Product Analytics Case Study

Made By : Kshitij Burman

About Company

A fintech app has a lending product where they offer digital loans to users. The first screen that the user encounters when they click on the Loans Option is an amount screen where they can choose the amount they want to take a loan for.

The possible actions a user can take on this screen are –

1. Click the continue button – takes them to the next screen
2. Click the back button – takes them back to home screen
3. Click the need help button – to initiate a complaint to customer support
4. Move the amount slider – to change the amount selection

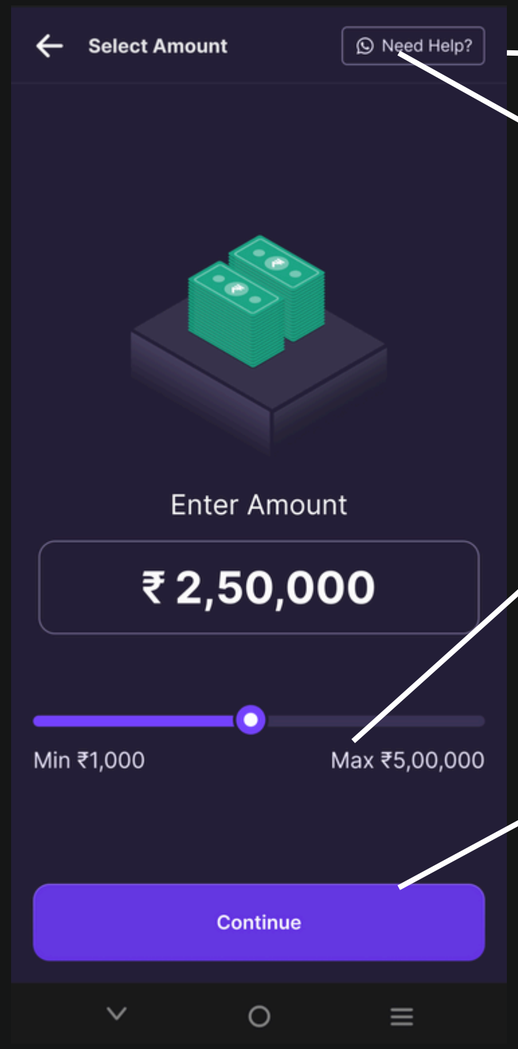
About Data Set

Column Name	Description
Event_name	Name of the event
User_id	Unique identity of the user who did the action that triggered the event
Session_id	Unique identity of a session
Timestamp	The timestamp at which event was triggered

The names of the events that a user can trigger on this screen

1.screen_shown
2.continue_clicked
3.back_clicked
4.need_help_clicked
5.slider_moved

