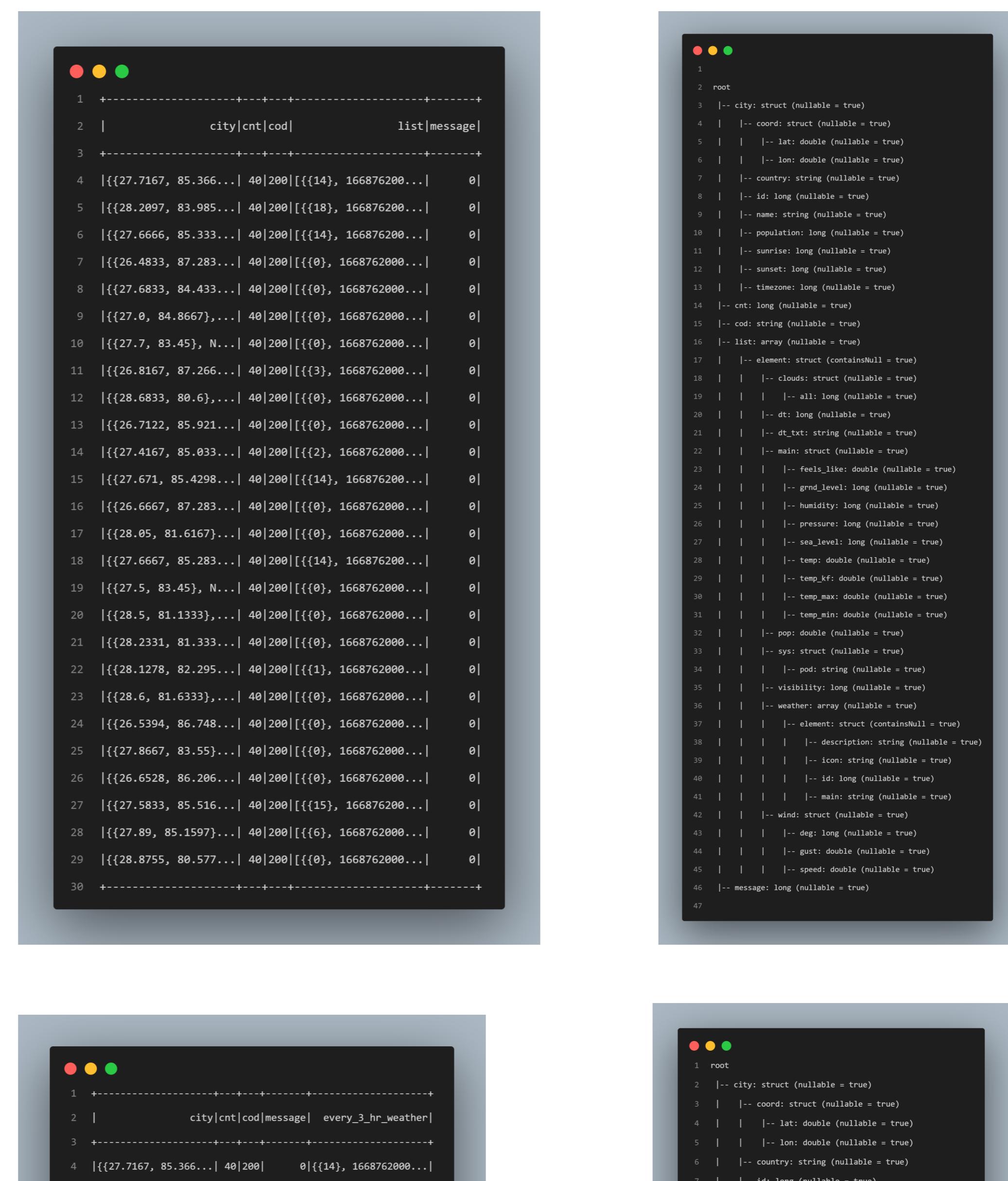


API Source : <https://openweathermap.org/forecast>

API request format: `api.openweathermap.org/data/2.5/forecast?lat={lat}&lon={lon}&appid={API key}`

Lat and Lon source : <https://simplemaps.com/data/np-cities>



```
1 +-----+-----+-----+-----+
2 |       city|cnt|cod|           list[message]
3 +-----+-----+-----+-----+
4 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
5 |{{28.2097, 83.985...| 40|208|{{{18}, 166876200...| 0|
6 |{{27.666, 85.333...| 40|208|{{{14}, 166876200...| 0|
7 |{{26.4833, 87.283...| 40|208|{{{10}, 166876200...| 0|
8 |{{27.683, 84.433...| 40|208|{{{10}, 166876200...| 0|
9 |{{27.0, 84.8667...| 40|208|{{{10}, 166876200...| 0|
10 |{{27.71, 83.451,...| 40|208|{{{14}, 166876200...| 0|
11 |{{26.8167, 87.265...| 40|208|{{{10}, 166876200...| 0|
12 |{{28.683, 80.6...| 40|208|{{{10}, 166876200...| 0|
13 |{{26.7122, 85.921...| 40|208|{{{10}, 166876200...| 0|
14 |{{27.4167, 85.033...| 40|208|{{{10}, 166876200...| 0|
15 |{{27.671, 85.429...| 40|208|{{{14}, 166876200...| 0|
16 |{{26.6667, 87.283...| 40|208|{{{10}, 166876200...| 0|
17 |{{28.05, 81.6167...| 40|208|{{{10}, 166876200...| 0|
18 |{{27.6667, 85.283...| 40|208|{{{14}, 166876200...| 0|
19 |{{27.5, 83.45,...| 40|208|{{{10}, 166876200...| 0|
20 |{{28.5, 81.1333...| 40|208|{{{10}, 166876200...| 0|
21 |{{28.2331, 81.333...| 40|208|{{{10}, 166876200...| 0|
22 |{{28.1278, 82.295...| 40|208|{{{10}, 166876200...| 0|
23 |{{28.6, 81.6333...| 40|208|{{{10}, 166876200...| 0|
24 |{{26.5394, 86.748...| 40|208|{{{10}, 166876200...| 0|
25 |{{27.8667, 85.55...| 40|208|{{{10}, 166876200...| 0|
26 |{{26.6528, 86.206...| 40|208|{{{10}, 166876200...| 0|
27 |{{27.583, 85.516...| 40|208|{{{15}, 166876200...| 0|
28 |{{27.89, 85.1597...| 40|208|{{{10}, 166876200...| 0|
29 |{{28.875, 80.577...| 40|208|{{{10}, 166876200...| 0|
30 +-----+-----+-----+-----+
```

```
1 root
2 |-- city: struct (nullable = true)
3 |  |-- coord: struct (nullable = true)
4 |    |  |-- lat: double (nullable = true)
5 |    |  |-- lon: double (nullable = true)
6 |    |  |-- country: string (nullable = true)
7 |    |  |-- id: long (nullable = true)
8 |    |  |-- name: string (nullable = true)
9 |    |  |-- population: long (nullable = true)
10 |    |  |-- sunrise: long (nullable = true)
11 |    |  |-- sunset: long (nullable = true)
12 |    |  |-- timezone: long (nullable = true)
13 |    |  |-- cnt: long (nullable = true)
14 |    |  |-- cod: string (nullable = true)
15 |    |  |-- list: array (nullable = true)
16 |    |  |  |-- element: struct (containsNull = true)
17 |    |  |  |  |-- clouds: struct (nullable = true)
18 |    |  |  |  |  |-- all: long (nullable = true)
19 |    |  |  |  |  |-- dt: long (nullable = true)
20 |    |  |  |  |  |-- main: struct (nullable = true)
21 |    |  |  |  |  |  |-- humidity: double (nullable = true)
22 |    |  |  |  |  |  |-- pressure: long (nullable = true)
23 |    |  |  |  |  |  |-- temp: double (nullable = true)
24 |    |  |  |  |  |  |-- temp_kf: double (nullable = true)
25 |    |  |  |  |  |  |-- temp_min: double (nullable = true)
26 |    |  |  |  |  |  |-- temp_max: double (nullable = true)
27 |    |  |  |  |  |  |-- visibility: long (nullable = true)
28 |    |  |  |  |  |  |-- wind: struct (nullable = true)
