TEXT ANALYTICS
EVALUATION-III
WORD CLOUD EXPERIENTIAL LEARNING

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TOPIC 1 - INTRODUCTION

SUSTAINABLE DEVELOPMENT GOAL

- The agenda of SDG's is to create a plan of action for people, prosperity and planet.

SDG 1 - No Poverty

The goal aims to promote global peace and recognizes that eradicating poverty in all its forms, even extreme poverty is the most important challenge for a sustainable world.
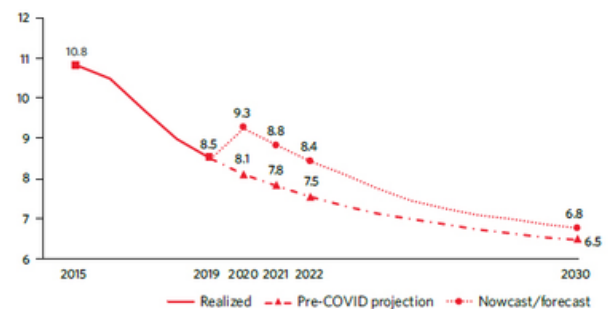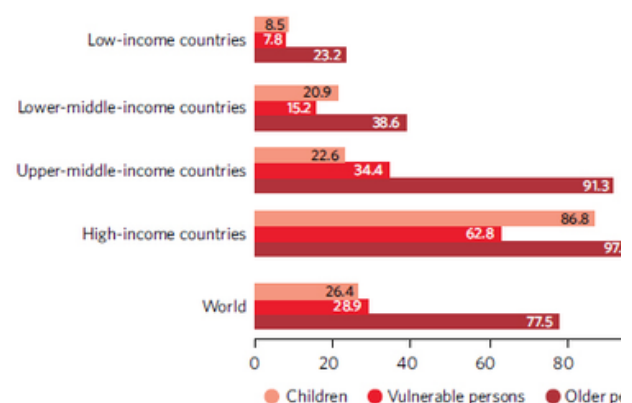
SDG - 1

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Eradicating poverty is a critical concern due to several compelling reasons. Firstly, the slow and uneven progress in reducing poverty may result in hundreds of millions of people still living in extreme poverty by the year 2030. Secondly, if present trends persist, it's projected that only a third of countries will achieve the goal of halving their national poverty rates by that same year. Lastly, amidst the challenges posed by multiple crises, the coverage and financial allocations for social protection programs remain insufficient. These factors underscore the urgency of addressing poverty comprehensively and effectively to ensure a more equitable and prosperous future for all.

Challenges in poverty reduction have prompted the SDGs to outline a comprehensive set of seven target aims under Goal 1. Addressing the uneven distribution and potential persistence of extreme poverty, these targets serve as a map to eradicate poverty by 2030.

Proportion of the world's population living below $2.15/day, 2015–2019 realized and 2020–2030 forecast and projected (percentage) and 2020–2030 forecast and projected (percentage)

Proportion of children, vulnerable persons and older persons covered by social protection cash benefits, by income level of country, 2020 (percentage)

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7 TARGETS

TARGET 1·1
ERADICATE EXTREME POVERTY

TARGET 1·2
REDUCE POVERTY BY AT LEAST 50%

TARGET 1·3
IMPLEMENT SOCIAL PROTECTION SYSTEMS

TARGET 1·4
EQUAL RIGHTS TO OWNERSHIP, BASIC SERVICES, TECHNOLOGY AND ECONOMIC RESOURCES

TARGET 1·5
BUILD RESILIENCE TO ENVIRONMENTAL, ECONOMIC AND SOCIAL DISASTERS

TARGET 1·A
MOBILIZE RESOURCES TO IMPLEMENT POLICIES TO END POVERTY

TARGET 1·B
CREATE PRO-POOR AND GENDER-SENSITIVE POLICY FRAMEWORKS

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PRIORITY ACTIONS

The foremost global imperative we face is the elimination of poverty, underscored by its crucial role in realizing sustainable development. In light of this, priority actions on poverty eradication includes:

- Enhancing accessibility to sustainable means of making a living, entrepreneurial prospects, and valuable resources.
- Ensuring that basic social services are universally accessible to all.
- Gradually establishing robust social protection systems to provide assistance to individuals who are unable to sustain themselves economically.
- Empowering individuals residing in poverty and the organizations that represent them.
- Tackling the unequal burden of poverty experienced by women.
- Collaborating with willing donors and recipients to allocate higher proportions of Official Development Assistance (ODA) toward the eradication of poverty.
- Strengthening international cooperation efforts aimed at eradicating poverty globally.