About Product & UI Screens



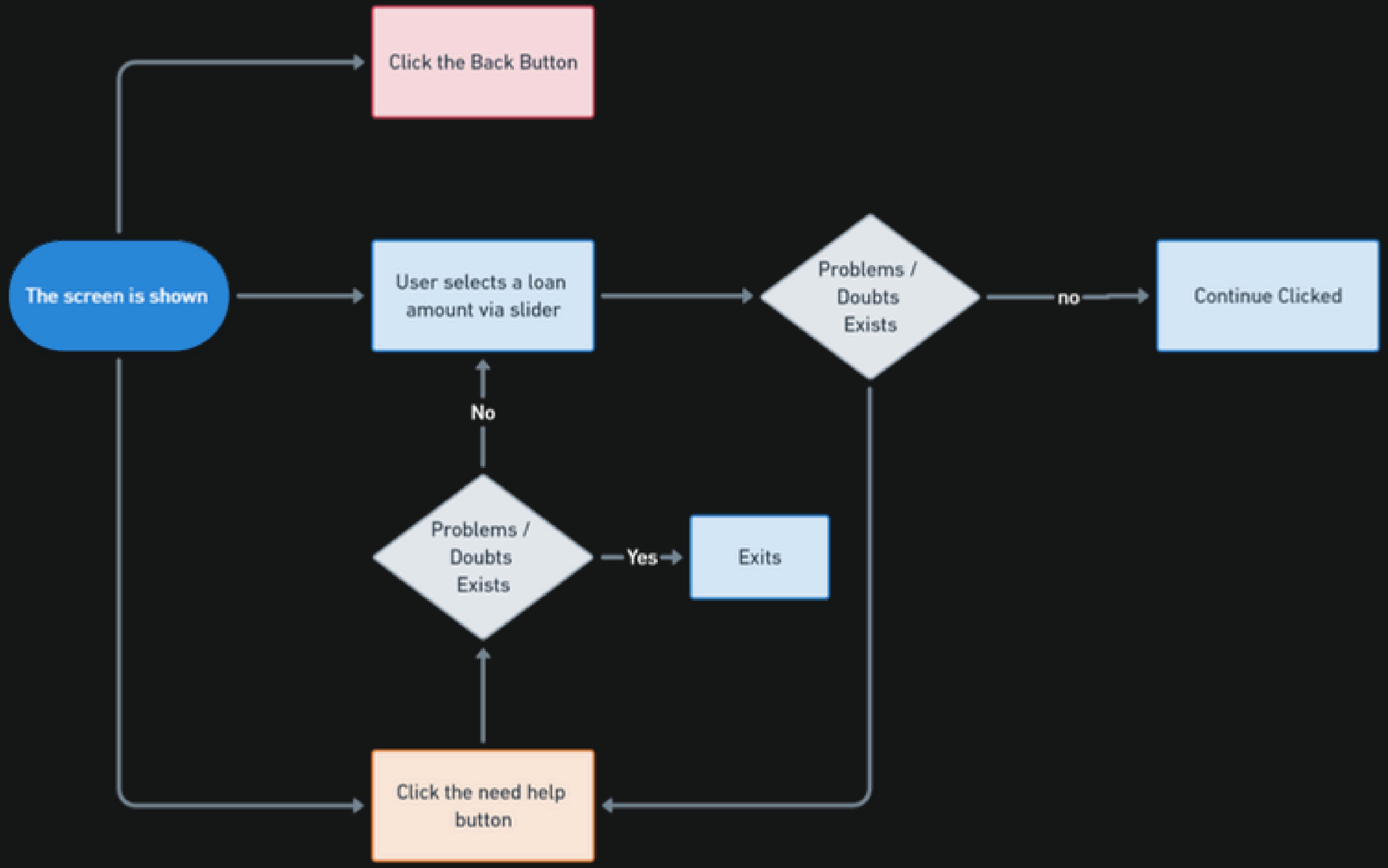
Back Arrow – To go onto the previous screen

Need Help – To initiate a complaint to customer support

Move the amount slider – to change the amount selection

Move the amount slider – to change the amount selection

Product Flow



Metrics Calculated

1 **Conversion Percentage – Conversion is when a user clicks continue**

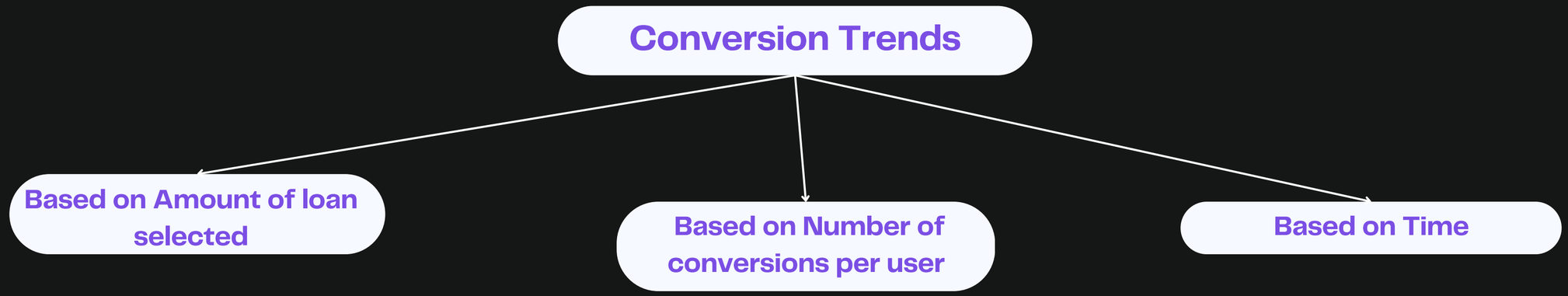
```
# No of unique users
n_unique = df['user_id'].nunique()
#Number of unique users who clicked on continue button
n_clicked = df[df['event_name'] == 'continue_clicked'].user_id.nunique()#Conversion rate
conversion_rate = (n_clicked/n_unique)*100
print(f'Conversion rate is {conversion_rate} percent')
```

```
Conversion rate is 61.07460378817162 percent
```

