Plotly Express is a high-level data visualization library in Python built on top of Plotly, a low-level library for creating interactive visualizations. It provides a simple and expressive API for creating a wide range of interactive charts.

### Getting Started

**Install the Python Package**

$ pip install plotly

**Importing Plotly express**

```python
import plotly.express as px
```

**loading default dataset and performing the query.**

```python
df = px.data.gapminder().query("continent == 'Oceania'")
```

**Coding Pattern: data set, Column for x, Column for y, Categorical column, Title string, rename labels and axis, width in pixels, height in pixels.**

```python
px.line(
df,
x="year",
y="lifeExp",
color="country",
title="Life Expectancy Per Country",
labels={
    "year": "Time Line (Year)",
    "lifeExp": "Life Expectancy",
},
width=500,
height=400,
)
```

**Histogram**

```python
px.histogram(
df,
x="lifeExp",
color="country",
)
```

**Pie Chart**

```python
px.pie(
df,
values="lifeExp",
names="country",
title="Life Expectancy of Countries",
)
```

**Box Plot**

```python
px.box(
df,
        x="country",
y="lifeExp",
        notched=True,
        points="all",
)
```

**Density Heatmap**

```python
px.density_heatmap(
df,
x="year",
y="lifeExp",
nbinsx=20,
nbinsy=20,
)
```

**Customizing markers**

You can customize almost everything, for example, the color, opacity, and line width of the histogram.

```python
fig = px.histogram(
df,
x="lifeExp",
)
fig.update_traces(
    marker={
        "color": "black",
        "opacity": 0.8,
        "line": {"width": 3, "color": "#F0AE37"}
    }
)
```

**Customizing Layout**

Moreover, you can customize the layout, for example, fonts, plot background, legend, and axis.

```python
fig.update_layout(
    font_family="Rockwell",
    plot_bgcolor="#FFFFFF",
    yaxis={"visible": False},
)
fig.show()
```

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