

Home - Classroom x SKCT x Customer Support Ticket Clean x +

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### Customer Support Ticket Cleaning & Annotation System.ipynb

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```
[1] ✓ %
import pandas as pd
import re
import nltk
import spacy
from textblob import TextBlob
from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize

[2] ✓ %
nltk.download('punkt')
nltk.download('stopwords')

nlp = spacy.load("en_core_web_sm")
stop_words = set(stopwords.words('english'))

[nltk_data] Downloading package punkt to /root/nltk_data...
[nltk_data] Unzipping tokenizers/punkt.zip.
[nltk_data] Downloading package stopwords to /root/nltk_data...
[nltk_data] Unzipping corpora/stopwords.zip.

[4] ✓ %
df = pd.read_csv("/content/support_tickets.csv")
print(df.head())

ticket_id
0      101 Hi, I cant login to my account since yesterday...
1      102 Payment of 499rs deducted but subscription not ...
2      103 App crashes when I open profile page in Samsun...
3      104 My order #X001234 not delivered yet, its been 1...
4      105 I was charged twice for the same service on 5...

[5] ✓ %
def clean_text(text):
    text = text.lower()
    text = re.sub(r"[^A-Za-z0-9\s]", '', text)
    text = re.sub(r'\s+', ' ', text).strip()
    return text
```

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```
[6] ✓ %
text = clean_text(text)
text = re.sub(r"[^A-Za-z0-9\s]", '', text)
text = re.sub(r'\s+', ' ', text).strip()
return text

[4] ✓ %
def correct_spelling(text):
    return str(TextBlob(text).correct())

[7] ✓ %
def preprocess_text(text):
    doc = nlp(text)
    tokens = []
    for token in doc:
        if token.text not in stop_words and token.is_alpha:
            tokens.append(token.lemma_)
    return " ".join(tokens)

[8] ✓ %
def extract_entities(text):
    doc = nlp(text)
    return [(ent.text, ent.label_) for ent in doc.ents]

[9] ✓ %
def label_ticket(text):
    text = clean_text(text)
    if "login" in text or "password" in text or "account" in text:
        return "login issue"
    elif "payment" in text or "charged" in text or "refund" in text:
        return "Billing Issue"
    elif "crash" in text or "error" in text or "freezing" in text:
        return "App Issue"
    elif "order" in text or "deliver" in text or "damaged" in text:
        return "Delivery Issue"
    else:
        return "General Query"
```

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### Customer Support Ticket Cleaning & Annotation System.ipynb

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```
[140]: df['cleaned_text'] = df['raw_text'].apply(clean_text)
      df['spell_corrected'] = df['cleaned_text'].apply(correct_spelling)
      df['processed_text'] = df['spell_corrected'].apply(preprocess_text)
      df['named_entities'] = df['spell_corrected'].apply(extract_entities)
      df['category'] = df['processed_text'].apply(label_ticket)

[141]: print(df[['ticket_id', 'raw_text', 'processed_text', 'named_entities', 'category']])
```

```
6      107  Refund still not processed after cancellation.
7      108  The app is very slow and freezing sometimes.
8      109  Unable to upload profile picture, shows error ...
9      110  Why my premium plan suddenly downgraded?
10     111  Get error code 6024 while making payment.
11     112  Chat support not responding for last 2 hours.
12     113  Email verification link expired instantly.
13     114  My account got locked without any reason.
14     115  I updated the app but now notifications not co...
15     116  Need invoice copy for March payment.
16     117  Order W0R5678 delivered damaged item.
17     118  App logout automatically after few minutes.
18     119  Subscription cancelled but still charged.
19     120  Cannot change registered mobile number.

processed_text \
0  login count since yesterday pus help sap
1  payment deduce subscription activate
2  pp clash open profile page samson phone
3  order deliver yet day
4  charge twice service to feb
5  password reset link work try time
6  refund still process cancellation
7  pp slow freeze sometimes
8  unable unload profile picture show error
9  premium plan suddenly downgrade
10 get error code make payment
11 chat support respond last hour
12 email purification link expire instantly

named_entities      category
0  [(yesterday, DATE)]  Login Issue
1  [(6024, ONG)]        Billing Issue
2  [(pp clashes, PERSON)]  General Query
3  [(10 days, DATE)]     Delivery Issue
4  []                   General Query
5  [(4, CARDINAL)]       Login Issue
6  []                   Billing Issue
7  []                   General Query
8  [(400, CARDINAL)]     App Issue
9  []                   General Query
10 []                   Billing Issue
11 [(last 2 hours, TIME)]  General Query
12 []                   General Query
13 []                   Login Issue
14 []                   General Query
15 [(march, DATE)]        Billing Issue
16 []                   Delivery Issue
17 [(pp gout, ONG), (few minutes, TIME)]  General Query
18 []                   General Query
19 []                   General Query
```

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### Customer Support Ticket Cleaning & Annotation System.ipynb

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```
1  payment deduce subscription activate
2  pp clash open profile page samson phone
3  order deliver yet day
4  charge twice service to feb
5  password reset link work try time
6  refund still process cancellation
7  pp slow freeze sometimes
8  unable unload profile picture show error
9  premium plan suddenly downgrade
10 get error code make payment
11 chat support respond last hour
12 email purification link expire instantly
13 account get lock without reason
14 update pp modification come
15 need voice copy march payment
16 order deliver damaged item
17 pp gout automatically minute
18 subscription cancel still charge
19 change register mobile number

named_entities      category
0  [(yesterday, DATE)]  Login Issue
1  [(6024, ONG)]        Billing Issue
2  [(pp clashes, PERSON)]  General Query
3  [(10 days, DATE)]     Delivery Issue
4  []                   General Query
5  [(4, CARDINAL)]       Login Issue
6  []                   Billing Issue
7  []                   General Query
8  [(400, CARDINAL)]     App Issue
9  []                   General Query
10 []                   Billing Issue
11 [(last 2 hours, TIME)]  General Query
12 []                   General Query
13 []                   Login Issue
14 []                   General Query
15 [(march, DATE)]        Billing Issue
16 []                   Delivery Issue
17 [(pp gout, ONG), (few minutes, TIME)]  General Query
18 []                   General Query
19 []                   General Query
```

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RAM Disk

```
1 [(499rs, 0MS)] Billing Issue
2 [(pp clashes, PISCMS)] General Query
3 [(10 days, DATE)] Delivery Issue
4 [(4, CARDINAL)] General Query
5 [(4, CARDINAL)] Login Issue
6 [(4, CARDINAL)] Billing Issue
7 [(4, CARDINAL)] General Query
8 [(484, CARDINAL)] App Issue
9 [(484, CARDINAL)] General Query
10 [(484, CARDINAL)] Billing Issue
11 [(last 2 hours, TIME)] General Query
12 [(last 2 hours, TIME)] General Query
13 [(last 2 hours, TIME)] Login Issue
14 [(last 2 hours, TIME)] General Query
15 [(march, DATE)] Billing Issue
16 [(pp gout, 0MS), (few minutes, TIME)] Delivery Issue
17 [(pp gout, 0MS), (few minutes, TIME)] General Query
18 [(pp gout, 0MS), (few minutes, TIME)] General Query
19 [(pp gout, 0MS), (few minutes, TIME)] General Query
```

```
df.to_csv("processed_support_tickets.csv", index=False)
print("Processed dataset saved!")
```

Processed dataset saved!

Start coding or generate with AI.

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