



TERM PAPER FINAL PRESENTATION

SWE 4701: Software Metrics and Process

PRESENTED BY

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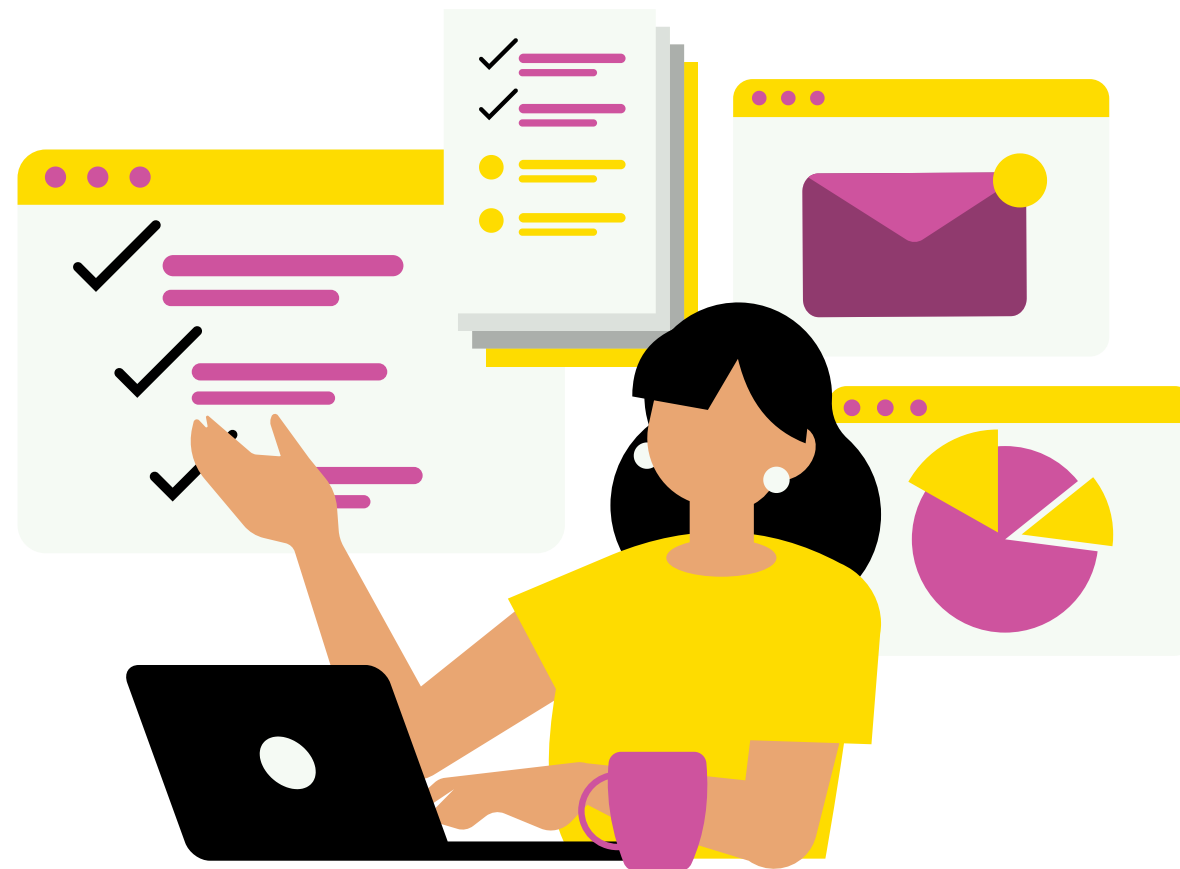
Result and Analysis



A COMPREHENSIVE ANALYSIS OF UI/UX METRICS FOR BANGLADESHI E-COMMERCE MOBILE APPLICATIONS



PROBLEM STATEMENT



Why an analysis on Bangladeshi E-commerce applications?

Context

Amidst Bangladesh's e-commerce surge, many Bangladeshi e-commerce apps stumble due to clunky user interfaces and frustrating user experiences. This paper tackles these critical bottlenecks, identifying key metrics and optimal UI/UX practices to forge Bangladeshi e-commerce apps.

Gap

While UI/UX best practices exist globally, there is a lack of data and insights tailored to the specific needs and preferences of Bangladeshi E-commerce mobile users. This knowledge gap hinders e-commerce app developers and designers from optimizing their platforms for maximum user engagement and usability.

Significance

The findings of this research will provide valuable insights to e-commerce app developers, designers, and marketers in Bangladesh. By understanding the key UI/UX metrics that drive user engagement and usability, they can optimize their platforms to cater to the specific needs and preferences of Bangladeshi mobile users.

LITERATURE REVIEW

1. The Comparison of Evaluation on User Experience and Usability of Mobile Banking Applications Using User Experience Questionnaire and System Usability Scale

- Investigates UX and usability of four Indonesian mobile banking apps
- Utilizes User Experience Questionnaire (UEQ) and System Usability Scale (SUS)
- Positive outcomes indicate user acceptance of applications' usability

LITERATURE REVIEW

2. Sentiment Analysis of Restaurant Reviews from Bangladeshi Food Delivery Apps

- Conducted sentiment analysis on reviews from Bangladeshi food delivery apps
- Utilized NLP techniques and models including RoBERTa, AFINN, and DistilBERT
- Revealed insights into the importance of sentiment analysis in the food delivery industry with model accuracies of 74%, 73%, and 77% for RoBERTa, AFINN, and DistilBERT, respectively.

LITERATURE REVIEW

3. Aspect Based Sentiment Analysis

- Addresses the challenge of understanding reviews beyond subjective scores on the rise of review websites.
- Proposes a framework using a CNN model, clustering, and sentiment analysis to decompose review scores into various aspects.
- Aims to enhance consumer decision-making and assist businesses in reputation monitoring by providing individual scores for specific entities and their aspects.

