

```
print("Беляев Евгений Валерьевич")
print("20БИ-2")
!ln -fs /usr/share/zoneinfo/Europe/Moscow /etc/localtime
!date
```

```
Беляев Евгений Валерьевич
20БИ-2
Tue Mar 23 17:24:53 MSK 2021
```

```
#связь с диском и открытие таблицы
```

```
from google.colab import auth
auth.authenticate_user()
!pip install --upgrade gspread
import gspread
from google.colab import drive
drive.mount('/content/drive')
import os
print(os.getcwd())
print(os.listdir('.'))
print(os.listdir('/content/drive'))
print(os.listdir('/content/drive/MyDrive/Colab Notebooks/swot'))
%ll -IF /content/drive/MyDrive/"Colab Notebooks"/swot
from oauth2client.client import GoogleCredentials
gs = gspread.authorize(GoogleCredentials.get_application_default())
table = gs.open_by_key('1eyKANrIGESkF_5K7kDg2xMZErf2xf2EvIV-tFhBDMhGg')
!ln -fs /usr/share/zoneinfo/Europe/Moscow /etc/localtime
!date
```

```
Requirement already up-to-date: gspread in /usr/local/lib/python3.7/dist-packages (3.7.0)
Requirement already satisfied, skipping upgrade: google-auth-oauthlib>=0.4.1 in /usr/local/lib/python3.7/dist-packages (fr
Requirement already satisfied, skipping upgrade: google-auth>=1.12.0 in /usr/local/lib/python3.7/dist-packages (fr
Requirement already satisfied, skipping upgrade: requests-oauthlib>=0.7.0 in /usr/local/lib/python3.7/dist-packages (fr
Requirement already satisfied, skipping upgrade: cachetools<5.0,>=2.0.0 in /usr/local/lib/python3.7/dist-packages
Requirement already satisfied, skipping upgrade: rsa<5,>=3.1.4; python_version >= "3.6" in /usr/local/lib/python3.
Requirement already satisfied, skipping upgrade: six>=1.9.0 in /usr/local/lib/python3.7/dist-packages (from google
Requirement already satisfied, skipping upgrade: pyasn1-modules>=0.2.1 in /usr/local/lib/python3.7/dist-packages
Requirement already satisfied, skipping upgrade: setuptools>=40.3.0 in /usr/local/lib/python3.7/dist-packages (fro
Requirement already satisfied, skipping upgrade: oauthlib>=3.0.0 in /usr/local/lib/python3.7/dist-packages (from r
Requirement already satisfied, skipping upgrade: requests>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from r
Requirement already satisfied, skipping upgrade: pyasn1>=0.1.3 in /usr/local/lib/python3.7/dist-packages (from rsa
Requirement already satisfied, skipping upgrade: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requ
Requirement already satisfied, skipping upgrade: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-packages (from
Requirement already satisfied, skipping upgrade: urllib3!=1.25.0,!1.25.1,<1.26,>=1.21.1 in /usr/local/lib/python3.
Requirement already satisfied, skipping upgrade: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-packages (from
Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force_
/content
['.config', 'adc.json', 'drive', 'sample_data']
['.shortcut-targets-by-id', 'MyDrive', '.file-revisions-by-id', '.Trash']
['swot.gsheets', 'swot_dictionary.json']
total 1
-rw-rw-r-- 1 root 236 Mar 23 18:35 swot_dictionary.json
-rw-rw-r-- 1 root 151 Mar 23 18:23 swot.gsheets
Tue Mar 23 18:36:36 MSK 2021
```

```

#strengths
print("strengths")
worksheet = table.worksheet("strengths")
rows = worksheet.get_all_values()
strength = list()
actions = list()
importance = list()
probability = list()
power = list()
power_sh = list()
power_raw = list()
i = 0
for row in rows:
    if (0 < i < 6):
        print(i, row)
        strength.append(row[0])
        importance.append(int(row[1]))
        probability.append(float(row[2]))
        power.append(int(row[1]) * float(row[2]))
        power_raw = list()
        power_raw.append(int(row[1]) * float(row[2]))
        power_sh.append(power_raw)
    i += 1
print('Values: ', power_sh)
worksheet.update('D2:D100', power_sh)
result = sum(power)
print('Result: ', result)

