

Automated tool to identify the relevant sentences covering the core privacy principle of Choice/Consent.

Amazon Privacy Policy

```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

Import .txt containing the privacy policy to dataframe.

```
privacy_policy = pd.read_csv('/content/amazon_in.txt', delimiter = '\t')
privacy_policy = privacy_policy['Amazon.in Privacy Notice']
privacy_policy
```

```
0      Last updated: October 21, 2020. To see prior v...
1      We know that you care how information about yo...
2      By using Amazon Services you agree to our use ...
3      Personal information subject to this Privacy N...
4      What Personal Information About Customers Does...

...
183      Click here for customer support.
184      The Grievance Officer is identified above purs...
185      Was this information helpful?
186      Yes
187      No
Name: Amazon.in Privacy Notice, Length: 188, dtype: object
```

Below function will help in extracting sentences containing the patterns from the list 'patterns'

```
def sent_subtree(text):

    patterns = [r'\b(?i)'+ 'permission'+ r'\b',
                r'\b(?i)'+ 'your information'+ r'\b',
                r'\b(?i)'+ 'your data'+ r'\b',
                r'\b(?i)'+ 'you turn on'+ r'\b',
                r'\b(?i)'+ 'you allow'+ r'\b',
                r'\b(?i)'+ 'your network'+ r'\b',
                r'\b(?i)'+ 'your device'+ r'\b',
                r'\b(?i)'+ 'you can select'+ r'\b',
                r'\b(?i)'+ 'you can opt'+ r'\b',
                r'\b(?i)'+ 'you provide'+ r'\b',
```

```

        r'\b(?:i)'+ 'you use'+r'\b',
        r'\b(?:i)'+ 'accept'+r'\b',
        r'\b(?:i)'+ 'you share'+r'\b',
        r'\b(?:i)'+ 'agree'+r'\b',
        r'\b(?:i)'+ 'consent'+r'\b',
        r'\b(?:i)'+ 'choose'+r'\b',
        r'\b(?:i)'+ 'choice'+r'\b',
        r'\b(?:i)'+ 'personal'+r'\b',

    ]

```

```
for pattern in patterns:
```

```

    if re.search(pattern, text) != None:
        output.append(text)

    break

```

```
output = []
```

Extract and tokenize the sentences from the Dataframe containing privacy policy to a list of sentences.

```

import nltk
nltk.download('punkt')
from nltk.tokenize import word_tokenize , sent_tokenize

```

```

[nltk_data] Downloading package punkt to /root/nltk_data...
[nltk_data]   Package punkt is already up-to-date!

```

```

sent_list = []
for i in privacy_policy:
    for j in sent_tokenize(i):
        sent_list.append(j.strip())

```

```
sent_list
```

```

['Last updated: October 21, 2020.',
 'To see prior version, click here',
 'We know that you care how information about you is used and shared, and we appreciate your feedback. This Privacy Notice describes how Amazon Seller Services Private Limited and its affiliates use and share your personal information. By using Amazon Services you agree to our use of your personal information (including your name, email address, phone number, and other information you provide to us). You also agree and consent to us collecting, storing, processing, transferring, and disclosing your personal information subject to this Privacy Notice will be collected and retained by us. What Personal Information About Customers Does Amazon Collect?',

```