29 |    |  |  |  |  |  |  |-- deg: long (nullable = true)
30 |    |  |  |  |  |  |  |-- gust: double (nullable = true)
31 |    |  |  |  |  |  |  |-- speed: double (nullable = true)
32 |    |  |  |  |  |  |  |-- sys: struct (nullable = true)
33 |    |  |  |  |  |  |  |  |-- icon: string (nullable = true)
34 |    |  |  |  |  |  |  |  |-- id: long (nullable = true)
35 |    |  |  |  |  |  |  |  |-- main: string (nullable = true)
36 |    |  |  |  |  |  |  |  |-- description: string (nullable = true)
37 |    |  |  |  |  |  |  |  |-- icon: string (nullable = true)
38 |    |  |  |  |  |  |  |  |-- id: long (nullable = true)
39 |    |  |  |  |  |  |  |  |-- main: string (nullable = true)
40 |    |  |  |  |  |  |  |  |-- description: string (nullable = true)
41 |    |  |  |  |  |  |  |  |-- icon: string (nullable = true)
42 |    |  |  |  |  |  |  |  |-- id: long (nullable = true)
43 |    |  |  |  |  |  |  |  |-- deg: double (nullable = true)
44 |    |  |  |  |  |  |  |  |-- gust: double (nullable = true)
45 |    |  |  |  |  |  |  |  |-- speed: double (nullable = true)
46 |    |  |  |  |  |  |  |  |-- message: long (nullable = true)
47 |    |  |  |  |  |  |  |  |-- cnt: long (nullable = true)
```

```
1 +-----+-----+-----+-----+
2 |       city|cnt|cod|           every_3_hr_weather|
3 +-----+-----+-----+-----+
4 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
5 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
6 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
7 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
8 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
9 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
10 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
11 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
12 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
13 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
14 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
15 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
16 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
17 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
18 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
19 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
20 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
21 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
22 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
23 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
24 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
25 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
26 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
27 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
28 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
29 |{{27.7167, 85.366...| 40|208|{{{14}, 166876200...| 0|
30 +-----+-----+-----+-----+
```

```
1 root
2 |-- cnt: long (nullable = true)
3 |-- cod: string (nullable = true)
4 |-- message: long (nullable = true)
5 |-- sys: struct (nullable = true)
6 |  |-- id: long (nullable = true)
7 |  |-- name: string (nullable = true)
8 |  |-- population: long (nullable = true)
9 |  |-- sunrise: long (nullable = true)
10 |  |-- sunset: long (nullable = true)
11 |  |-- timezone: long (nullable = true)