DATASET

[Back to Content](#)

Ecommerce apps Reviews (Annotated)																
File Edit View Insert Format Data Tools Extensions Help																
Menus 100% 123 Calibri 11 B I T A 123																
A1	reviewid															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N		
1	reviewid	userName	userImage	content	score	thumbsUpCount	reviewCreatedVersion	at	replyContent	repliedAt	appVersion	userEngagement	Usability	translatedContent	processedContent	
2	4bd2f769-213e-4ef0-9d1d-30 Kawisar Munshi	https://play-lh.googleusercontent.com/...	OCT দারাজ থেকে বাউপার সেন্দারগুলো অনেকবার ঠ	5	8	7.6.0	#####	7.6.0	0	Positive	I bought a lot of goods	0	Positive	I bought a lot of		
3	02a9b301-41fe-4087-9a4c-c8 Husna Hena Husna Hena	https://play-lh.googleusercontent.com/...	ভাল	5	3	7.6.0	#####	7.6.0	0	Positive	Good	0	Positive	Good		
4	708b7159-77fe-455c-8c40-6c Fawzia Khatun	https://play-lh.googleusercontent.com/...	মাইস অ্যাপ।	2	0		#####		0	Negative	Nice app.	0	Negative	Nice app.		
5	02cc7510-b3f5-4283-8730-e6 Babul Mia	https://play-lh.googleusercontent.com/...	♥♥♥	4	0		#####		0	Positive	♥	0	Positive	♥		
6	a707bd3c-9f40-42b5-9f95-b2 Etabul haque	https://play-lh.googleusercontent.com/...	Good apps	5	0		#####		0	Positive	Good apps	0	Positive	Good apps		
7	e8893d86-5120-421e-a43a-2f Md Nurul haq	https://play-lh.googleusercontent.com/...	ভালো না বেরকম অর্ডার কেরকম হয়নি	1	0		#####		0	Negative	Not good	0	Negative	Not good		
8	515e2273-a858-483c-b0de-3f Abu Bikkor Badhon	https://play-lh.googleusercontent.com/...	Good app	5	0		#####		0	Positive	Good app	0	Positive	Good app		
9	7954ff00-56ec-4c4a-9285-ea4 mddelower hassan	https://play-lh.googleusercontent.com/...	Daraz app open problem why দারাজ এপ ওপেন হয়	5	18	7.5.3	#####	7.5.3	0	Positive	Daraz App Open Probler Daraz App Oper	0	Positive	Daraz App Open Probler Daraz App Oper		
10	73742a83-57ac-4b29-9d8d-8f Nur Alom	https://play-lh.googleusercontent.com/...	ভালো	1	0	7.0.2	#####	7.0.2	0	Negative	Good	0	Negative	Good		
11	b3a5fd17-0750-4727-bfc5-3cc Md Zillur Rahman	https://play-lh.googleusercontent.com/...	কম্বান্দ	5	0		#####		0	Positive	Thank you	0	Positive	Thank you		
12	c1054186-e63b-4582-adca-a7 MD SOHAN MATUBBER MATUI	https://play-lh.googleusercontent.com/...	you	4	13	7.5.3	#####	7.5.3	0	Positive	you	0	Positive	you		
13	14464e36-37eb-466a-a5cf-fff Gaming YouTuber Subscribe em	https://play-lh.googleusercontent.com/...	এত ভালো যে আপনারা খাবেন পারবেন	1	0		#####		0	Negative	So good that you can ea	0	Negative	So good that you		
14	128ec8a7-274e-4898-82de-5d MD Shrabon Hossin	https://play-lh.googleusercontent.com/...	Bano	5	0		#####		0	Positive	Bano	0	Positive	Bano		
15	e6eb854a-e98c-4519-b1d0-af Anfulgh03	https://play-lh.googleusercontent.com/...	Good	1	0		#####		0	Negative	Good	0	Negative	Good		
16	6335da17-d1b6-4a92-8062-cf Saharian Sarkar	https://play-lh.googleusercontent.com/...	আমি ভালো জিনিস পাই নি। কিনেছিলাম ওয়াটারপ্রস	1	0	6.0.1	#####	6.0.1	0	Negative	I didn't get a good thing	0	Negative	I didn't get a goc		
17	c2e28d74-2d10-4f1c-93cd-5d MD. Al mamun Sardar	https://play-lh.googleusercontent.com/...	Nice app	5	0		#####		0	Positive	Nice app	0	Positive	Nice app		
18	98fe4fff-8a6b-480e-a97e-963f Md Fokrul	https://play-lh.googleusercontent.com/...	খুব	2	0	7.4.2	#####	7.4.2	0	Negative	Will	0	Negative	Will		
19	566c6225-2dbb-4d7f-930c-aa Md Rashed	https://play-lh.googleusercontent.com/...	Amader ekhane Darazer bortoman Rider ta biyadob	1	3	7.5.0	#####	7.5.0	0	Negative	Amader Ekhane Darazer Amader Ekhane	0	Negative	Amader Ekhane Darazer Amader Ekhane		
20	0eabe5d7-e81a-47f8-9274-92 Abu bakkar Shardhar	https://play-lh.googleusercontent.com/...	Nice	5	0		#####		0	Positive	Nice	0	Positive	Nice		
21	2204a5a1-0f04-4d2b-9f94-8e Mb Ovi	https://play-lh.googleusercontent.com/...	Good	5	0		#####		0	Positive	Good	0	Positive	Good		
22	94cc16d7-111d-4b85-97b1-2f Jakir ahmed	https://play-lh.googleusercontent.com/...	ভাল। অশা করছি আরো সার্ভিস দিবেনা	2	0		#####		0	Negative	Well Hopefully more Set Well Hopenuty n	0	Negative	Well Hopefully more Set Well Hopenuty n		
23	1b1b1b3f-815d-4469-a025-3e Hafez Alamin	https://play-lh.googleusercontent.com/...	খুব	1	0		#####		0	Negative	Is	0	Negative	Is		
24	7cf25064-afe1-4c7c-9e19-73c MDALAMIN MIA	https://play-lh.googleusercontent.com/...	ভালো	5	0	7.4.0	#####	7.4.0	0	Positive	Good	0	Positive	Good		
25	7e3f5f83-1f4e-4e7a-1901-05 TONIM HOSSAIN	https://play-lh.googleusercontent.com/...	Nice	5	0	7.5.0	#####	7.5.0	0	Positive	Nice	0	Positive	Nice		
26	85e2d7c8-5b4a-4863-8043-6f TRRM KING	https://play-lh.googleusercontent.com/...	Good ap	5	0	7.5.0	#####	7.5.0	1	Positive	Good ap	0	Positive	Good ap		
27	81db1184-259b-4738-a145-0f Reajul Fokir (Reajul fokr)	https://play-lh.googleusercontent.com/...	রিজাল ফকির, নাম্বার ০১৯০৭৭৮০২০০ উপজেলা।	5	8	7.5.0	#####	7.5.0	0	Positive	Riazul Fakir, Number 12: Riazul Fakir, Nui	0	Positive	Riazul Fakir, Number 12: Riazul Fakir, Nui		
28	5e752ffe-7b06-4414-a9ed-d8 Anif Billah	https://play-lh.googleusercontent.com/...	ম-তে দারাজ আর ধ-তে বেকা সুকরাং দারাজের সাথে	1	44	7.5.0	#####	7.5.0	0	Negative	Daraj and Dho Dho Dho Daraj and Dho C	0	Negative	Daraj and Dho Dho Dho Daraj and Dho C		
29	83051c50-3a59-4990-9349-ce Roksana Roksana	https://play-lh.googleusercontent.com/...	খোঁজা অর্ডার করছি সেটা	5	0	7.4.2	#####	7.4.2	0	Positive	That is what I am ordeni That is what I an	0	Positive	That is what I am ordeni That is what I an		
30	e9a5984f-d455-4320-b5b3-38 Md haider ali Ali	https://play-lh.googleusercontent.com/...	ভালো	2	0		#####		0	Negative	Good	0	Negative	Good		
31	2cc1ad05-dcb5-42f2-8f50-3f4 Asim dash	https://play-lh.googleusercontent.com/...	অনেক ভালো	5	0	7.4.2	#####	7.4.2	0	Positive	Much better	0	Positive	Much better		
32	7663c963-9516-49fe-8b63-6c Md Ismail hosen Nahid	https://play-lh.googleusercontent.com/...	good	5	0	7.4.2	#####	7.4.2	0	Positive	good	0	Positive	good		