```

```

import matplotlib
import matplotlib.pyplot as plt
import numpy as np
i = 0
line = list()
cols = worksheet.col_values(1)
for col in cols:
    if (i > 0):
        line.append(i)
    i+=1
powers = power
x = np.arange(len(line))
width = 0.5
fig, ax = plt.subplots()
rects1 = ax.bar(x - width/2, powers, width)
a = worksheet.col_values(1)
ax.set_ylabel('Intensity')
ax.set_title('Strengths')
ax.set_xlabel('Parameters')
ax.set_xticks(x)
ax.set_xticklabels(line)
fig.tight_layout()
plt.show()

```

```
k = 0
```

```
for col in cols:
```

```
for col in cols:
```

```
    if (k > 0):
```

```
        print(k, ' - ', col)
```

```
    k += 1
```

```
strengths
```

```
1 ['создание качественного продукта', '10', '1', '10']
```

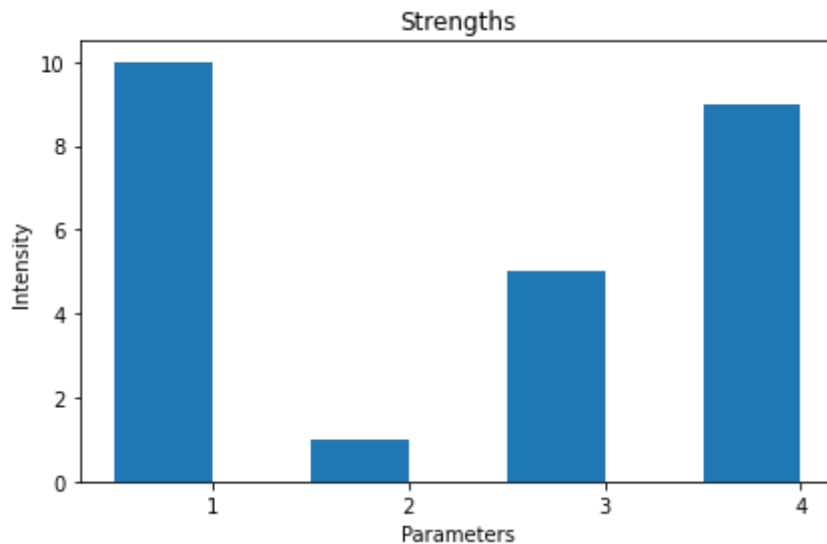
```
2 ['минимизация налогов ', '5', '0.2', '1']
```

```
3 ['возможность получения прибыли', '10', '0.5', '5']
```

```
4 ['возможность помощи детям', '10', '0.9', '9']
```

```
Values: [[10.0], [1.0], [5.0], [9.0]]
```

```
Result: 25.0
```



1 - создание качественного продукта

2 - минимизация налогов

3 - возможность получения прибыли

4 - возможность помощи детям

```
#weaknesses
```

```
print("weaknesses")
```

```
worksheet = table.worksheet("weaknesses")
```

```
rows = worksheet.get_all_values()
```

```
weaknesses = list()
```

```
actions = list()
```

```
importance = list()
```

```
probability = list()
```

```
power = list()
```

```
power_sh = list()
```

```
power_raw = list()
```

```
i = 0
```

```
for row in rows:
```

```
    if (0 < i < 5):
```

```
        print(i, row)
```

```
        weaknesses.append(row[0])
```

```
        importance.append(int(row[1]))
```

```
        probability.append(float(row[2]))
```

```
        power.append(int(row[1]) * float(row[2]))
```

```
        power_raw = list()
```

```
        power_raw.append(int(row[1]) * float(row[2]))
```

```
        power_sh.append(power_raw)
```

```
    i += 1
```

```
print('Values: ', power_sh)
```

```
worksheet.update('D2:D100', power_sh)
result = sum(power)
print('Result: ', result)
```

```
import matplotlib
import matplotlib.pyplot as plt
import numpy as np
i = 0
line = list()
cols = worksheet.col_values(1)
for col in cols:
    if (i > 0):
        line.append(i)
    i+=1
powers = power
x = np.arange(len(line))
width = 0.5
fig, ax = plt.subplots()
rects1 = ax.bar(x - width/2, powers, width)
a = worksheet.col_values(1)
ax.set_ylabel('Intensity')
ax.set_title('Weaknesses')
ax.set_xlabel('Parameters')
ax.set_xticks(x)
ax.set_xticklabels(line)
fig.tight_layout()
plt.show()
```

```
k = 0
for col in cols:
    if (k > 0):
        print(k, ' - ', col)
    k += 1
```

```

weaknesses
1 ['отсутствие опыта работы с детьми', '9', '0.8', '7.2']
2 ['отсутствие клиентской базы', '9', '0.8', '7.2']
3 ['недостаток финансовых ресурсов', '8', '0.5', '4']
4 ['нехватка кадров', '6', '0.3', '1.8']
Values: ['7.2', '7.2', '4.0', '1.8']

