Installing Pandas and Numpy

```
pip install pandas
pip install numpy
```

Skewness (20 pts)

In this question, you will implement the **skewness** of a dataset using NumPy.
Skewness is a statistical measure that describes how **asymmetric** a distribution is around its mean.

The formula for skewness is:

$$\text{skew}(x) = \frac{1}{n} \sum_{i=1}^{n} \left(\frac{x_i - \bar{x}}{\sigma} \right)^3$$

Where:

- x_i = each data point
- $\bar{x}$ = mean of the data
- σ = standard deviation
- n = number of samples

A positive skew indicates a longer tail on the right;
A negative skew indicates a longer tail on the left.

NumPy does **not** provide a built-in function for skewness, so you will compute it manually.

Tasks:

Write a function:

```
def skewness(x):
    ...
```

Where:

- `x` is a **1-D NumPy array** of numerical values.
- You may use NumPy functions such as:

- `np.mean`
- `np.std`
- vectorized arithmetic operations

Examples

```
arr = np.array([1, 2, 3, 4, 5, 5])
print(skewness(arr)) # -0.27950849718747395
```

Fetch JSON Data and Convert to CSV (30 pts)

Write a Python program that fetches user information in JSON format from a publicly accessible API and converts selected fields into a CSV file using **pandas**.

API Description

Use the open API endpoint from **JSONPlaceholder**, a free testing API:

```
https://jsonplaceholder.typicode.com/users
```

This URL returns a list of user objects in JSON format.
Each user entry includes fields such as:

```
{
    "id": 1,
    "name": "Leanne Graham",
    "username": "Bret",
    "email": "Sincere@april.biz",
    "address": {
        "street": "Kulas Light",
        "suite": "Apt. 556",
        "city": "Gwenborough",
        "zipcode": "92998-3874",
        "geo": {
        "lat": "-37.3159",
        "lng": "81.1496"
        }
    },
    "phone": "1-770-736-8031 x56442",
    "website": "hildegard.org",
    "company": {
        "name": "Romaguera-Crona",
        "catchPhrase": "Multi-layered client-server neural-net",
        "bs": "harness real-time e-markets"
    }
}
```


Program Requirements

1. **Fetch the JSON data**

   Use the `requests` library to download the JSON content from:

   ```
   https://jsonplaceholder.typicode.com/users
   ```

2. **Extract required fields**

   From each user object in the JSON response, extract:

   - The user **id**
   - The user's **name**
   - The user's **email**
   - The user's **city** from address

3. **Convert the data to a DataFrame**

   Use the **pandas** library to create a DataFrame with the following columns:

   - `id`
   - `name`

- `email`
- `city`

4. **Save the results to a CSV file**

   Write the DataFrame to a file named `users.csv` in the following format:

```
id,name,email,city
1,Leanne Graham,Sincere@april.biz,Gwenborough
...
```