12 |  |-- cnt: long (nullable = true)
13 |  |-- clouds: struct (nullable = true)
14 |  |  |-- all: long (nullable = true)
15 |  |  |-- dt: long (nullable = true)
16 |  |  |-- main: struct (nullable = true)
17 |  |  |  |-- humidity: long (nullable = true)
18 |  |  |  |-- pressure: long (nullable = true)
19 |  |  |  |-- temp: long (nullable = true)
20 |  |  |  |-- temp_kf: long (nullable = true)
21 |  |  |  |-- temp_min: double (nullable = true)
22 |  |  |  |-- temp_max: double (nullable = true)
23 |  |  |  |-- visibility: long (nullable = true)
24 |  |  |  |-- wind: struct (nullable = true)
25 |  |  |  |  |-- deg: long (nullable = true)
26 |  |  |  |  |-- gust: double (nullable = true)
27 |  |  |  |  |-- speed: double (nullable = true)
28 |  |  |  |  |-- sys: struct (nullable = true)
29 |  |  |  |  |  |-- icon: string (nullable = true)
30 |  |  |  |  |  |-- id: long (nullable = true)
31 |  |  |  |  |  |-- main: string (nullable = true)
32 |  |  |  |  |  |-- description: string (nullable = true)
33 |  |  |  |  |  |-- icon: string (nullable = true)
34 |  |  |  |  |  |-- id: long (nullable = true)
35 |  |  |  |  |  |-- main: string (nullable = true)
36 |  |  |  |  |  |-- description: string (nullable = true)
37 |  |  |  |  |  |-- icon: string (nullable = true)
38 |  |  |  |  |  |-- id: long (nullable = true)
39 |  |  |  |  |  |-- main: string (nullable = true)
40 |  |  |  |  |  |-- description: string (nullable = true)
41 |  |  |  |  |  |-- icon: string (nullable = true)
42 |  |  |  |  |  |-- id: long (nullable = true)
43 |  |  |  |  |  |-- deg: double (nullable = true)
44 |  |  |  |  |  |-- gust: double (nullable = true)
45 |  |  |  |  |  |-- speed: double (nullable = true)
46 |  |  |  |  |  |-- message: long (nullable = true)
47 |  |  |  |  |  |-- cnt: long (nullable = true)
```

LEVEL 1 Unpacking for city and every_3_hr_weather column

```
1 +-----+-----+-----+-----+
2 |       name|max_wind_speed|max_temp|max_humidity|max_pressure|max_cloudiness|
3 +-----+-----+-----+-----+-----+-----+
4 |Baudhatinchule|      1.59| 294.45|     86|     1019|     48|
5 |Bhaktapur|      1.46| 294.22|     86|     1019|     49|
6 |Bharatpur|      2.26| 300.23|     90|     1018|      7|
7 |Biratnagar|      3.2| 301.51|     74|     1016|     92|
8 |Birendranagar|     2.27| 297.36|     83|     1019|     23|
9 |Birgunj|      2.94| 300.76|     77|     1017|     31|
10 |Butwāl|      2.39| 298.67|     86|     1018|      7|
11 |Dhangadhi|      3.01| 299.17|     75|     1018|     46|
12 |Dharān|      2.85| 299.35|     77|     1017|     73|
13 |Gulariyā|      2.64| 299.38|     78|     1018|     35|
14 +-----+-----+-----+-----+-----+-----+
```

```
1 root
2 |-- cnt: long (nullable = true)
3 |-- cod: string (nullable = true)
4 |-- message: long (nullable = true)
5 |-- sys: struct (nullable = true)
6 |  |-- id: long (nullable = true)
7 |  |-- name: string (nullable = true)
8 |  |-- population: long (nullable = true)
9 |  |-- sunrise: long (nullable = true)
10 |  |-- sunset: long (nullable = true)
11 |  |-- timezone: long (nullable = true)
12 |  |-- cnt: long (nullable = true)
13 |  |-- clouds: struct (nullable = true)
14 |  |  |-- all: long (nullable = true)
15 |  |  |-- dt: long (nullable = true)