Bangladesh e-commerce mobile application user experience survey (Responses)																
File Edit View Insert Format Data Tools Extensions Help																
Menus 100% 123 Default 10 B I T A 123																
A1	Timestamp															
	A	B	C	D	E	F	G	H	I	J	K	L	M			
1	Timestamp	Email Address	Gender	Age	Profession	Have you used Daraz?	How easy is it for you to i	How easy is it to underst	How would you rate the c	How satisfied are you wit	To what extent do you fin	To what extent does the i	How satisfied are you wit	Ho		
2	12/30/2023 12:34:55	hellobars19@gmail.com	Female	21 - 30 years	Student	Yes	5	4	4	5	4	5	3			
3	12/30/2023 13:26:25	ayeshahafroza@gmail.com	Female	21 - 30 years	Student	No										
4	12/30/2023 13:27:03	kanizfatma144@gmail.co	Female	21 - 30 years	Student	Yes	3	4	4	4	3	4	4			
5	12/30/2023 13:27:30	naimulhaque@ut-dhaka.	Male	21 - 30 years	Student	Yes	3	5	4	3	3	3	2			
6	12/30/2023 13:27:45	annesha190041220@gm	Female	21 - 30 years	Student	Yes	2	3	3	2	2	5	5			
7	12/30/2023 13:28:06	abunoman0026@gmail.c	Male	21 - 30 years	Student	Yes	3	3	3	2	2	2	2			
8	12/30/2023 13:28:16	multadri@ut-dhaka.edu	Male	21 - 30 years	Student	No										
9	12/30/2023 13:29:59	nacisam@ut-dhaka.ec	Female	21 - 30 years	Student	Yes	4	3	4	3	2	3	2			
10	12/30/2023 13:31:10	azmayentayer@ut-dhak	Male	21 - 30 years	Student	Yes	4	3	4	4	3	4	3			
11	12/30/2023 13:31:25	nifah567@gmail.com	Female	21 - 30 years	Student	No										
12	12/30/2023 13:35:58	labiba02adiba@gmail.co	Female	21 - 30 years	Student	Yes	4	4	5	4	3	3	4			
13	12/30/2023 13:36:15	shantamaria@ut-dhaka.i	Female	21 - 30 years	Student	Yes	4	3	4	5	2	4	1			
14	12/30/2023 13:38:07	ahnataki@ut-dhaka.edi	Male	21 - 30 years	Student	Yes	4	3	4	4	3	4	4			
15	12/30/2023 13:43:38	sabrinasiyam22@ut-dhai	Female	21 - 30 years	Office worker / Freelance	Yes	4	4	4	4	3	3	3			
16	12/30/2023 13:46:59	navidhasin@ut-dhaka.ec	Male	21 - 30 years	Student	Yes	4	3	4	3	3	4	3			
17	12/30/2023 13:52:30	surajya.hasan2001@gm	Female	21 - 30 years	Student	Yes	5	4	5	4	3	4	4			
18	12/30/2023 14:00:55	chymd.abdulrah@gm	Male	21 - 30 years	Office worker / Freelance	Yes	4	3	5	3	2	3	2			
19	12/30/2023 14:07:11	sampadrisider4@gmail.	Male	21 - 30 years	Student	Yes	4	2	3	2	2	2	2			
20	12/30/2023 14:07:11	mumtahina29@ut-dhaka	Female	21 - 30 years	Student	Yes	4	4	5	4	3	4	4			
21	12/30/2023 14:17:46	noimulhasan@ut-dhaka	Male	21 - 30 years	Student	Yes	4	3	3	2	3	4	3			
22	12/30/2023 14:42:43	190041130tafir@gmail.c	Male	21 - 30 years	Student	Yes	4	4	5	3	2	3	2			
23	12/30/2023 14:49:55	anikatahin3@ut-dhaka.	Female	21 - 30 years	Student	Yes	2	2	3	2	2	2	2			
24	12/30/2023 16:36:44	sadikyasin@ut-dhaka.ed	Male	21 - 30 years	Student	Yes	4	3	4	3	2	3	3			
25	12/30/2023 19:10:27	afripoush2000@gmail.c	Female	21 - 30 years	Student	Yes	4	3	4	2	2	2	2			
26	12/30/2023 20:15:39	nahidaakter@ut-dhaka.e	Female	21 - 30 years	Student	Yes	2	4	2	3	1	1	1			
27	12/30/2023 21:40:17	raefestasia@gmail.com	Male	21 - 30 years	Office worker / Freelance	Yes	5	5	5	3	4	4	5			
28	12/30/2023 22:08:47	taimu11tan@gmail.com	Male	21 - 30 years	Student	Yes	4	4	3	2	2	2	2			
29	12/30/2023 23:56:51	ehsanurrahman.rhythm	Male	21 - 30 years	Student	Yes	4	4	5	2	4	1	1			
30	12/30/2023 23:57:51	mdrafidreaz@gmail.com	Female	40+ years	Unemployed	Yes	5	1	3	3	4	5	2			
31	12/31/2023 19:54:17	maisha.binte.monowar	Female	21 - 30 years	Student	Yes	5	4	5	4	3	4	4			
32	12/31/2023 20:12:58	tasfatairuz26@gmail.co	Female	21 - 30 years	Student	Yes	3	2	3	2	3	3	3			
33	12/31/2023 20:20:09	sadman.sakibda@gmail	Male	21 - 30 years	Student	Yes	4	3	4	4	3	4	4			
34	12/31/2023 20:26:44	anika.cse.200104122@a	Female	21 - 30 years	Student	Yes	4	3	4	3	2	2	2			
35	1/1/2024 1:06:08	shadmansakib20@ut-dh	Male	21 - 30 years	Student	Yes	4	2	3	1	2	3	1			