61%

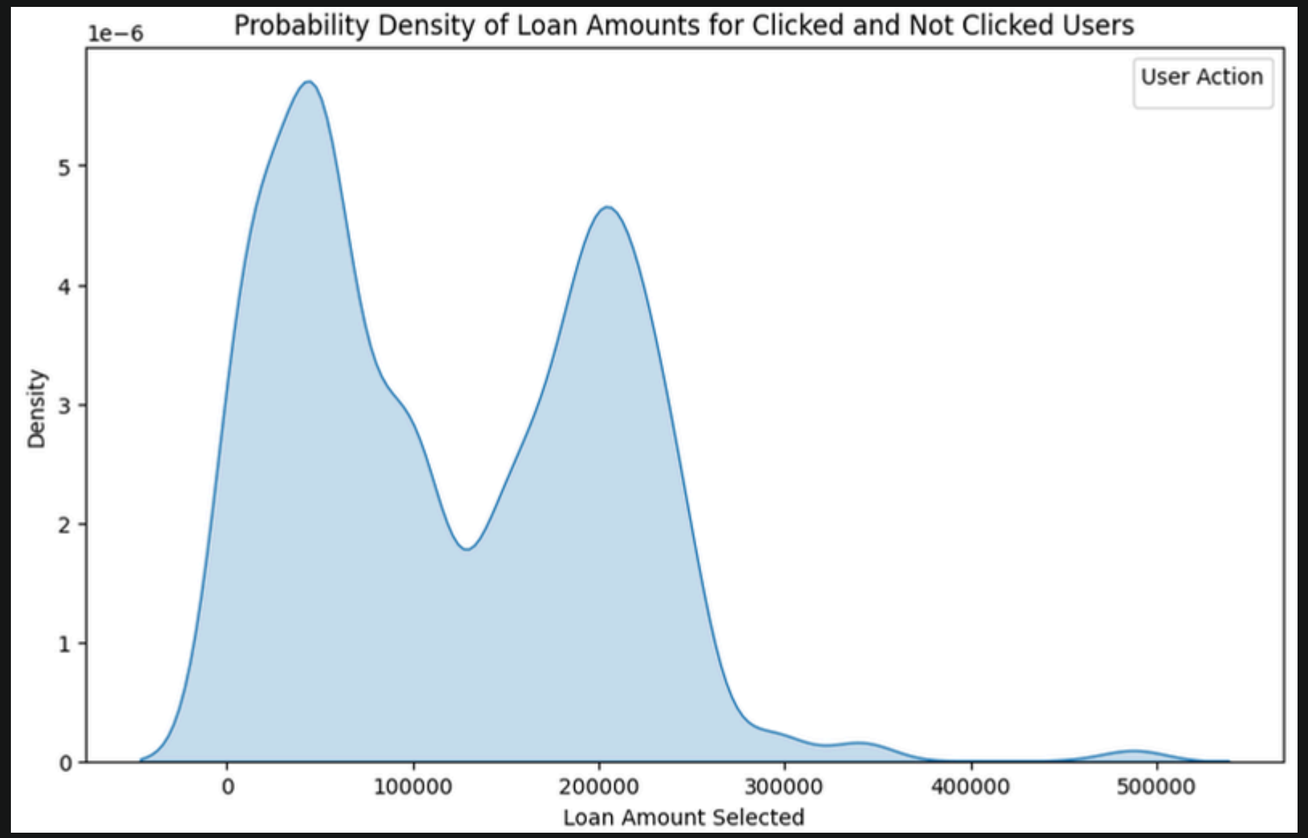
Conversion

$$\text{Conversion Percentage} = \frac{\text{Number of people who clicked continue}}{\text{Total number of unique users}} \times 100$$



Conversion

Trends Based on Loan Amount



Observations

The KDE plot of users who clicked 'continue' exhibits a bimodal distribution with two distinct peaks in the selected loan amounts which means there are two common ranges of loan amounts being selected.