```
'For What Purposes Does Amazon Use Your Personal Information?',
'What About Cookies and Other Identifiers?',
'Does Amazon Share Your Personal Information?',
'How Secure is Information About Me?',
'What About Advertising?',
'What Information can I Access?',
'What Choices Do I Have?',
'Are Children Allowed to Use Amazon Services?',
'Conditions of Use, Notices, and Revisions',
'Related Practices and Information',
'Examples of Information Collected',
'Back to Top',
'What Personal Information About Customers Does Amazon Collect?',
'We collect your personal information in order to provide and continually improve our services.',
'Here are the types of personal information we collect:',
'Information You Give Us: We receive and store any information you provide in relation to our services.',
'Click here to see examples of what we collect.',
'You can choose not to provide certain information, but then you might not be able to use certain features.',
'Automatic Information: We automatically collect and store certain types of information about your use of our services.',
'Like many websites, we use cookies and other unique identifiers, and we obtain certain information from other sources.',
'Click here to see examples of what we collect.',
'Information from Other Sources: We might receive information about you from other sources, such as third-party service providers.',
'Click here to see additional examples of the information we receive',
'Back to Top',
'For What Purposes Does Amazon Use Your Personal Information?',
'We use your personal information to operate, provide, develop, and improve the products and services we offer.',
'These purposes include:',
'Purchase and delivery of products and services.',
'We use your personal information to take and fulfill orders, deliver products and services, and provide customer support.',
'Provide, troubleshoot, and improve Amazon Services.',
'We use your personal information to provide functionality, analyze performance, fix bugs, and improve our services.',
'Recommendations and personalization.',
'We use your personal information to recommend features, products, and services that we think you might like.',
'Provide voice, image and camera services.',
'When you use our voice, image and camera services, we use your voice input, images, and video to improve our services.',
'For more information about Alexa voice services, click here.',
'Comply with legal obligations.',
'In certain cases, we collect and use your personal information to comply with laws. For instance, we collect from sellers information regarding place of establishment and other information to help us comply with applicable laws.',
'Communicate with you.',
'We use your personal information to communicate with you in relation to Amazon Services, such as to respond to your inquiries and to provide you with information about our services.',
'Advertising.',
'We use your personal information to display interest-based ads for features, products, and services we think you might like.',
'We do not use information that personally identifies you to display interest-based ads.',
'To learn more, please read our Interest-Based Ads notice.',
'Fraud Prevention and Credit Risks.',
'We use personal information to prevent and detect fraud and abuse in order to protect our business and our customers.',
'We may also use scoring methods to assess and manage credit risks.',
'What About Cookies and Other Identifiers?',
'To enable our systems to recognize your browser or device and to provide and improve our services, we use cookies and other identifiers. For more information, click here.'
```

```
for i in sent_list:
    sent_subtree(i)
```

Output list contains all the sentences which matches the desired patterns

output

```
[
  'This Privacy Notice describes how Amazon Seller Services Private Limited and its af',
  'By using Amazon Services you agree to our use of your personal information (includi',
  'You also agree and consent to us collecting, storing, processing, transferring, and',
  'Personal information subject to this Privacy Notice will be collected and retained',
  'What Personal Information About Customers Does Amazon Collect?',
  'For What Purposes Does Amazon Use Your Personal Information?',
  'Does Amazon Share Your Personal Information?',
  'What Personal Information About Customers Does Amazon Collect?',
  'We collect your personal information in order to provide and continually improve ou',
  'Here are the types of personal information we collect:',
  'Information You Give Us: We receive and store any information you provide in relati',
  'You can choose not to provide certain information, but then you might not be able t',
  'For What Purposes Does Amazon Use Your Personal Information?',
  'We use your personal information to operate, provide, develop, and improve the prod',
  'We use your personal information to take and fulfill orders, deliver products and s',
  'We use your personal information to provide functionality, analyze performance, fix',
  'We use your personal information to recommend features, products, and services that',
  'When you use our voice, image and camera services, we use your voice input, images,',
  'In certain cases, we collect and use your personal information to comply with laws.',
  'We use your personal information to communicate with you in relation to Amazon Serv',
  'We use your personal information to display interest-based ads for features, produc',
  'We use personal information to prevent and detect fraud and abuse in order to prote',
  'Does Amazon Share Your Personal Information?',
  'Information about our customers is an important part of our business and we are not',
  'We share customers\' personal information only as described below and with Amazon.co',
  'You can tell when a third party is involved in your transactions, and we share cust',
  'These third-party service providers have access to personal information needed to p',
  'Further, they must process the personal information in accordance with applicable l',
  'Protection of Amazon and Others: We release account and other personal information',
  'Other than as set out above, you will receive notice when personal information abou',
  'We work to protect the security of your personal information during transmission by',
  'We maintain physical, electronic, and procedural safeguards in connection with the',
  'Our security procedures mean that we may occasionally request proof of identity bef',
  'Click here for more information on how to manage the security settings of your devi',
  'You can access your information, including your name, address, payment options, pro',
  'To request access to personal information that is not available through Your Accoun',
  'If you have any questions as to how we collect and use your personal information, p',
  'Many of our Amazon Services also include settings that provide you with options as',
  'As described above, you can always choose not to provide certain information, but t',
  'If you have questions about how to change your device permissions on devices manufa',
  'If you choose to use Amazon Services, your use and any dispute over privacy is subj',
  'We stand behind the promises we make, however, and will never materially change our',
  'Information You Give Us When You Use Amazon Services',
  'You provide information to us when you:',
  'the personal description and photograph in Your Profile;',
  'device log files and configurations, including Wi-Fi credentials, if you choose to',
  'the location of your device or computer;',
  'Amazon Services metrics (e.g., the occurrences of technical errors, your interactio',
  'Your Profile (including your product Reviews, Recommendations, Reminders and person',
  'This Privacy Notice describes how Amazon Seller Services Private Limited and its af',
  'By using Amazon Services you agree to our use of your personal information (includi',
  'You also agree and consent to us collecting, storing, processing, transferring, and',
  'Personal information subject to this Privacy Notice will be collected and retained'
]
```

