Reddit NLP Project: Word Frequency and Word Cloud
Rye International Data Team presents for Onomy

1. *Key Takeaways*

    a. **Financial Independence and Personal Finance**: people focus on Roth IRA, saving accounts, brokerage account, emergency funds, credit cards and student loans.

    b. **Adults & Young Adults**: people focus on work switching/landing, future work/academics plan, moving out planning, finances planning, personal mental health both before and after working, credit cards plan.

2. *Motivation*

    a. **Motivation:** We try to understand the trends of social discussion about adulting and personal finance by analyzing text data on Reddit. We hope to gain a better understanding of users' interest and concerns, providing insights for Onomy's future course designs.

    b. **Questions we try to answer**

        i. What are the most common words and phrases when people talk about adulting and financial independence?

        ii. What insights could we draw from the text related to these common words/phrases?

3. *How do we conduct EDA? Where is the data from? analysis methods?*

    a. **Data source: Posts associated with 7 relevant subreddits on Reddit**

        i. Adulting

        ii. Adulting 101

        iii. Financial Independence

        iv. Young Adults

        v. Personal Finance

        vi. Life Pro Tips

        vii. Explain Like I'm Five

    b. **Analysis process:**
For each dataset, we drop rows with duplicates and NA in the post text. After converting all text into lowercase, we clean up emojis, url, punctuation, and special characters. In order to find meaningful and insightful words in each reddits, we remove all the 'stop words' in English, which are too common to have any specific meaning, such as 'am','would', and 'when'. We also use lemmatization to group up the inflected words so they can be analysed as a single item. After all these cleaning processes, we identify the most common 10 words, 2-grams phrase,and 3-grams phrase that appears in the 7 subreddit postings.

*4. **What are the results and implications?***

    I.   Financial Independence and Personal Finance:

    A. <u>Roth IRA:</u>
        Many people in their late 20s are unsure about how to use a Roth IRA account. They
        wonder what to put in the Roth IRA, whether they should withdraw some of the money,
        and related tax-policies.
        Example post: "Given this situation, am I allowed to deduct an additional 3000 from my
        IRA contribution, or is my best bet to roll it all into a Roth IRA without taking a
        deduction?"
        Besides, from the personal finance dataset, we found people are confused about the
        difference between traditional IRA and Roth IRA.

Example post: "My question is should I be making these contributions traditionally, Roth style or a combination of the two in order to take advantage of pre tax money."

B.   Saving Account vs. Brokerage Account:
Many people post their financial situation including income, job, and current asset allocation to the community in order to ask for financial advice. They struggle about choosing between a brokerage account and a savings account.
Example post: "We have a brokerage account with Schwab with $40k in it and fully funded IRA's, should we be pouring money into this brokerage account right now or a high yield savings account?"

C.   Emergency Fund:
People want to maintain an emergency fund while investing. However, they are unsure about how much the fund should be.
Example post: "I want to be able to pull some money out if needed for an emergency fund but don't like having so much just sitting not making interest."

D.   Credit Card & building credit
Many discussions were based on issues about credit cards and credit scores. People are looking for instructions on credit card payment. They are also interested in building higher credit scores and credit lines. The average age of the group who mentioned credit cards is 24.17 years old in the personal finance dataset.
Example post: "My paychecks are about $750 and my credit card interest is 12.99%. I recently lowered it from 15.99%.Should I pay off my debt now or over time?"
Example post: "The whole point of getting a credit card in the first place was to build my credit and now it's dropped below where I started.What do I do to build my credit back up? And what is an ideal credit line for someone in my situation?"

E.   Student Loan Payment
Many people asked for advice on how to pay back student loans, most of them were just out of college and feel unsure about how much to pay for their student loan debt and how much to pay for rents or down for a house in the future. People get frustrated on the high amount of loan they have to pay back, so Onomy may give instructions on how to choose the most desirable student loan in the first place.
Example post: "I feel like I've ruined my life in nearly 20's due to student debt. How do I dig myself out of this hole?"