```

```

#opportunities
print("opportunities")
worksheet = table.worksheet("opportunities")
rows = worksheet.get_all_values()
opportunities = list()
actions = list()
importance = list()
probability = list()
power = list()
power_sh = list()
power_raw = list()
i = 0
for row in rows:
    if (0 < i < 5):
        print(i, row)
        opportunities.append(row[0])
        importance.append(int(row[1]))
        probability.append(float(row[2]))
        power.append(int(row[1]) * float(row[2]))
        power_raw = list()
        power_raw.append(int(row[1]) * float(row[2]))
        power_sh.append(power_raw)
        i += 1
print('Values: ', power_sh)
worksheet.update('D2:D100', power_sh)
result = sum(power)
print('Result: ', result)

```

```

import matplotlib
import matplotlib.pyplot as plt
import numpy as np
i = 0
line = list()
cols = worksheet.col_values(1)
for col in cols:
    if (i > 0):
        line.append(i)
        i += 1
powers = power
x = np.arange(len(line))
width = 0.5
fig, ax = plt.subplots()
rects1 = ax.bar(x - width/2, powers, width)
a = worksheet.col_values(1)
ax.set_ylabel('Intensity')
ax.set_title('Opportunities')
ax.set_xlabel('Parameters')
ax.set_xticks(x)

```

```
ax.set_xticklabels(line)
fig.tight_layout()
plt.show()
```

```
k = 0
```

```
for col in cols:
```

```
    if (k > 0):
```

```
        print(k, ' - ', col)
```

```
    k += 1
```

```
opportunities
```

```
1 ['спрос на услугу', '5', '0.5', '2.5']
```

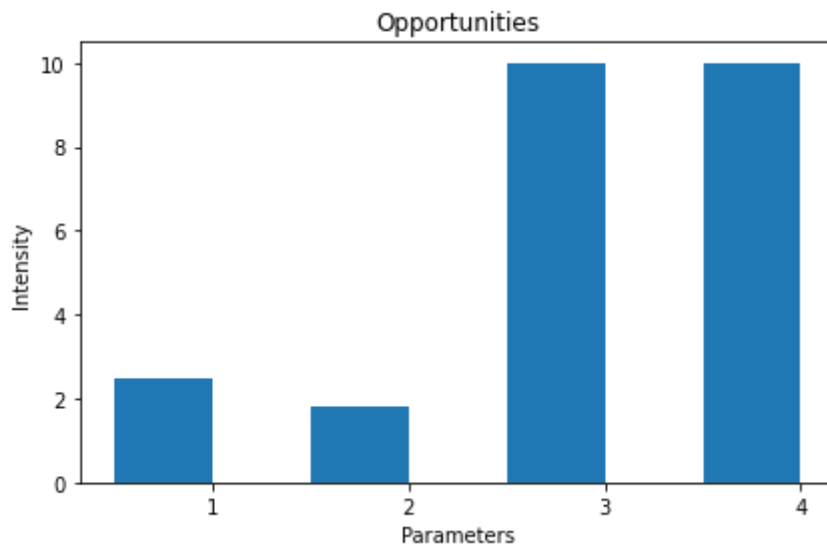
```
2 ['возможность быстро организовать процесс ', '3', '0.6', '1.8']
```

```
3 ['уникальность услуги ', '10', '1', '10']
```

```
4 ['желание работать с детьми ', '10', '1', '10']
```

```
Values: [[2.5], [1.7999999999999998], [10.0], [10.0]]
```

```
Result: 24.3
```