```
'What Personal Information About Customers Does Amazon Collect?',
'For What Purposes Does Amazon Use Your Personal Information?',
'Does Amazon Share Your Personal Information?',
'What Personal Information About Customers Does Amazon Collect?',
'We collect your personal information in order to provide and continually improve our
```

```
#####
```

Zomato Privacy Policy

```
zomato_ppolicy=pd.read_csv('/content/zomato_policy.txt',delimiter='\\t')
zomato_ppolicy=zomato_ppolicy['Privacy.Policy']
zomato_ppolicy.
```

```
0          Last updated on April 22, 2020.
1  Zomato Limited (Formerly known as Zomato Priva...
2  the types of information that Zomato may colle...
3  its practices for collecting, using, maintaini...
4  This policy applies only to the information Zo...
...
154          Mint Hill, NC 28227
155  For Users residing in any other part of the wo...
156          Zomato Limited
157          Ground Floor, Tower C, Vipul Tech Square
158  Sector 43, Golf Course Road, Gurugram - 122009...
Name: Privacy Policy, Length: 159, dtype: object
```

```
output = []
```

```
import nltk
nltk.download('punkt')
from nltk.tokenize import word_tokenize, sent_tokenize
...
```

```
[nltk_data] Downloading package punkt to /root/nltk_data...
[nltk_data] Package punkt is already up-to-date!
```

```
sent_list = []
for i in zomato_ppolicy:
    for j in sent_tokenize(i):
        sent_list.append(j.strip())
sent_list
```