F.   Tax
People need more information on tax refunds, capital gain tax and tax deduction in Covid.
Example post: "Cashing out a big stock my grandpa bought in the 80s. Looking for advice/best way to do this regarding taxes."

II.   Adulting, Young Adults, Adulting 101:

* In Adult Subset: Credit Card, Don't Know, Full Time Jobs

Top 10 2-grams in Adult

A. <u>Credit Card:</u> people wonder what exactly are credit cards and how do they work. They also seek advice on what credit cards to choose, how to deal with ID stolen issues, how credit cards miles reward work, what are credit scores, when should they have a new credit card, etc.
Example post: "What is APR? How do I get one? I want to improve my credit with using a credit card to pay for necessary things such as my phone and World of Warcraft account. I understand interest, and I'm comfortable with paying interest on things I would usually pay from my bank account in turn for a smidgeon increase on my credit. What do you recommend for a first credit card?My bank is Chase and they're pretty stingy with their credit cards. They didn't even respond to my request for one."

B. <u>Don't know:</u>
   1. <u>Career paths/ academic goals for future</u>: people ask about what the next stage should be, how to find yourself, how to decide on the first job, whether to go back to school again, new job anxiety,etc.
   2. <u>How to take care of myself financially and individually</u>: people wonder how to make financial decisions better, how to deal with loneliness or stress, how to handle roommate issues, how to decide insurance, etc.
   3. <u>How to get life together</u>: people wonder how to deal with balance between work and life, how to move life forwards, whether to mortgage or rent, etc.
   Example post: "After graduation I moved back into my parents house (and maybe that is the problem), and I feel so 'blah.' Figured it would be worth it to save thousands of dollars from rent, as there wouldn't be much going on with the pandemic ravaging my state when I moved back in. My college hobbies of hanging out with friends, going to bars, traveling, extracurriculars are all gone. I feel like every day is the same: M-F I wake up, work, get some exercise, eat

dinner, shower, then bed. But on the weekends this feeling is terrible - I would honestly rather be working, at least I would have some interaction with people and would be productive. Is this feeling of emptiness, boredom, and despair stemming from being an adult? From living at home? From COVID social distancing? Not having a real hobby anymore? Just regular winter blues?"

C. <u>Full time job:</u> people have questions on how to stay motivated for work, how to use personal time wisely, how to manage finances, how to deal with the unsatisfied first job, why feel stressful or unfulfilled even with a job, what to do next after landing a job with insurance benefits, whether to get a loan or not.
Example post: "I (17F) graduated high school in June 2020, and I've slowly been working on making a resume and looking around at job listings. Is it possible to avoid a fast food or cashier job? If so, what kind of jobs should I be looking for? Also is it a bad idea to try to get a full time job as my first job? Lastly does anyone have any advice or tips for anything at all?"

* In Young Adult Subset: Year Old, High School, Mental Health

Top 10 2-grams in Young Adults

D. <u>Year old</u>: People in the Young Adult subset are generally very concerned about their age and often sometimes nervous about their age and inexperience in school and workplace. Age here also seemed to be their main identity.
Example post: "Has anyone of you guys traveled solo whether in your country or abroad? How was the experience and what advice would you give to a 19 year old guy?"

E. <u>High school:</u> high school and many other teenage experiences seemed to be frequently discussed. People compare their time back in high school to their time now as a young adult in university or in the workplace. Relationships with friends and classmates were also commonly mentioned.

Example post: *"For those of us who are out of high school, how well do you keep up with your high school friends?"*

F. <u>Mental health</u>: feelings and mental health were also a common topic in the Young Adult Subset. People talked a lot about how their days have been and feelings from time to time. Mental health also appeared as an important issue as some people were facing stress and depressions and were talking about it and asking for advice in reddit.
Example post: "Debating taking a gap semester because I'm feeling burnt out and overwhelmed by this past year. But I would feel guilty taking a semester off. Anyone else feel this way? I know that a lot of good would come from me taking a semester off to reset and work on my mental health, but I have so much guilt about graduating so late (in my 4th year and changed majors so will need at least another year of classes)... Do you regret taking a gap semester?"

