gynimas2

December 12, 2022

[ ]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

[ ]:
```
rez = []
for i in range(1, 84):
    rez.append((5 + i) % 83)

len(set(rez)) == 83
```

[ ]: True

[ ]:
```
rez = []
for i in range(1, 84):
    rez.append((5 * i) % 83)

len(set(rez)) == 83
```

[ ]: True

[ ]:
```
rez = []
for i in range(1, 84):
    rez.append((14 * i) % 83)

len(set(rez)) == 83
```

[ ]: True

[ ]:
```
# generate sum table
sum_table = []
for i in range(1, 84):
    for j in range(1, 84):
        sum_table.append((i + j) % 83)

# generate product table
prod_table = []
for i in range(1, 84):
```

```
    for j in range(1, 84):
        prod_table.append((i * j) % 83)

# reshape to 83x83
sum_table = np.array(sum_table).reshape(83, 83)
prod_table = np.array(prod_table).reshape(83, 83)

# table to df
sum_df = pd.DataFrame(sum_table)
prod_df = pd.DataFrame(prod_table)
```

[ ]:
```
sum_df.to_csv('sum_table.csv', index=False)
prod_df.to_csv('prod_table.csv', index=False)
```

[ ]:
```
    0   1   2   3   4   5   6   7   8   9   …  73  74  75  76  77  78  79  \
0    2   3   4   5   6   7   8   9  10  11   …  75  76  77  78  79  80  81
1    3   4   5   6   7   8   9  10  11  12   …  76  77  78  79  80  81  82
2    4   5   6   7   8   9  10  11  12  13   …  77  78  79  80  81  82   0
3    5   6   7   8   9  10  11  12  13  14   …  78  79  80  81  82   0   1
4    6   7   8   9  10  11  12  13  14  15   …  79  80  81  82   0   1   2
..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  …  ..  ..  ..  ..  ..  ..  ..
78  80  81  82   0   1   2   3   4   5   6   …  70  71  72  73  74  75  76
79  81  82   0   1   2   3   4   5   6   7   …  71  72  73  74  75  76  77
80  82   0   1   2   3   4   5   6   7   8   …  72  73  74  75  76  77  78
81   0   1   2   3   4   5   6   7   8   9   …  73  74  75  76  77  78  79
82   1   2   3   4   5   6   7   8   9  10   …  74  75  76  77  78  79  80

    80  81  82
0   82   0   1
1    0   1   2
2    1   2   3
3    2   3   4
4    3   4   5
..  ..  ..  ..
78  77  78  79
79  78  79  80
80  79  80  81
81  80  81  82
82  81  82   0

[83 rows x 83 columns]
```

[ ]:
```
# 17 ir 66 priesingi is lenteles
# 17 ir 44 atvirkstiniai is lenteles
```