Annotated Reviews Dataset

The dataset links are as follows:

- [1. Annotated Reviews Dataset](#)
- [2. Survey Responses Dataset](#)

Survey Responses Dataset

METHODOLOGY

Survey

- We collected a survey of 43 people based on UI/UX metrics
- UEQ was set based on four different Bangladeshi e-commerce application
- Data was analyzed through data visualization and average usability, user engagement, responsiveness and visual aesthetics was measured comparatively.

Reviews Web scraping

- Using web scraping, Google play store reviews were extracted as a dataset for the four platforms Daraz, Chaldal, Rokomari and Bikroy
- Data was preprocessed to remove noise
- User engagement and usability was measured based on platform replies to concern and overall rating of the application

Sentiment Analysis

- Our preprocessing pipeline in Pandas cleaned, standardized, and homogenized the dataset: addressing errors, normalizing text, and translating/transliterating Bangla reviews.
- Two pre-trained NLP models DistilBERT and RoBERTa were used for sentiment analysis of the extracted reviews
- We evaluated performance using accuracy, precision, F1-score, and recall.

SURVEY

Education user experience survey

QuestionsResponses49Settings

Section 1 of 9

Bangladesh E-commerce User Experience Survey

Applications

Dear participants,

Thank you for taking the time to participate in our survey! Your valuable feedback will contribute to our research on the user interface (UI) and user experience (UX) metrics of e-commerce mobile applications.

Description:

This survey aims to gather insights into your experiences with e-commerce mobile applications. We are particularly interested in four key metrics: usability, responsiveness, visual aesthetics, and user engagement. Your honest opinions will help us understand how these aspects impact your overall satisfaction and engagement when using e-commerce apps.

Instructions:

Please answer each question based on your personal experiences.

Use the Likert scale provided for each question, where 1 indicates the lowest level and 5 the highest level.

Feel free to provide additional comments or suggestions at the end of the survey.

Your input is crucial in enhancing the design and functionality of e-commerce mobile applications. Thank you for being a part of our research!

Best Regards,

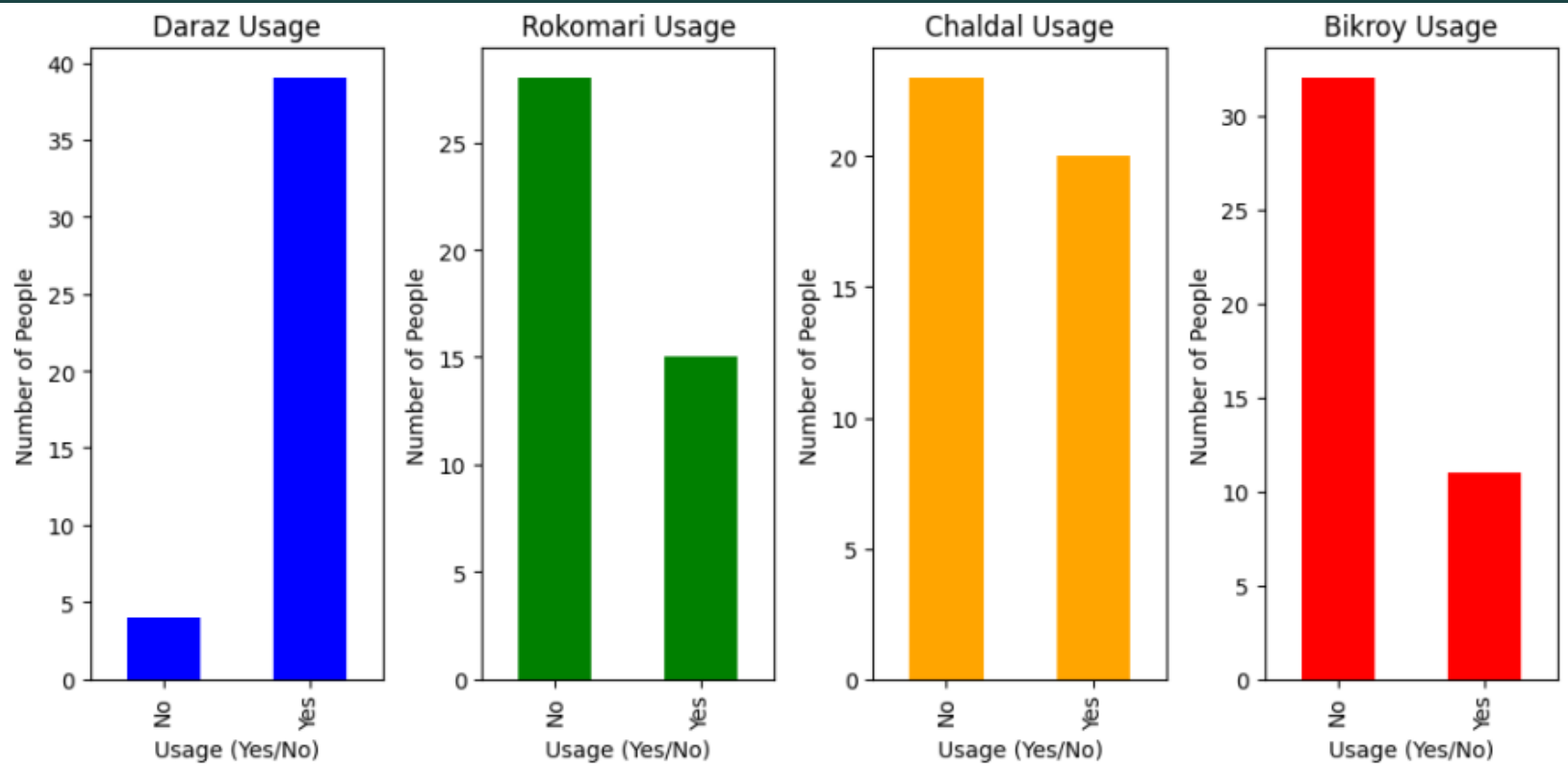
Suraiya Hasan (suraiyahasana@iut-dhaka.edu)

