User Manual

There are two python files all_tasks.py and main.py. The user will run only main.py file.
The software first present a menu to user or ask him to select an option from 8 tasks.
After selecting option then it takes inputs from user relevant to selected task and return results in proper format.

Menu:

```
Please Select from the menu to perform specific operation
        1. Top 10 happiest countries or least happiest
        2. top 3 countries that have most first positions from top and bottom
        3. Specific country with increasing its rank or decreasing its rank over specific period
        4. find list of countries
        5. countries with or above specific index value
        6. group contries contries by rank
        7. countries_with_consecutive_lower_ranks over specific period
        8. specific country details
```

Here is how to deal with all tasks:

Task 1: Top 10 happiest countries or least happiest

- Select option 1
- Enter the year e.g 2015, 2019. the year should be in this list

```
year_list = ['2013','2015','2016','2017','2018','2019','2020','2021','2022','2023']
```

- Select top_from_bottom=**True** if you want to print top least happiest countries otherwise **False**.
- Enter top count: mean how many top countries index you want to print e.g 5

Output

Top 5 least happiest countries in year 2015
[('Rwanda', 3.465), ('Benin', 3.34), ('Syria', 3.006), ('Burundi', 2.905), ('Togo', 2.839)]

Task 2: top 3 countries that have most first positions from top and bottom

- Select option 2
- Select top_from_bottom=**True** if you want to print top least happiest countries otherwise **False**.

Output

top 3 Countries with most first positions
[(6, 'Finland'), (2, 'Denmark'), (1, 'Switzerland')]

Task 3: Specific country with increasing its rank or decreasing its rank over specific period

- Select option 3
- Enter country name (that is in list) e.g Finlan
- Enter period value(int 1 to 10): mean for how many years

Output

Finland rank decreasing over period of 3 years (here decreasing means rank improved)

Task 4: find list of countries

- Select option 4
- descending order?(True/False): if you want print country names in descending order then select True

Output (partial output here)

['Zimbabwe', 'Zambia', 'Yemen', 'Vietnam', 'Venezuela', 'Uzbekistan'……]

Task 5: countries with or above specific index value

- Select option 5
- Enter threshold value(float): write threshold value in float

Output (partial output here)
Finland: 7.842
Finland: 7.821
Finland: 7.809
Finland: 7.804
Finland: 7.769
Denmark: 7.693
Norway: 7.655
Switzerland: 7.65
Denmark: 7.646
Denmark: 7.636
.
.
.
.

Task 6: group contries contries by rank

- Select option 6

Output (partial output here)
Rank Range 1-10: ['Netherlands', 'Canada', 'Denmark', 'Austria',…….]
Rank Range 21-30: ['Mexico', 'Spain', 'Guatemala', 'United Arab Emirates',……..]
.
.
.
Rank Range 141-150: ['Haiti', 'Burundi', 'Comoros', 'Zimbabwe', 'Syria'……..]

Task 7: countries_with_consecutive_lower_ranks over specific period

- Select option 7
- Enter the number of consective years: e.g 5

Output
Countries with at least 5 consecutive years of lower ranks: ['Yemen', 'Gambia', 'Lithuania']

Task 8: specific country details

- Select option 8
- Enter Country name: Enter country name to find details e.g Pakistan

Output
Country: Pakistan
Average Rank: 87.6
Rank Range: (66, 121)
Index Range: (4.516, 5.693)
Standard Deviation of Indexes: 82.42990159159477
Year of Highest Rank: 2022
Year of Lowest Rank: 2020

Here is the list of all function names with parameters (optional parameters as well)

```
get_top_countries_by_year(data, specific_year=None, top_count=5, top_from_bottom=False, print_all=True)
top_3_Countries_with_most_first_positions(data, top_count=5, top_from_bottom=False)
find_country_rank(data, country, period)
list_countries(data, dsc=False)
countries_with_index_above(data, index_threshold)
group_countries_by_rank_ranges(data)
countries_with_consecutive_lower_ranks(data, consecutive_years)
country_details(data, country_name)
```