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# === barChart.ipynb ===

#%%
%matplotlib notebook
#get_ipython().run_line_magic('matplotlib', 'notebook')


#%%
import matplotlib.pyplot as plt
import numpy as np


#%%
# ------------------------------------------------------------------------
# bar charts are useful for comparing different entities to one another
# When dealing with bar charts, it is necessary to provide the heights
# of each bar within an array
# ------------------------------------------------------------------------

# Create an array that contains the number of users each language has
users = [13000, 26000, 52000, 30000, 9000]

# The x-axis also must be an array whose length must equal that of the list
# of heights
x_axis = np.arange(len(users))


#%%
# ------------------------------------------------------------------------
# Tell matplotlib that we will be making a bar chart
# users is our y axis and x_axis is, of course, our x axis
# we apply align="edge" to ensure our bars line up with our tick marks
# User function `.bar()` for bar chart
# https://matplotlib.org/2.1.0/api/_as_gen/matplotlib.pyplot.bar.html
# ------------------------------------------------------------------------
plt.bar(x_axis, users, color='r', alpha=0.5, align="center")


#%%
# Tell matplotlib where we would like to place each of our x axis headers
tick_locations = [value for value in x_axis]
plt.xticks(tick_locations, ["Java", "C++", "Python", "Ruby", "Clojure"])


#%%
# ------------------------------------------------------------------------
# `plt.xlim()` is set to go from -0.75 to the length of the X axes minus 0.25
# so that there is a degree of space between the leftmost bar and the edge
# of the chart.
# ------------------------------------------------------------------------
# Sets the x limits of the current chart
plt.xlim(-0.75, len(x_axis)-0.25)


#%%
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56 # Sets the y limits of the current chart
57 plt.ylim(0, max(users)+5000)
58
59
60 #%%
61 # Give our chart some labels and a tile
62 plt.title("Popularity of Programming Languages")
63 plt.xlabel("Programming Language")
64 plt.ylabel("Number of People Using Programming Languages")
```