1 - спрос на услугу

2 - возможность быстро организовать процесс

3 - уникальность услуги

4 - желание работать с детьми

```
#threats
```

```
print("threats")
```

```
worksheet = table.worksheet("threats")
```

```
rows = worksheet.get_all_values()
```

```
threats = list()
```

```
actions = list()
```

```
importance = list()
```

```
probability = list()
```

```
power = list()
```

```
power_sh = list()
```

```
power_raw = list()
```

```
i = 0
```

```
for row in rows:
```

```
    if (0 < i < 7):
```

```
        print(i, row)
```

```
        threats.append(row[0])
```

```
        importance.append(int(row[1]))
```

```
        probability.append(float(row[2]))
```

```
        power.append(int(row[1]) * float(row[2]))
```

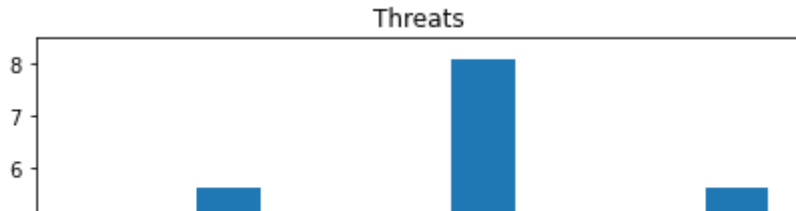
```
power_raw = list()
power_raw.append(int(row[1]) * float(row[2]))
power_sh.append(power_raw)
i += 1
print('Values: ', power_sh)
worksheet.update('D2:D100', power_sh)
result = sum(power)
print('Result: ', result)
```

```
import matplotlib
import matplotlib.pyplot as plt
import numpy as np
i = 0
line = list()
cols = worksheet.col_values(1)
for col in cols:
    if (i > 0):
        line.append(i)
        i += 1
powers = power
x = np.arange(len(line))
width = 0.5
fig, ax = plt.subplots()
rects1 = ax.bar(x - width/2, powers, width)
a = worksheet.col_values(1)
ax.set_ylabel('Intensity')
ax.set_title('Threats')
ax.set_xlabel('Parameters')
ax.set_xticks(x)
ax.set_xticklabels(line)
fig.tight_layout()
plt.show()
```

```
k = 0
for col in cols:
    if (k > 0):
        print(k, ' - ', col)
    k += 1
```

threats

```
1 ['Затруднения клиентов оплачивать услугу', '2', '0.4', '0.8', '']
2 ['Угроза вхождения на рынок новых участников', '8', '0.7', '5.6', '']
3 ['Угроза появления субститутов (заменителей)', '1', '0.9', '0.9', '']
4 ['рыночная власть покупателей', '9', '0.9', '8.1', '']
5 ['Рыночная власть поставщиков', '9', '0.1', '0.9', '']
6 ['Соперничество между действующими конкурентами', '8', '0.7', '5.6', '5.6']
Values: [[0.8], [5.6], [0.9], [8.1], [0.9], [5.6]]
Result: 21.9
```



#общая таблица

```
print('SWOT')
```

```
import os
```

```
import json
```

```
def matplot(element):
```

```
    import matplotlib.pyplot as plt
```

```
    x = list()
```

```
    x_float = list()
```

```
    title = list()
```

```
    y_float = list()
```

```
    worksheet = table.worksheet('strengths')
```

```
    stren = worksheet.acell('D8').value
```

```
    worksheet = table.worksheet('weaknesses')
```

```
    weak = worksheet.acell('D8').value
```

```
    worksheet = table.worksheet('opportunities')
```

```
    op = worksheet.acell('D8').value
```

```
    worksheet = table.worksheet('threats')
```

```
    thr = worksheet.acell('D8').value
```

```
    worksheet = table.worksheet('summary')
```

```
    worksheet.update('B1', stren)
```

```
    stren = worksheet.acell('B1').value
```

```
    worksheet.update('B2', weak)
```

```
    weak = worksheet.acell('B2').value
```

```
    worksheet.update('B3', op)
```

```
    op = worksheet.acell('B3').value
```

```
    worksheet.update('B4', thr)
```

```
    thr = worksheet.acell('B4').value
```

```
read_file = open('/content/drive/MyDrive/Colab Notebooks/swot/swot_dictionary.json', 'r+')
```

```
read_file.write('{Strengths: ')

```

```
read_file.write(stren)

```

```
read_file.write(', Weaknesses: ')

```

```
read_file.write(weak)

```

```
read_file.write(', Opportunities: ')

```

```
read_file.write(op)

```

```
read_file.write(', Threats: ')

```

```
read_file.write(thr)

```

```
read_file.write('}')