The first peak around lower loan amounts may indicates those seeking smaller loan amounts for immediate needs.

The second peak around higher loan amounts suggests a group of users with larger financial needs

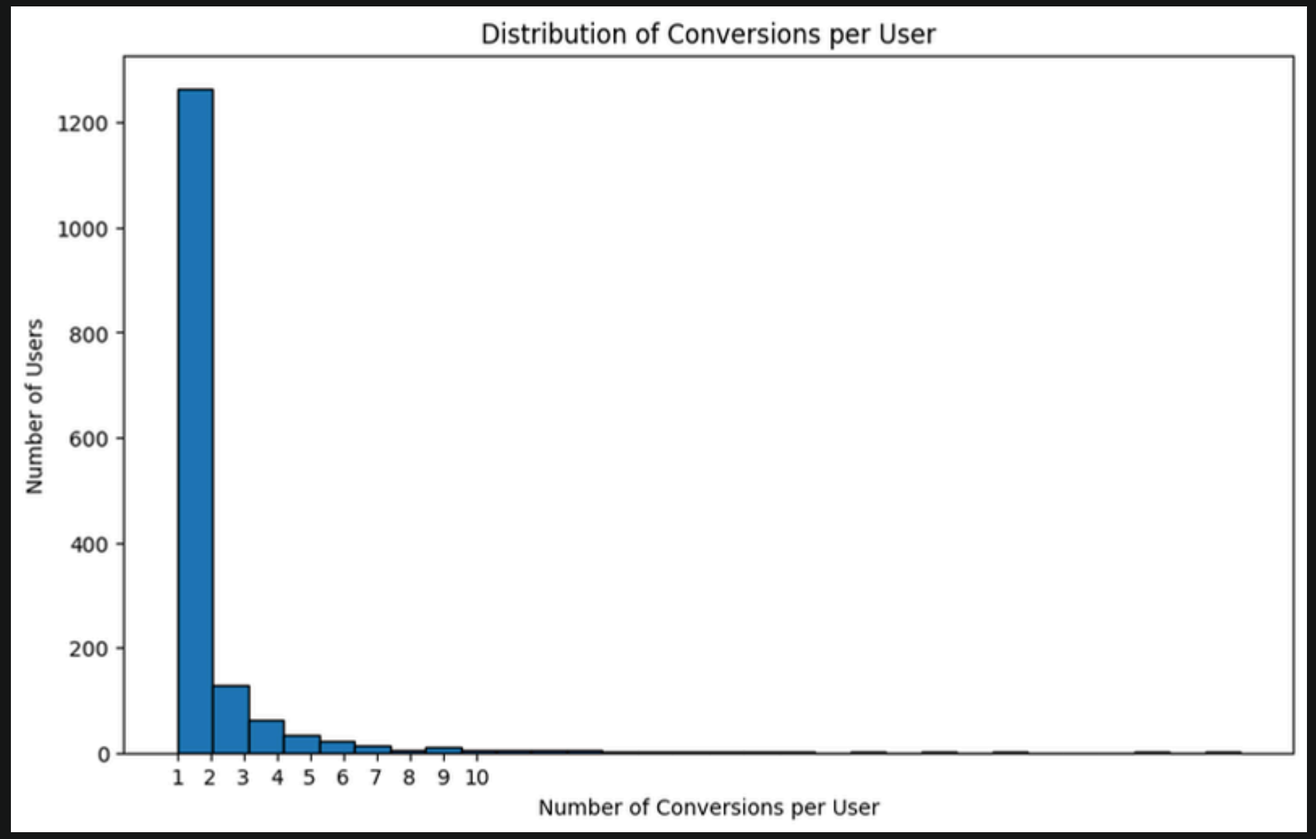
What to do from this data ?

