

Citizens & Media Analysis

By Gerard Utoware

Table of Contents

Overviews – Page 3

Q1 – Page 4

Q2 – Page 7

Q3 – Page 9

Further Data – Page 15

Overview of the tool used

The main advantage of python in comparison to other data analytic tools such as excel, would be Python's ability to handle large volumes of data without hindering productivity. Running scripts using the libraries on allows for more automation and ease of obtaining analysed data. With this task, the data was imported from python which ensures that data will not be lost or tampered with while performing data analysis. After defining the columns from the imported data, it was less tedious to run scripts than to perform individual analysis on excel.

Overview of the libraries used

Numpy, pandas and matplotlib were used in the script. All three python libraries allow different functions to be performed. Pandas allows data analysis scripts to be conducted on python. It utilises two other libraries, being numpy and matplotlib. Matplotlib allows for data visualisation through a variety of charts such as bar and pie charts. Numpy permits mathematical operations in python. The combination of these three libraries is what allowed the following data and charts to be formed and analysed.

Overview of the dataset

Overall, the data suggests that there is a shift towards more modern uses of technology amongst the population. In regard to paperless billing, although most people have switched to paperless billing, approximately 40.9% of people still prefer to have their bills mailed to them. Senior citizens in the data appear to have a higher proportion of paperless billing as 748 senior citizens have paperless billing compared to 233 who do not. Gender did not seem to create a significant difference when comparing the same criteria. For example, when looking at non senior citizens, there was no significant difference between the number of males who had DSL or fiber optic (2591) or the females who had DSL or fiber optic (2478) as their internet service. Even when comparing non-Senior citizens with and without partners, the numbers did not deviate too much. Suggesting that both marital status and gender did not play a role in the likelihood of people having internet service, phone protection, streaming TV etc.

Q1

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users-/SpeedyWork.py x
7   gender=df['gender']
8   partner=df['Partner']
9   total=0
10  phoneservice=df['PhoneService']
11  internetservice=df['InternetService']
12  deviceprotection=df['DeviceProtection']
13  streamingTV=df['StreamingTV']
14  paperlessbilling=df['PaperlessBilling']
15
16  for i in range(0,6050):
17      if seniorcitizen[i]==0:
18          if gender[i]=='Male':
19              if phoneservice[i]=='Yes':
20                  total+=1
21  print(total)
22
23
24
25
for i in range(0,6050) : if seniorcitizen[i]==0 > if gender[i]=='Male' > if phoneservice[i]=='Yes'
Run: SpeedyWork (1) x
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2336

Process finished with exit code 0
```

Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download once // Don't show again... (10 minutes ago) 19:28 LF UTF-8 4 spaces Python 3.10 (helloworld)

There are 2336 non-Senior Citizen Males that have phone service.

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users-/SpeedyWork.py x
7   gender=df['gender']
8   partner=df['Partner']
9   total=0
10  phoneservice=df['PhoneService']
11  internetservice=df['InternetService']
12  deviceprotection=df['DeviceProtection']
13  streamingTV=df['StreamingTV']
14  paperlessbilling=df['PaperlessBilling']
15
16  for i in range(0,6050):
17      if seniorcitizen[i]==0:
18          if gender[i]=='Male':
19              if deviceprotection[i]=='Yes':
20                  total+=1
21  print(total)
22
23
24
25
for i in range(0,6050) : if seniorcitizen[i]==0 > if gender[i]=='Male' > if deviceprotection[i]=='Yes'
Run: SpeedyWork (1) x
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
858

Process finished with exit code 0
```

Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download once // Don't show again... (10 minutes ago) 19:33 LF UTF-8 4 spaces Python 3.10 (helloworld)

There are 858 non-Senior Citizen Males that have device protection.

```
helloworld | SpeedyWork.py
main.py x SpeedyWork.py x Users/_-/SpeedyWork.py x
13 streamingTV=df['StreamingTV']
14 paperlessBilling=df['PaperlessBilling']
15
16 for i in range(0,6050):
17     if seniorcitizen[i]==0:
18         if gender[i]=='Male':
19             if streamingTV[i]=='Yes':
20                 total+=1
21 print(total)
22
23
24
```

Run: SpeedyWork (1) x

```
13 TechSupport    6050 non-null  object
14 StreamingTV    6050 non-null  object
15 StreamingMovies 6050 non-null  object
16 Contract       6050 non-null  object
17 PaperlessBilling 6050 non-null  object
18 PaymentMethod   6050 non-null  object
19 MonthlyCharges 6050 non-null  float64
20 TotalCharges   6050 non-null  object
21 Churn          6050 non-null  object
22 Provider        0 non-null    float64
23 Age            0 non-null    float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
933

Process finished with exit code 0
```

There are 933 non-Senior Citizen Males that have a streaming TV.

```
helloworld | SpeedyWork.py
main.py x SpeedyWork.py x Users/_-/SpeedyWork.py x
13 streamingTV=df['StreamingTV']
14 paperlessBilling=df['PaperlessBilling']
15
16 for i in range(0,6050):
17     if seniorcitizen[i]==0:
18         if gender[i]=='Male':
19             if paperlessBilling[i]=='Yes':
20                 total+=1
21 print(total)
22
23
24
```

Run: SpeedyWork (1) x

```
13 TechSupport    6050 non-null  object
14 StreamingTV    6050 non-null  object
15 StreamingMovies 6050 non-null  object
16 Contract       6050 non-null  object
17 PaperlessBilling 6050 non-null  object
18 PaymentMethod   6050 non-null  object
19 MonthlyCharges 6050 non-null  float64
20 TotalCharges   6050 non-null  object
21 Churn          6050 non-null  object
22 Provider        0 non-null    float64
23 Age            0 non-null    float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
1424

Process finished with exit code 0
```

There are 1424 non-Senior Citizen Males that use Paperless billing.

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_-/SpeedyWork.py |
8     partners=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']
15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if gender[i]=='Male':
19                if internetservice[i]=='Fiber optic' or 'DSL':
20                    total+=1
21
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if gender[i]=='Male' > if internetservice[i]=='Fiber o...
Run: SpeedyWork (1) ×
13 TechSupport    6050 non-null   object
14 StreamingTV    6050 non-null   object
15 StreamingMovies 6050 non-null   object
16 Contract       6050 non-null   object
17 PaperlessBilling 6050 non-null   object
18 PaymentMethod   6050 non-null   object
19 MonthlyCharges 6050 non-null   float64
20 TotalCharges    6050 non-null   object
21 Churn          6050 non-null   object
22 Provider        0 non-null     float64
23 Age             0 non-null     float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2591

Process finished with exit code 0
```

There are 2591 non-Senior Citizen Males that have either DSL or Fiber Optic Internet service.

Q2

The screenshot shows the PyCharm IDE interface. The code editor displays a Python script named SpeedyWork.py. The script uses pandas DataFrames to analyze customer data. It counts senior citizen females who have either DSL or Fiber Optic internet service. The run output shows the DataFrame structure and the result of the count, which is 2478.

```
helloworld | SpeedyWork.py
main.py > SpeedyWork.py > Users/_/SpeedyWork.py x
Project: 16 5 ▾ Notifications
8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']
15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if gender[i]=='Female':
19                if internetservice[i]=='Fiber optic' or 'DSL':
20                    total+=1
21    print(total)
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if gender[i]=='Female'
Run: SpeedyWork (1) x
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2478

Process finished with exit code 0
```

Version Control Find Run Python Packages TODO Python Console Problems Terminal Services

Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download once // Don't show again... (17 minutes ago) 18:27 LF UTF-8 4 spaces Python 3.10 (helloworld)

There are 2478 non-Senior Citizen Females that have either DSL or Fiber Optic Internet service.

The screenshot shows the PyCharm IDE interface. The code editor displays a Python script named SpeedyWork.py. The script uses pandas DataFrames to analyze customer data. It counts senior citizen females who have phone service. The run output shows the DataFrame structure and the result of the count, which is 2224.

```
helloworld | SpeedyWork.py
main.py > SpeedyWork.py > Users/_/SpeedyWork.py x
Project: 16 5 ▾ Notifications
8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']
15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if gender[i]=='Female':
19                if phoneservice[i]=='Yes':
20                    total+=1
21    print(total)
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if gender[i]=='Female' > if phoneservice[i]=='Yes'
Run: SpeedyWork (1) x
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2224

Process finished with exit code 0
```

Version Control Find Run Python Packages TODO Python Console Problems Terminal Services

Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download once // Don't show again... (18 minutes ago) 19:37 LF UTF-8 4 spaces Python 3.10 (helloworld)

There are 2224 non-Senior Citizen Females that have phone service.

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_/SpeedyWork.py |
8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']
15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if gender[i]=='Female':
19                if deviceprotection[i]=='Yes':
20                    total+=1
21    print(total)
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if gender[i]=='Female' > if deviceprotection[i]=='Yes'
Run: SpeedyWork (1) ×
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
817

Process finished with exit code 0
```

There are 817 non-Senior Citizen Females that have device protection.

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_/SpeedyWork.py |
8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']
15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if gender[i]=='Female':
19                if streamingTV[i]=='Yes':
20                    total+=1
21    print(total)
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if gender[i]=='Female' > if streamingTV[i]=='Yes'
Run: SpeedyWork (1) ×
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
907

Process finished with exit code 0
```

There are 907 non-Senior Citizen Females that have a streaming TV.

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_-/SpeedyWork.py |
8     partners=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']
15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if gender[i]=='Female':
19                if paperlessbilling[i]=='Yes':
20                    total+=1
21
22    print(total)
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 & if gender[i]=='Female' & if paperlessbilling[i]=='Yes'
Run: SpeedyWork (1) ×
```

	13	TechSupport	6050	non-null	object
14	StreamingTV	6050	non-null	object	
15	StreamingMovies	6050	non-null	object	
16	Contract	6050	non-null	object	
17	PaperlessBilling	6050	non-null	object	
18	PaymentMethod	6050	non-null	object	
19	MonthlyCharges	6050	non-null	float64	
20	TotalCharges	6050	non-null	object	
21	Churn	6050	non-null	object	
22	Provider	0	non-null	float64	
23	Age	0	non-null	float64	

dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
1401
Process finished with exit code 0

Version Control Find Run Python Packages TODO Problems Terminal Services

There are 1401 non-Senior Citizen Females that have paperless billing.

Q3

The screenshot shows the PyCharm IDE interface. The code editor displays a Python script named SpeedyWork.py. The script reads a CSV file into a DataFrame and counts the number of non-senior citizens with partners who have phone service. The run output shows the DataFrame structure and the result of the count.

```
for i in range(0,6050) : if seniorcitizen[i]==0 > if partner[i]=="Yes" > if phoneservice[i]=="Yes"
```

```
Run: SpeedyWork (1) ×
13 TechSupport    6050 non-null   object
14 StreamingTV    6050 non-null   object
15 StreamingMovies 6050 non-null   object
16 Contract       6050 non-null   object
17 PaperlessBilling 6050 non-null  object
18 PaymentMethod   6050 non-null   object
19 MonthlyCharges 6050 non-null   float64
20 TotalCharges   6050 non-null   object
21 Churn          6050 non-null   object
22 Provider        0 non-null     float64
23 Age            0 non-null     float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2217

Process finished with exit code 0
```

There are 2217 non-Senior Citizen people with partners that have phone service.

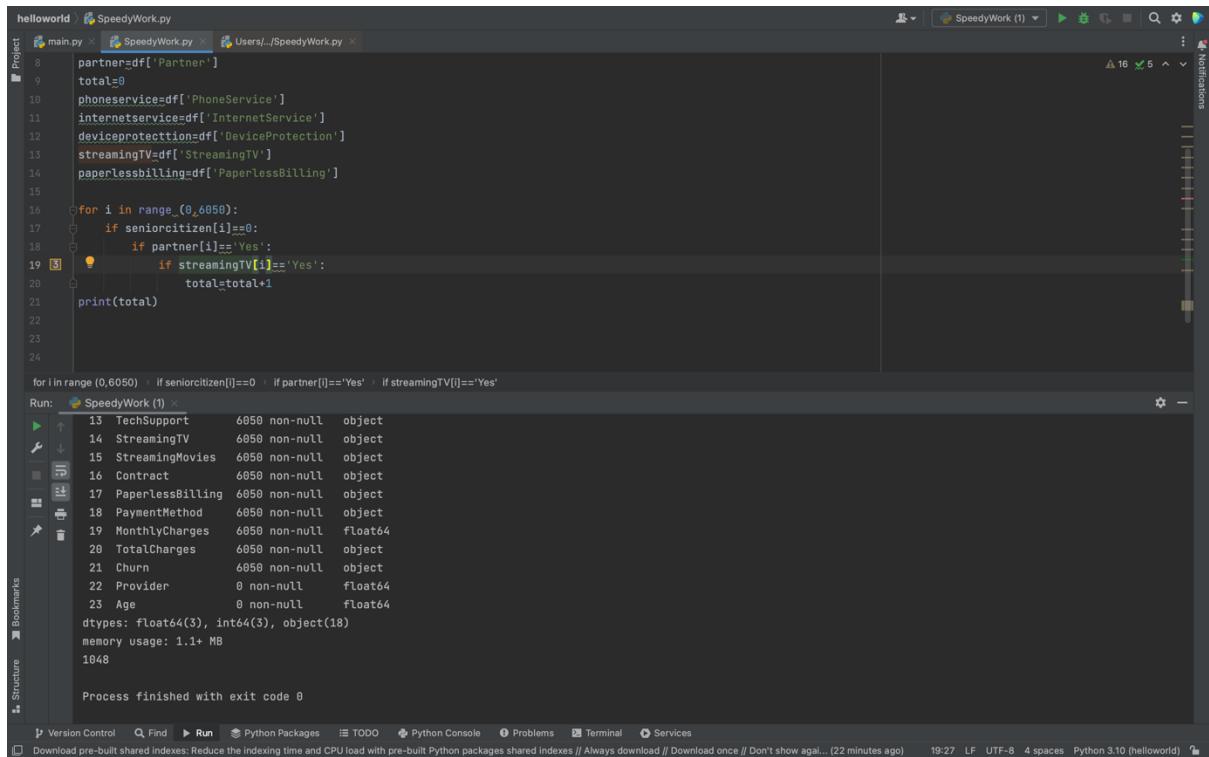
The screenshot shows the PyCharm IDE interface. The code editor displays a Python script named SpeedyWork.py. The script reads a CSV file into a DataFrame and counts the number of non-senior citizens with partners who have device protection. The run output shows the DataFrame structure and the result of the count.

```
for i in range(0,6050) : if seniorcitizen[i]==0 > if partner[i]=="Yes" > if deviceprotection[i]=="Yes"
```

```
Run: SpeedyWork (1) ×
13 TechSupport    6050 non-null   object
14 StreamingTV    6050 non-null   object
15 StreamingMovies 6050 non-null   object
16 Contract       6050 non-null   object
17 PaperlessBilling 6050 non-null  object
18 PaymentMethod   6050 non-null   object
19 MonthlyCharges 6050 non-null   float64
20 TotalCharges   6050 non-null   object
21 Churn          6050 non-null   object
22 Provider        0 non-null     float64
23 Age            0 non-null     float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
987

Process finished with exit code 0
```