```



```

read_file.write('}')

result = 0
i = 0
for line in read_file.readlines():
    i += 1
    data = json.loads(line)
    title = ["Strengths", "Weaknesses", "Opportunities", "Threats", "Result"]
    x = title
    x_float = [1, 2, 3, 4, 5]
    result = float(data['strengths']) - 1*float(data['weaknesses']) + float(data['opportunities']) - 1*float(data['threats'])
    y = [float(data['strengths']), float(data['weaknesses']), float(data['opportunities']), float(data['threats'])]
    y_float = [float(data['strengths']), -1*float(data['weaknesses']), float(data['opportunities']), -1*float(data['threats']), result]
    print(x_float, title, y_float)

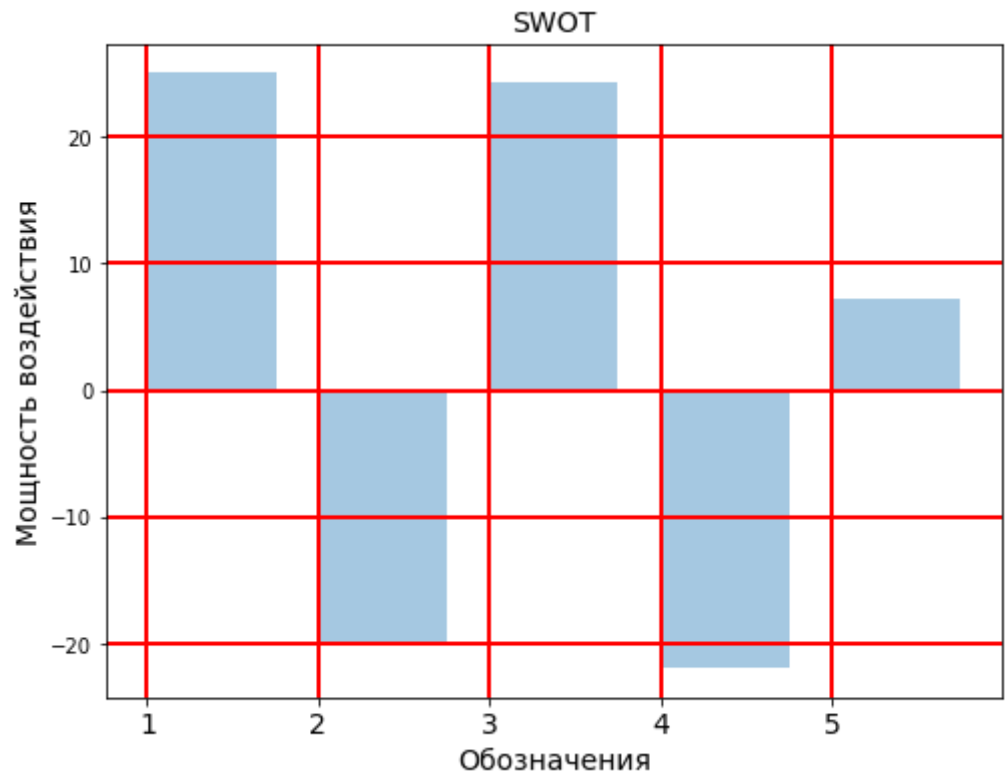
worksheet = table.worksheet('summary')
worksheet.update('B5', result)
read_file.close()
x_pos = list()
for i in range(x_float.__len__()):
    x_pos.append(i)
fig=plt.figure(figsize=(8,6), dpi=72)
plt.bar(x_pos, y_float, width=0.75, align='edge', alpha=0.4)
plt.xticks(x_pos, x_float, fontsize=14)
plt.xlabel('Обозначения', fontsize=14)
plt.ylabel('Мощность воздействия', fontsize=14)
plt.title('SWOT', fontsize=14)
plt.grid(True, color='r', linestyle='-', linewidth=2)
plt.show()

for i in range(title.__len__()):
    print(i+1, " - ", title[i], "; ")
    i += 1

if __name__ == "__main__":
    element = 'swot_dictionary'
    matplotlib(element)

```

SWOT
[1, 2, 3, 4, 5] ['Strengths', 'Weaknesses', 'Opportunities', 'Threats', 'Result'] [25.0, -20.2, 24.3, -21.9, 7.200000000000000]



- 1 - Strengths ;
- 2 - Weaknesses ;
- 3 - Opportunities ;
- 4 - Threats ;
- 5 - Result ;