```
['Last updated on April 22, 2020.',
'Zomato Limited (Formerly known as Zomato Private Limited and Zomato Media Private L
'This policy describes:',
'the types of information that Zomato may collect from you when you access or use it
'its practices for collecting, using, maintaining, protecting and disclosing that in
```

'This policy applies only to the information Zomato collects through its Services, i

"This policy DOES NOT apply to information that you provide to, or that is collected

'Zomato encourages you to consult directly with such third-parties about their priva

"Please read this policy carefully to understand Zomato's policies and practices reg

"By accessing or using its Services and/or registering for an account with Zomato, y

'If you do not provide the information Zomato requires, Zomato may not be able to pr

'If you reside in a country within the European Union/European Economic Area (EAA),

'If you reside in United States of America, Zomato USA LLC, located at 7427 Matthews

'If you reside in any other part of the world, Zomato Limited, located at Ground Flo

'Your data controller is responsible for the collection, use, disclosure, retention,

'Your data controller may transfer data to other members of Zomato as described in t

'Zomato may process and retain your personal information on its servers in India whe

"This policy may change from time to time, your continued use of Zomato's Services a

'The information we collect and how we use it',

'Zomato Limited ("Zomato," the "Company," "we," "us," and "our") collects several ty

'Your Personal Information("PI") - Personal Information is the information that can

'We do not consider personal information to include information that has been made a

'Information about your internet connection, the equipment you use to access our Ser

'We collect this information:',

'directly from you when you provide it to us; and/or',

'automatically as you navigate through our Services (information collected automatic

'Information You Provide to Us',

'The information we collect on or through our Services may include:',

'Your account information: Your full name, email address, postal code, password and

'Your profile picture that will be publicly displayed as part of your account profil

'You may optionally provide us with this information through third-party sign-in ser

'In such cases, we fetch and store whatever information is made available to us by y

'Your preferences: Your preferences and settings such as time zone and language.',

'Your content: Information you provide through our Services, including your reviews,

'Your searches and other activities: The search terms you have looked up and results

'Your browsing information: How long you used our Services and which features you us

'Your communications: Communications between you and other users or merchants throug

'Your transactional information: If you make reservations or purchases through our S

'This information may be shared with third-parties which assist in processing and fu

'When you submit credit or payment card information, we encrypt the information usin

'If you write reviews about businesses with which you conduct transactions through c

'Your Public Posts: You also may provide information (such as ratings, reviews, tips

'to be published or displayed (hereinafter, "posted") on publicly accessible areas c

'Your User Contributions are posted on and transmitted to others at your own risk.',

'Although we limit access to certain pages, you may set certain privacy settings for

'Please be aware that no security measures are perfect or impenetrable (see "Securit

'Additionally, we cannot control the actions of other users of our Services with who

'Therefore, we cannot and do not guarantee that your User Contributions will not be

'We may display this information on the Services, share it with businesses, and furt

'You should be careful about revealing any sensitive details about yourself in such

'We use the information you provide to us to enhance the functionality and improve t

'We also use this information to display relevant advertising, provide support to yo

'Information about Your Friends',

'You have the option to request your friends to join the Services by providing their

"If you request a friend to join and connect with you on the Services, we will only

'Information about Your Messages',

'If you exchange messages with others through the Services, we may store them in ord

'If you send information from the Services to your mobile device via SMS text messag

```
for i in sent_list:
    sent_subtree(i)
```

output

```
["This policy DOES NOT apply to information that you provide to, or that is collected  
"Please read this policy carefully to understand Zomato's policies and practices reg  
"By accessing or using its Services and/or registering for an account with Zomato, y  
'If you reside in a country within the European Union/European Economic Area (EAA),  
'If you reside in United States of America, Zomato USA LLC, located at 7427 Matthews  
'If you reside in any other part of the world, Zomato Limited, located at Ground Flo  
'Your data controller is responsible for the collection, use, disclosure, retention,  
'Your data controller may transfer data to other members of Zomato as described in t  
'Zomato may process and retain your personal information on its servers in India whe  
'Your Personal Information("PI") - Personal Information is the information that can  
'We do not consider personal information to include information that has been made a  
'Information about your internet connection, the equipment you use to access our Ser  
'directly from you when you provide it to us; and/or',  
'Information You Provide to Us',  
'Your content: Information you provide through our Services, including your reviews,  
'Additionally, we cannot control the actions of other users of our Services with who  
'We use the information you provide to us to enhance the functionality and improve t  
'We may automatically collect certain information about the computer or devices (inc  
'This may include, for example, photographs, audio and video clips, personal contact  
'Location information: Our applications collect real-time information about the loca  
'Applications: If you use the Zomato application, Zomato may collect information abo  
"When you use one of our location-enabled services (for example, when you access Ser  
'Some of these services require your personal data for the feature to work and we ma  
'If you wish to use the particular feature, you will be asked to consent to your dat  
'You can withdraw your consent at any time by disabling the GPS or other location-tr  
"See your device manufacturer's instructions for further details.",  
'Please note it may be possible to disable some (but not all) cookies through your d  
'You will need to opt out on each browser and each device you use to access the Serv  
'By using our Services with your browser set to accept cookies you are consenting to  
'We may collect, process and store your user ID associated with any social media acc  
'When you sign in to your account with your social media account information, or oth  
"Please see your social media provider's privacy policy and help center for more inf  
'We may also share your preferences or the Services availed by you with your network  
'In any other way we may describe when you provide the information.',  
'For any other purpose with your consent.',  
'We may also use your information to contact you about our own and third-party goods  
'If you do not want us to use your information in this way, please check the relevan  
'Even though we do not disclose your personal information for these purposes without  
'We may disclose personal information that we collect or you provide, as described i  
'dinner reservations and food delivery) and who are bound by contractual obligations  
"To a buyer or other successor in the event of a merger, divestiture, restructuring,  
'We contractually require these third-parties to keep personal information confident  
'To fulfill the purpose for which you provide it.',  
'For any other purpose disclosed by us when you provide the information.',  
'We may share your information with outside vendors that we use for a variety of pur  
'We may share your information when we believe in good faith that such sharing is re  
'We may also share your information to investigate and address threats or potential  
'This may involve the sharing of your information with law enforcement, government a  
'Consent.',  
'We may share your information in any other circumstances where we have your consent  
'When you make a restaurant reservation or execute online food ordering transaction  
'In order to facilitate your reservation and online food order processing, we provid  
"If you provide a mobile phone number, restaurants or Zomato may send you text messa
```