Tasfia Barshat (tasfiabarshat@iut-dhaka.edu)

E-commerce Users Survey

1. How easy is it for you to navigate through different sections of the app?
2. How easy is it to understand the information about products on these pages?
3. How would you rate the checkout process in terms of simplicity and efficiency?
4. How satisfied are you with the responsiveness of the app to your actions?
5. To what extent do you find the app visually appealing?
6. To what extent does the app's design align with your expectations as an e-commerce user?
7. How satisfied are you with the visual organization and categorization of products on the app?
8. How likely are you to recommend this e-commerce app based on your overall user experience?
9. To what extent does the app provide a personalized and tailored shopping experience for you?
10. How likely are you to revisit and use the app for future purchases?
11. How satisfied are you with the customer support features provided within the app?
12. How satisfied are you with the security measures implemented in the app, especially during the checkout process?
13. How would you rate the overall application?

User Experience Questionnaire (UEQ)



E-commerce Users Usage

REVIEWS WEB SCRAPING

PlayStoreReviews.ipynb

File Edit View Insert Runtime Tools Help Last edited on January 7

Comment Share

Connect Colab AI

+ Code + Text

```
df_daraz = pd.DataFrame(np.array(daraz_reviews),columns=['review'])

df_daraz = df_daraz.join(pd.DataFrame(df_daraz.pop('review').tolist()))

df_daraz.head()

# df_daraz.to_excel('daraz_reviews.xlsx', index=False)
```


	reviewId	userName	userImage	content	score	thumbsUpCount	reviewCreatedVersion	at	replyContent	repliedAt	appVersion
0	0eeb80b8-c168-43e2-bf43-fa170e339b83	Md Joy	https://play-lh.googleusercontent.com/a/ACg8oc...	Uff nice app	5	0	None	2024-01-06 10:10:45	None	NaT	None
1	4bd2f769-213e-4ef0-9d1d-30ed519649e3	Kawsar Munshi	https://play-lh.googleusercontent.com/a-/ALV-U...	Dতে দারাজ Bতে বাটপার Sসেলারগুলো অনেকবার ঠকেছে ...	5	16	7.6.0	2023-12-31 16:00:50	None	NaT	7.6.0
2	02a9b301-41fe-4087-9a4c-c8e5ea5474a0	Husna Hena Husna Hena	https://play-lh.googleusercontent.com/a/ACg8oc...	ভাল	5	7	7.6.0	2023-12-31 14:01:37	None	NaT	7.6.0
3	7b8b7159-77ea-455c-8c40-6c76f88752cc	Fawzia Khatun	https://play-lh.googleusercontent.com/a-/ALV-U...	নাইস অ্যাপ।	2	0	None	2023-12-29 15:46:12	None	NaT	None
4	02cc7510-b3f5-4283-8730-e6763c2aeeda	Babul Mia	https://play-lh.googleusercontent.com/a/ACg8oc...	❤️❤️	4	0	None	2023-12-27 06:40:25	None	NaT	None

Chaldal






```
[ ] from google_play_scraper import Sort, reviews_all

chaldal_reviews = reviews_all(
    'com.chaldal.poached',
    lang='en', # defaults to 'en'
    country='us', # defaults to 'us'
    sort=Sort.NEWEST, # defaults to Sort.MOST_RELEVANT
    sleep_milliseconds=500 # Adjust delay as needed
)
```

SENTIMENT ANALYSIS

 Daraz Reviews Sentiment Analysis ☆

File Edit View Insert Runtime Tools Help [Last edited on January 7](#)



+ Code + Text

	Usability	processedContent
2	Negative	Nice app.
8	Negative	Good
11	Negative	So good that you can eat
13	Negative	Good
16	Negative	Will
...
3398	Neutral	Okay
3415	Neutral	Sexy sexy vf
3418	Negative	The video is well going
3421	Negative	Cheekpot
3429	Neutral	Like

[383 rows x 8 columns]

```
[ ] recall_neg_reviews = neg_reviews[neg_reviews.score >3]
distilbert_recall = (neg_reviews.shape[0] + pos_reviews.shape[0])/(recall_neg_reviews.shape[0]+(neg_reviews.shape[0] + pos_reviews.shape[0]))
```