There are 987 non-Senior Citizen people with partners that have device protection.



```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_-/SpeedyWork.py | SpeedyWork (1) | 16 5 | Notifications

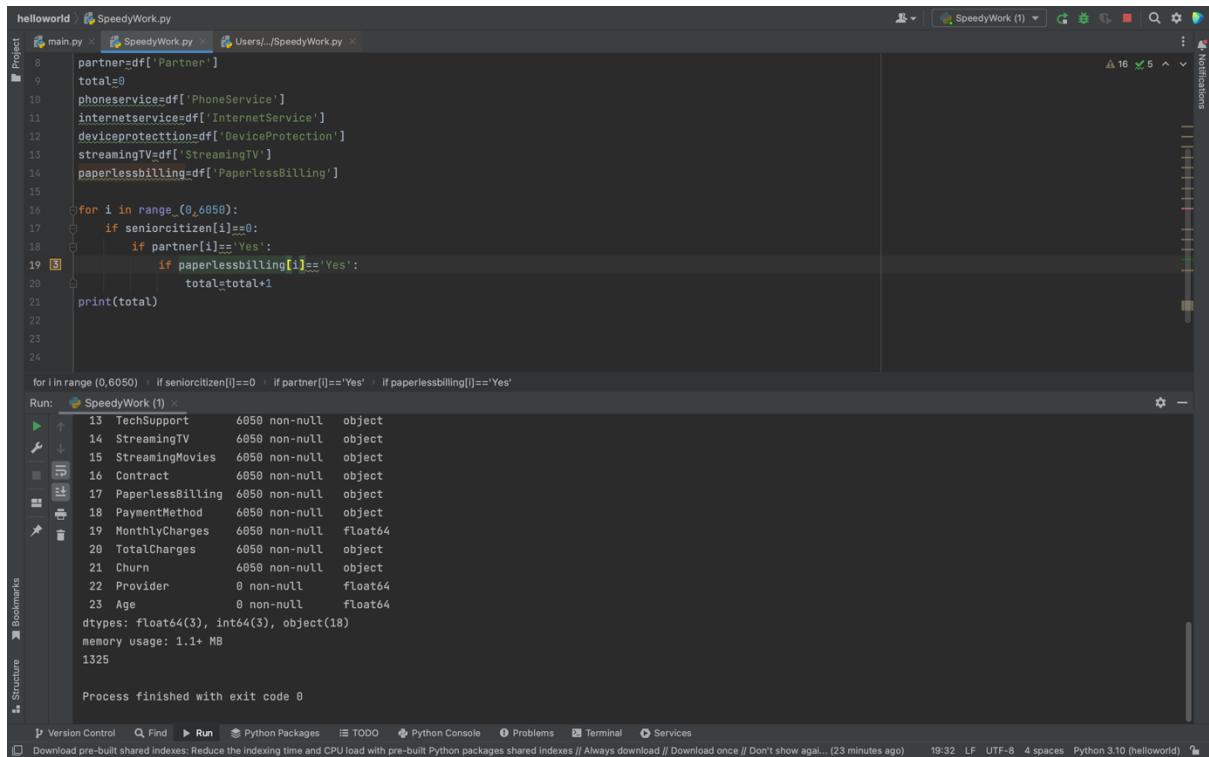
8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']

15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if partner[i]=='Yes':
19                if streamingTV[i]=='Yes':
20                    total+=1
21
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if partner[i]=='Yes' > if streamingTV[i]=='Yes'

Run: SpeedyWork (1) ×
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
1048

Process finished with exit code 0
```

There are 1048 non-Senior Citizen people with partners that have a streaming TV.



```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_-/SpeedyWork.py | SpeedyWork (1) | 16 5 | Notifications

8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']

15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if partner[i]=='Yes':
19                if paperlessbilling[i]=='Yes':
20                    total+=1
21
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if partner[i]=='Yes' > if paperlessbilling[i]=='Yes'

Run: SpeedyWork (1) ×
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
1325

Process finished with exit code 0
```

There are 1325 non-Senior Citizen people with partners that have paperless billing.

The screenshot shows a Python development environment with a dark theme. In the top left, there's a 'Project' sidebar with files like 'main.py', 'SpeedyWork.py', and 'Users/_/SpeedyWork.py'. The main area displays a Python script named 'SpeedyWork.py' with the following code:

```
partner=df['Partner']
total=0
phoneservice=df['PhoneService']
internetservice=df['InternetService']
deviceprotection=df['DeviceProtection']
streamingTV=df['StreamingTV']
paperlessbilling=df['PaperlessBilling']

for i in range(0,6050):
    if seniorcitizen[i]==0:
        if partner[i]=='Yes':
            if internetservice[i]=='Fiber optic' or 'DSL':
                total+=1
print(total)
```

Below the code, a 'Run' section titled 'SpeedyWork ()' shows the output of the script:

```
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2441

Process finished with exit code 0
```

At the bottom, the status bar indicates 'Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download once // Don't show again... (23 minutes ago) 19:57 LF UTF-8 4 spaces Python 3.10 (helloworld)'.

There are 2441 non-Senior Citizen people with partners that have fiber optic or DSL as their internet service.

The screenshot shows a Python development environment with a dark theme, similar to the previous one. The 'Project' sidebar includes 'main.py', 'SpeedyWork.py', and 'Users/_/SpeedyWork.py'. The main area displays the same 'SpeedyWork.py' script as before:

```
partner=df['Partner']
total=0
phoneservice=df['PhoneService']
internetservice=df['InternetService']
deviceprotection=df['DeviceProtection']
streamingTV=df['StreamingTV']
paperlessbilling=df['PaperlessBilling']

for i in range(0,6050):
    if seniorcitizen[i]==0:
        if partner[i]=='No':
            if internetservice[i]=='Fiber optic' or 'DSL':
                total+=1
print(total)
```

The 'Run' section titled 'SpeedyWork ()' shows the output:

```
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2628

Process finished with exit code 0
```

The status bar at the bottom is identical to the first screenshot.

There are 2628 non-Senior Citizen people without partners that have fiber optic or DSL.

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_-/SpeedyWork.py | SpeedyWork (1) | 16 | 5 | Notifications

8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']

15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if partner[i]=='No':
19                if phoneservice[i]=='Yes':
20                    total+=1
21
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if partner[i]=='No' >
Run: SpeedyWork (1) x
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2343

Process finished with exit code 0
```

Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download once // Don't show again... (24 minutes ago) 18:29 LF UTF-8 4 spaces Python 3.10 (helloworld)

There are 2343 non-Senior Citizen people without partners that have phone service

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_-/SpeedyWork.py | SpeedyWork (1) | 16 | 5 | Notifications

8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']

15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if partner[i]=='No':
19                if deviceprotection[i]=='Yes':
20                    total+=1
21
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if partner[i]=='No' > if deviceprotection[i]=='Yes' >
Run: SpeedyWork (1) x
13 TechSupport 6050 non-null object
14 StreamingTV 6050 non-null object
15 StreamingMovies 6050 non-null object
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
688

Process finished with exit code 0
```

Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download once // Don't show again... (24 minutes ago) 19:33 LF UTF-8 4 spaces Python 3.10 (helloworld)

There are 688 non-Senior Citizen people without partners that have device protection.

The screenshot shows the PyCharm IDE interface. The top bar displays the project name "helloworld" and file names "main.py", "SpeedyWork.py", and "Users/_/SpeedyWork.py". The main area contains Python code for counting non-senior citizens without partners who have streaming TV. The code uses pandas DataFrames to filter rows based on seniority, partnership, and streaming TV ownership. The "Run" tab shows the output of the script, which prints a DataFrame summary and a final count of 792.

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_/SpeedyWork.py |
8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']
15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if partner[i]=='No':
19                if streamingTV[i]=='Yes':
20                    total+=1
21
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if partner[i]=='No' > if streamingTV[i]=='Yes'
Run: SpeedyWork (1) ×
13 TechSupport      6050 non-null   object
14 StreamingTV      6050 non-null   object
15 StreamingMovies   6050 non-null   object
16 Contract         6050 non-null   object
17 PaperlessBilling 6050 non-null   object
18 PaymentMethod    6050 non-null   object
19 MonthlyCharges  6050 non-null   float64
20 TotalCharges    6050 non-null   object
21 Churn            6050 non-null   object
22 Provider         0 non-null     float64
23 Age              0 non-null     float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
792

Process finished with exit code 0
```

There are 792 non-Senior Citizen people without partners that have a streaming TV.

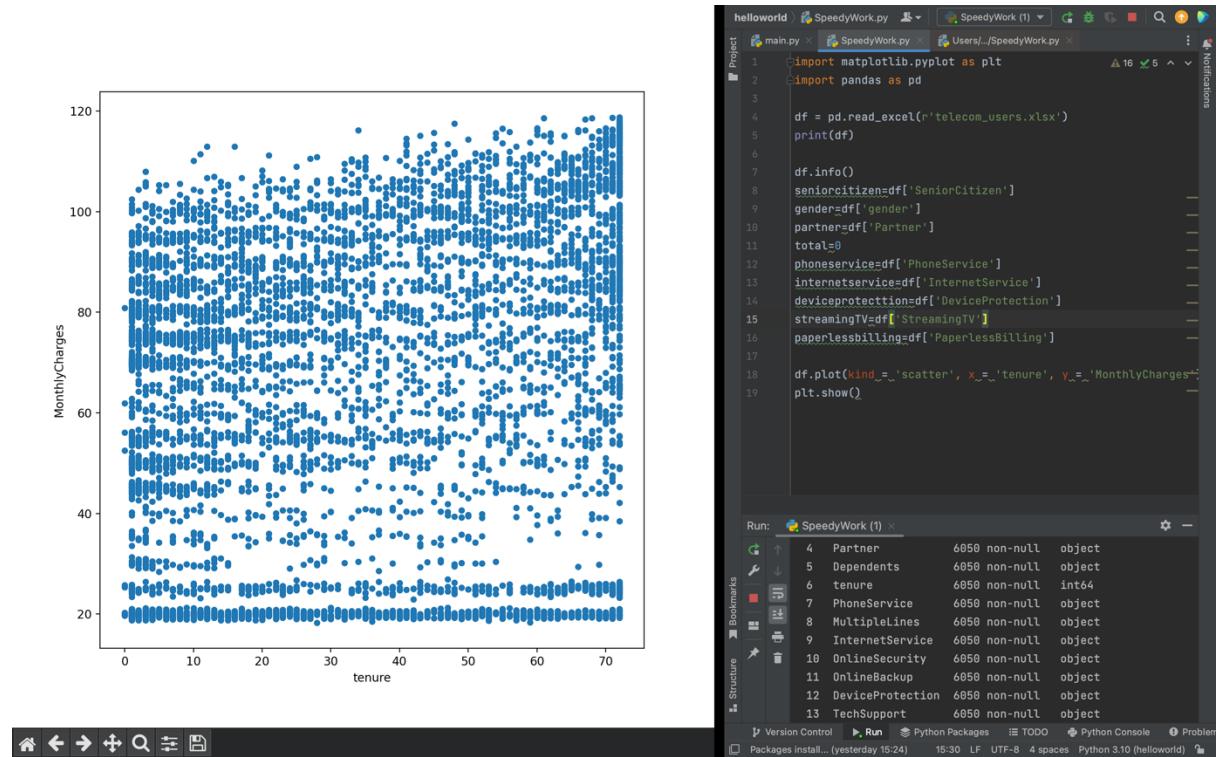
The screenshot shows the PyCharm IDE interface. The top bar displays the project name "helloworld" and file names "main.py", "SpeedyWork.py", and "Users/_/SpeedyWork.py". The main area contains Python code for counting non-senior citizens without partners who have paperless billing. The code uses pandas DataFrames to filter rows based on seniority, partnership, and paperless billing status. The "Run" tab shows the output of the script, which prints a DataFrame summary and a final count of 1500.