```
'Information you choose to share with a restaurant when you make a reservation and/c
'By submitting your credit or debit card account information through our Services, y
'When you use a credit or debit card to secure a reservation through our Sites, we p
'To prevent Google Analytics from collecting or using your information, you may inst
'We also allow other third parties (e.g., ad networks and ad servers such as Google
'Choices about how we use and disclose your information'
```

```
#####
```

Instagram Privacy Policy

```
instagram_ppolicy = pd.read_csv('/content/instagram_policy.txt', delimiter = '\t')
instagram_ppolicy = instagram_ppolicy['Instagram Data Policy']
instagram_ppolicy
```

```
0      This policy describes the information we proce...
1          I. What kind of information do we collect?
2      To make all Facebook products available, we mu...
3          The work you and others do and provide.
4      Information and materials you provide. We coll...
...
94          Facebook, Inc.
95          ATTN: Privacy Operations
96          1601 Willow Road
97          Menlo Park, CA 94025
98          Date of last revision: 11 January 2021
Name: Instagram Data Policy, Length: 99, dtype: object
```

```
output = []
```

```
sent_list = []
for i in instagram_ppolicy:
    for j in sent_tokenize(i):
        sent_list.append(j.strip())
```

```
sent_list
```

```
['This policy describes the information we process to support Facebook, Instagram, Me
'You can view additional tools and information in Facebook Settings and Instagram Se
'I.',
'What kind of information do we collect?',
'To make all Facebook products available, we must process your information.',
'The information we collect depends on how you use our products.',
'You can learn how to access and delete the information we collect by going to Faceb
'The work you and others do and provide.',
'Information and materials you provide.',
'We collect the content, communications and other information you provide when you u
'This may include information about or related to the content you provide, such as t
'This may also include what you see through the features we provide, such as our car
'Our systems automatically process the content and communications provided by you an
'Learn more about how to control who can see the content you share .',
```



```
'Data with special protection: You can choose to provide information about your reli
'This and other information (such as ethnic or racial origin, philosophical beliefs
'Network and Connection.',
'We collect information about the people, Pages , accounts, hashtags and groups you
'We also collect contact information when you choose to upload, sync or import it fr
'In order to help you and others, and for the other purposes listed below .',
'use by you.',
'We collect information about how you use our products, such as the types of content
'For example, we log when you are using our products when you last used our products
'We also collect information about how you use our features, such as our camera.',
'Information on transactions made on our products.',
'If you use our products for purchases or financial transactions (such as when you b
'This includes payment information, such as your credit or debit card number and oth
'The work other people do and the information they give about you.',
'We also receive and analyze the content, communication and information that others
'This can include information about you, such as when people share or comment on a p
'device information',
'As described below, we collect information from and about the computers, phones, co
'are included in the different devices used.',
'For example, we use the information we collect about your use of our products on yo
'But as you see when you use our product on your laptop or tablet or we use this inf
'The information we obtain from these devices includes the following:',
'Device Attributes: This includes information such as operating system, hardware and
'Device operation: The operation of the device and the actions performed on it, such
"Identifier: special identifier, device ID and other identifiers, such as a game, ap
'Device signal: Bluetooth signal and information about nearby Wi-Fi access points, b
'Data from Device Settings: Information you allow us to collect when you turn on Dev
'Network and connections: Information such as the name of your mobile operator or IS
'Cookie Data: Data stored on your device from cookies, including cookies ID and sett
'To learn more about how we use cookies, see the Facebook Cookie Policy and the Inst
'Information received from partners.',
"Advertisers, app developers and publishers may send information to us through the F
"These partners make available information about your activities off Facebook—includ
'For example, a game developer may use our API to tell us what games you play or a b
'We also receive information about your online and offline actions and purchases fro
'Partners receive your data when you visit or use their services or from third parti
'Each of these partners requires that these partners have legal rights to collect, u
'Learn more about the partners we get data from .',
'For more information about how we use cookies in relation to Facebook Business Tool
'II.',
'How do we use this information?',
'We use the information we hold (subject to your selection) as described in the Face
"Here's how:",
'Providing, personalizing and improving our products.',
```

