Finlatics Data Science
Capsule 3

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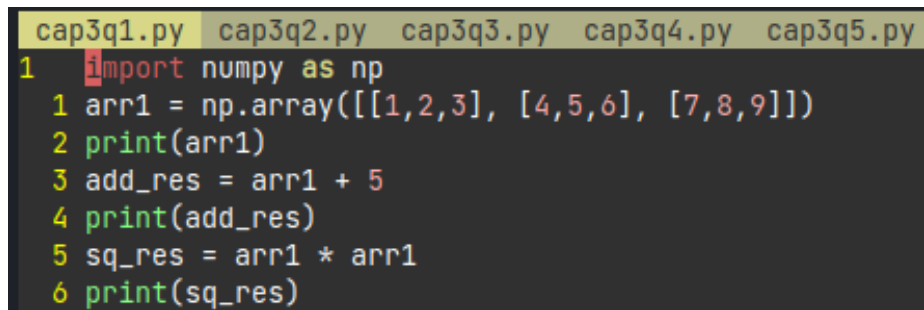
Contents

Task 1

3x3 Numpy Array, Add and Square

1.1 PYTHON CODE:

```python
1  import numpy as np
2  arr1 = np.array([[1,2,3], [4,5,6], [7,8,9]])
3  print(arr1)
4  add_res = arr1 + 5
5  print(add_res)
6  sq_res = arr1 * arr1
7  print(sq_res)
```

1.2 Code

Figure 1.1: Code

1.3 Output

Figure 1.2: Output
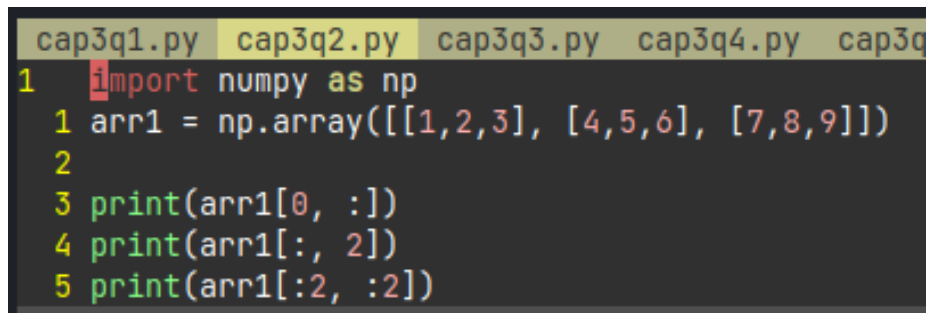
Task 2

3x3 Numpy Array, Extract Sub-Arrays

2.1 PYTHON CODE:

```python
1  import numpy as np
2  arr1 = np.array([[1,2,3], [4,5,6], [7,8,9]])
3
4  print(arr1[0, :])
5  print(arr1[:, 2])
6  print(arr1[:2, :2])
```

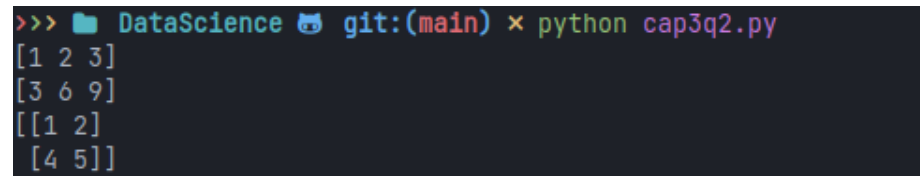## 2.2 Code

Figure 2.1: Code

4

2.3 Output

Figure 2.2: Output
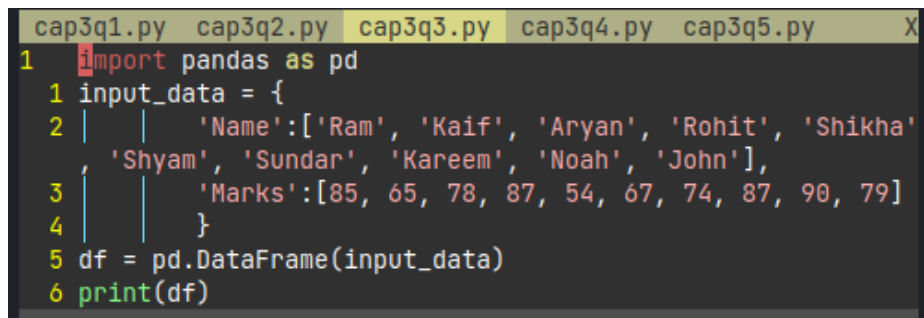
Task 3

DataFrame, Name and Marks

3.1 PYTHON CODE:

```
1  import pandas as pd
2  input_data = {
3     'Name':[ 'Ram', 'Kaif', 'Aryan', 'Rohit', 'Shikha', '
          Shyam', 'Sundar', 'Kareem', 'Noah', 'John'],
4     'Marks':[85, 65, 78, 87, 54, 67, 74, 87, 90, 79]
5  }
6  df = pd.DataFrame(input_data)
7  print(df)
```