```
helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users/_/SpeedyWork.py |
8     partner=df['Partner']
9     total=0
10    phoneservice=df['PhoneService']
11    internetservice=df['InternetService']
12    deviceprotection=df['DeviceProtection']
13    streamingTV=df['StreamingTV']
14    paperlessbilling=df['PaperlessBilling']
15
16    for i in range(0,6050):
17        if seniorcitizen[i]==0:
18            if partner[i]=='No':
19                if paperlessbilling[i]=='Yes':
20                    total+=1
21
22
23
24
for i in range(0,6050) : if seniorcitizen[i]==0 > if partner[i]=='No' > if paperlessbilling[i]=='Yes'
Run: SpeedyWork (1) ×
13 TechSupport      6050 non-null   object
14 StreamingTV      6050 non-null   object
15 StreamingMovies   6050 non-null   object
16 Contract         6050 non-null   object
17 PaperlessBilling 6050 non-null   object
18 PaymentMethod    6050 non-null   object
19 MonthlyCharges  6050 non-null   float64
20 TotalCharges    6050 non-null   object
21 Churn            6050 non-null   object
22 Provider         0 non-null     float64
23 Age              0 non-null     float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
1500

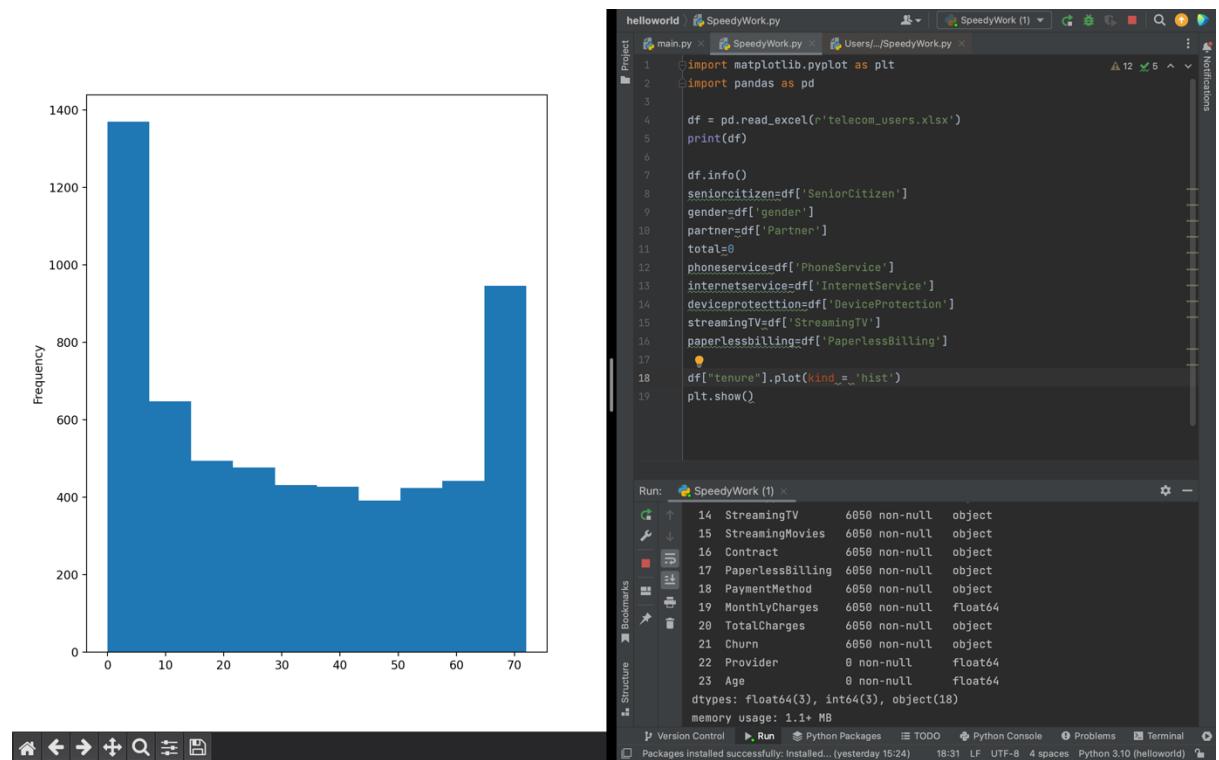
Process finished with exit code 0
```

There are 1500 non-Senior Citizen people without partners that have paperless billing.

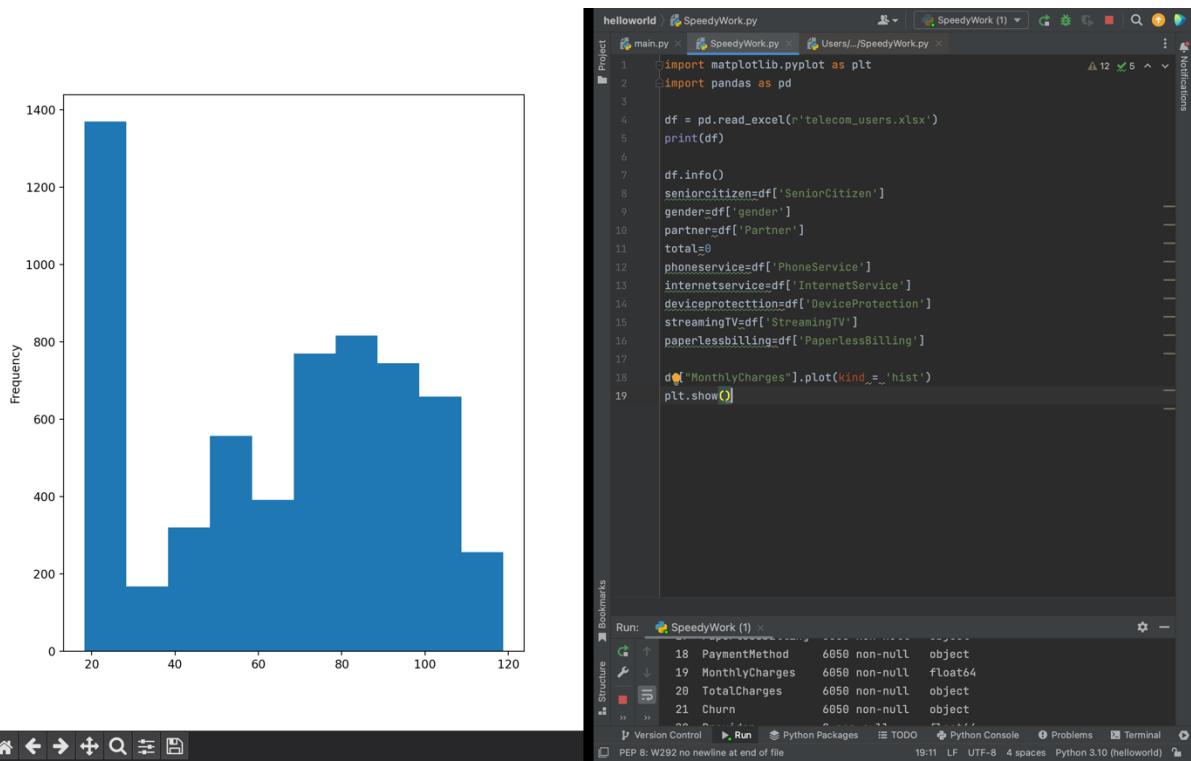
FurtherData



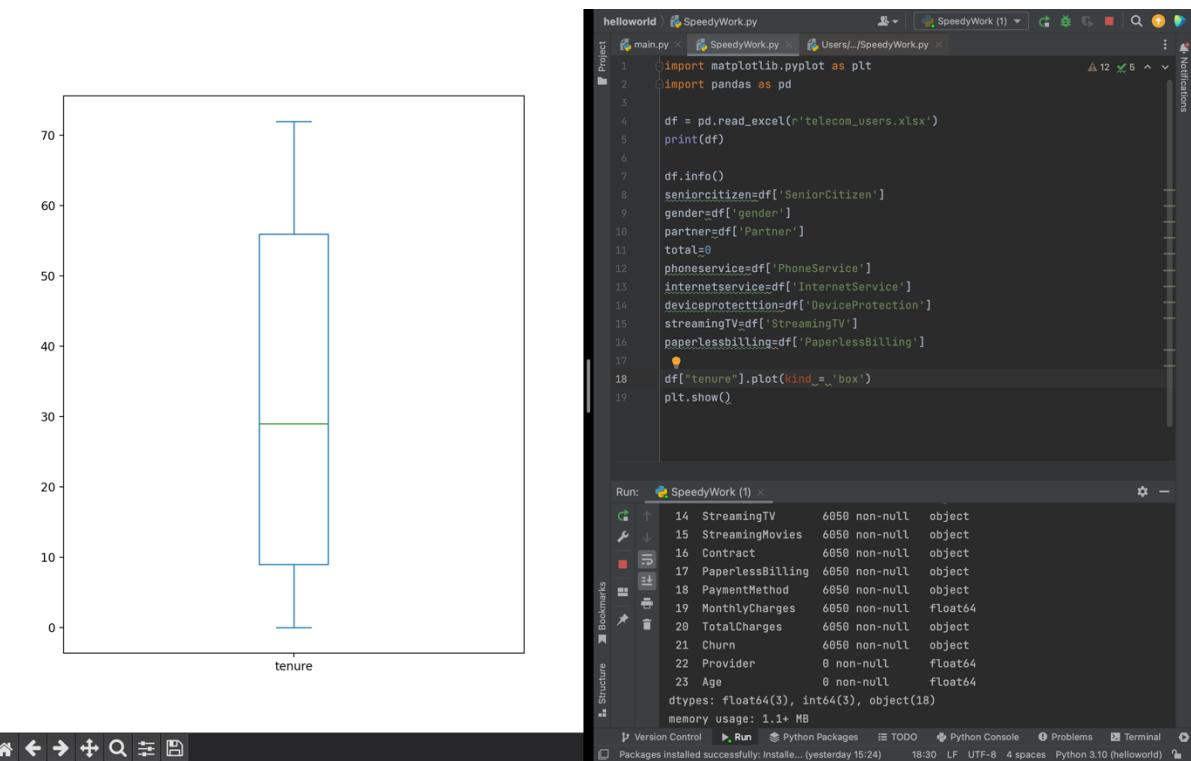
Scatter graph created using python. The graph looks at the results of people's tenure compared to their monthly charge with no clear correlation between the two.



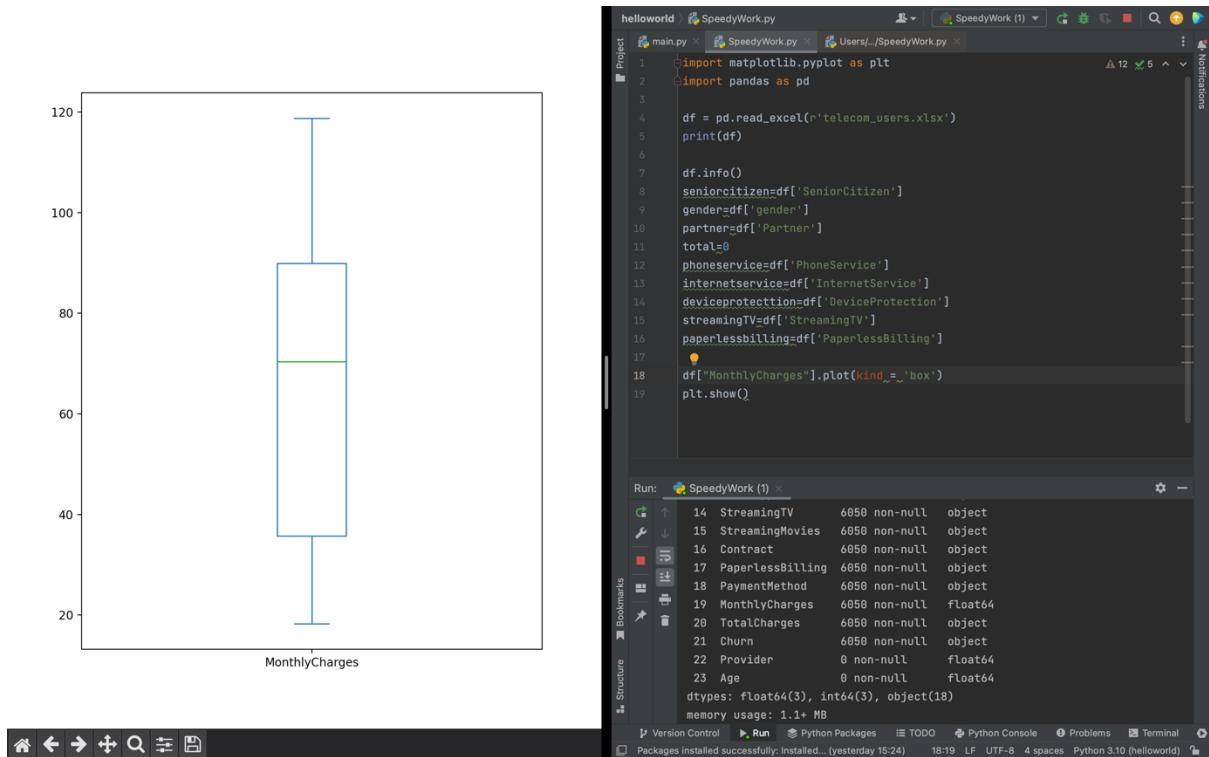
Histogram created used python to show the frequency of different tenures amongst the people in the data.



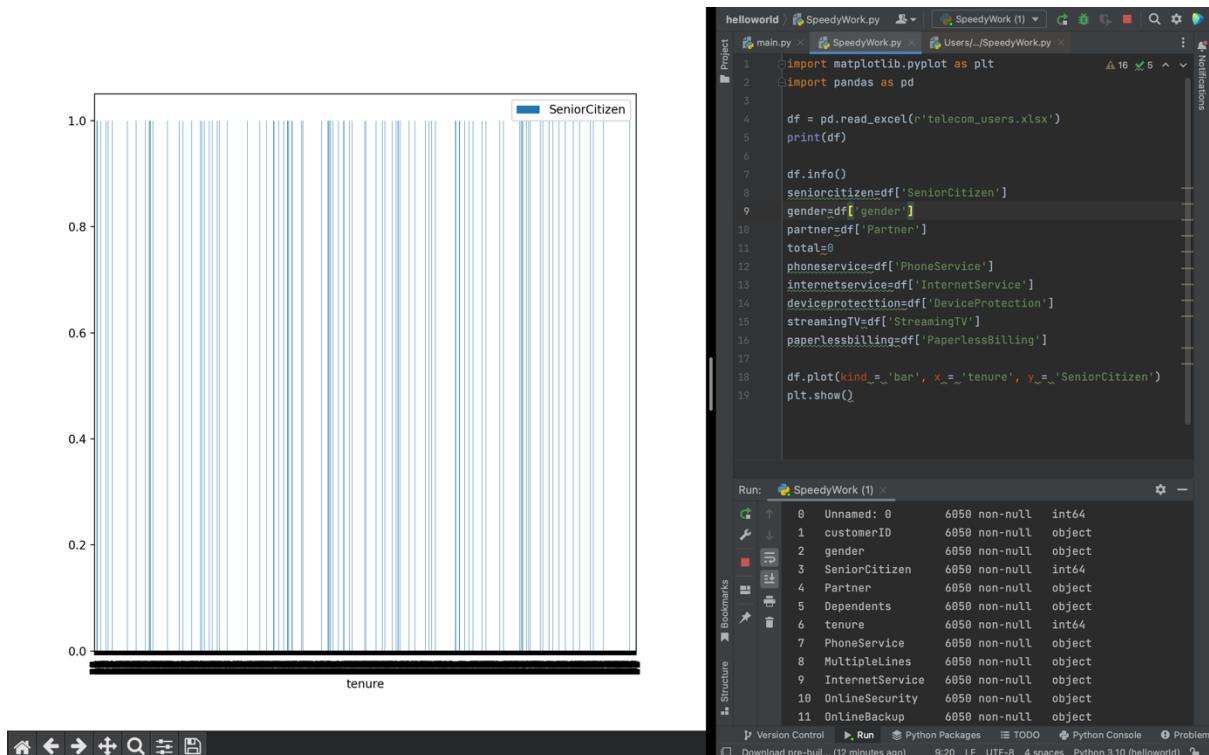
Histogram created used python to show the frequency of different monthly charges amongst the people in the data.



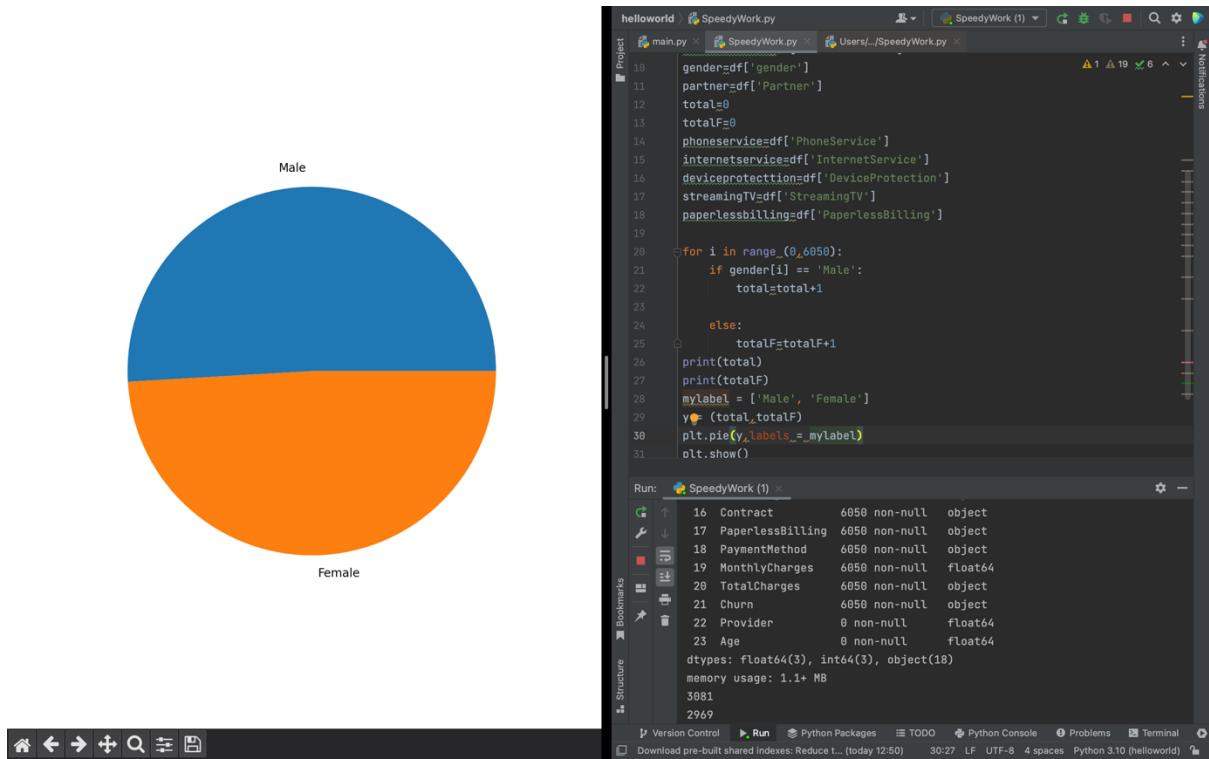
Boxplot created used python to show the data on peoples tenure in the data. The median tenure appears to be slightly under 30, while the longest tenure is over 70.



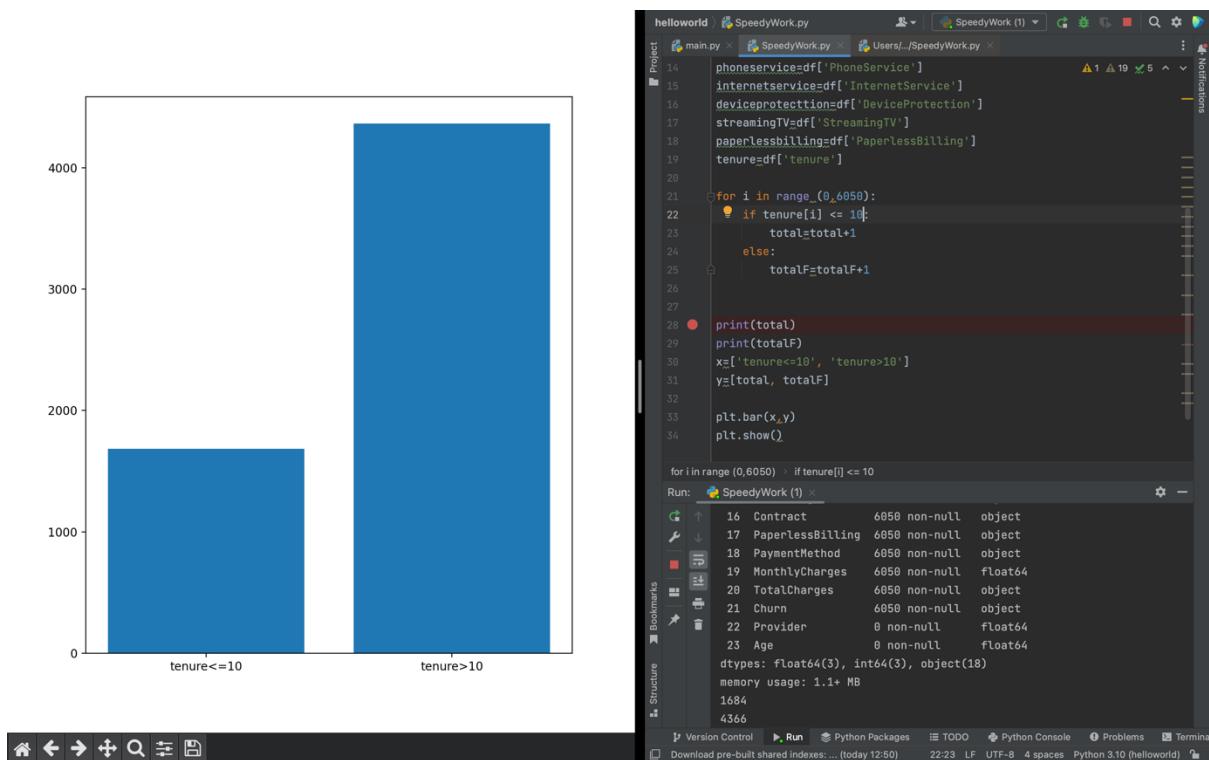
Boxplot created used python to show the data on peoples monthly charges in the data. At a minimum, people in the data are paying around 18. However, majority of the people in the data pay between 38 to 88.



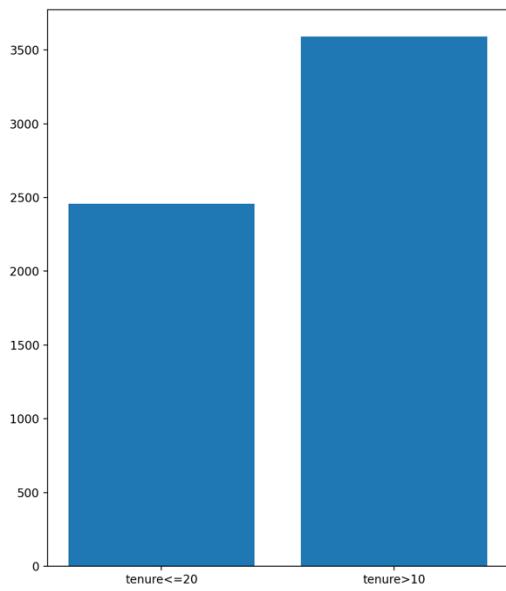
Scatter graph plotting the tenure of senior citizens.



Pie chart depicting the share of males and females in the dataset.



Bar chart comparing the number of people in the data set who had a tenure shorter than 10 and everyone else in the data.



