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[1]: import numpy as np
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[25]: #Exercise1
#Create a numpy array containing the numbers from 1 to 10, and then reshape it to a 2x5 matrix.
arr=np.arange(1,11)
print(arr)
arr1=arr.reshape(2,5)
print(arr1)
```

```
[ 1  2  3  4  5  6  7  8  9 10]
[[ 1  2  3  4  5]
 [ 6  7  8  9 10]]
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[27]: #Exercise2
      #Create a numpy array containing the numbers from 1 to 20, and then extract the elements between the 5th and 15th index.
      arr=np.arange(1,21)
      print(arr)
      arr1=arr[5:15]
      print(arr1)

[ 1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20]
[ 6  7  8  9 10 11 12 13 14 15]

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[29]: `import pandas as pd`

•[37]: `#Exercise3`
#Create a Pandas series with the following data: {'apples': 3, 'bananas': 2, 'oranges': 1}.
#Then, add a new item to the series with the key 'pears' and the value 4
`x1=pd.Series({"apples":3,"Bananas":2,"Oranges":1})`
`x1["Pears"]=4`
`print(x1)`

```

apples      3
Bananas     2
Oranges     1
Pears       4
dtype: int64

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[51]: #Exercise4
#Create a dataframe with the following columns: name, age, and gender. The dataframe should have 10 rows of data.
data = {
    "name":["John","Anna","Peter","Linda","Tom","Jessica","Michael","Sophia","William","Emily"],
    "age": np.random.randint(20,60,10),
    "Gender":["Male","Female","Male","Female","Male","Female","Male","Female","Male","Female"]
}
df=pd.DataFrame(data)
print(df)
```

	name	age	Gender
0	John	58	Male
1	Anna	42	Female
2	Peter	39	Male
3	Linda	26	Female
4	Tom	29	Male
5	Jessica	22	Female
6	Michael	46	Male
7	Sophia	42	Female
8	William	56	Male
9	Emily	34	Female

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[53]: #Exercise5
#Add a new column to the data frame created in question 1, called occupation.
#The values for this column should be Programmer, Manager, and Analyst, corresponding to the rows in the dataframe
df["Occupation"] = ["Programmer","Manager","Analyst","Programmer","Manager","Analyst","Programmer","Manager","Analyst","Programmer"]
print(df)
```

	name	age	Gender	Occupation
0	John	58	Male	Programmer
1	Anna	42	Female	Manager
2	Peter	39	Male	Analyst
3	Linda	26	Female	Programmer
4	Tom	29	Male	Manager
5	Jessica	22	Female	Analyst
6	Michael	46	Male	Programmer
7	Sophia	42	Female	Manager
8	William	56	Male	Analyst
9	Emily	34	Female	Programmer

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[67]: #Exercise6
#Select the rows of the dataframe where the age is greater than or equal to 30.
df1=df.loc[df["age"]>=30]
df1
```

[67]:	name	age	Gender	Occupation
0	John	58	Male	Programmer
1	Anna	42	Female	Manager
2	Peter	39	Male	Analyst
6	Michael	46	Male	Programmer
7	Sophia	42	Female	Manager
8	William	56	Male	Analyst
9	Emily	34	Female	Programmer

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#Exercise7
# Convert this dataframe to a csv file and read that csv file, finally display the contents.
df.to_csv("data.csv")
Data = pd.read_csv("data.csv")
print(Data)
```

	Unnamed: 0	name	age	Gender
0	0	John	57	Male
1	1	Anna	37	Female
2	2	Peter	59	Male
3	3	Linda	36	Female
4	4	Tom	33	Male
5	5	Jessica	35	Female
6	6	Michael	56	Male
7	7	Sophia	47	Female
8	8	William	37	Male
9	9	Emily	52	Female

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