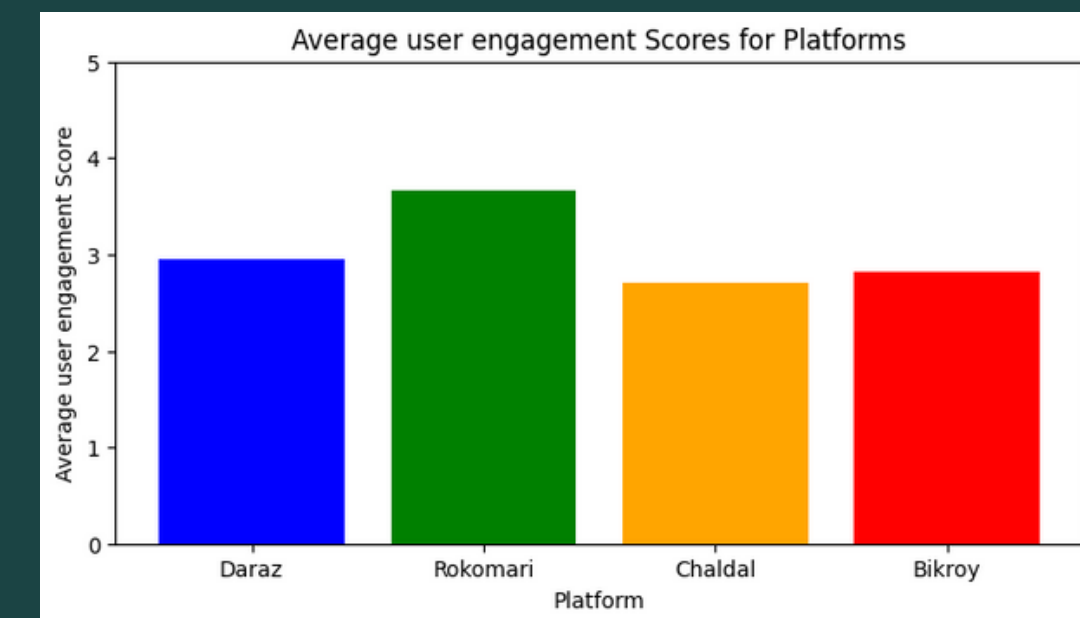
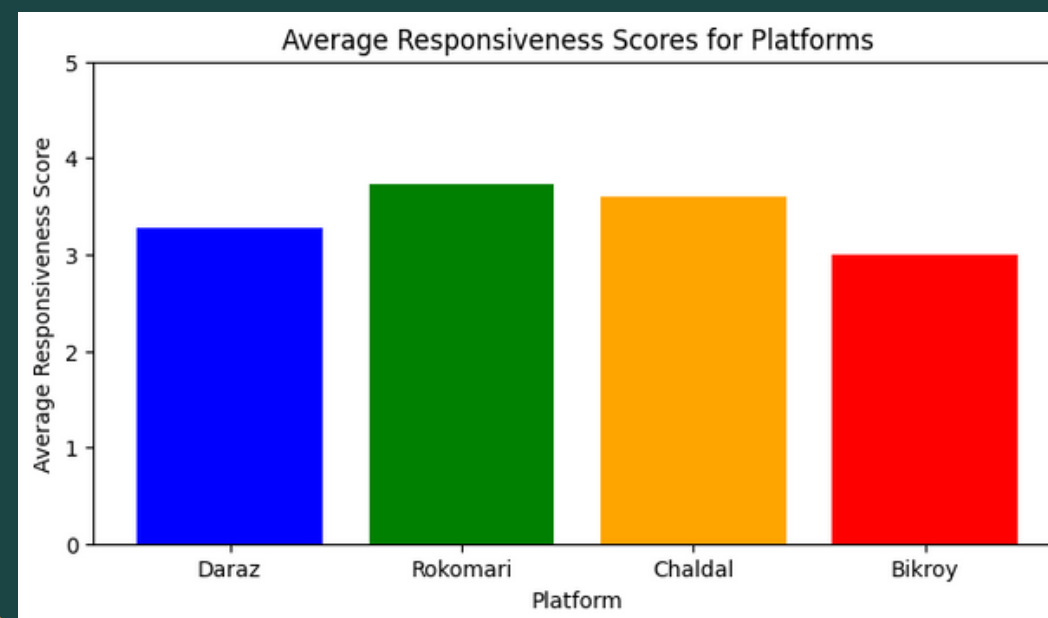
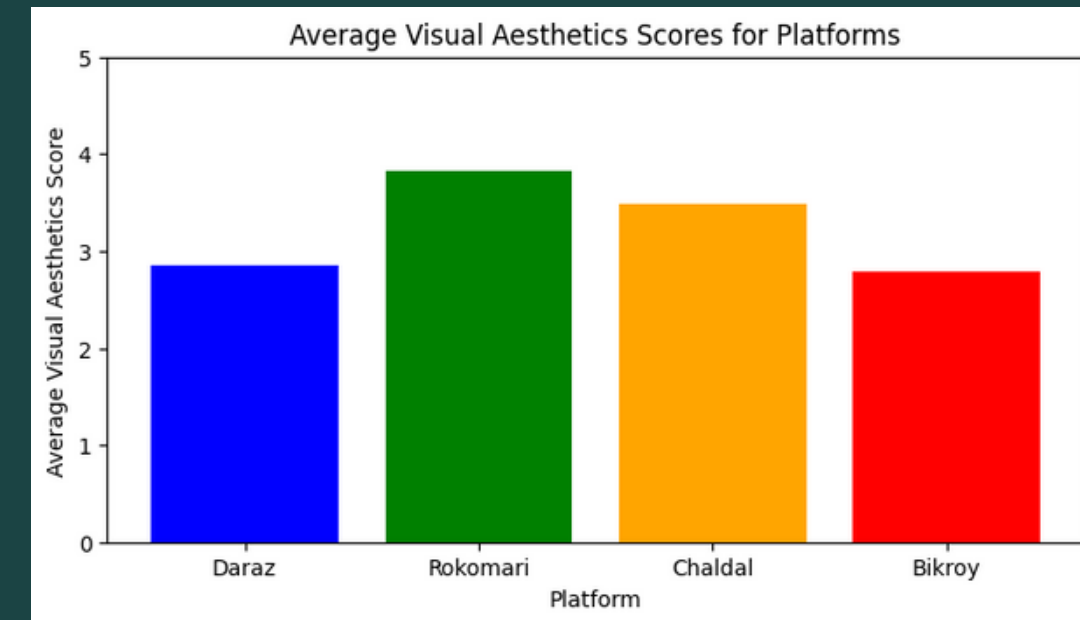
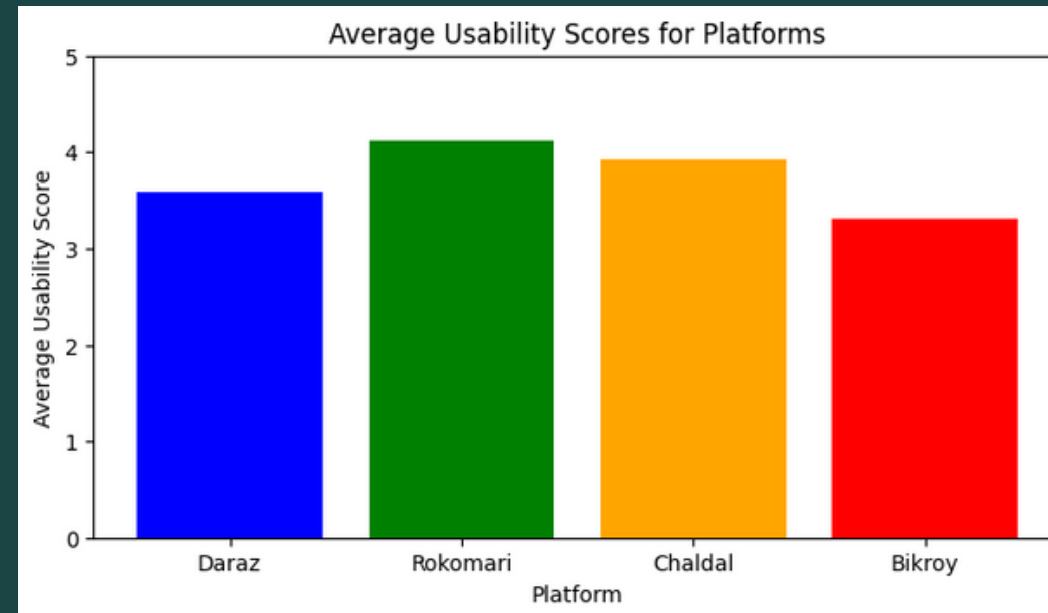
```
[ ] distilbert_f1_Score = 2 * (distilbert_precision * distilbert_recall) / (distilbert_precision + distilbert_recall)
```

```
[ ] print("DistilBERT accuracy: " + str(distilbert_accuracy))
print("DistilBERT Precision: " + str(distilbert_precision))
print("DistilBERT Recall: " + str(distilbert_recall))
print("DistilBERT F1 Score: " + str(distilbert_f1_Score))
```