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<u>TOPIC 2 – SELECTION OF PROBLEM AND SOLUTION</u>

In a world marked by pronounced gaps, my focus is on the pressing global issue of poverty. The reason for choosing 'Global poverty' are:

- **Global Impact**: Global poverty affects millions worldwide, making it a critical issue with far-reaching consequences.
- **Social Justice**: Addressing poverty aligns with principles of social justice and human rights.
- **Sustainability**: Poverty alleviation is crucial for achieving sustainable development goals.
- **Empowerment**: Discussing global poverty can empower individuals and communities to take action.
- **Intersectionality**: It intersects with various other global issues like health, education, and climate change.
- **Global Citizenship**: Focusing on global poverty promotes a sense of global citizenship and solidarity.

Problem & Solution I choose:

PROBLEM : Lack of good jobs and high unemployment rates

Reason: High unemployment rates directly limit income generation, while the scarcity of quality jobs perpetuates cycles of poverty. These issues reflect the fundamental challenges individuals face in breaking free from poverty.

SOLUTION : Skill development and Education

Reason: Skill development and education are potent solutions for poverty eradication as they equip individuals with the tools to secure better jobs and break free from the constraints of poverty, fostering long-term economic growth and empowerment.

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TOPIC 3 - WORDCLOUD

PROBLEM : Lack of good jobs and high unemployment rates

Poverty persists in India due to a multitude of factors. One of the primary causes of poverty persisting in India is the scarcity of quality employment opportunities and elevated rates of unemployment.

Considering that the central theme revolves around poverty, the most dominant term displayed in the word cloud is "poverty."

We can draw the following conclusions or insights from the wordcloud :

- **Job** - Hinders individuals from attaining stable income and financial security.
- **Education** - Limits economic opportunities and social mobility.
- **Government policy** - Ineffective government policies can foster a climate where low-quality, unstable jobs proliferate, contributing to poverty.
- **Economic/Financial issues** - Economic issues, such as recession, inflation, or income inequality, can lead to poverty by eroding people's purchasing power, reducing job opportunities, and widening the wealth gap.
- **Inequality** - Limiting access to resources, opportunities, and essential services for marginalized groups, perpetuating their economic disadvantage.

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PROBLEM : Lack of good jobs and high unemployment rates

Other factors resulting into poverty :

- Social difficulty
- Poverty cycle
- Inefficient government
- Failed workforce
- Underemployed
- Population
- Poor healthcare

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SOLUTION : Skill development and Education

There exist numerous approaches to addressing poverty. One of the primary solution to combat poverty is through enhancing education and skill development.

Considering that the central theme revolves around poverty, the most dominant term displayed in the word cloud is "poverty."

We can draw the following conclusions or insights from the wordcloud :

- **Skill development** - Enables individuals to access higher-paying jobs and economic opportunities.
- **Education** - Equips individuals with the knowledge and skills to secure well-paying jobs and improve their socio-economic prospects.
- **Opportunity** - Skill development breaks the cycle of poverty by creating better job opportunities.
- **Gender equality** - reduces poverty by fostering equal access and economic empowerment.

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SOLUTION : Skill development and Education

Other factors related to eradicating poverty:

- Training
- Learning
- Development
- Economic growth
- Workforce
- Knowledge
- Employment
- Literacy program

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TOPIC 4 - CODE AND THOUGHT PROCESS

Importing necessary libraries

```python
from docx import Document
import string
import re
import nltk
from nltk import sent_tokenize, word_tokenize, pos_tag
from nltk.corpus import stopwords
from wordcloud import WordCloud, STOPWORDS, ImageColorGenerator
from collections import Counter
import matplotlib.pyplot as plt
from os import path
from PIL import Image
import numpy as np
import matplotlib.image as mpimg
import matplotlib.colors as colors
import colorsys
```

Reading Problem and Solution files

```python
# reading the file and file contents
doc = Document('Problems_of_poverty.docx')
doc
```

```python
# reading the file and file contents
doc = Document('Solutions_of_poverty.docx')
doc
```

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Preprocessing

The process of preprocessing involved steps such as converting text to lowercase, eliminating punctuation, removing unwanted characters and digits using regular expressions, as well as removing whitespaces. Additionally, stopwords were excluded, and lemmatization was applied to extract meaningful content for generating a word cloud.