W can now segment these users and run targetd marketing campaigns

We can help or recommend the users some pre defined loan amounts based on thi data and using ML models

Conversion

Trends Based on number of conversions per user



Observations

The Histogram shows that majority of the users are converted 1- 2 times indicating potential drop-offs after one interaction

Number of customers who use the screen more than once is 24.5 % of the total unique users

It was observed 88 users used the need help feature out of which only 2 where those who were multiple users

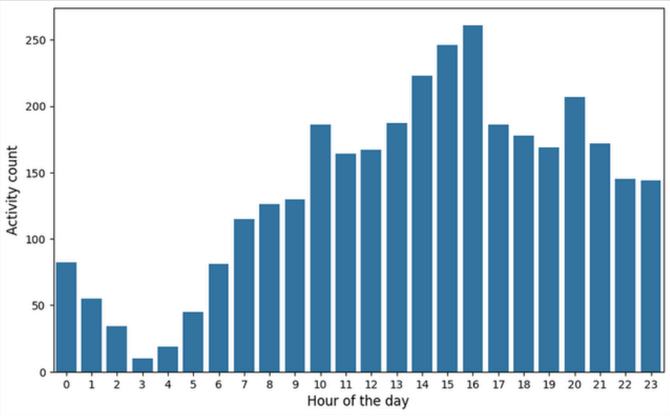
What to do from this data ?

W can now segment these users into one time users and recurring users and could educate and target the users who did note comeback to this screen

We can Explore if there are any specific reasons for churn after an initial conversion.

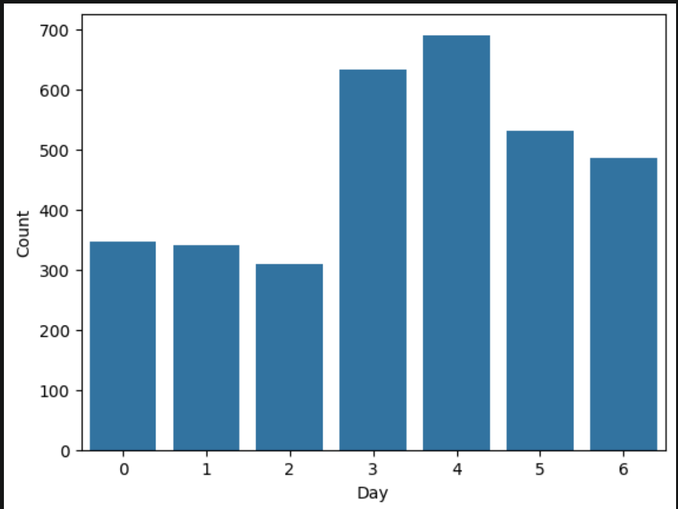
Conversion

Trends Based on Time



Hourly Conversion Patterns

Analyzing conversion rates on an hourly basis to identify peak times when users are most likely to complete the loan application process – Observed that highest conversions from 2-6 PM



Day Wise Conversion Patterns

Examining how conversion rates fluctuate on different days of the week to uncover trends in user behavior

It was observed that Wedesdays and Thursdays are the busiest days in terms of loan conversion

What to do from this data ?

Ensure customer support is readily available during peak conversion hours.

Schedule product updates and promotional efforts on high conversion days to maximize impact.

Continuously monitor these trends to quickly adapt to changes and optimize user conversion strategies.

Metrics Calculated

2 Median time taken in seconds to convert (For the first time)

```
df['timestamp'] = pd.to_datetime(df['timestamp'])
continue_session_id = df[df['event_name'] == 'continue_clicked'].session_id.unique()
df1  = df.groupby('session_id')['timestamp'].min().reset_index()
end_t = df[df['event_name'] == 'continue_clicked'].groupby('session_id')['timestamp'].min().reset_index()
start_time = df1[df1['session_id'].isin(continue_session_id)]
start_time.rename(columns={'timestamp': 'start_timestamp'}, inplace=True)
end_t.rename(columns={'timestamp': 'end_timestamp'}, inplace=True)
merged_df = pd.merge(start_time, end_t, on='session_id', how='inner')
merged_df['start_timestamp'] = pd.to_datetime(merged_df['start_timestamp'])
merged_df['end_timestamp'] = pd.to_datetime(merged_df['end_timestamp'])
merged_df['time_diff'] = merged_df['end_timestamp'] - merged_df['start_timestamp']
time_diff_seconds = merged_df['time_diff'].dt.total_seconds().astype(int)
time_diff_seconds.median()
```

```
<ipython-input-77-3813371d05c5>:6: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  start_time.rename(columns={'timestamp': 'start_timestamp'}, inplace=True)
9.0
```

9

Seconds

Observations & Insights

Understanding the time users take to make a decision can help identify if the process is intuitive or if users need more time to understand their options.

