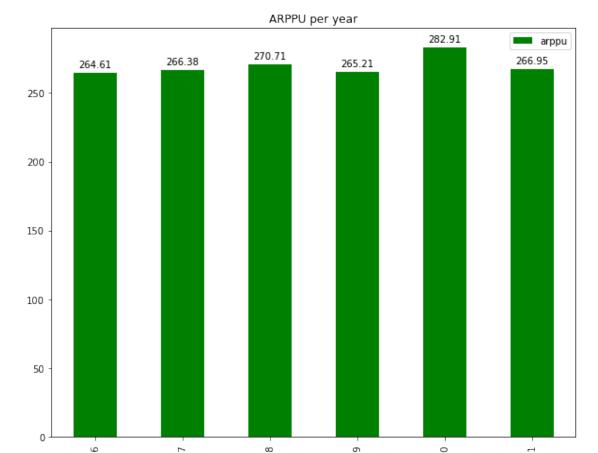
3 ARPU ARPPU

December 12, 2022

SQL request project Yandex Practicum (personal visuzalization implementation in Python)
ARPPU visualization

```
[]: import pandas as pd
      %load_ext sql
      %sql postgresql://postgres:sqltest123@localhost/1
 []: | %%sql result <<
      SELECT SUM(tso.total_amt) / COUNT(DISTINCT tsu.user_id) AS ARPU
      FROM tools_shop.users AS tsu
      LEFT JOIN tools_shop.orders AS tso ON tsu.user_id = tso.user_id
 [3]: df = result.DataFrame()
      display(df.head(11))
                       arpu
     0 41.1890941132294458
 []: | % | sql result2 <<
      SELECT EXTRACT(YEAR FROM o.created_at) AS year,
      ROUND(sum(o.total_amt)/COUNT (DISTINCT o.user_id), 2)::float AS ARPPU
      FROM tools_shop.orders o
      GROUP BY 1
 [8]: df2 = result2.DataFrame()
      display(df2.head(11))
        year
               arppu
     0 2016 264.61
     1 2017 266.38
     2 2018 270.71
     3 2019 265.21
     4 2020 282.91
     5 2021 266.95
[23]: import pandas as pd
      import matplotlib.pyplot as plt
      plot = df2.sort values(by='year').plot(
```



year