Extract text from resume

```
#!pip install sentence_transformers
```

```
import string
import re
import nltk
import statistics
from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize
from nltk.stem import WordNetLemmatizer
from sklearn.metrics.pairwise import cosine_similarity
from sklearn.feature_extraction.text import TfidfVectorizer
from sentence_transformers import SentenceTransformer
from tabulate import tabulate
import matplotlib.pyplot as plt
import numpy as np
import math
```

```
nltk.download('stopwords')
nltk.download('punkt')
nltk.download('wordnet')
```

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

```
#Global arrays
score_array=[]
top_institutes = ["IIT","NIT","IIIT","BITS"]
equvalent_courses = ["B.E","MSC","MCA","B.Tech","Bachelors","Information science","
top_banks = ["JP Morgan","Goldman sachs","Axis bank","HSBC","VISA","PayPal","PWC","
prefer = False
```

Data cleaning

```
def start(actual,expected):
  removeStopwords(actual,expected)
```

```
def checkTopInstitutes(education,requiredEducation):
  for institute in top_institutes:
    if institute in education:
      education = requiredEducation
```

```
        break
      else:
        education.join(',')


  def checkEquvalentCourses(education,requiredEducation):
    for course in equvalent_courses:
      if course in education:
        education = requiredEducation
      else:
        education.join(',')


  def preferExperience(candidateExperience):
    candidateExperience = candidateExperience.split()
    for bank in top_banks:
      if bank in candidateExperience:
        return True


  def removeStopwords(actual,expected):
    stop_words = set(stopwords.words('english'))
    candidateExperienceTokens = word_tokenize(actual)
    requiredExperienceTokens = word_tokenize(expected)
    cleanCandidateExperience = [word for word in candidateExperienceTokens if not wor
    cleanrequiredExperience = [word for word in requiredExperienceTokens if not word
    lemmatisation(cleanCandidateExperience,cleanrequiredExperience)


  def lemmatisation(actual,expected):
    CandidateExperience = ' '.join(map(str, actual))
    RequiredExperience = ' '.join(map(str, expected))
    lemmatizer = WordNetLemmatizer()
    lemCandidateExperience =lemmatizer.lemmatize(CandidateExperience)
    lemRequiredExperience = lemmatizer.lemmatize(RequiredExperience)
    removePunctuation(lemCandidateExperience,lemRequiredExperience)


  def removePunctuation(actual,expected):
    noPunCandidateExperience = ""
    noPunRequiredExperience = ""
    for character in actual:
        if character.isalnum():
            noPunCandidateExperience += character
        else:
          noPunCandidateExperience += " "

    for character in expected:
        if character.isalnum():
            noPunRequiredExperience += character
        else:
          noPunRequiredExperience += " "
    model(noPunCandidateExperience,noPunRequiredExperience)


  def drawPieChart():
    y=[]
```

```
    for i in range(len(score_array)):
      if(i==2):
        y.append(score_array[i]*1.5)
      else:
        y.append(score_array[i])
    mylabels = ["Skills", "Education", "Experience"]
    explode = (0, 0, 0.1 )
    plt.pie(y, labels = mylabels, explode=explode, shadow=True)
    plt.title("Distribution of attributes of the Candidate.")
    plt.show()


  def analytics(prefer = False):
    print("\n")
    print("REPORT")
    final_score=0
    for score in score_array:
      final_score+=score
    avg = (final_score/300)*100
    score_array.append(avg)
    s1=score_array[0]/2
    s2=score_array[1]/2
    s3=score_array[0]
    resume_score = ((s1+s1+s3)/200)*100
    score_array.append(math.floor(resume_score))

    if(avg>min_criteria):
      score_array.append("PASSED")
    elif(avg>=70 and avg<min_criteria):
      score_array.append("Manual review needed")
    else:
      score_array.append("FAILED")

    if(prefer):
      print("hi")
      score_array.append("Has banking experience.")

    if(score_array[1]<70):
      score_array.append("Candidate does not meet the Education criteria.")

    print(tabulate([score_array], headers=["Skills", "Education", "Experience","AVG",
    #clear data
    score_array.clear()
```