Metrics Calculated

3 Median amount selected when a user converts(For the first time)

```
amount = df[df['event_name'] == 'continue_clicked'].groupby('session_id')['timestamp'].min().reset_index()
filtered_df = df.merge(amount, on=['session_id', 'timestamp'], how='inner')
median_amount = filtered_df[filtered_df['event_name'] == 'continue_clicked']['selected_amount'].median()
median_amount
```

```
146250.0
```

1,46,250

Loan Amount

Observations & Insights

The median loan amount selected by users at their first conversion is 146250, indicating that half of the users choose a loan amount below this and the other half choose above, this number would help the company to make changes / alter the loan products and would be able to make strategies to target different user segments with personalization

This median loan amounts can also indicates which type of loans are more prevelant based on whihc we can make personalized recommendations and offers to our user

The median amount selected can provide insights into the risk appetite of new users. A higher median amount may indicate a segment willing to take on more debt, which could prompt the company to review its risk assessment processes and adjust lending criteria accordingly

Metrics Calculated

Additional Metrics

Time taken to convert after clicking need help

1. The time taken from the need_help_clicked event to the continue_clicked event.
2. It assesses the efficiency of customer support and how quickly user issues are resolved, impacting overall user satisfaction

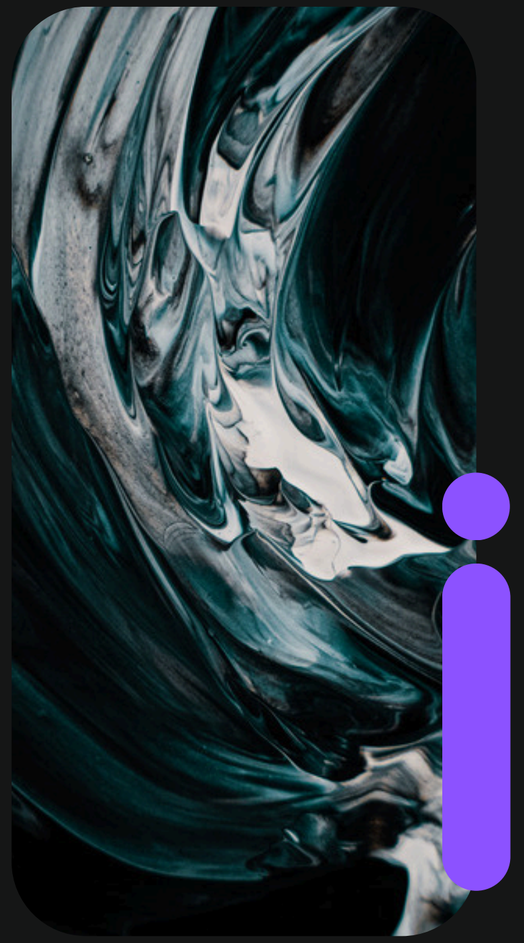
Number of slider movements before conversion.

1. The average number of slider movements before clicking continue.
2. High indecisiveness may indicate that users are struggling to decide on the loan amount, suggesting the need for better guidance or clearer information.

