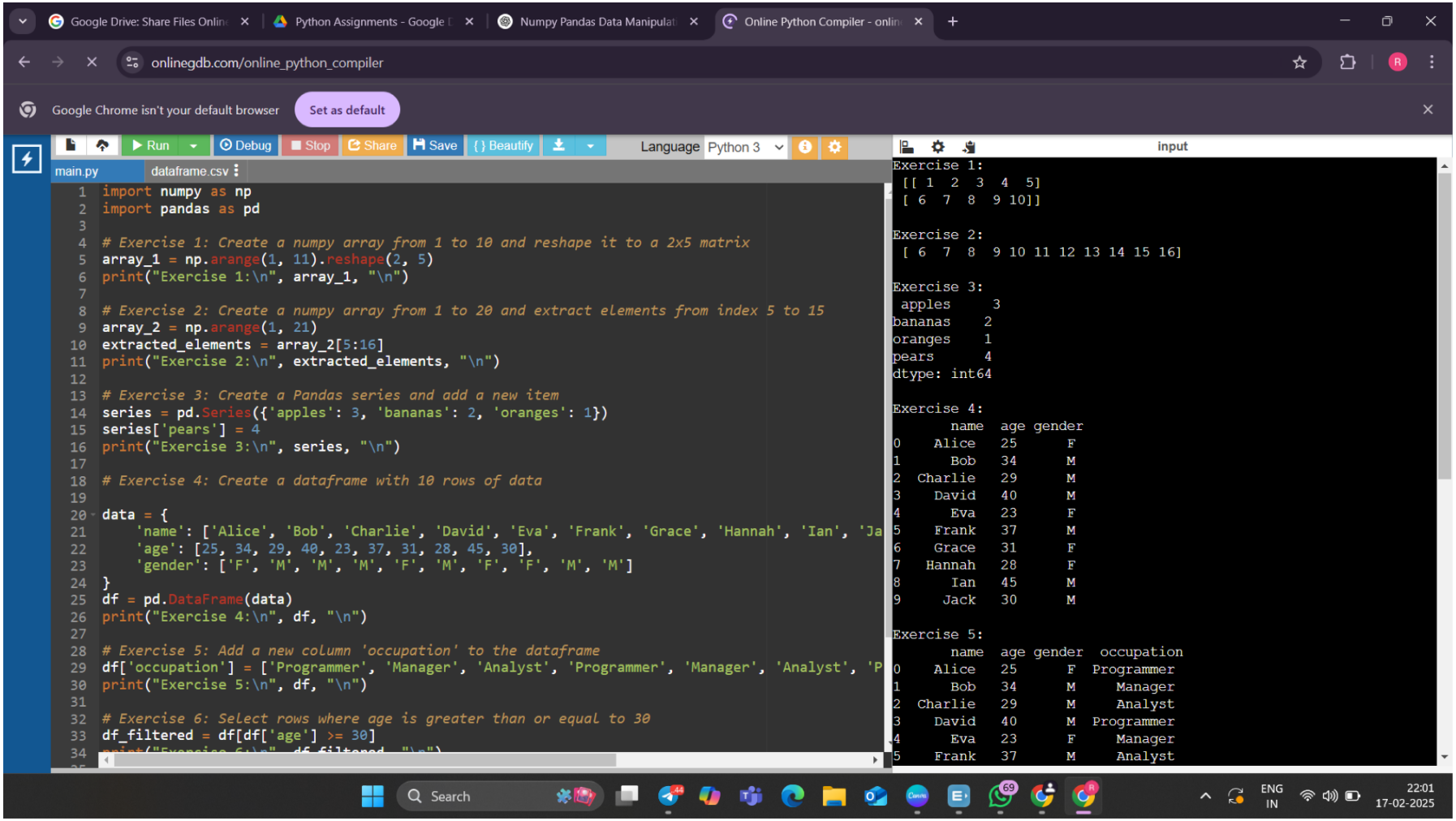



```python
import numpy as np
import pandas as pd

# Exercise 1: Create a numpy array from 1 to 10 and reshape it to a 2x5 matrix
array_1 = np.arange(1, 11).reshape(2, 5)
print("Exercise 1:\n", array_1, "\n")

# Exercise 2: Create a numpy array from 1 to 20 and extract elements from index 5 to 15
array_2 = np.arange(1, 21)
extracted_elements = array_2[5:16]
print("Exercise 2:\n", extracted_elements, "\n")

# Exercise 3: Create a Pandas series and add a new item
series = pd.Series({'apples': 3, 'bananas': 2, 'oranges': 1})
series['pears'] = 4
print("Exercise 3:\n", series, "\n")

# Exercise 4: Create a dataframe with 10 rows of data

data = {
    'name': ['Alice', 'Bob', 'Charlie', 'David', 'Eva', 'Frank', 'Grace', 'Hannah', 'Ian', 'Ja
    'age': [25, 34, 29, 40, 23, 37, 31, 28, 45, 30],
    'gender': ['F', 'M', 'M', 'M', 'F', 'M', 'F', 'F', 'M', 'M']
}
df = pd.DataFrame(data)
print("Exercise 4:\n", df, "\n")

# Exercise 5: Add a new column 'occupation' to the dataframe
df['occupation'] = ['Programmer', 'Manager', 'Analyst', 'Programmer', 'Manager', 'Analyst', 'P
print("Exercise 5:\n", df, "\n")

# Exercise 6: Select rows where age is greater than or equal to 30
df_filtered = df[df['age'] >= 30]
```

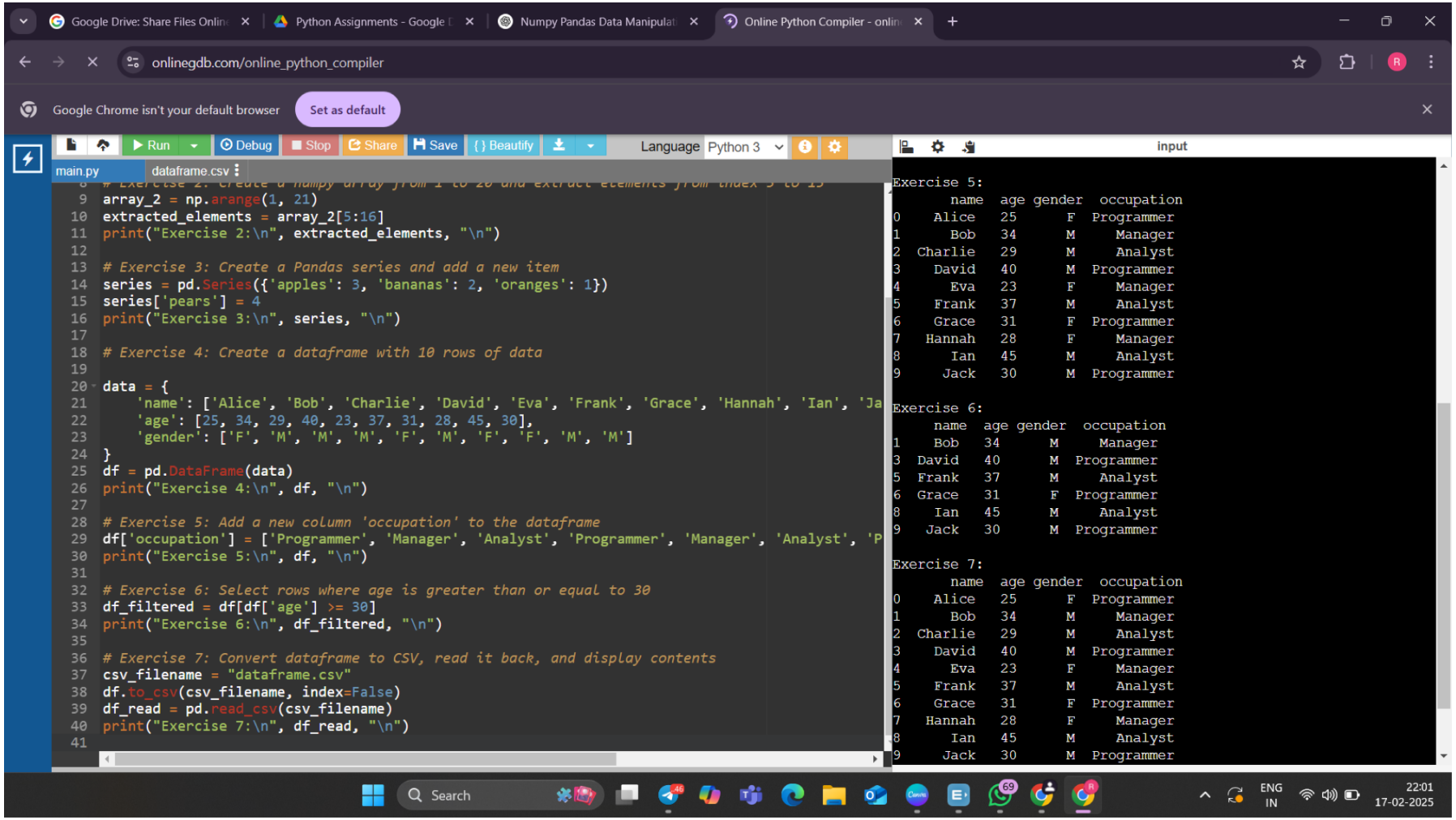
```