```
for i in sent_list:
    sent_subtree(i)
```

output

```
['To make all Facebook products available, we must process your information.',
'The information we collect depends on how you use our products.',
'Information and materials you provide.',
'We collect the content, communications and other information you provide when you use
'This may include information about or related to the content you provide, such as the
```

```
'Learn more about how to control who can see the content you share .',
'Data with special protection: You can choose to provide information about your religi
'We also collect contact information when you choose to upload, sync or import it from
'We collect information about how you use our products, such as the types of content y
'We also collect information about how you use our features, such as our camera.',
'If you use our products for purchases or financial transactions (such as when you buy
'As described below, we collect information from and about the computers, phones, conn
'But as you see when you use our product on your laptop or tablet or we use this infor
"Identifier: special identifier, device ID and other identifiers, such as a game, app
'Data from Device Settings: Information you allow us to collect when you turn on Devic
'Network and connections: Information such as the name of your mobile operator or ISP,
'Cookie Data: Data stored on your device from cookies, including cookies ID and settin
"These partners make available information about your activities off Facebook—includin
'We also receive information about your online and offline actions and purchases from
'Partners receive your data when you visit or use their services or from third parties
'Each of these partners requires that these partners have legal rights to collect, use
'For you to have personalize and create unique and relevant products, we are using you
'How we choose the ads you see .',
'Information on Facebook Products and Devices: Across all Facebook Products that you u
"Location-related information, the device's specific location (if you have given us pe
'When you contact us, we also use your information to respond to you.',
'Your information is shared with others as follows:',
'The people and accounts with whom you share and communicate with.',
'When you share and communicate using our products, you choose the audience for the in
'For example, when you post on Facebook, you choose an audience to post to, such as al
'Similarly, when you use Messenger or Instagram to communicate with people or do busin
'Your network may also see the actions you take on our products, including interaction
'This includes your Instagram username; all information you share with a public audien
'You should consider who you choose to share content with, as people who can see your
'For example, when you share a post or send a message to a specific friend or account,
'People can also use our products to create content about you and share it with the au
"People in your network may see signals that tell them whether you're active on our pr
'When you use third-party applications, websites or other services that use or are lin
'What you share on Facebook from the website.',
'Also, when you download or use such third-party services, they may access your public
'Apps or websites you use may receive your Facebook friends list, If you choose to sha
'But such applications and websites will not be able to receive any other information
'where we have not created our own first party apps) will have access to any informati
'We may transfer your information to the new owner if there is a change in the ownersh
'We do not and will never sell any of your information to anyone.',
'may be used to contact you or identify who you are) unless you give us permission to
'We share your information with companies that collect it to provide analytical and va
'When you subscribe to receive premium content or purchase something from a seller in
'See Facebook settings and Instagram settings to learn more about how you and others c
'Facebook and Instagram integrate the infrastructure, systems, and technology with oth
'We give you the right to access, repair, port and delete your data.',
'Cookie data received through content you share and social plug-ins Learn more about d
'We access, store, and share your information with regulators, law enforcement or othe
'When required by law, in good faith, we may collect your information in response to a
'For example, your information may be transferred or transmitted, stored and processed
'Rely on and obtain your consent to these data transfers to the United States and othe
```

Generic Approach I've used NLTK library which Extracts all sentences into a list. So this automated tool contains a list of patterns. which is used for pattern matching with the list of sentences

extracted using nltk lib for any privacy policy file. This tool will work with any policy.

✓ 0s completed at 10:18 PM