```

helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users.../SpeedyWork.py | SpeedyWork (1) | G | B | S | X | Notifications

14 phoneservice=df['PhoneService']
15 internetservice=df['InternetService']
16 deviceprotection=df['DeviceProtection']
17 streamingtv=df['StreamingTV']
18 paperlessbilling=df['PaperlessBilling']
19 tenure=df['tenure']

20 for i in range(0,6050):
21     if tenure[i] <= 20:
22         total+=1
23     else:
24         totalF+=total+1

27
28 print(total)
29 print(totalF)
30 x=['tenure<=20', 'tenure>10']
31 y=[total, totalF]
32
33 plt.bar(x,y)
34 plt.show()

```

Run: SpeedyWork (1) | Version Control | Run | Python Packages | TODO | Python Console | Problems | Terminal

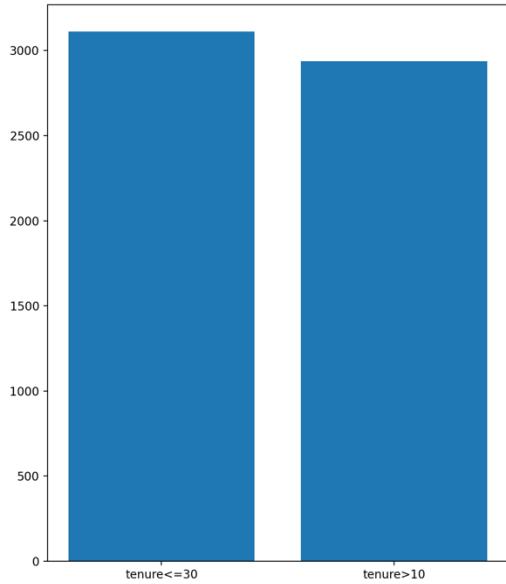
Project: main.py | SpeedyWork.py | Users.../SpeedyWork.py | SpeedyWork (1)

File: SpeedyWork.py

16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2458
3592

Download pre-built shared indexes: Reduce ... (today 12:50) 30:14 LF UTF-8 4 spaces Python 3.10 (helloworld)

Bar chart comparing the number of people in the data set who had a tenure shorter than 20 and everyone else in the data.