Exercise 1:
 [[ 1  2  3  4  5]
 [ 6  7  8  9 10]]

Exercise 2:
 [ 6  7  8  9 10 11 12 13 14 15 16]

Exercise 3:
 apples     3
bananas    2
oranges    1
pears      4
dtype: int64

Exercise 4:
      name  age gender
0    Alice   25      F
1      Bob   34      M
2  Charlie   29      M
3    David   40      M
4      Eva   23      F
5    Frank   37      M
6    Grace   31      F
7   Hannah   28      F
8      Ian   45      M
9     Jack   30      M

Exercise 5:
      name  age gender  occupation
0    Alice   25      F  Programmer
1      Bob   34      M     Manager
2  Charlie   29      M     Analyst
3    David   40      M  Programmer
4      Eva   23      F     Manager
5    Frank   37      M     Analyst
```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Language
Python 3
input
main.py
dataframe.csv
array_2 = np.arange(1, 21)
extracted_elements = array_2[5:16]
print("Exercise 2:\n", extracted_elements, "\n")
# Exercise 3: Create a Pandas series and add a new item
series = pd.Series({'apples': 3, 'bananas': 2, 'oranges': 1})
series['pears'] = 4
print("Exercise 3:\n", series, "\n")
# Exercise 4: Create a dataframe with 10 rows of data
data = {
'name': ['Alice', 'Bob', 'Charlie', 'David', 'Eva', 'Frank', 'Grace', 'Hannah', 'Ian', 'Ja
'age': [25, 34, 29, 40, 23, 37, 31, 28, 45, 30],