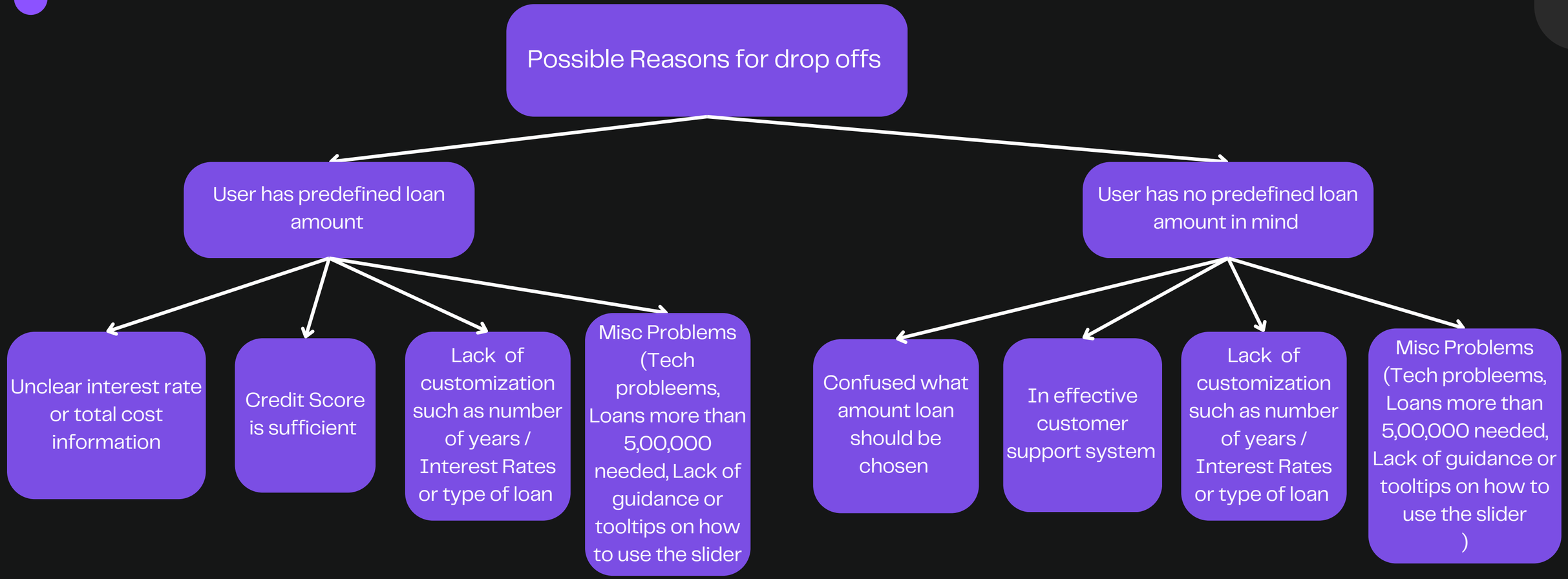
Mean Time Spent on Screen by Non-Converters

1. Understanding the behavior of users who do not convert can provide insights into potential issues or improvements needed on the screen.
2. The mean time spent on the screen by non-converters is 31 seconds.
3. The mean time spent on the screen by converters is 147 seconds

Possible Improvements in Drop Offs



Possible Reasons in Drop Offs



Areas to Improve

- Lack of complete information
- Improvement in Customer Support
- Improvement in Personalization and trust

Possible Improvements in Drop Offs

Lack of complete information

Users often lack detailed information about loan terms, interest rates, lack of personalization and repayment plans while selecting the loan amount. This can create uncertainty and hesitation, leading to drop-offs.

How to track this –

a. We can analyze the queries which are asked to the customer support team which would help us understand what exactly does a user need while selecting the loan amount

b. Indecisive while selecting the amount which can be calcaulated as the average number of times slider moved before clicking continue option. This came out to be 4 per session which could indicate indecisiveness amongst the users

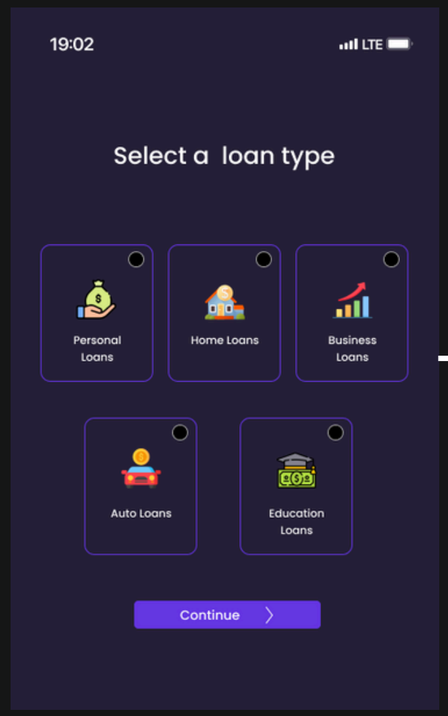
c. Monitor the average time users spend on the loan amount selection screen.

