# Visualize Website Traffic (Step 5 of the plan)

print("Visualizing Website Traffic (Search, Direct, Social Media) Over Months:")

# Filter for the specified sources and limit visitors to 100

df\_traffic\_filtered = df\_traffic[df\_traffic['Source'].isin(['Search', 'Direct', 'Social'])].copy()

df\_traffic\_filtered['Visitors'] = df\_traffic\_filtered['Visitors'].clip(upper=100)

# Pivot the data for grouped bar chart

df\_traffic\_pivot = df\_traffic\_filtered.pivot(index='Month', columns='Source', values='Visitors')

fig, ax = plt.subplots(figsize=(10, 6))

# Plot a grouped bar chart with a colormap from green to red

df\_traffic\_pivot.plot(kind='bar', ax=ax, color=plt.cm.RdYlGn(np.linspace(0, 1, len(df\_traffic\_pivot.columns))))

ax.set\_xlabel('Month')

ax.set\_ylabel('Number of Visitors (up to 100)')

ax.set\_title('Website Traffic (Search, Direct, Social Media) Over Time (Monthly)', fontsize=14)

ax.tick\_params(axis='x', rotation=45)

ax.legend(title='Source', bbox\_to\_anchor=(1.05, 1), loc='upper left')

ax.set\_ylim(0, 100) # Ensure the y-axis limit remains at 100

plt.tight\_layout()

# Display the plot

data = io.BytesIO()

plt.savefig(data)

image = F"data:image/png;base64,{base64.b64encode(data.getvalue()).decode()}"

alt = "Website Traffic (Search, Direct, Social Media) Over Time (Monthly)"

display.display(display.Markdown(F"""![{alt}]({image})"""))

plt.close(fig)