Modelling

```
  def model(actual,expected):
    vectorizer = TfidfVectorizer()
    vectorizer.fit([actual])
    vectorizer.fit([expected])
    vectorA = vectorizer.transform([actual])
    vectorB = vectorizer.transform([expected])
    similarity_index = cosine_similarity(vectorA, vectorB)
```

```
  final_score = similarity_index[0][0]*100
  score_array.append(int(final_score))


def sentenceTranformerModel(actual,expected):
  modelName = "bert-base-nli-mean-tokens"
  model = SentenceTransformer(modelName)
  vectorA = model.encode([actual])
  vectorB = model.encode([expected])
  similarity_index = cosine_similarity(vectorA, vectorB)
  final_score = similarity_index[0][0]*100
  score_array.append(int(final_score))
```

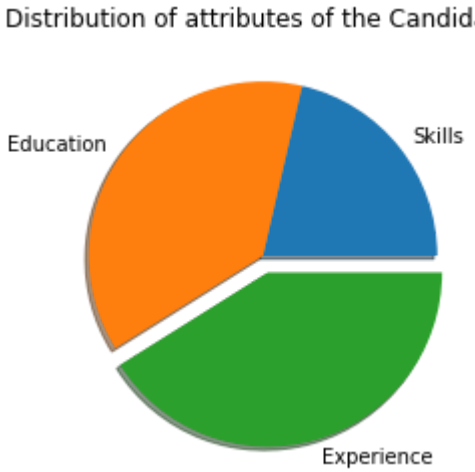
Analysis

Make changes below to describe what is needed.

Example 1 - Societe generale

```
#Candidate
skills = "JAVA, SPRING BOOT, Hybernate, SQL, DBMS, Angular, GIT, AI/ML, Jira, Jenki
education = "BE in computer science from BMS"


requiredExperience = "Deep expertise and hands on experience in Core java. · Hands-

candidateExperience = "HSBC - Have Over 6+ years of experience in core java, Spring


#Organisation
requireTopTierEducation = False
preferBankExperience = True
min_criteria = 80
requiredSkills = "Java, REACT JS, Spring, Hibernate, CI/ CD, Docker, Kubernetes, Pu
if(requireTopTierEducation):
  requiredEducation = "BE in computer science from" + ' '.join([str(elem) for elem
  checkTopInstitutes(education,requiredEducation)
else:
  requiredEducation = "BE in computer science "
  checkEquvalentCourses(education,requiredEducation)
if(preferBankExperience):
  hasPreferance = preferExperience(candidateExperience)
  if(hasPreferance):
    prefer = True


start(skills,requiredSkills)
start(education,requiredEducation)
sentenceTranformerModel(candidateExperience.lower(),requiredExperience.lower())
drawPieChart()
analytics(prefer)
```

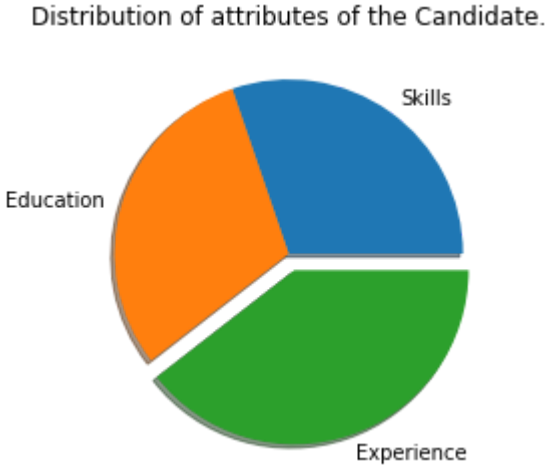
```
analytics(prefer)
```




```
REPORT
hi
  Skills    Education    Experience      AVG    Resume score  Automatic scr
--------  -----------  ------------  -------  --------------  -------------
      57          100            73  76.6667              56  Manual review
```

