How to Use the Comparative Risk Assessment Web Application

Step 1: Launch the Application

Ensure you have Python 3.x installed on your system.

Download or clone the application repository to your local machine.
Open a terminal or command prompt and navigate to the application directory.
Install Flask and other required libraries (if not already installed) using the following command (feel free to copy and paste the codes):

Copy Code
```
pip install Flask
```

Set the FLASK_APP environment variable to app.py. On Windows, use:

Copy Code
```
set FLASK_APP=app.py
```

On macOS/Linux, use:

Copy Code
```
export FLASK_APP=app.py
```

Start the Flask application by running:

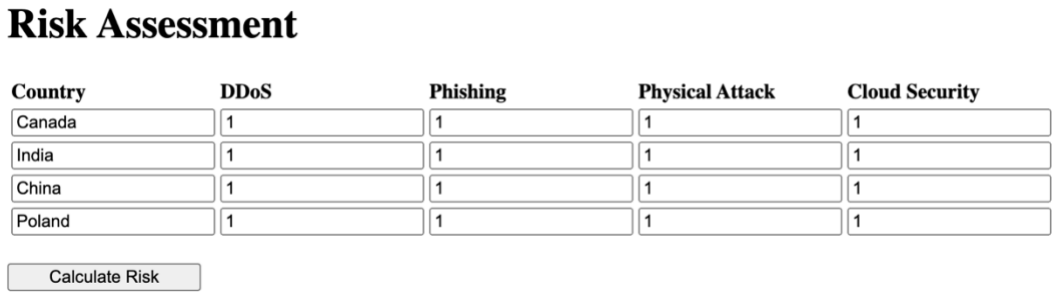
Copy Code
```
flask run
```

Access the application in your web browser at http://localhost:5000.

Step 2: Perform Risk Assessment

The application presents you with the Risk Assessment screen with default entries of 1 for each risk item.

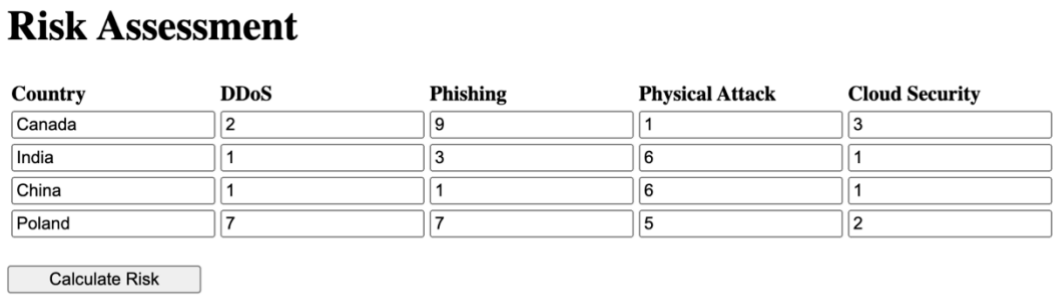
You can enter numerical values between 1 and 10 for each risk item. Values below 1 or above 10 are not allowed.



In this demonstration scenario, the application will use the below data as analyses of each country. (Note: The inputs are purely for demonstration purposes and not real data)

Step 3: Calculate Risk Scores

After entering the risk values for each country, click on the "Calculate Risk" button to proceed.



The application combines the user inputs with pre-populated JSON data for each country's threat model to calculate the risk scores.

```
threat_models = {
    "Canada": {"DDoS": 3, "Phishing": 4, "PhysicalAttack": 2, "CloudSecurity": 3},
    "India": {"DDoS": 4, "Phishing": 5, "PhysicalAttack": 3, "CloudSecurity": 2},
    "China": {"DDoS": 5, "Phishing": 5, "PhysicalAttack": 2, "CloudSecurity": 2},
    "Poland": {"DDoS": 2, "Phishing": 3, "PhysicalAttack": 1, "CloudSecurity": 4},
}
```

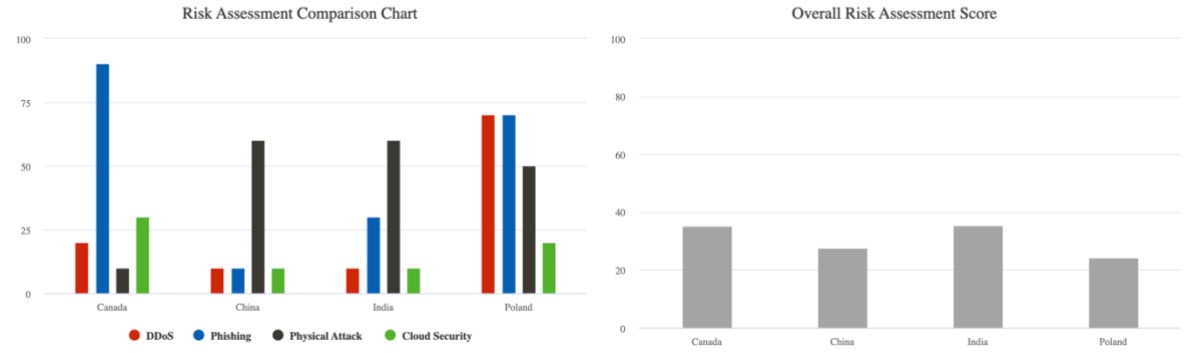
```
def calculate_risk_score(threat_model, country):
    """
    Calculate the risk score based on threat model and weightings.

    Args:
        threat_model (dict): The dictionary containing threat weightings for a specific
country.
        country (str): The name of the country.

    Returns:
        float: The calculated risk score rounded to two decimal places.
    """
    total_weight = sum(threat_model.values())
    risk_score = sum(threat_models[country][threat] * threat_model[threat] /
                     total_weight for threat in threat_model)
    return round(risk_score, 2)
```

Step 4: Interpretation of Risk Assessment Results

The results are displayed on the "Result" page.

Risk Assessment Results

Country	DDoS	Phishing	Physical Attack	Cloud Security	Risk Score
Canada	2	9	1	3	3.53
India	1	3	6	1	3.55
China	1	1	6	1	2.67
Poland	7	7	5	2	2.29



The top section shows the user input for each country and risk item, along with the final risk score after combining with pre-data.

The colored bar graph represents each risk in a country based on the user input.
The last graph is a representation of the overall risk assessment after combining the user input with the pre-data provided in the JSON.

The graphs offer a comparative graphical analysis of the provided data, showing the impact of the user's input and the pre-data on the overall risk assessment.

Step 5: Explore Different Scenarios

You can repeat the risk assessment process by going back to the Risk Assessment screen. Modify the input values for different countries and threat items to explore various risk scenarios.

Important Note:

This application is intended for educational and demonstration purposes only.
The risk assessment results are based on assumed known assessments of each country combined with user inputs.

Do not use the results for real-world decision-making without consulting experts and reliable data sources.

The Comparative Risk Assessment Web Application provides a simple yet powerful tool to assess and visualize risks across different locations. By following the steps above, users can easily input data, calculate risk scores, and interpret results through graphical representations. The application's user-friendly interface allows for exploration of various risk scenarios, aiding in informed decision-making.