**微信朋友圈分析**

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**一、实验名称**： 计算机程序设计

**二、实验题目：**

**1、微信朋友圈分析**

**三、算法实现：**

**1、**

**import itchat**

**import numpy as np**

**import matplotlib.pyplot as plt**

**import matplotlib as mpl**

**import re**

**import jieba**

**import PIL.Image as Image**

**from wordcloud import WordCloud, ImageColorGenerator**

**#登录朋友圈**

**def login():**

**itchat.login()**

**friends=itchat.get\_friends(update=True)[0:]**

**return friends**

**#获取朋友圈数据**

**def get\_var(var, friends):**

**variable = []**

**for i in friends:**

**value = i[var]**

**variable.append(value)**

**return variable**

**#朋友圈性别比例**

**def analyseGender(friends):**

**male=female=other=0**

**sexes = get\_var('Sex', friends)**

**for sex in sexes:**

**if sex == 1:**

**male += 1**

**elif sex == 2:**

**female += 1**

**else:**

**other += 1**

**total = len(friends[1:])**

**malecol = round( float(male)/total \* 100, 2)**

**femalecol = round( float(female)/total \* 100, 2)**

**othercol = round( float(other)/total \* 100, 2)**

**print('男性好友：{:.2f}%%'.format( malecol))**

**print('女性好友：{:.2f}%%'.format( femalecol))**

**print('不明性别好友：{:.2f}%%'.format( othercol))**

**#plot code**

**mpl.rcParams['font.sans-serif']=['SimHei']**

**mpl.rcParams['axes.unicode\_minus'] = False**

**map = {**

**'Female':(malecol, '#7199cf'),**

**'Male': (femalecol, '#4fc4aa'),**

**'other': (othercol, '#e1a7a2')**

**}**

**fig = plt.figure( figsize=(5,5))**

**ax = fig.add\_subplot(111)**

**ax.set\_title( '朋友圈性别')**

**xticks = np.arange(3) + 0.15**

**bar\_width = 0.5**

**names = map.keys()**

**values = [ x[0] for x in map.values()]**

**colors = [ x[1] for x in map.values()]**

**#柱状图**

**bars = ax.bar( xticks, values, width=bar\_width, edgecolor='none')**

**ax.set\_ylabel('比例')**

**ax.set\_xlabel('性别')**

**ax.grid()**

**ax.set\_xticks( xticks)**

**ax.set\_xticklabels( names)**

**ax.set\_xlim( [bar\_width/2 - 0.5, 3 - bar\_width/2])**

**ax.set\_ylim( [0, 100])**

**for bar, color in zip( bars, colors):**

**bar.set\_color( color)**

**height = bar.get\_height()**

**plt.text( bar.get\_x(), bar.get\_height()/4.+ height, '{:.2f}%'.format( float(height)))**

**plt.show()**

**#饼状图**

**fig1 = plt.figure( figsize=(5,5))**

**ax = fig1.add\_subplot(111)**

**ax.set\_title('饼图')**

**labels = ['{}\n{}%'.format(name, value) for name, value in zip( names, values)]**

**ax.pie(values, labels=labels, colors=colors)**

**plt.show()**

**def analyseProvince(friends):**

**provlist = get\_var('Province', friends)**

**provdict = {}**

**for p in provlist:**

**provdict[p] = provdict.get(p,0) + 1**

**provdict = sorted(provdict.items(), key= lambda x : x[1], reverse=True)**

**#画图**

**figpro = plt.figure(figsize=(10,5))**

**axpro = figpro.add\_subplot(111)**

**axpro.set\_title('省份')**

**xticks = np.linspace(0.5,20,10)**

**bar\_width = 0.8**

**pros= []**

**values = []**

**count = 0**

**for d in provdict:**

**pros.append(d[0])**

**values.append(d[1])**

**count += 1**

**if count >= 10:**

**break**

**colors = ['#FFEC88', '#FFE4C4','#FFC125','#FFB6C1','#CDCDB4','#CDC8B1','#CDB79E','#CDAD00','#CD96CD',\**

**'#CD853F']**

**bars = axpro.bar( xticks, values, width=bar\_width, edgecolor='none')**

**axpro.set\_ylabel('人数')**

**axpro.set\_xlabel('省份')**

**axpro.grid()**

**axpro.set\_xticks( xticks)**

**axpro.set\_xticklabels(pros)**

**axpro.set\_xlim(0,20)**

**axpro.set\_ylim([0,100])**

**for bar, color in zip( bars, colors):**

**bar.set\_color(color)**

**height = bar.get\_height()**

**plt.text( bar.get\_x()+bar.get\_width()/4., height, '{}'.format(height))**

**plt.show()**

**def drawWordcloudPlot(counts):**

**coloring = np.array(Image.open("D:/Python/2.jpg"))**

**wc = WordCloud(background\_color="white",**

**max\_words=2000,**

**mask=coloring,**

**max\_font\_size=600,**

**random\_state=42,**

**scale=2,**

**font\_path="c:/Windows/Fonts/SimHei.ttf")**

**wc.generate\_from\_frequencies(counts)**

**image\_colors = ImageColorGenerator(coloring)**

**plt.imshow(wc)**

**plt.axis("off")**

**plt.savefig('2Sign.jpg')**

**plt.show()**

**def analyseSignature(friends):**

**signatures = get\_var('Signature', friends)**

**siglist = []**

**for sign in signatures:**

**sign = sign.strip().replace("span", "").replace("class", "").replace("emoji", "")**

**rep = re.compile("lf\d+\w\*|[<>/=]")**

**sign = rep.sub("", sign)**

**siglist.append(sign)**

**text = "".join(siglist)**

**wlist = jieba.cut(text, cut\_all=True)**

**counts = {}**

**for word in wlist:**

**if len(word) == 1:**

**continue**

**else:**

**counts[word] = counts.get(word, 0) + 1**

**wdict = {}**

**for d in counts.items():**

**if d[1] > 0:**

**wdict[d[0]] = d[1]**

**drawWordcloudPlot(wdict)**

**def main():**

**friends = login()**

**analyseGender(friends)**

**analyseProvince(friends)**

**analyseSignature(friends)**

**main()**