Example 2 - Microsoft

```
candidateExperience = "4 years of software design and development experience in dis

requiredExperience = " 3+ years of software design and development experience of pr



#Organisation
requireTopTierEducation = False
min_criteria = 80
requiredSkills = "JAVA/C, SPRING BOOT, Hybernate, SQL, DBMS, Angular, node.js"
if(requireTopTierEducation):
  requiredEducation = "BE in computer science from" + ' '.join([str(elem) for elem
  checkTopInstitutes(education,requiredEducation)
else:
  requiredEducation = "BE in computer science "
  checkEquvalentCourses(education,requiredEducation)


start(skills,requiredSkills)
start(education,requiredEducation)
sentenceTranformerModel(candidateExperience.lower(),requiredExperience.lower())
drawPieChart()
analytics()
```



Example 3 - Hotstar

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requiredExperience = "4-8 years of experience in software development with strong e

candidateExperience = "Have 3 years of development experiance in working with react



#Organisation
requireTopTierEducation = False
min_criteria = 80
requiredSkills = "JAVA, SPRING BOOT, Hybernate, SQL, DBMS, Angular, GIT, AI/ML, Jir
if(requireTopTierEducation):
  requiredEducation = "BE in computer science from" + ' '.join([str(elem) for elem
  checkTopInstitutes(education,requiredEducation)
else:
  requiredEducation = "BE in computer science "
  checkEquvalentCourses(education,requiredEducation)


start(skills,requiredSkills)
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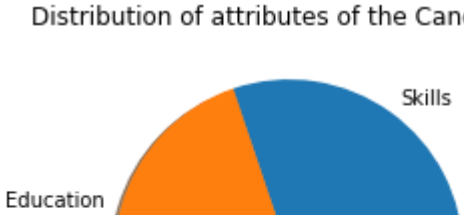


Example 4 - Amazon

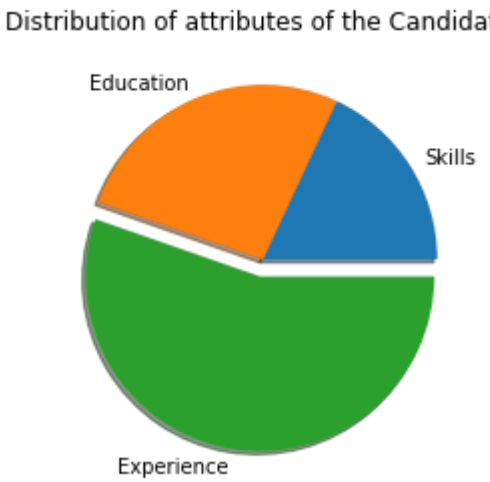
```
#Organisation
requireTopTierEducation = True
min_criteria = 80
requiredSkills = "Java, REACT JS, distributed, multi-tiered systems, algorithms, an
if(requireTopTierEducation):
  requiredEducation = "BE in computer science from" + ' '.join([str(elem) for elem
  checkTopInstitutes(education,requiredEducation)
else:
  requiredEducation = "BE in computer science "
  checkEquvalentCourses(education,requiredEducation)


requiredExperience = "Currently enrolled in a Bachelor's or Master's Degree in Comp

candidateExperience = "Pursuing Bachelors Degree in Information science. profecient



start(skills,requiredSkills)
start(education,requiredEducation)
sentenceTranformerModel(candidateExperience.lower(),requiredExperience.lower())
drawPieChart()
analytics()
```




```
REPORT
  Skills    Education    Experience      AVG    Resume score  Automatic screer
--------  -----------  ------------  -------  --------------  ----------------
      44           65            90  66.3333              44  FAILED
```