```

helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users.../SpeedyWork.py | SpeedyWork (1) | G | B | S | X | Notifications

14 phoneservice=df['PhoneService']
15 internetservice=df['InternetService']
16 deviceprotection=df['DeviceProtection']
17 streamingtv=df['StreamingTV']
18 paperlessbilling=df['PaperlessBilling']
19 tenure=df['tenure']

20 for i in range(0,6050):
21     if tenure[i] <= 30:
22         total+=1
23     else:
24         totalF+=total+1

27
28 print(total)
29 print(totalF)
30 x=['tenure<=30', 'tenure>10']
31 y=[total, totalF]
32
33 plt.bar(x,y)
34 plt.show()

for i in range(0,6050) > if tenure[i] <= 30
Run: SpeedyWork (1) | Version Control | Run | Python Packages | TODO | Python Console | Problems | Terminal

```

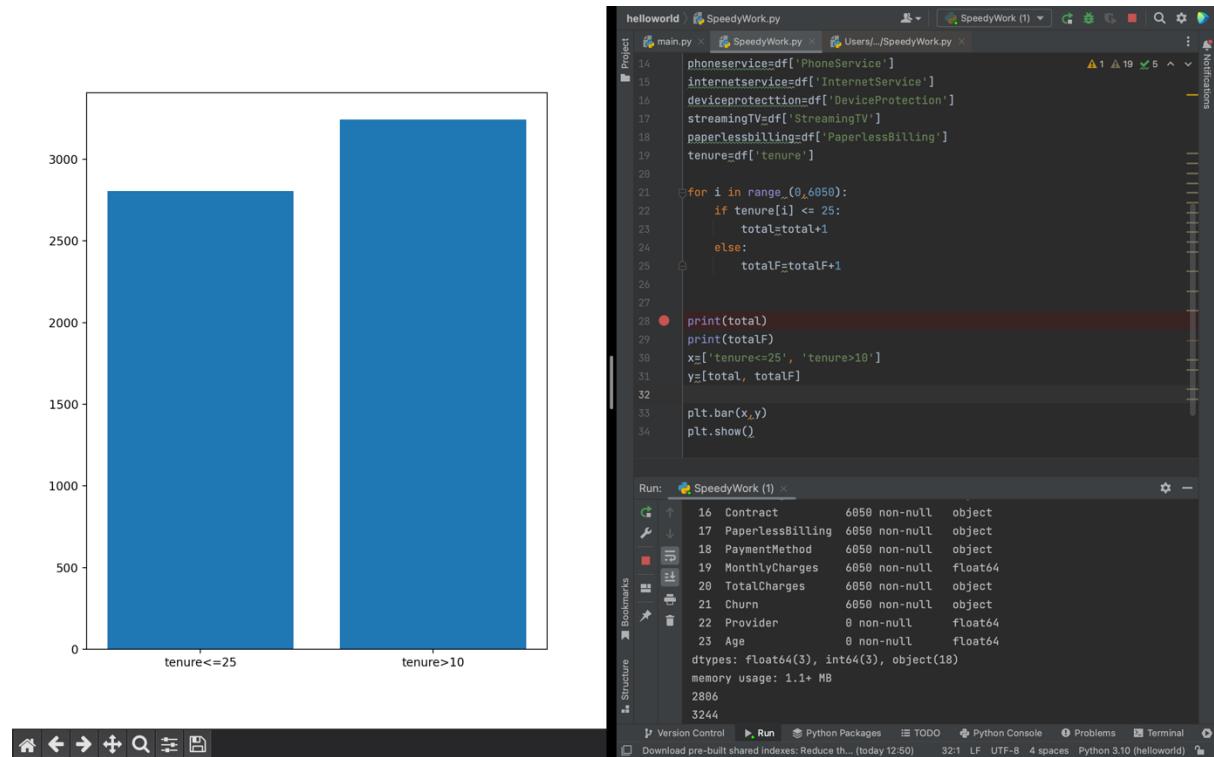
Project: main.py | SpeedyWork.py | Users.../SpeedyWork.py | SpeedyWork (1)

File: SpeedyWork.py

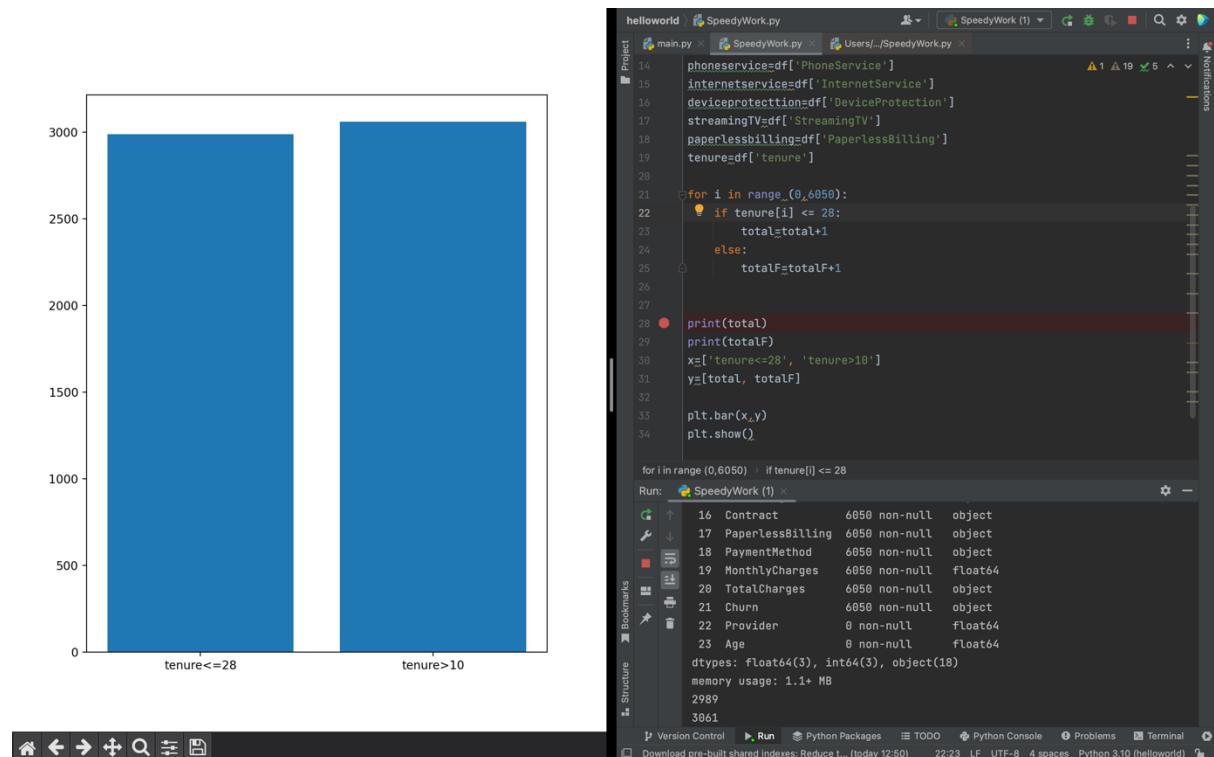
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
3112
2938

Download pre-built shared indexes: Reduce ... (today 12:50) 22:22 LF UTF-8 4 spaces Python 3.10 (helloworld)

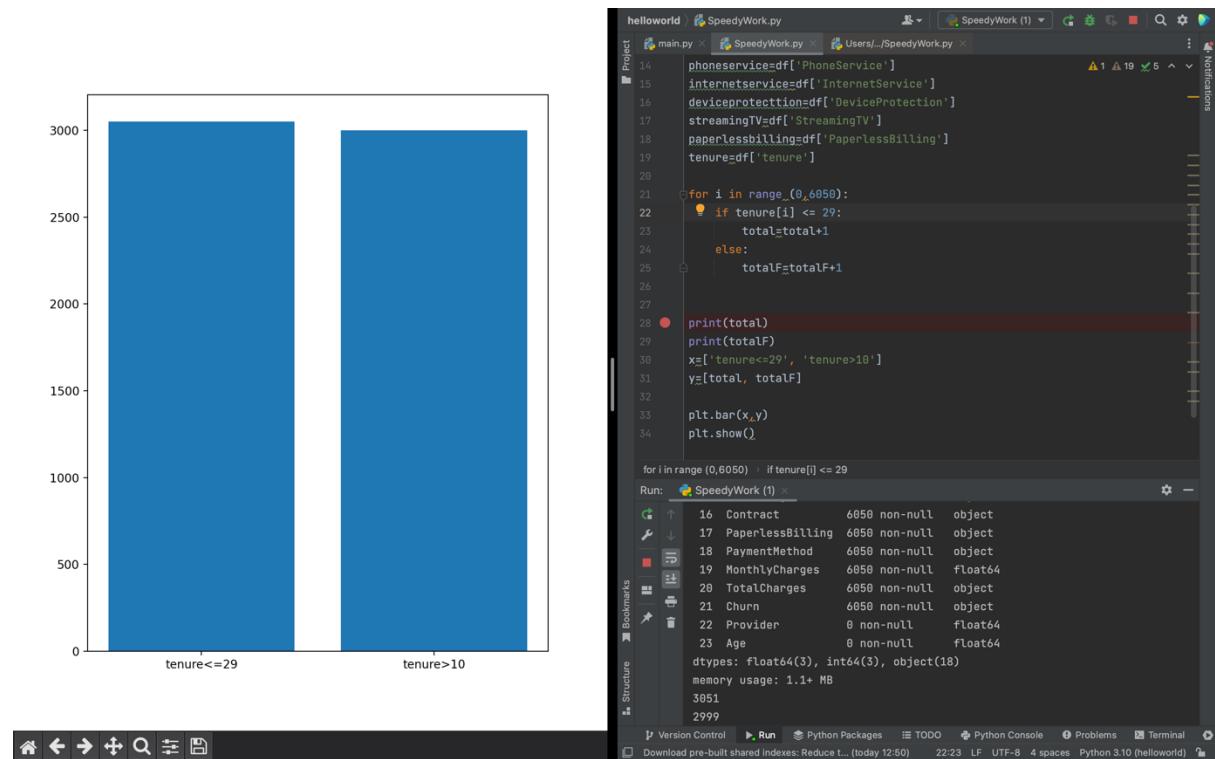
Bar chart comparing the number of people in the data set who had a tenure shorter than 30 and everyone else in the data. This shows that the majority of people in this data set have a tenure of less than 30, compared to the population of higher tenures.



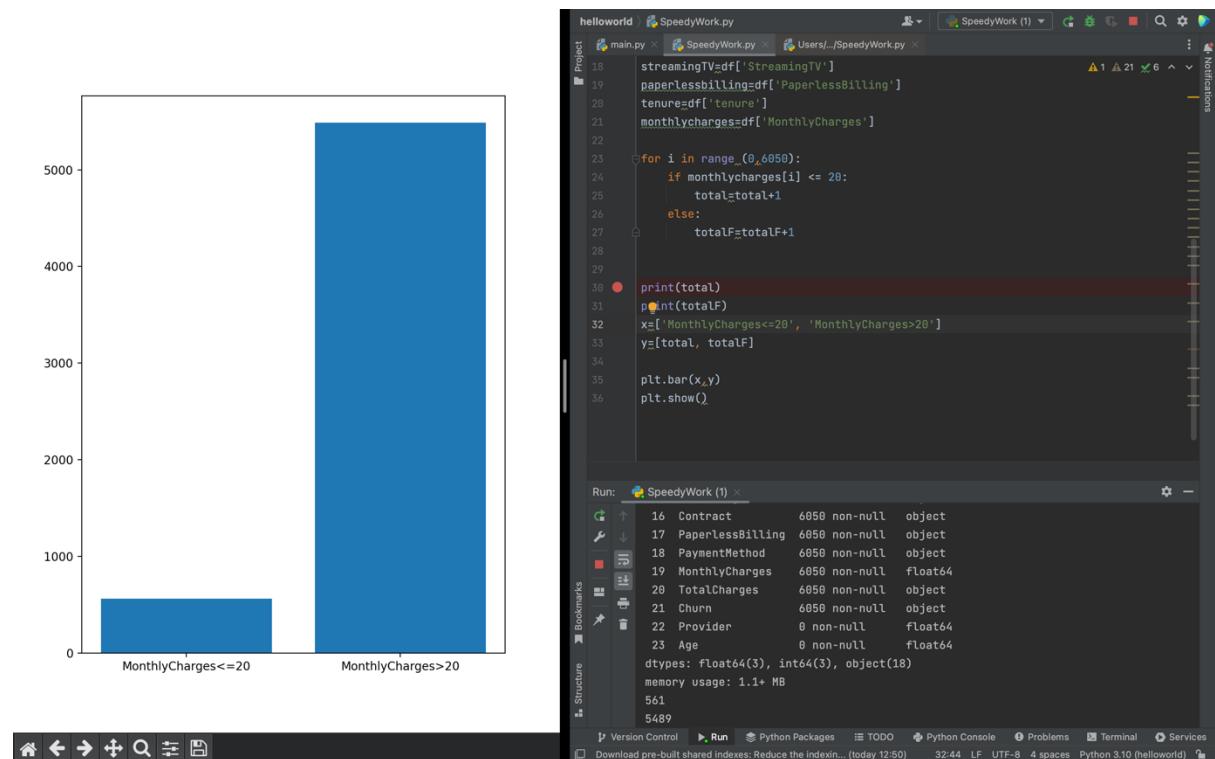
Bar chart comparing the number of people in the data set who had a tenure shorter than 25 and everyone else in the data. This was done to more accurately find the point at which the majority of people lay in.



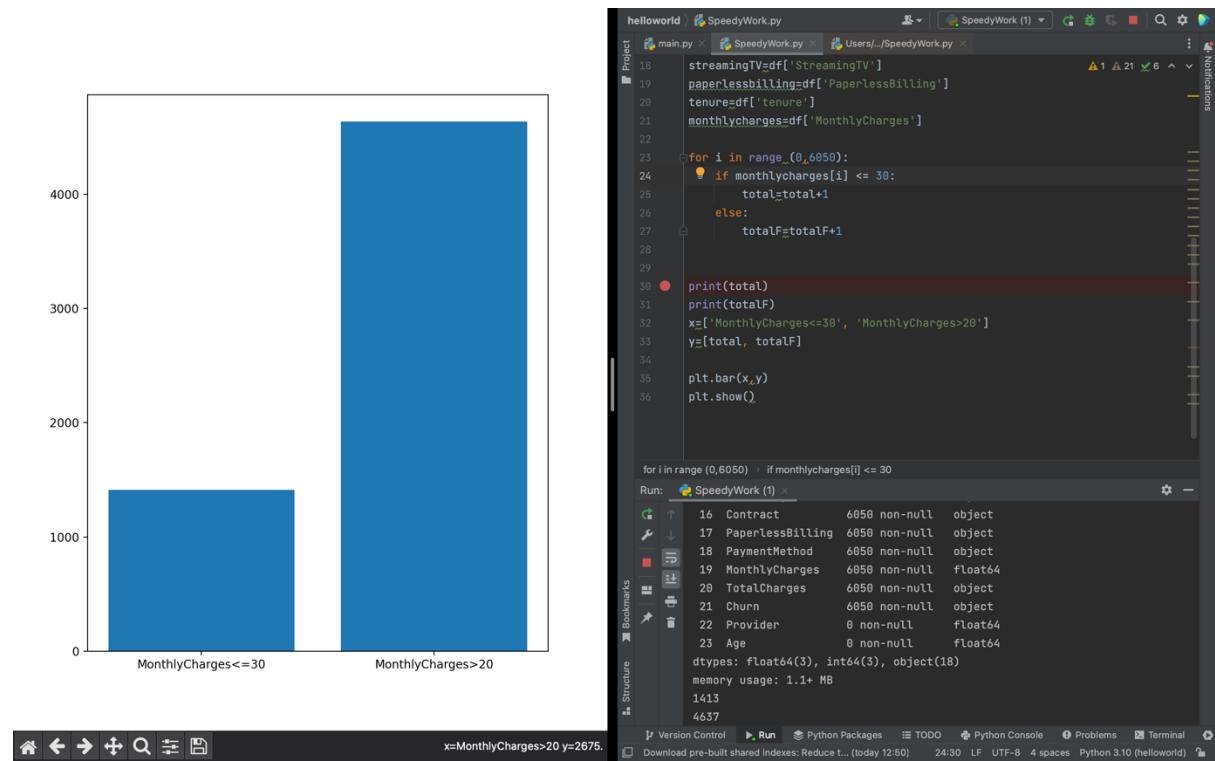
