**Data Extraction from API to Database**

For this project, weather data from weatherapi.com has been used to create an interactive and user-friendly weather dashboard. Firstly, a” UK cities” (uk\_cities) list has been created and cities data has been extracted using Python codes in Jupyter Notebook:

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer code

Description automatically generated with low confidence

Json data has been exported to Json file and saved.

In MongoDB database and collection have been created and Json file has been imported to a database.

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidence

**Dropdown Menu and Gauge Charts**

As in whole project, Javascript codes have been used for functions of dropdown menu to choose a city. Temperature, humidity, and UV gauge charts (indicators) have been created with plotly.js visualization library.

//Dropdown menu and Humidity, UV, Temperature Indicator

let api\_key = "";

let cities = [

"Aberdeen",

"Armagh",

"Bangor",

"Bath",

"Belfast",

"Birmingham",

"Bradford",

"Brighton & Hove",

"Bristol",

"Cambridge",

"Canterbury",

"Cardiff",

"Carlisle",

"Chelmsford",

"Chester",

"Chichester",

"Coventry",

"Derby",

"Derry",

"Dundee",

"Durham",

"Edinburgh",

"Ely",

"Exeter",

"Glasgow",

"Gloucester",

"Hereford",

"Inverness",

"Kingston upon Hull",

"Lancaster",

"Leeds",

"Leicester",

"Lichfield",

"Lincoln",

"Lisburn",

"Liverpool",

"London",

"Manchester",

"Newcastle upon Tyne",

"Newport",

"Newry",

"Norwich",

"Nottingham",

"Oxford",

"Perth",

"Peterborough",

"Plymouth",

"Portsmouth",

"Preston",

"Ripon",

"St Albans",

"St Asaph",

"St Davids",

"Salford",

"Salisbury",

"Sheffield",

"Southampton",

"Stirling",

"Stoke-on-Trent",

"Sunderland",

"Swansea",

"Truro",

"Wakefield",

"Wells",

"Westminster",

"Winchester",

"Wolverhampton",

"Worcester",

"York",

];

//getting data from API

function getData(city) {

const base = `http://api.weatherapi.com/v1/current.json?key=${api\_key}&q=${city}`;

return fetch(base).then((response) => {

return response.json();

});

}

//creating function for dropdown

//grab the elements from HTML file

function dropDown() {

let selection = d3.select("#selDataset");

cities.forEach((city) => {

selection.append("option").text(city).property("value", city);

});

}

function optionChanged(city) {

console.log(city);

getData(city).then((data) => {

console.log(data);

updateCharts(data);

});

}

function updateCharts(data) {

// humidity

let chart\_data\_humidity = [

{

domain: { x: [0, 1], y: [0, 1] },

value: data.current.humidity,

title: { text: "Humidity" },

type: "indicator",

mode: "gauge+number",

delta: { reference: 50 },

gauge: { axis: { range: [null, 100] } },

},

];

let layout\_humidity = { width: 250, height: 250 };

Plotly.newPlot("gaugeHumidity", chart\_data\_humidity, layout\_humidity);

// uv

let chart\_data\_uv = [

{

domain: { x: [0, 1], y: [0, 1] },

value: data.current.uv,

title: { text: "UV" },

type: "indicator",

mode: "gauge+number",

delta: { reference: 6 },

gauge: { axis: { range: [null, 12] } },

},

];

let layout\_uv = { width: 250, height: 250 };

Plotly.newPlot("gaugeUV", chart\_data\_uv, layout\_uv);

// temperature

let chart\_data\_temperature = [

{

domain: { x: [0, 1], y: [0, 1] },

value: data.current.temp\_c,

title: { text: "Temperature" },

type: "indicator",

mode: "gauge+number",

delta: { reference: 50 },

gauge: { axis: { range: [null, 100] } },

},

];

let layout\_temperature = { width: 250, height: 250 };

Plotly.newPlot("gaugeTemperature", chart\_data\_temperature, layout\_temperature);

}

dropDown();