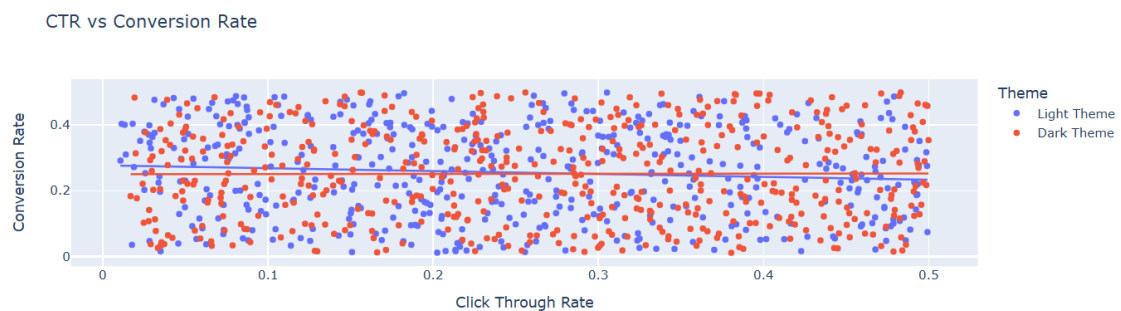


# PROJECT A/B TESTING OF THEMES USING PYTHON

## GRAPHS AND PLOT IMAGES

```
[6]: # Scatter plot for Click Through Rate and Conversion Rate
fig = px.scatter(data, x='Click Through Rate',
                y='Conversion Rate', color='Theme',
                title='CTR vs Conversion Rate', trendline='ols')
fig.show()
```



##The relationship between the Click Through Rate (CTR) and Conversion Rate is consistent and nearly unchanged, as shown by the scatter plot. It means that as more users click on links or buttons (CTR increases), a similar proportion of them also end up signing up daily (Conversion Rate remains stable)

```
}]: #histogram of the CTR of both themes:

# Extract data for each theme
light_theme_data = data[data['Theme'] == 'Light Theme']
dark_theme_data = data[data['Theme'] == 'Dark Theme']

# Create grouped bar chart for Click Through Rate
fig = go.Figure()

fig.add_trace(go.Histogram(x=light_theme_data['Click Through Rate'], name='Light Theme', opacity=0.6))
fig.add_trace(go.Histogram(x=dark_theme_data['Click Through Rate'], name='Dark Theme', opacity=0.6))

fig.update_layout(
    title_text='Click Through Rate by Theme',
    xaxis_title_text='Click Through Rate',
    yaxis_title_text='Frequency',
    barmode='group',
    bargap=0.1
)

fig.show()
```

Click Through Rate by Theme



[9]: *##histogram of the conversion rates of both themes:*

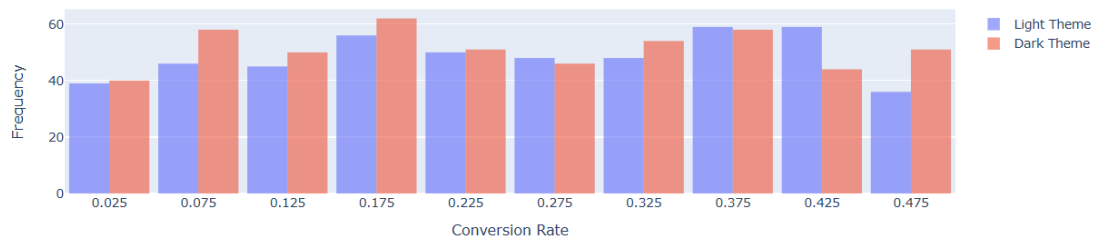
```
fig = go.Figure()

fig.add_trace(go.Histogram(x=light_theme_data['Conversion Rate'],
                           name='Light Theme', opacity=0.6, nbinsx=20))
fig.add_trace(go.Histogram(x=dark_theme_data['Conversion Rate'],
                           name='Dark Theme', opacity=0.6, nbinsx=20))

fig.update_layout(
    title_text='Conversion Rate by Theme',
    xaxis_title_text='Conversion Rate',
    yaxis_title_text='Frequency',
    barmode='group',
    bargap=0.1
)

fig.show()
```

Conversion Rate by Theme



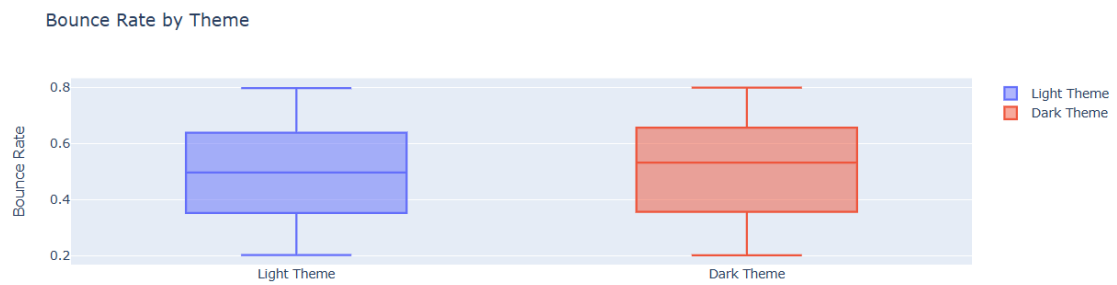
the conversion rate of the dark theme is slightly better than the light theme.

```
[10]: #distribution of the bounce rates of both themes:

fig = go.Figure()
fig.add_trace(go.Box(y=light_theme_data['Bounce Rate'],
                    name='Light Theme'))
fig.add_trace(go.Box(y=dark_theme_data['Bounce Rate'],
                    name='Dark Theme'))

fig.update_layout(
    title_text='Bounce Rate by Theme',
    yaxis_title_text='Bounce Rate',
)

fig.show()
```



```
[11]: #scroll depth of both themes:

fig = go.Figure()
fig.add_trace(go.Box(y=light_theme_data['Scroll_Depth'],
                    name='Light Theme'))
fig.add_trace(go.Box(y=dark_theme_data['Scroll_Depth'],
                    name='Dark Theme'))

fig.update_layout(
    title_text='Scroll Depth by Theme',
    yaxis_title_text='Scroll Depth',
)

fig.show()
```