DistilBERT accuracy: 0.7740524781341108
DistilBERT Precision: 0.8787207093096897
DistilBERT Recall: 0.8974358974358975
DistilBERT F1 Score: 0.887979703321067

RESULT AND ANALYSIS

Higher satisfaction reported across usability, responsiveness, aesthetics metrics. (from survey)



RESULT AND ANALYSIS

Processed Content	Pipeline Label (pipeline_label)	Pipeline Score (pipeline_score)
Alhamdulillah best app	POSITIVE	0.998885
Trustful institution.	POSITIVE	0.999769
Very helpful for book lovers	POSITIVE	0.999734
Great App's	POSITIVE	0.999828
useful	POSITIVE	0.999763

Sentiment analysis using DistilBERT

processedContent	vader_neg	vader_neu	vader_pos	vader_compound	roberta_neg	roberta_neu	roberta_pos
Alhamdulillah best app	0.000	0.323	0.677	0.6369	0.002774	0.065280	0.931946
best app for books. But kinda pricy .	0.234	0.594	0.172	-0.2382	0.476544	0.365017	0.158439
Trustful institution.	0.000	0.244	0.756	0.4767	0.081619	0.707130	0.211252
Very helpful for book lovers	0.000	0.316	0.684	0.7574	0.001869	0.049699	0.948432
Great app's	0.000	0.196	0.804	0.6249	0.004349	0.054735	0.940915

Sentiment analysis using RoBERTa

From Reviews

RESULT AND ANALYSIS

Comparative analysis
of accuracy of the NLP
models used on
reviews of the app

Model	Accuracy	Precision	Recall	F1 score
DistilBERT	0.774	0.878	0.897	0.887
RoBERTa	0.562	0.940	0.921	0.930

(a) Daraz Result

Model	Accuracy	Precision	Recall	F1 score
DistilBERT	0.874	0.912	0.932	0.922
RoBERTa	0.754	0.971	0.715	0.823

(b) Chaldal Result

Model	Accuracy	Precision	Recall	F1 score
DistilBERT	0.865	0.928	0.929	0.928
RoBERTa	0.744	0.962	0.839	0.897

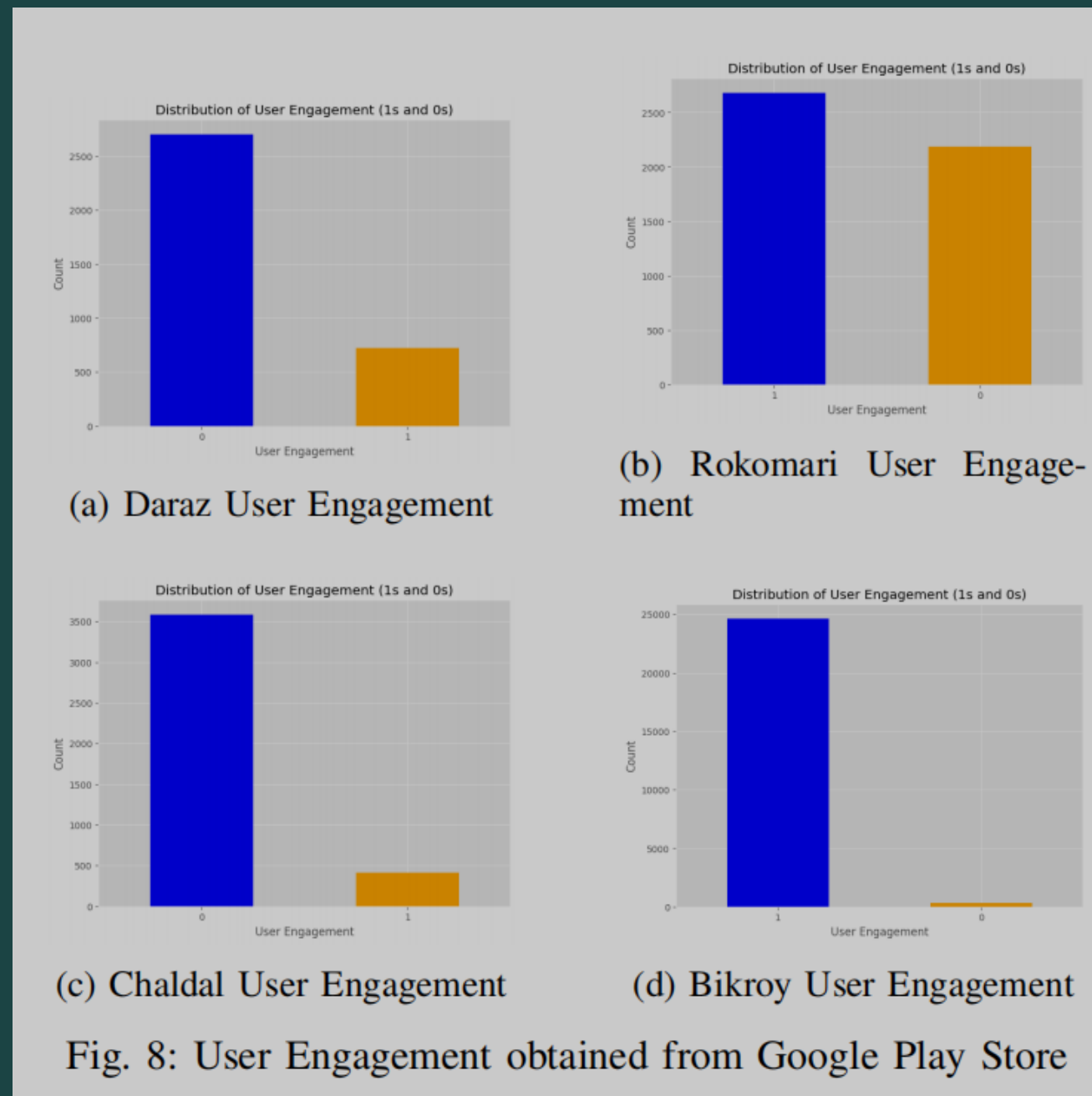
(c) Rokomari Result

Model	Accuracy	Precision	Recall	F1 score
DistilBERT	0.851	0.920	0.927	0.923
RoBERTa	0.697	0.959	0.900	0.929