Bar chart comparing the number of people in the data set who had a tenure shorter than 28 and everyone else in the data. This was done to more accurately find the point at which the majority of people lay in. Cut off point is 29.



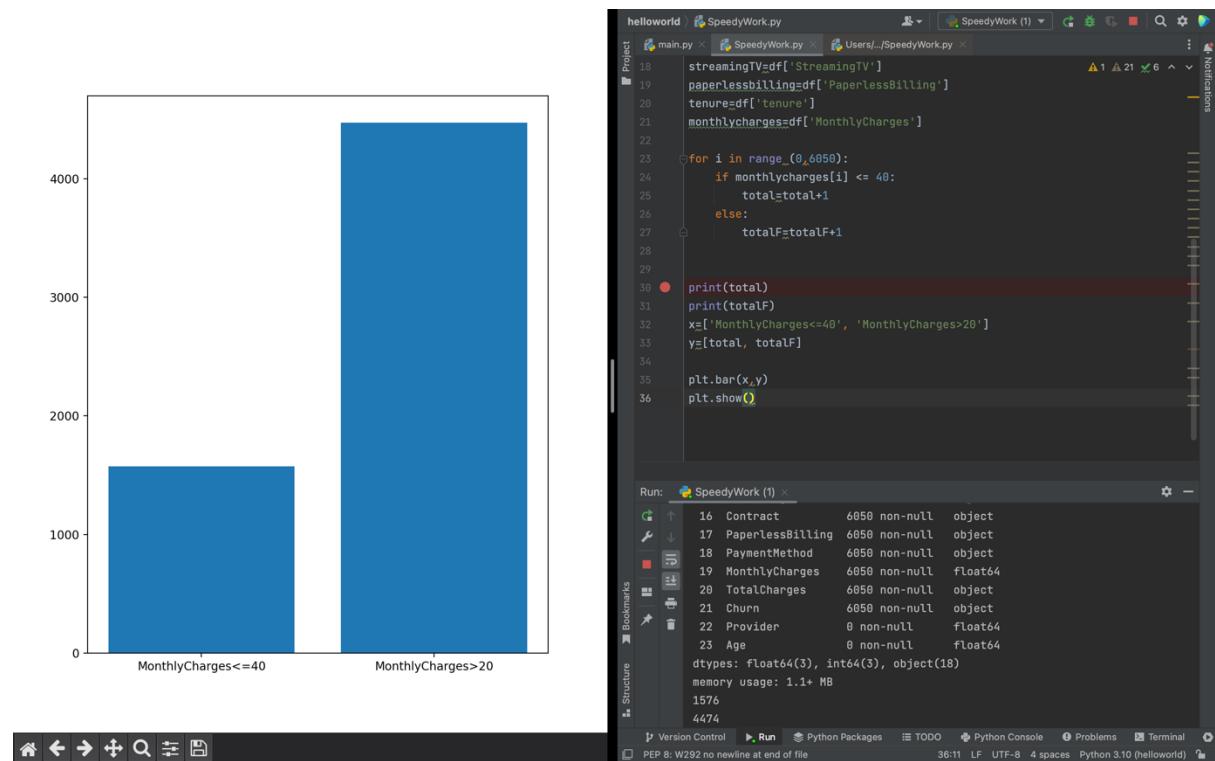
Bar chart comparing the number of people in the data set who had a tenure shorter than 29 and everyone else in the data. This was done to more accurately find the point at which the majority of people lay in. Cut off point is 29.



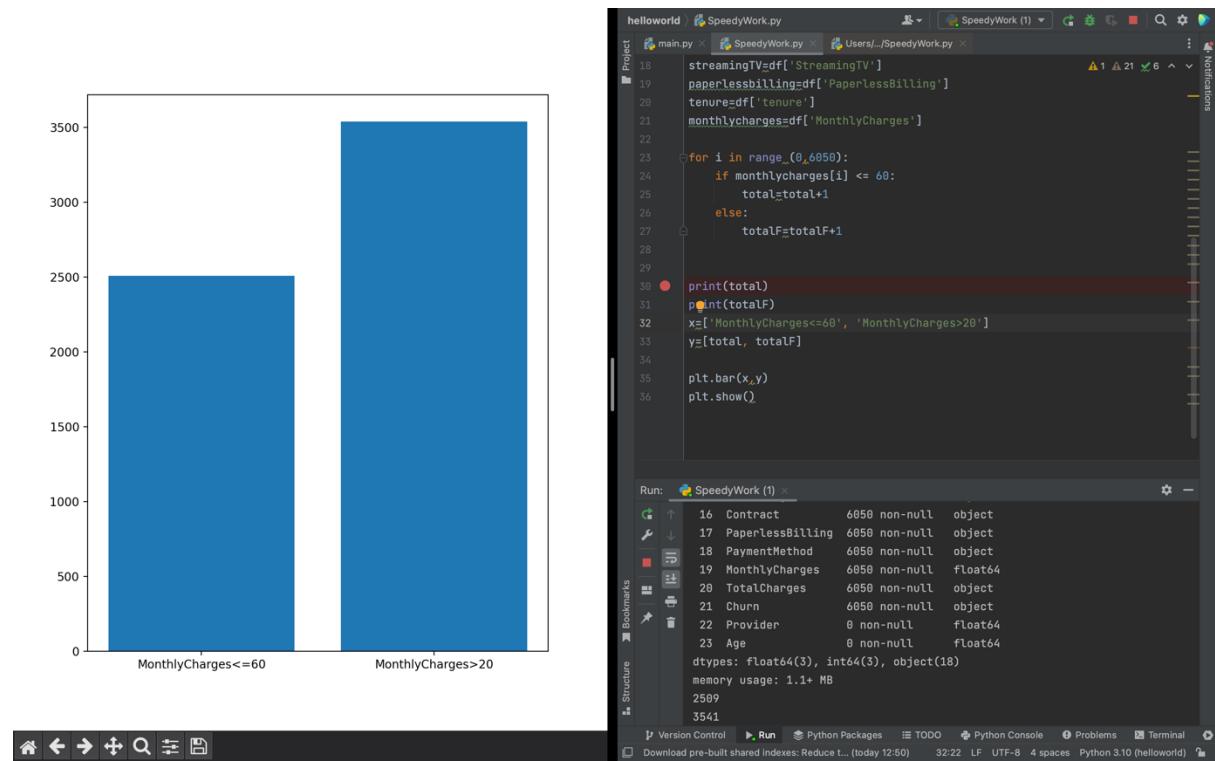
Bar chart comparing the number of people in the data set who had a monthly charge of less than 20 and everyone else in the data.



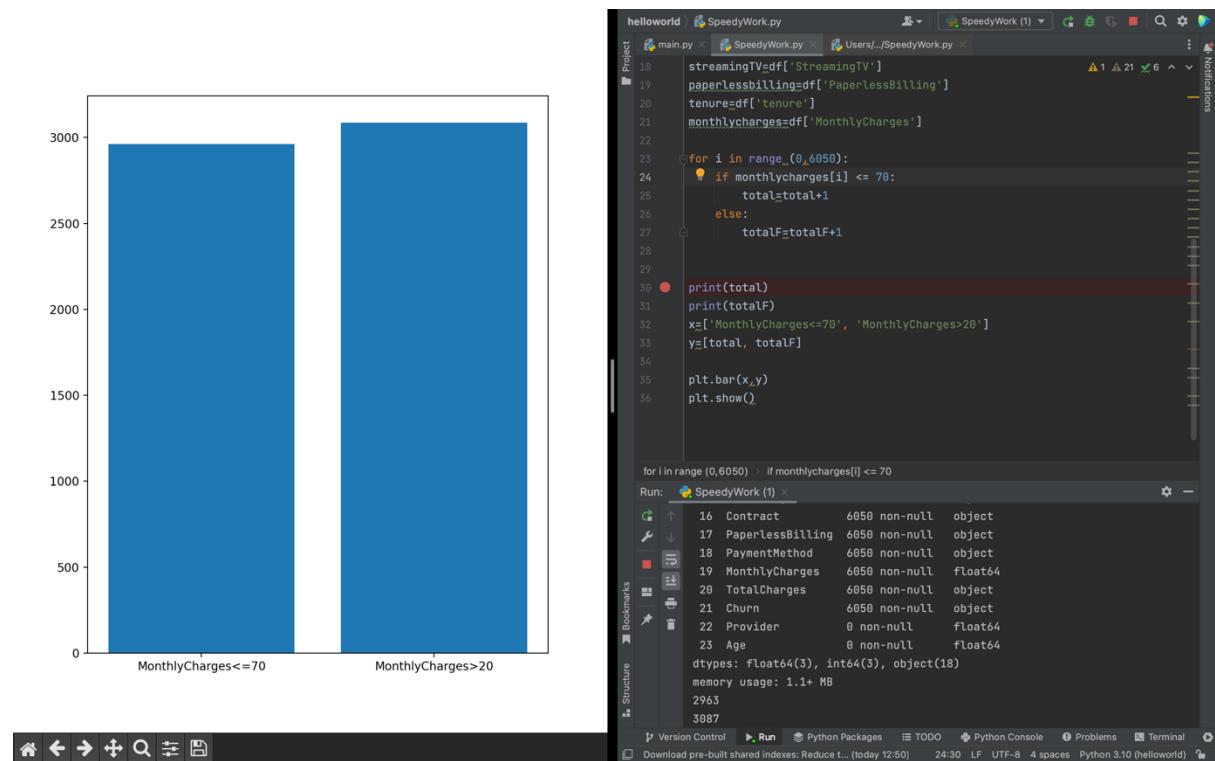
Bar chart comparing the number of people in the data set who had a monthly charge of less than 30 and everyone else in the data.



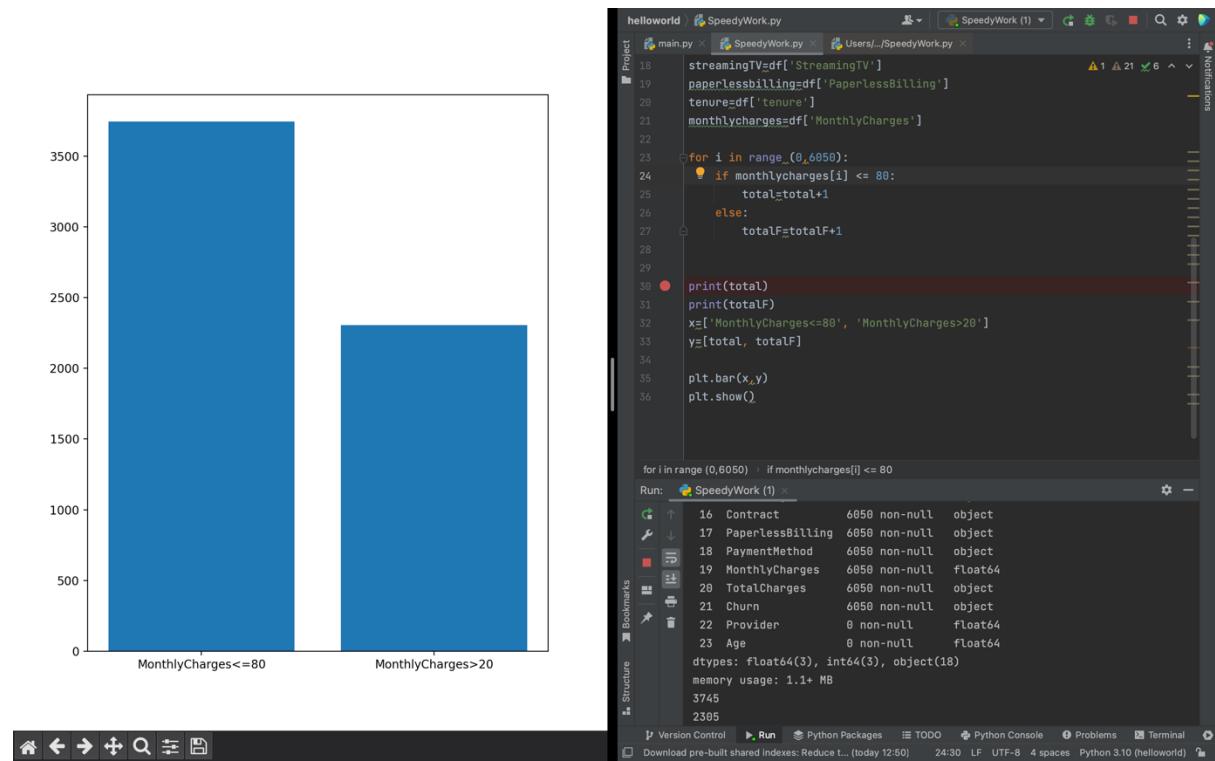
Bar chart comparing the number of people in the data set who had a monthly charge of less than 40 and everyone else in the data.



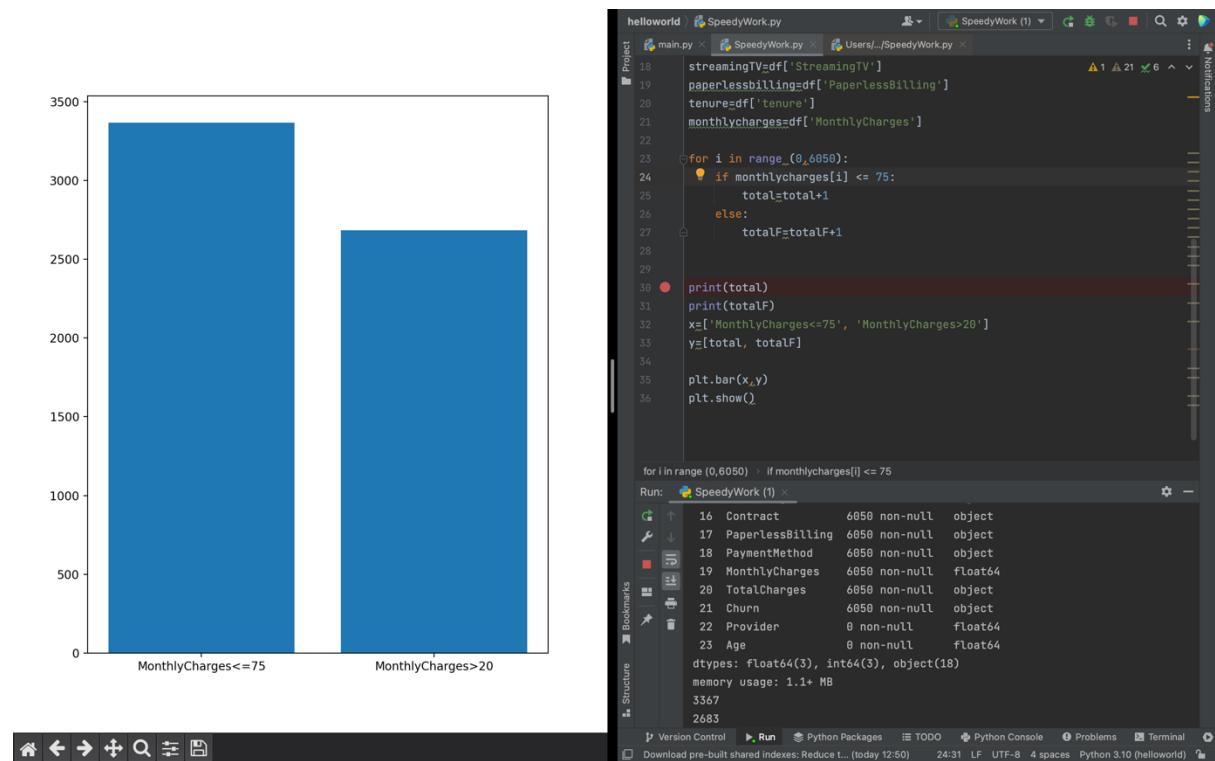
Bar chart comparing the number of people in the data set who had a monthly charge of less than 60 and everyone else in the data.



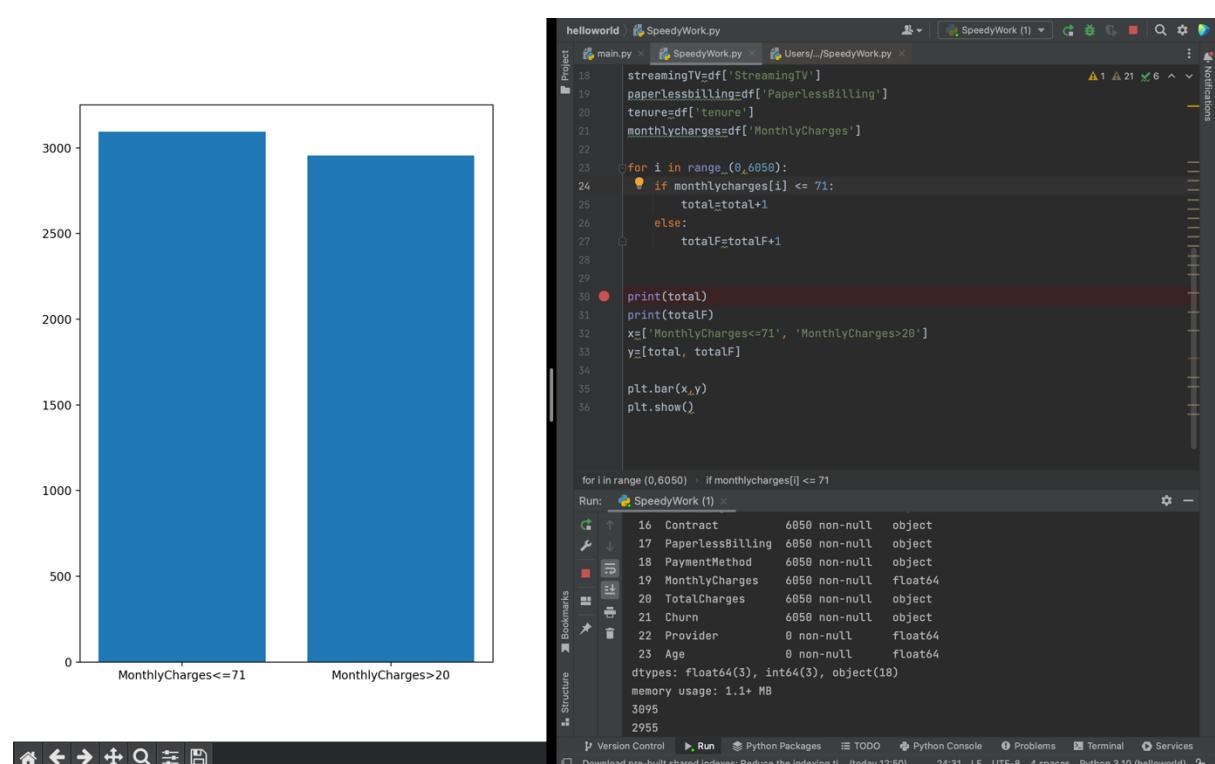
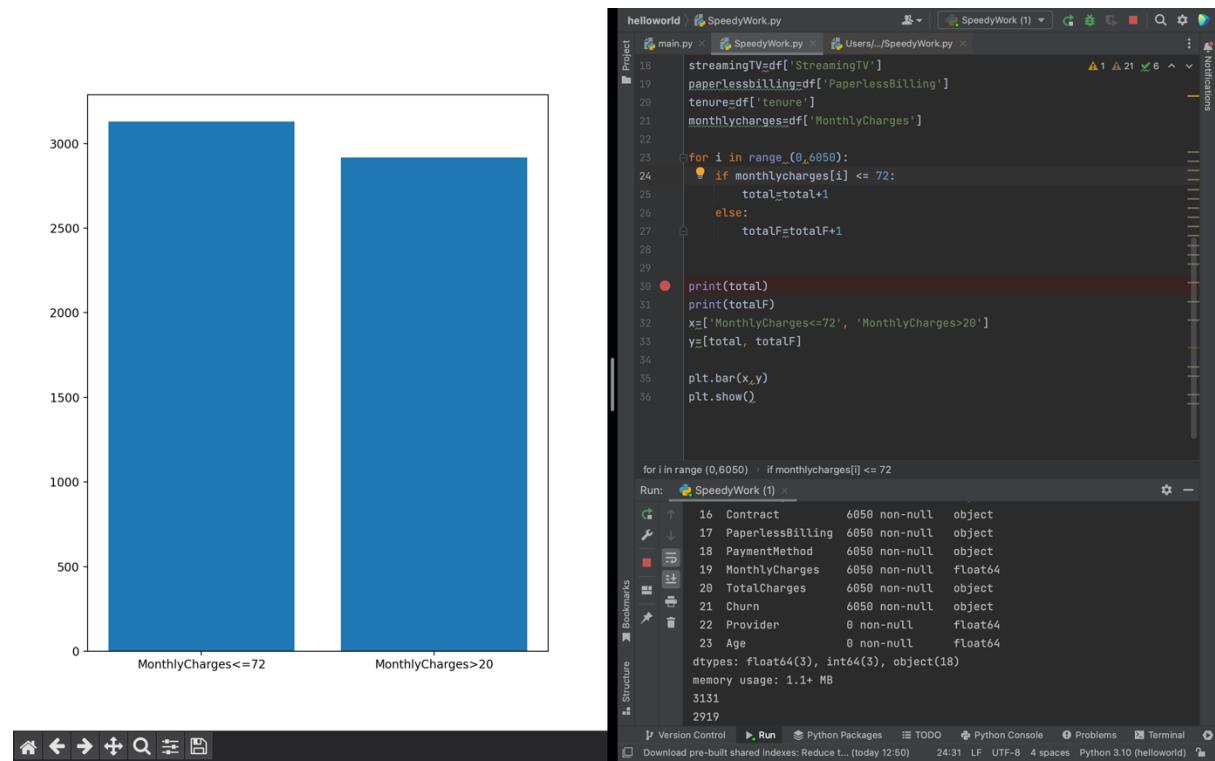
Bar chart comparing the number of people in the data set who had a monthly charge of less than 70 and everyone else in the data.



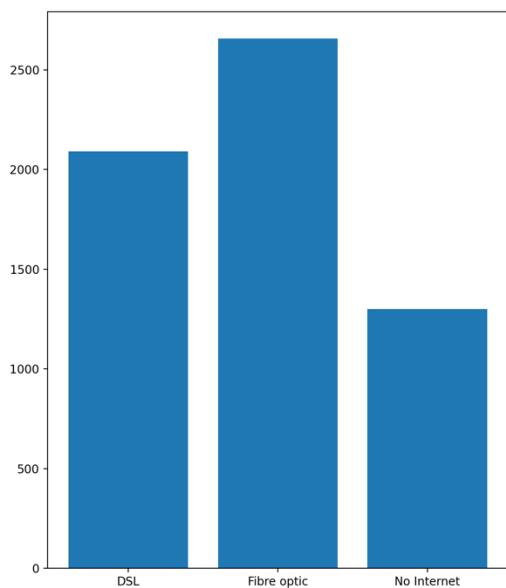
Bar chart comparing the number of people in the data set who had a monthly charge of less than 80 and everyone else in the data.



Bar chart comparing the number of people in the data set who had a monthly charge of less than 75 and everyone else in the data.



The point at which the majority of people are under is between 70 and 71.