'gender': ['F', 'M', 'M', 'M', 'F', 'M', 'F', 'F', 'M', 'M']
}
df = pd.DataFrame(data)
print("Exercise 4:\n", df, "\n")
# Exercise 5: Add a new column 'occupation' to the dataframe
df['occupation'] = ['Programmer', 'Manager', 'Analyst', 'Programmer', 'Manager', 'Analyst', 'P
print("Exercise 5:\n", df, "\n")
# Exercise 6: Select rows where age is greater than or equal to 30
df_filtered = df[df['age'] >= 30]
print("Exercise 6:\n", df_filtered, "\n")
# Exercise 7: Convert dataframe to CSV, read it back, and display contents
csv_filename = "dataframe.csv"
df.to_csv(csv_filename, index=False)
df_read = pd.read_csv(csv_filename)
print("Exercise 7:\n", df_read, "\n")
Exercise 5:
name age gender occupation
0 Alice 25 F Programmer
1 Bob 34 M Manager
2 Charlie 29 M Analyst
3 David 40 M Programmer
4 Eva 23 F Manager
5 Frank 37 M Analyst
6 Grace 31 F Programmer
7 Hannah 28 F Manager
8 Ian 45 M Analyst
9 Jack 30 M Programmer
Exercise 6:
name age gender occupation
1 Bob 34 M Manager
3 David 40 M Programmer
5 Frank 37 M Analyst
6 Grace 31 F Programmer
8 Ian 45 M Analyst
9 Jack 30 M Programmer
Exercise 7:
name age gender occupation
0 Alice 25 F Programmer
1 Bob 34 M Manager
2 Charlie 29 M Analyst
3 David 40 M Programmer
4 Eva 23 F Manager
5 Frank 37 M Analyst
6 Grace 31 F Programmer
7 Hannah 28 F Manager
8 Ian 45 M Analyst