3.2 Code

Figure 3.1: Code

3.3 Output


```
>>> DataScience git:(main) × python cap3q3.py
      Name  Marks
0      Ram     85
1     Kaif     65
2    Aryan     78
3    Rohit     87
4   Shikha     54
5    Shyam     67
6   Sundar     74
7   Kareem     87
8     Noah     90
9     John     79
```
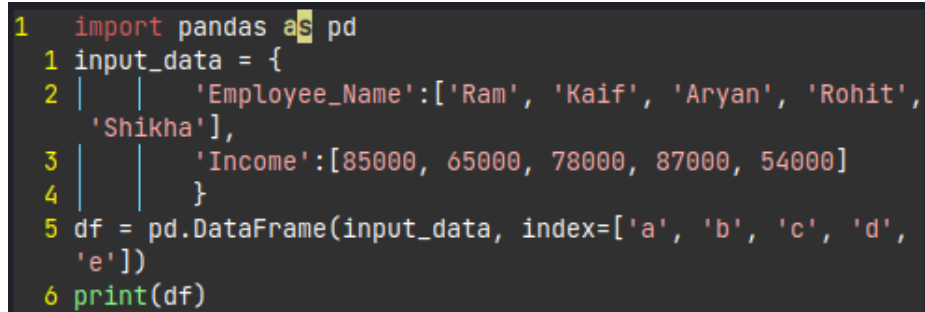
Figure 3.2: Output

Task 4

DataFrame, Name and Income
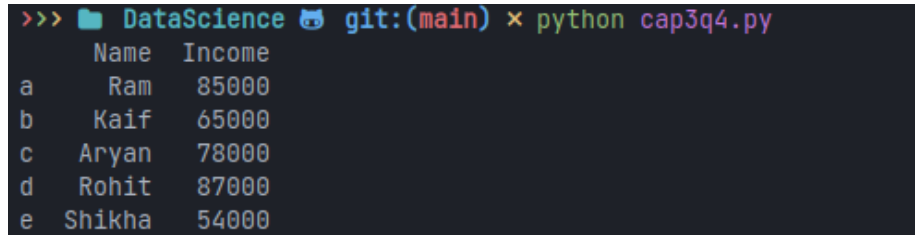

4.1 PYTHON CODE:

```python
1  import pandas as pd
2  input_data = {
3    'Employee_Name':['Ram', 'Kaif', 'Aryan', 'Rohit', '
         Shikha'],
4    'Income':[85000, 65000, 78000, 87000, 54000]
5  }
6  df = pd.DataFrame(input_data, index=['a', 'b', 'c', 'd',
      'e'])
7  print(df)
```

4.2 Code

Figure 4.1: Code

4.3 Output

Figure 4.2: Output

Task 5

Bar Plot

5.1 PYTHON CODE:

```python
import matplotlib.pyplot as plt
x = ['A', 'B', 'C', 'D', 'E']
y = [10, 20, 15, 25, 30]
plt.bar(x, y, color='red')
plt.xlabel("Categories")
plt.ylabel("Frequency")
plt.title('Bar Plot')
plt.show()
```
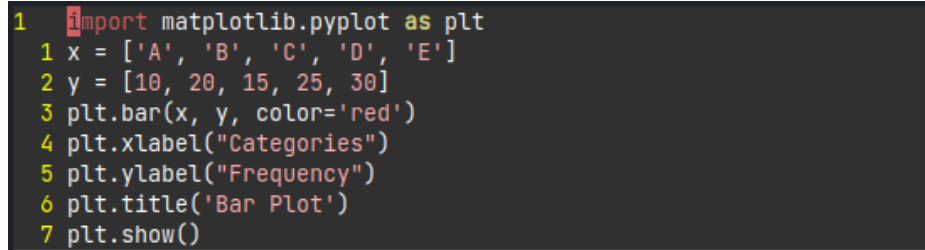
5.2 Code

```python
1  import matplotlib.pyplot as plt
1  x = ['A', 'B', 'C', 'D', 'E']
2  y = [10, 20, 15, 25, 30]
3  plt.bar(x, y, color='red')
4  plt.xlabel("Categories")
5  plt.ylabel("Frequency")
6  plt.title('Bar Plot')
7  plt.show()
```
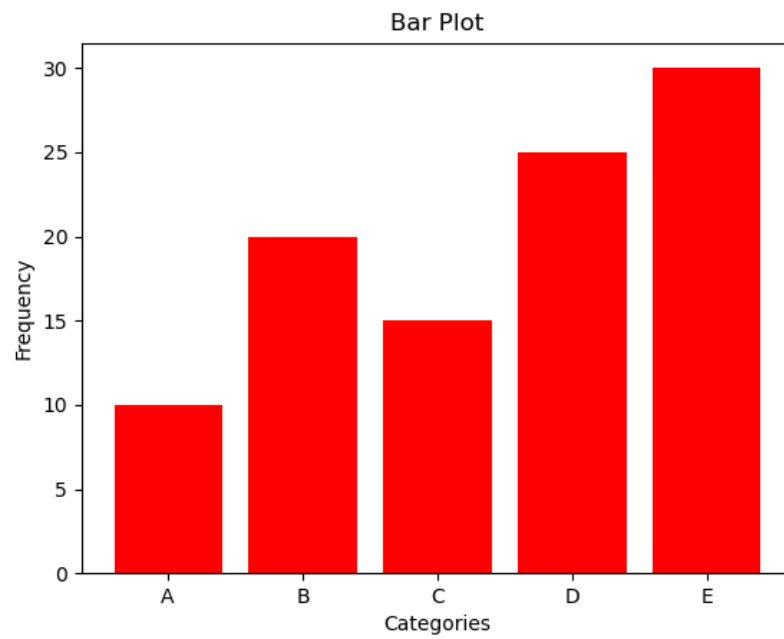
Figure 5.1: Code

5.3 Output

Figure 5.2: Output