(d) Bikroy Result

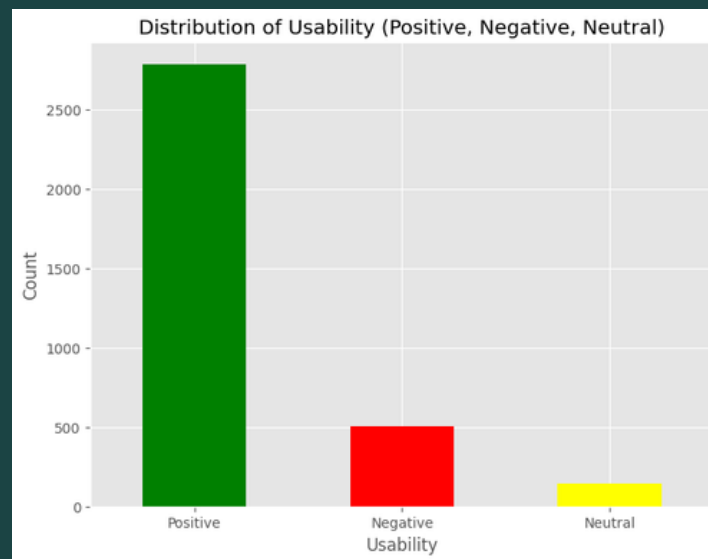
RESULT AND ANALYSIS

User Engagement
calculated from google
play store reviews

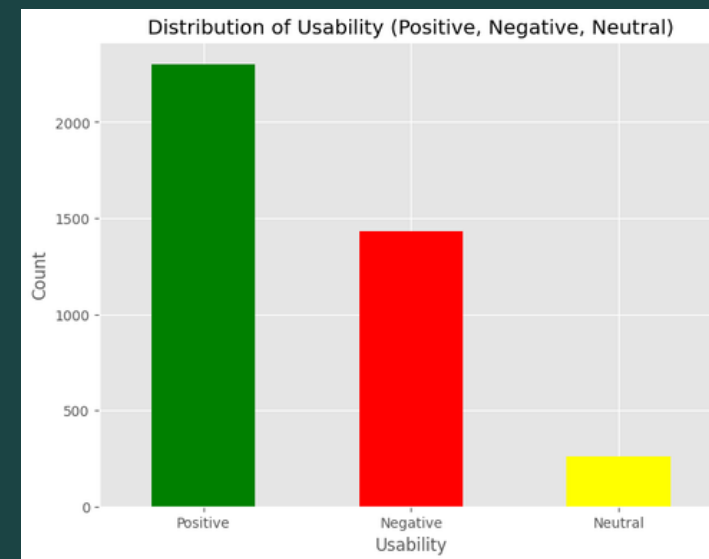


RESULT AND ANALYSIS

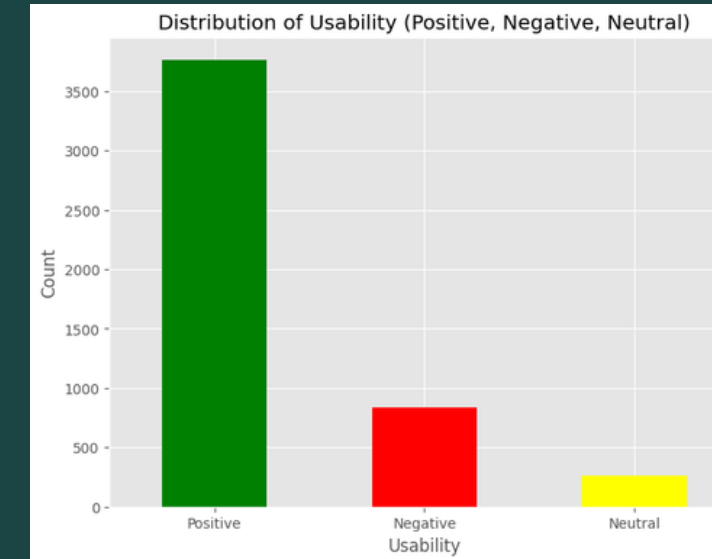
Usability calculated from google play store reviews



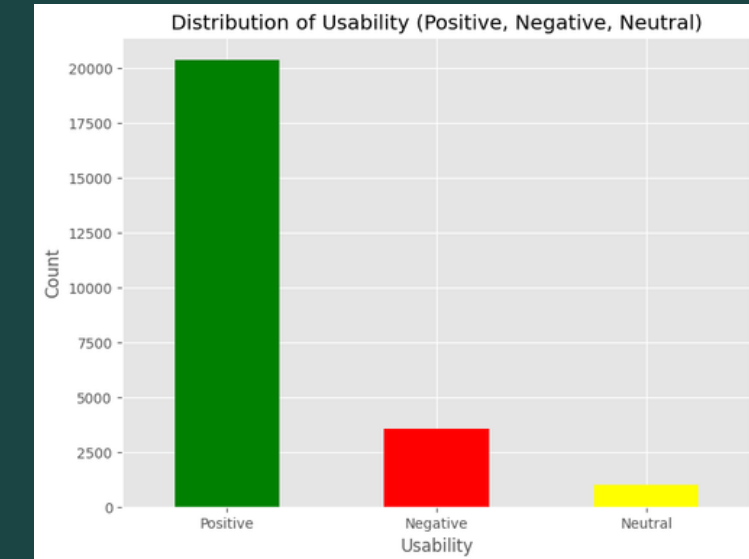
Daraz



Chaldal



Rokomari



Bikroy

Future Work

1. To extend the study by completing aspect categorization of Google Play Store reviews. To get the potential aspect words in a review. We would then use a clustering algorithm to cluster these aspects into a few global categories.
2. Utilize advanced natural language processing and machine learning for precise theme identification, enhancing insights into user sentiments.
3. Contribute to a more comprehensive understanding of user experiences on the Google Play Store.

Related Links

1. [Survey Data Visualization](#)
2. [Google PlayStore Reviews Web Scraping](#)
3. [User Survey](#)
4. [Daraz](#)
5. [Chaldal](#)
6. [Rokomari](#)
7. [Bikroy](#)



Thank You!