```

helloworld SpeedyWork.py
main.py SpeedyWork.py Users/_/SpeedyWork.py

for i in range(0,6050):
    if internetservice[i] == 'DSL':
        total=total+1
    elif internetservice[i] == 'Fiber optic':
        totalF=totalF+1
    else:
        totalM=totalM+1

print(total)
print(totalF)
print(totalM)
x=['DSL', 'Fibre optic', 'No Internet']
y=[total, totalF, totalM]

plt.bar(x,y)
plt.show()

```

Run: SpeedyWork (1)

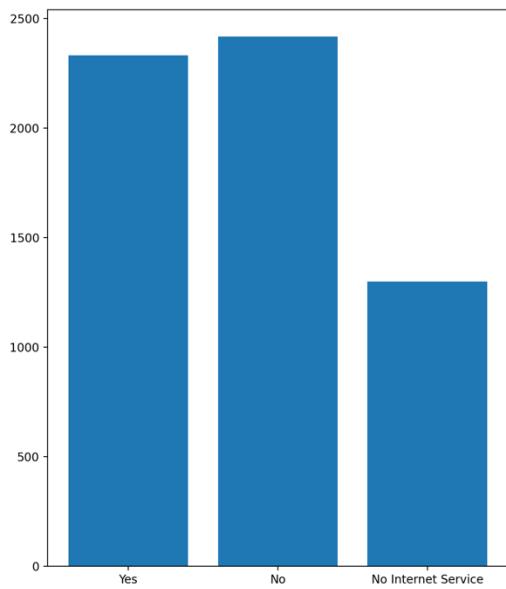
```

17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2092
2658
1300

```

Version Control Run Python Packages TODO Problems Terminal

Bar chart displaying the varying responses to if the people in the data had internet service.