* In Adulting101 Subset: Need, Time, Car

(As the dataset is too small, two-gram analysis was not performed in this subreddit.)

G. <u>Need & Time:</u>
People need advice on moving out for the first time. Under the keyword "need" and "time" in adulting 101 dataset, most posts were by young adultings who were moving out after 18 years old and were asking for advice living alone, buying kitchen appliances and managing money.
Example post: "How much does it cost you to live alone in an apartment, buy the essentials needed (appliances etc) buy your own groceries in a month??"

H. <u>Car:</u>
People discussed buying and driving first cars in adulting101 reddit. They need information on Carfax, driver license and car insurance.
Example Post: "I've never bought a car before so I have no idea what my best options should be. Does Carfax actually work? What should I avoid? How does car insurance work?

I only have about $1000 right now so I can't buy a brand new one or anything, but I'm not sure what qualifies a used car as bad/waste of time or money."
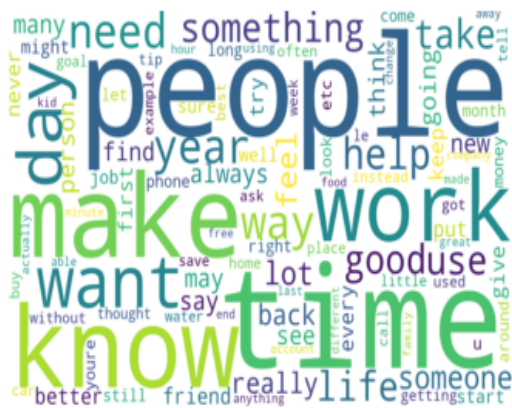
III.   Life Pro Tips, Explain Like I'm Five

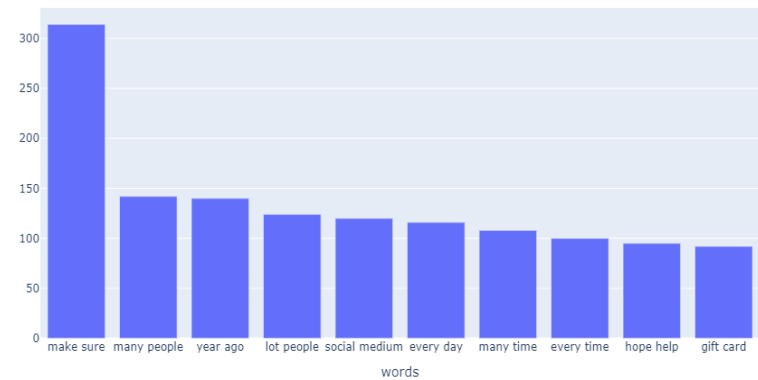Top 10 2-grams in Explain Like I'm Five

*Explain Like I'm Five: Stock Investment suggestions

A. <u>Long-term Investment:</u> People ask specific questions about whether certain stock is worth for long-term investing and ask for stock recommendation.
Example post: "I have made SPY (broad S&P 500) a large part of my portfolio for long term investing, but is there any reason not to go with a leveraged ETF like UPRO instead?"

B. <u>Stock Market:</u> Many questions are about how the stock market works in general and very technical questions about investing.
Example post: "So how does this QE money flow to the stock market and other assets? Do people actually borrow money from banks now to use for stock purchases?"
Example post:"Is there a good reason to have 50% fixed income allocation if I am younger and have 30 years to retirement? Why do people advocate for 100% equities in this crazy overpriced market? Very credible investing book from 70s says to hold large proportion fixed income, why do people advocate equities in today's current market conditions?"

*Life Pro Tips：All kinds of suggestions including very detailed things in life

Top 10 2-grams in Pro tips

C. <u>Make sure and hope help:</u> There were all kinds of tips and suggestions discussed in this section so it is a bit of everything. People often begin with "make sure" when they are going over a tip or suggestion, and ends with "hope this helps".
Example post: "Make sure you drink enough water today friends."
"31% of Americans could not pay their rent last month. The Unemployment Rate is at its highest since the Great Depression. There is no definitive end in site. I have provided links and information for all 50 states. Application links are in the description. I hope this helps someone."