9 Jack 30 M Programmer
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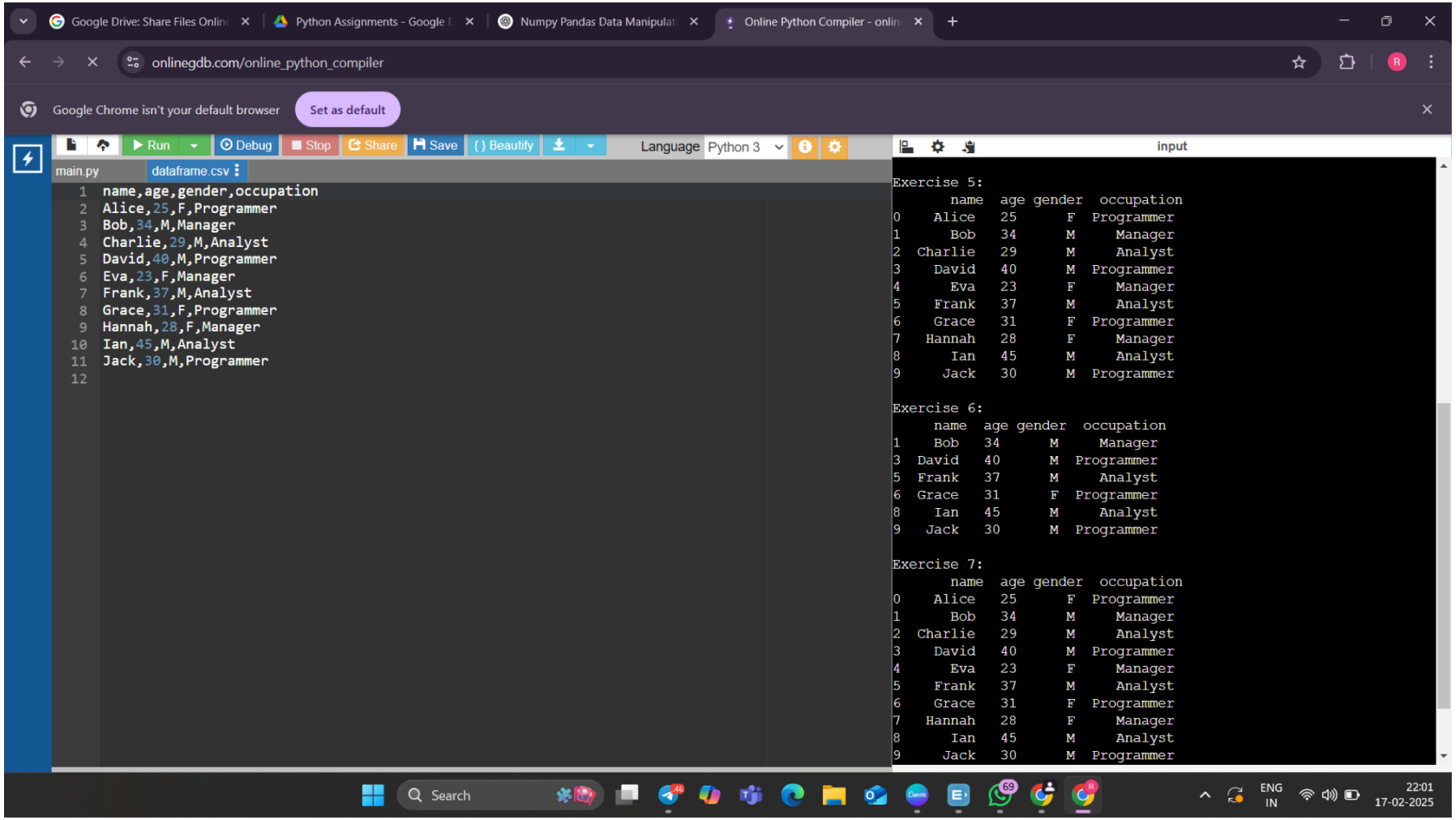
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Set as default
Run
Debug
Stop
Share
Save
{ } Beautify
Language
Python 3
input
main.py
dataframe.csv
1 name,age,gender,occupation
2 Alice,25,F,Programmer
3 Bob,34,M,Manager
4 Charlie,29,M,Analyst
5 David,40,M,Programmer
6 Eva,23,F,Manager
7 Frank,37,M,Analyst
8 Grace,31,F,Programmer
9 Hannah,28,F,Manager
10 Ian,45,M,Analyst
11 Jack,30,M,Programmer
12
Exercise 5:
name age gender occupation
0 Alice 25 F Programmer
1 Bob 34 M Manager
2 Charlie 29 M Analyst
3 David 40 M Programmer
4 Eva 23 F Manager
5 Frank 37 M Analyst
6 Grace 31 F Programmer
7 Hannah 28 F Manager
8 Ian 45 M Analyst
9 Jack 30 M Programmer
Exercise 6:
name age gender occupation
1 Bob 34 M Manager
3 David 40 M Programmer
5 Frank 37 M Analyst
6 Grace 31 F Programmer
8 Ian 45 M Analyst
9 Jack 30 M Programmer
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name age gender occupation
0 Alice 25 F Programmer
1 Bob 34 M Manager
2 Charlie 29 M Analyst
3 David 40 M Programmer
4 Eva 23 F Manager
5 Frank 37 M Analyst
6 Grace 31 F Programmer
7 Hannah 28 F Manager
8 Ian 45 M Analyst
9 Jack 30 M Programmer
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