```

helloworld SpeedyWork.py
main.py SpeedyWork.py Users/_/SpeedyWork.py

streamingV=df[ 'StreamingTV' ]
paperlessbilling=df['PaperlessBilling']
tenure=df['tenure']
monthlycharges=df['MonthlyCharges']

for i in range(0,6050):
    if streamingV[i] == 'Yes':
        total=total+1
    elif streamingV[i] == 'No':
        totalF=totalF+1
    else:
        totalM=totalM+1

print(total)
print(totalF)
print(totalM)
x=['Yes', 'No', 'No Internet Service']
y=[total, totalF, totalM]

n+= harry v

```

Run: SpeedyWork (1)

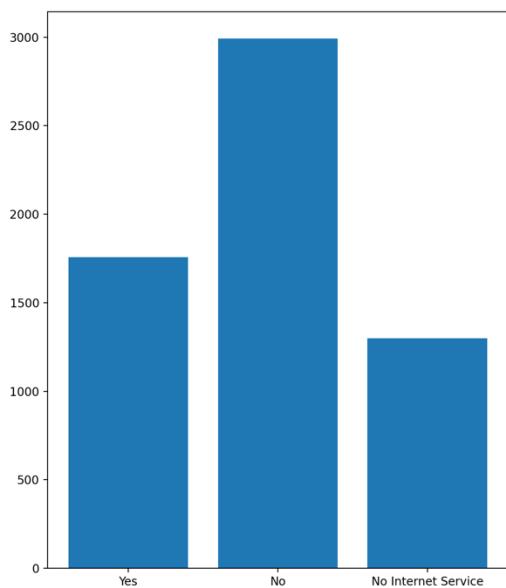
```

17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2332
2418
1300

```

Version Control Run Python Packages TODO Problems Terminal

Bar chart displaying the varying responses to if the people in the data had a streaming TV in their homes.



```

techsupport=df['TechSupport']

for i in range(0,6050):
    if techsupport[i] == 'Yes':
        total=total+1
    elif techsupport[i] == 'No':
        totalF=totalF+1
    else:
        totalM=totalM+1

print(total)
print(totalF)
print(totalM)
x=['Yes', 'No', 'No Internet Service']
y=[total, totalF, totalM]

plt.bar(x,y)
plt.show()

```

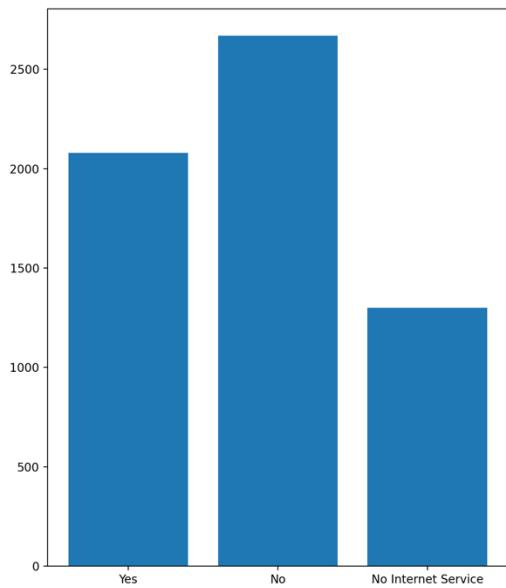
Run: SpeedyWork (1)

```

17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
1757
2993
1300

```

Bar chart displaying the varying responses to if the people in the data had tech support on their devices.



```

tenure=df['tenure']
monthlycharges=df['MonthlyCharges']
techsupport=df['TechSupport']
streamingmovies=df['StreamingMovies']

for i in range(0,6050):
    if deviceprotection[i] == 'Yes':
        total=total+1
    elif deviceprotection[i] == 'No':
        totalF=totalF+1
    else:
        totalM=totalM+1

print(total)
print(totalF)
print(totalM)
x=['Yes', 'No', 'No Internet Service']
y=[total, totalF, totalM]

plt.bar(x,y)

```

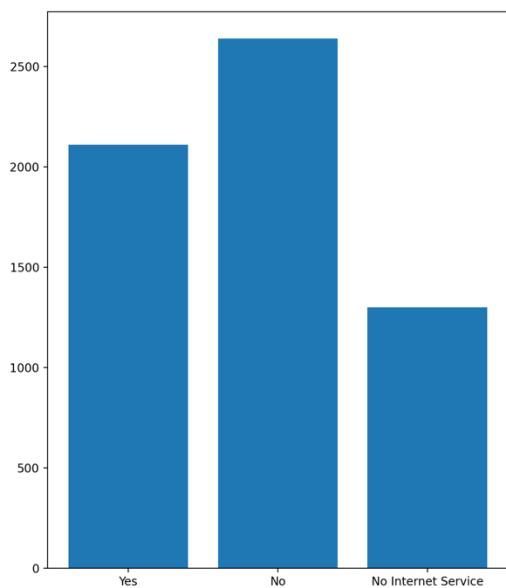
Run: SpeedyWork (1)

```

17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2080
2670
1300

```

Bar chart displaying the varying responses to if the people in the data had device protection.

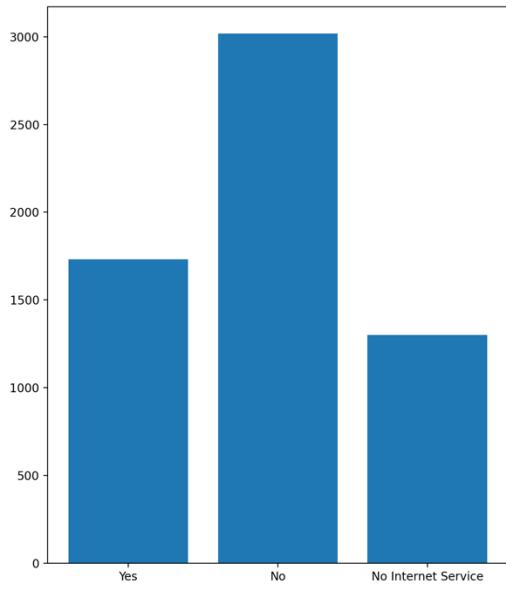


```

helloworld SpeedyWork.py
main.py SpeedyWork.py Users/.../SpeedyWork.py
22 techsupport=df['TechSupport']
23 streamingmovies=df['StreamingMovies']
24 onlinebackup=df['OnlineBackup']
25
26
27
28 for i in range(0,6050):
29     if onlinebackup[i] == 'Yes':
30         total=total+1
31     elif onlinebackup[i] == 'No':
32         totalF=totalF+1
33     else:
34         totalM=totalM+1
35
36 print(total)
37 print(totalF)
38 print(totalM)
39 x=['Yes', 'No', 'No Internet Service']
40 y=[total, totalF, totalM]
41
42 plt.bar(x,y)
43 plt.show()
for i in range(0,6050) : elif onlinebackup[i] == 'No'
Run: SpeedyWork (1)
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2110
2648
1300
Version Control Run Python Packages TODO Python Console Problems Terminal
Download pre-built shared indexes: Reduce t... (today 12:50) 31:22 LF UTF-8 4 spaces Python 3.10 (helloworld)

```

Bar chart displaying the varying responses to if the people in the data had online backup.

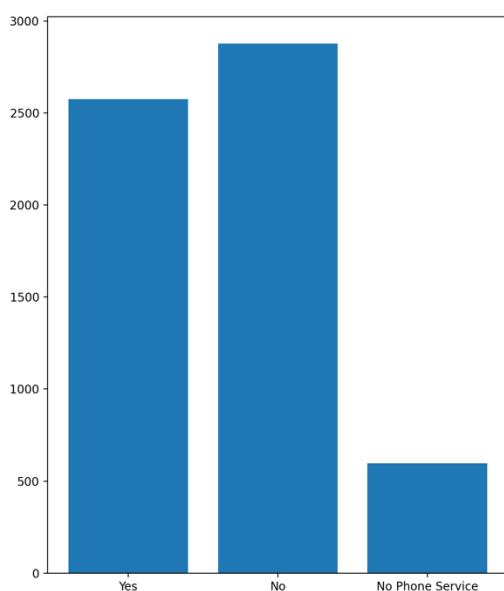


```

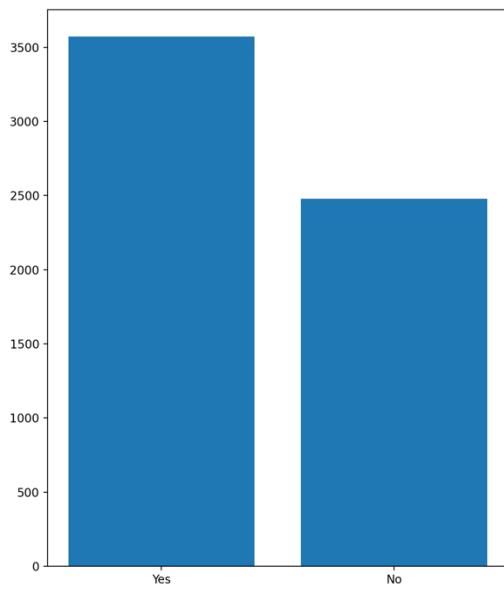
helloworld SpeedyWork.py
main.py SpeedyWork.py Users/.../SpeedyWork.py
21 monthlycharges=df['MonthlyCharges']
22 techsupport=df['TechSupport']
23 streamingmovies=df['StreamingMovies']
24 onlinebackup=df['OnlineBackup']
25 onlinesecurity=df['OnlineSecurity']
26
27
28 for i in range(0,6050):
29     if onlinesecurity[i] == 'Yes':
30         total=total+1
31     elif onlinesecurity[i] == 'No':
32         totalF=totalF+1
33     else:
34         totalM=totalM+1
35
36 print(total)
37 print(totalF)
38 print(totalM)
39 x=['Yes', 'No', 'No Internet Service']
40 y=[total, totalF, totalM]
41
42 for i in range(0,6050) : elif onlinesecurity[i] == 'No'
Run: SpeedyWork (1)
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
1731
3019
1300
Version Control Run Python Packages TODO Python Console Problems Terminal
Download pre-built shared indexes: Reduce t... (today 12:50) 32:24 LF UTF-8 4 spaces Python 3.10 (helloworld)

```

Bar chart displaying the varying responses to if the people in the data had online security.



Bar chart displaying the varying responses to if the people in the data had multiple lines.



Bar chart comparing the number of people who have paperless billing.

```

helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users.../SpeedyWork.py
Project
21 monthlycharges=df['MonthlyCharges']
22 techsupport=df['TechSupport']
23 streamingmovies=df['StreamingMovies']
24 onlinebackup=df['OnlineBackup']
25 onlinesecurity=df['OnlineSecurity']
26 multiplelines=df['MultipleLines']

27
28
29
30 for i in range(0,6050):
31     if multiplelines[i] == 'Yes':
32         total+=1
33     elif multiplelines[i] == 'No':
34         totalF+=1
35     else:
36         totalM+=totalM+1
37
38 print(total)
39 print(totalF)
40 print(totalM)
41 x=['Yes', 'No', 'No Phone Service']
42 y=[total, totalF, totalM]

for i in range(0,6050) > elif multiplelines[i] == 'No'
Run: SpeedyWork (1) ×
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
2575
2877
598

```

```

helloworld | SpeedyWork.py
main.py | SpeedyWork.py | Users.../SpeedyWork.py ×
Project
21 monthlycharges=df['MonthlyCharges']
22 techsupport=df['TechSupport']
23 streamingmovies=df['StreamingMovies']
24 onlinebackup=df['OnlineBackup']
25 onlinesecurity=df['OnlineSecurity']
26 multiplelines=df['MultipleLines']

27
28
29
30 for i in range(0,6050):
31     if paperlessbilling[i] == 'Yes':
32         total+=1
33     else:
34         totalF+=1
35
36 print(total)
37 print(totalF)
38
39 x=['Yes', 'No']
40 y=[total, totalF]
41
42 plt.bar(x,y)

Run: SpeedyWork (1) ×
16 Contract 6050 non-null object
17 PaperlessBilling 6050 non-null object
18 PaymentMethod 6050 non-null object
19 MonthlyCharges 6050 non-null float64
20 TotalCharges 6050 non-null object
21 Churn 6050 non-null object
22 Provider 0 non-null float64
23 Age 0 non-null float64
dtypes: float64(3), int64(3), object(18)
memory usage: 1.1+ MB
3573
2477

```