards) that have balances on them
3. **Number of New Credit Accounts:** The number of new credit accounts opened in the last 12 months
4. **Number of Inquiries:** The number of credit inquiries carried out on the individual in the last 6 months

* 2.

Alex	<i>Months since Recent Inquiry</i>	<i>Number of Credit Accounts with Balances</i>	<i>Number of New Credit Accounts</i>	<i>Number of Inquiries</i>
Features	6	3	2	4
Change(s) to Make			4	

Jaden	<i>Months since Recent Inquiry</i>	<i>Number of Credit Accounts with Balances</i>	<i>Number of New Credit Accounts</i>	<i>Number of Inquiries</i>
Features	6	3	2	4
Change(s) to Make		5		

Which individual's proposed change would require more effort?

☐ Alex

☐ Jaden

* 3. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 4.

Alex	<i>Months since Recent Inquiry</i>	<i>Number of Credit Accounts with Balances</i>	<i>Number of New Credit Accounts</i>	<i>Number of Inquiries</i>
Features	6	3	2	4
Change(s) to Make				7

Jaden	<i>Months since Recent Inquiry</i>	<i>Number of Credit Accounts with Balances</i>	<i>Number of New Credit Accounts</i>	<i>Number of Inquiries</i>
Features	6	3	2	4
Change(s) to Make			5	

Which individual's proposed change would require more effort?

- ☐ Alex
- ☐ Jaden

* 5. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No
Difference)

7 (Really Large
Difference)

* 6.

Alex	<i>Months since Recent Inquiry</i>	<i>Number of Credit Accounts with Balances</i>	<i>Number of New Credit Accounts</i>	<i>Number of Inquiries</i>
Features	6	3	2	4
Change(s) to Make			4	

Jaden	<i>Months since Recent Inquiry</i>	<i>Number of Credit Accounts with Balances</i>	<i>Number of New Credit Accounts</i>	<i>Number of Inquiries</i>
Features	6	3	8	4
Change(s) to Make			10	

Which individual's proposed change would require more effort?

- ☐ Alex
- ☐ Jaden

* 7. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No
Difference)

7 (Really Large
Difference)

* 8.

Alex	<i>Months since Recent Inquiry</i>	<i>Number of Credit Accounts with Balances</i>	<i>Number of New Credit Accounts</i>	<i>Number of Inquiries</i>
Features	6	3	2	4
Change(s) to Make	12			

Jaden	<i>Months since Recent Inquiry</i>	<i>Number of Credit Accounts with Balances</i>	<i>Number of New Credit Accounts</i>	<i>Number of Inquiries</i>
Features	24	3	2	4
Change(s) to Make	30			

Which individual's proposed change would require more effort?

- ☐ Alex
- ☐ Jaden

* 9. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 10.

Alex	Months since Recent Inquiry	Number of Credit Accounts with Balances	Number of New Credit Accounts	Number of Inquiries
Features	6	1	1	4
Change(s) to Make			4	

Jaden	Months since Recent Inquiry	Number of Credit Accounts with Balances	Number of New Credit Accounts	Number of Inquiries
Features	6	6	1	4
Change(s) to Make			4	

Note that Alex and Jaden have different Numbers of Credit Accounts with Balances

Which individual's proposed change would require more effort?

☐ Alex

☐ Jaden

* 11. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 12.

Alex	Months since Recent Inquiry	Number of Credit Accounts with Balances	Number of New Credit Accounts	Number of Inquiries
Features	6	1	1	4
Change(s) to Make			4	7

Jaden	Months since Recent Inquiry	Number of Credit Accounts with Balances	Number of New Credit Accounts	Number of Inquiries
Features	6	6	1	4
Change(s) to Make			4	7

Note that Alex and Jaden have different Numbers of Credit Accounts with Balances

Which individual's proposed change would require more effort?

- ☐ Alex
- ☐ Jaden

* 13. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

Perceived Effort Required in Dataset Feature Mutations

Adult Census Income Dataset

Data Description:

This data was extracted from the 1994 Census bureau database. It is typically used for predicting whether a person (age = 16+) makes over \$50K a year.

Selected Features:

1. **Age:** The person's age
2. **Work Class:** The person's current employment status (binary) - Self-Employed, working in a Private Company
3. **Education Level:** The individual's level of education completed - uneducated, high school, bachelors, doctorate
4. **Hours per Week:** The number of hours the individual works per week

* 14.

Alex	Age	Work Class	Education Level	Hours per Week
Features	30	Private Company	High School	32
Change(s) to Make			Doctorate	

Jaden	Age	Work Class	Education Level	Hours per Week
Features	30	Private Company	High School	32
Change(s) to Make		Self-Employed		

Which individual's proposed changes would require more effort?

☐ Alex

☐ Jaden

* 15. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No
Difference)

7 (Really Large
Difference)



* 16.

Alex

Alex	Age	Work Class	Education Level	Hours per Week
Features	30	Private Company	High School	32
Change(s) to Make	35			

Jaden	Age	Work Class	Education Level	Hours per Week
Features	30	Private Company	High School	32
Change(s) to Make				40

Which individual's proposed changes would require more effort?

☐ Alex

☐ Jaden

* 17. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 18.

Alex	<i>Age</i>	<i>Work Class</i>	<i>Education Level</i>	<i>Hours per Week</i>
Features	30	Private Company	Uneducated	32
Change(s) to Make			High School	

Jaden	<i>Age</i>	<i>Work Class</i>	<i>Education Level</i>	<i>Hours per Week</i>
Features	30	Private Company	High School	32
Change(s) to Make			Doctorate	

Which individual's proposed changes would require more effort?