How to improve this –

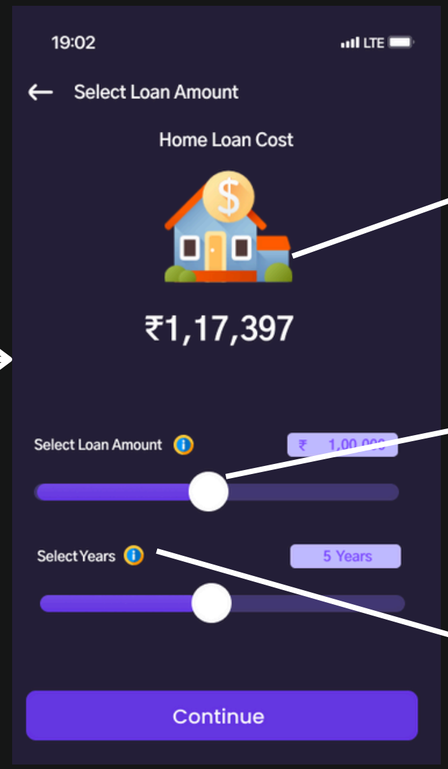
1. **My assumption here is that it would be more user friendly to show the total cost of loan for user as deciding the loan amount is easy with all parameters in front of you.**
2. **I am assuming this is the first screen, if my assumption is correct to improve the user expereince we can before this screen ask for type of loans which would help us fix an interest range.**
3. **The new screen would contain loan amount a fixed interest rate and amount of time as in put which would give an estimated cost of the loan**

Possible Improvements in Drop Offs

Lack of complete information UI Screens



Users chooses from a loan option



Gives Clear Cost of Loan which helps to decide loan amount

Can select Loan amount and years from these interactive sliders

Tool tips to educate the users about the terms and help them make a wise decision wee can also add recommended loan amount and years and make it more personalized

Possible Improvements in Drop Offs

Improvement in Customer Support

Many users may have questions or face issues while selecting loan amounts but find it difficult to get timely and effective support. This can lead to frustration and increased drop-off rates.

How to track this –

a. Track the number of users who click on "Need Help?" which came out to be 77 users (30% of the unique users)
b. It was observed that majority of the users who clicked need help did not go on to become recurring users which may indicate problems with the customer support /poor user experience
b. Measure response times and resolution rates for customer support interactions.
c. Collect feedback on customer support effectiveness through post-interaction surveys.

How to improve this –

1. **Implement a live chatbot feature to provide instant support.**
2. **Introduce a comprehensive FAQ section addressing common questions and issues.**
3. **Have regular audits of the customer support team**
4. **Analyze the specific reasons or queries that prompted users to seek help, and assess if the support provided effectively resolved those issues.**
5. **Conduct user feedback surveys or interviews with users who clicked "need help" but did not convert multiple times to understand their pain points and reasons for not returning.**

Possible Improvements in Drop Offs

Improvement in Personalization and trust

Lack of personalized recommendations can make users feel the product is not tailored to their needs.. Users may not know the best loan amount to select based on their financial situation

How to track this –

a. Track user behavior and preferences over time for eg we calcualted the median amount of loan of converted users from which we can personalize the whole experience

b. Measure the impact of personalized recommendations on conversion rates.

c. Collect feedback on the relevance and usefulness of personalized suggestions.

d. Analyze drop-off rates and user behavior during sensitive information collection stages.

How to improve this –

1. **Implement algorithms to offer personalized loan amount suggestions based on user data.**
2. **Provide personalized content and tips on the loan selection screen.**
3. **Use AI to predict and recommend optimal loan amounts for different user segments.**
4. **Implement robust data security measures and obtain relevant certifications or accreditations.**
5. **Also we can take some inspirations from compeetitiors all over the world to improve our user experience**

Thank you