After the completion of preprocessing, the frequency counts for different tokens for problem and solution text are as follows:

```python
# count the frequency of each word in the 'tokens_problem' list
word_counts = Counter(tokens_problem)

# Sorts the tokens in the descending order of frequency
word_counts = dict(sorted(word_counts.items(), key=lambda item: item[1], reverse=True))
word_counts
```

```
{'poverty': 48,
 'job': 29,
 'policy': 23,
 'government': 22,
 'economic': 18,
 'employment': 14,
 'unemployment': 13,
 'opportunity': 13,
 'education': 13,
 'cycle': 12,
 'individual': 11,
 'access': 10,
 'financial': 10,
 'development': 9,
 'healthcare': 8,
 'social': 8,
 'lack': 8,
 'growth': 8,
```

Problem of poverty

```python
# count the frequency of each word in the 'tokens_solution' list
word_counts = Counter(tokens_solution)

# Sorts the tokens in the descending order of frequency
word_counts = dict(sorted(word_counts.items(), key=lambda item: item[1], reverse=True))
word_counts
```

```
{'skill': 63,
 'development': 56,
 'poverty': 37,
 'education': 31,
 'gender': 18,
 'economic': 16,
 'equality': 15,
 'community': 14,
 'opportunity': 11,
 'employment': 10,
 'job': 9,
 'access': 9,
 'society': 9,
 'tool': 8,
 'growth': 8,
 'fostering': 7,
 'need': 7,
 'approach': 6,
```

Solution of poverty

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WordCloud

Code snippet to change color of the wordcloud

```python
color = 'xkcd:forest green'
r,g,b = colors.to_rgb(color)
h,l,s = colorsys.rgb_to_hls(r,g,b)
hsl_val = 'hsl(' + str(h*360) + ', 100%%, %d%%)'
def hsl_color_func(word, font_size, position, orientation, random_state = None, **kwargs):
    return(hsl_val % np.random.randint(0,100))
```

Wordcloud for Problem and Solution of Poverty

The selection of red as the color for the word cloud depicting poverty issues is intentional and carries a symbolic message. Red's universal association with warning signals and alertness emphasizes the urgency of addressing poverty. It serves as a powerful visual reminder that poverty is not merely a statistic but a pressing global concern requiring immediate action and solutions. This choice aims to draw attention to the severity of the issue and encourages individuals and policymakers to prioritize poverty eradication.

The use of green as the color for the word cloud representing solutions to poverty is purposeful and symbolizes hope and growth. Green conveys a positive message, highlighting that solutions are available and can lead to progress. It serves as a visual reminder that addressing poverty is not only necessary but also achievable. By employing green, we aim to inspire optimism and motivate individuals and policymakers to prioritize and implement effective solutions for poverty alleviation.

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TOPIC 5 - MASKED IMAGE AND THOUGHT PROCESS

Masked WordCloud

Original image for Problem and Solution of Poverty

Problem   **Solution**

Code snippet for masked image wordclouds for Problem and Solution of Poverty are as follows:

Problem

```python
no_poverty1 = np.array(Image.open("empty_desk.jpg")) # Loading the image to be masked
# Generating a WordCloud object
wc = WordCloud(background_color="white", mask = no_poverty1, contour_width=5,
               contour_color='black',color_func = hsl_color_func).generate(clean_text_problem)
plt.imshow(wc, interpolation='bilinear')
plt.axis("off") # Turn off axis labels
plt.figure(figsize=(20,20)) # Creates a new figure for the plot
plt.show() # Displays the word cloud plot
```

Solution

```python
no_poverty1 = np.array(Image.open("skill_development.jpg")) # Loading the image to be masked
# Generating a WordCloud object
wc = WordCloud(background_color="white", mask = no_poverty1, contour_width=5,
               contour_color='black',color_func = hsl_color_func).generate(clean_text_problem)
plt.imshow(wc, interpolation='bilinear')
plt.axis("off")  # Turn off axis labels
plt.figure(figsize=(20,20)) # Creates a new figure for the plot
plt.show() # Displays the word cloud plot
```

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Masked WordCloud

Masked image wordclouds for Problem and Solution of Poverty

Problem	**Solution**

An empty office desk serves as a poignant symbol of unemployment and the lack of quality job opportunities, which can ultimately lead to poverty. It signifies the economic struggles faced by individuals when they are unable to secure stable and well-paying employment, underscoring the profound impact of job scarcity on poverty rates.

Skill development, as an icon in poverty alleviation, symbolizes the route to economic empowerment through knowledge and expertise acquisition. It enables access to improved job prospects, higher income, and ultimately liberation from poverty, driving personal and societal progress towards sustainable economic growth.

Relationship between 2 wordclouds

The relationship which can be depicted here is one of personal empowerment through skill development. As an individual acquires relevant skills and knowledge, they gain the ability to secure a good job symbolized by the empty office desk. This journey of upskilling becomes the means by which they lift themselves out of poverty, as it opens doors to better employment opportunities and a more prosperous future.

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TOPIC 6 - REFERENCES

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