☐ Alex

☐ Jaden

* 19. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No
Difference)

7 (Really Large
Difference)



* 20.

Alex	<i>Age</i>	<i>Work Class</i>	<i>Education Level</i>	<i>Hours per Week</i>
Features	30	Private Company	High School	0
Change(s) to Make				20

Jaden	<i>Age</i>	<i>Work Class</i>	<i>Education Level</i>	<i>Hours per Week</i>
Features	30	Private Company	High School	20
Change(s) to Make				40

Which individual's proposed changes would require more effort?

☐ Alex

☐ Jaden

* 21. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 22.

Alex	Age	Work Class	Education Level	Hours per Week
Features	25	Private Company	High School	32
Change(s) to Make			Doctorate	

Jaden	Age	Work Class	Education Level	Hours per Week
Features	65	Private Company	High School	32
Change(s) to Make			Doctorate	

Note that Alex and Jaden are of different Ages
Which individual's proposed changes would require more effort?

- ☐ Alex
- ☐ Jaden

* 23. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 24.

Alex	Age	Work Class	Education Level	Hours per Week
Features	30	Self-Employed	High School	20
Change(s) to Make			Bachelors	40

Jaden	Age	Work Class	Education Level	Hours per Week
Features	30	Private Company	High School	20
Change(s) to Make			Bachelors	40

Note that Alex and Jaden are of different Work Classes

Which individual's proposed changes would require more effort?

☐ Alex

☐ Jaden

* 25. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

Perceived Effort Required in Dataset Feature Mutations

German Credit Dataset

Data Description:

The original dataset contains 1000 entries with 20 categorical/symbolic attributes. In this dataset, each entry represents a person who takes a credit by a bank. Each person is classified as good or bad credit risks according to the set of variables or features.

Selected Features:

- 1. Loan Amount:** The amount borrowed by the individual in US Dollars
- 2. Checking Account Status:** The status of the individual's checking account
 - *None* - No checking account
 - *Owing* - Negative checking account balance
 - *Low* - Small checking account balance
 - *High* - Large checking account balance
- 3. Loan Duration:** The duration of the loan in months
- 4. Credit History:** The individual's credit history
 - *Delinquent* - delay in paying off debt
 - *Owing* - owe other debts at other financial institutions
 - *Paid* - existing debts paid

* 26.

Alex	<i>Loan Amount</i>	<i>Checking Account Status</i>	<i>Loan Duration (months)</i>	<i>Credit History</i>
Features	2000	Owing	24	Delinquent
Change(s) to Make	5000			

Jaden	<i>Loan Amount</i>	<i>Checking Account Status</i>	<i>Loan Duration (months)</i>	<i>Credit History</i>
Features	2000	Owing	24	Delinquent
Change(s) to Make			54	

Which individual's proposed changes would require more effort?

☐ Alex

☐ Jaden

* 27. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 28.

Alex	Loan Amount	Checking Account Status	Loan Duration (months)	Credit History
Features	2000	Owing	24	Owing
Change(s) to Make		Low		

Jaden	Loan Amount	Checking Account Status	Loan Duration (months)	Credit History
Features	2000	Owing	24	Owing
Change(s) to Make				Paid

Which individual's proposed changes would require more effort?

- ☐ Alex
- ☐ Jaden

* 29. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 30.

Alex	<i>Loan Amount</i>	<i>Checking Account Status</i>	<i>Loan Duration (months)</i>	<i>Credit History</i>
Features	2000	Low	24	Paid
Change(s) to Make	5000			

Jaden	<i>Loan Amount</i>	<i>Checking Account Status</i>	<i>Loan Duration (months)</i>	<i>Credit History</i>
Features	20000	Low	24	Paid
Change(s) to Make	23000			

Which individual's proposed changes would require more effort?

☐ Alex

☐ Jaden

* 31. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

☐

* 32.

Alex	<i>Loan Amount</i>	<i>Checking Account Status</i>	<i>Loan Duration (months)</i>	<i>Credit History</i>
Features	2000	Low	12	Paid
Change(s) to Make			48	

Jaden	<i>Loan Amount</i>	<i>Checking Account Status</i>	<i>Loan Duration (months)</i>	<i>Credit History</i>
Features	2000	Low	60	Paid
Change(s) to Make			96	

Which individual's proposed changes would require more effort?

☐ Alex

☐ Jaden

* 33. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 34.

Alex	Loan Amount	Checking Account Status	Loan Duration (months)	Credit History
Features	2,000	Owing	24	Paid
Change(s) to Make	12,000			

Jaden	Loan Amount	Checking Account Status	Loan Duration (months)	Credit History
Features	2,000	High	24	Paid
Change(s) to Make	12,000			

Note that Alex and Jaden have different Checking Account Status
Which individual's proposed changes would require more effort?

- ☐ Alex
- ☐ Jaden

* 35. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)

* 36.

Alex	<i>Loan Amount</i>	<i>Checking Account Status</i>	<i>Loan Duration (months)</i>	<i>Credit History</i>
Features	2,000	Low	24	Owing
Change(s) to Make	12,000		36	

Jaden	<i>Loan Amount</i>	<i>Checking Account Status</i>	<i>Loan Duration (months)</i>	<i>Credit History</i>
Features	2000	Low	24	Paid
Change(s) to Make	12,000		36	

Note that Alex and Jaden have different Credit Histories

Which individual's proposed changes would require more effort?

☐ Alex

☐ Jaden

* 37. In your opinion, how much difference in effort do you perceive between the two changes (for Alex & Jaden) in the scenario above?

1 (Almost No Difference)

7 (Really Large Difference)