16 |  |  |-- main: struct (nullable = true)
17 |  |  |  |-- humidity: long (nullable = true)
18 |  |  |  |-- pressure: long (nullable = true)
19 |  |  |  |-- temp: long (nullable = true)
20 |  |  |  |-- temp_kf: long (nullable = true)
21 |  |  |  |-- temp_min: double (nullable = true)
22 |  |  |  |-- temp_max: double (nullable = true)
23 |  |  |  |-- visibility: long (nullable = true)
24 |  |  |  |-- wind: struct (nullable = true)
25 |  |  |  |  |-- deg: long (nullable = true)
26 |  |  |  |  |-- gust: double (nullable = true)
27 |  |  |  |  |-- speed: double (nullable = true)
28 |  |  |  |  |-- sys: struct (nullable = true)
29 |  |  |  |  |  |-- icon: string (nullable = true)
30 |  |  |  |  |  |-- id: long (nullable = true)
31 |  |  |  |  |  |-- main: string (nullable = true)
32 |  |  |  |  |  |-- description: string (nullable = true)
33 |  |  |  |  |  |-- icon: string (nullable = true)
34 |  |  |  |  |  |-- id: long (nullable = true)
35 |  |  |  |  |  |-- main: string (nullable = true)
36 |  |  |  |  |  |-- description: string (nullable = true)
37 |  |  |  |  |  |-- icon: string (nullable = true)
38 |  |  |  |  |  |-- id: long (nullable = true)
39 |  |  |  |  |  |-- main: string (nullable = true)
40 |  |  |  |  |  |-- description: string (nullable = true)
41 |  |  |  |  |  |-- icon: string (nullable = true)
42 |  |  |  |  |  |-- id: long (nullable = true)
43 |  |  |  |  |  |-- deg: double (nullable = true)
44 |  |  |  |  |  |-- gust: double (nullable = true)
45 |  |  |  |  |  |-- speed: double (nullable = true)
46 |  |  |  |  |  |-- message: long (nullable = true)
47 |  |  |  |  |  |-- cnt: long (nullable = true)
```

LEVEL 2 Unpacking of coord , clouds, main, sys, wind and weather_dict columns

```
1 +-----+-----+-----+-----+-----+-----+
2 |       name|max_wind_speed|max_temp|max_humidity|max_pressure|max_cloudiness|
3 +-----+-----+-----+-----+-----+-----+
4 |Baudhatinchule|      1.59| 294.45|     86|     1019|     48|
5 |Bhaktapur|      1.46| 294.22|     86|     1019|     49|
6 |Bharatpur|      2.26| 300.23|     90|     1018|      7|
7 |Biratnagar|      3.2| 301.51|     74|     1016|     92|
8 |Birendranagar|     2.27| 297.36|     83|     1019|     23|
9 |Birgunj|      2.94| 300.76|     77|     1017|     31|
10 |Butwāl|      2.39| 298.67|     86|     1018|      7|
11 |Dhangadhi|      3.01| 299.17|     75|     1018|     46|
12 |Dharān|      2.85| 299.35|     77|     1017|     73|
13 |Gulariyā|      2.64| 299.38|     78|     1018|     35|
14 +-----+-----+-----+-----+-----+-----+
```

```
1 root
2 |-- name: string (nullable = true)
3 |-- max_wind_speed: double (nullable = true)
4 |-- max_temp: double (nullable = true)
5 |-- max_humidity: long (nullable = true)
6 |-- max_pressure: long (nullable = true)
7 |-- max_cloudiness: long (nullable = true)
```

Q3

```
1 +-----+-----+-----+-----+
2 |       name|day|min_temp_night|
3 +-----+-----+-----+-----+
4 |Baudhatinchule|2022-11-18| 283.14|
5 |Baudhatinchule|2022-11-19| 282.85|
6 |Baudhatinchule|2022-11-20| 283.51|
7 |Baudhatinchule|2022-11-21| 283.15|
8 |Baudhatinchule|2022-11-22| 283.43|
9 +-----+-----+-----+-----+
```

```
1 root
2 |-- name: string (nullable = true)
3 |-- day: string (nullable = true)
4 |-- min_temp_night: double (nullable = true)
```