Debrato_PE_83_Week4

February 7, 2025

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[1]: #Debrato Ghosh
     #240953708
     #PE 83
     #Week_4
```

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[7]: #1. Create a Series from a list of integers representing daily
     #temperatures (in Celsius) over a week. Assign index labels as day
     #of the week.
     #a. Find and print the average (mean) temperature for the week.
     #b. Identify and print the maximum and minimum temperatures
     #and their respective days.
     #c. Display the temperatures greater than a specific value.
     #d. Convert all temperatures to Fahrenheit.
     #e. Print the days had temperatures above the average.
     import numpy as np
     import pandas as pd
     list_days=["Monday","Tuesday","Wednesday","Thursday","Friday","Saturday","Sunday"]
     list_temp=[]
     for i in range(7):
         list_temp.append(int(input(f"Input Temperature of Day-{i+1} : ")))
     temp_series=pd.Series(list_temp,index=list_days)

     avg_temp=temp_series.mean()
     print("The average (mean) temperature for the week is = " , avg_temp)

     max_temp=temp_series.max()
     max_day=temp_series.idxmax()
     print("The maximum temperature for the week is = " , max_temp , " on ", max_day)
     min_temp=temp_series.min()
     min_day=temp_series.idxmin()
     print("The minimum temperature for the week is = " , min_temp , " on ", min_day)

     var_spec=int(input("Input the specific value of temperature: "))
     temp_spec=temp_series[temp_series>var_spec]
     print("All temperatures for the week in above ",var_spec," = \n" , temp_spec)

     temp_series_fah=temp_series*9/5+32
```

```python
print("All temperatures for the week in fahrenheit = \n" , temp_series_fah)

above_avg=temp_series[temp_series>avg_temp]
print("All temperatures for the week above the average (mean) temperature for␣
 ↪the week is = \n" , above_avg)
```

```
Input Temperature of Day-1 : 1
Input Temperature of Day-2 : 2
Input Temperature of Day-3 : 3
Input Temperature of Day-4 : 4
Input Temperature of Day-5 : 5
Input Temperature of Day-6 : 6
Input Temperature of Day-7 : 7
The average (mean) temperature for the week is =  4.0
The maximum temperature for the week is =  7  on  Sunday
The minimum temperature for the week is =  1  on  Monday
Input the specific value of temperature: 3
All temperatures for the week in above  3  =
 Thursday    4
Friday       5
Saturday     6
Sunday       7
dtype: int64
All temperatures for the week in fahrenheit =
 Monday        33.8
Tuesday       35.6
Wednesday     37.4
Thursday      39.2
Friday        41.0
Saturday      42.8
Sunday        44.6
dtype: float64
All temperatures for the week above the average (mean) temperature for the week
is =
 Friday       5
Saturday     6
Sunday       7
dtype: int64
```

```python
[12]: #2. Create a data frame with details of 10 students and columns as
      #Roll Number, Name, Gender, Marks1, Marks2, Marks3.
      #a. Create a new column with total marks
      #b. Find the lowest marks in Marks1
      #c. Find the Highest marks in Marks2
      #d. Find the average marks in Marks3
      #e. Find student name with highest average
      #f. Find how many students failed in Marks2 (<40)
```

```python
import numpy as np
import pandas as pd
students_df=[]
for i in range(10):
    roll = int(input(f"Input Roll Number of Student-{i+1} : "))
    name = input(f"Input Name of Student-{i+1} : ")
    gender = input(f"Input Gender of Student-{i+1} : ")
    marks1 = int(input(f"Input Marks1 of Student-{i+1} : "))
    marks2 = int(input(f"Input Marks2 of Student-{i+1} : "))
    marks3 = int(input(f"Input Marks3 of Student-{i+1} : "))
    students_df.append({
        "Roll Number":roll,
        "Name": name,
        "Gender": gender,
        "Marks1": marks1,
        "Marks2": marks2,
        "Marks3": marks3
    })
students_df=pd.DataFrame(students_df)
print(students_df)
students_df["total_marks"]=students_df["Marks1"]+students_df["Marks2"]+students_df["Marks2"]
print("New table with additional column \n", students_df)
lowest_marks1=students_df["Marks1"].min()
highest_marks2=students_df["Marks2"].max()
avg_marks3=students_df["Marks3"].mean()
students_df["Average"]=students_df[["Marks1", "Marks2","Marks3"]].mean(axis=1)
high_avg=students_df.loc[students_df["Average"].idxmax(),"Name"]
failed=students_df[students_df["Marks2"]<40].shape[0]
print(students_df)
print("The lowest marks in Marks1 = ",lowest_marks1 )
print("The highest marks in Marks2 = ",highest_marks2 )
print("The average marks in Marks3 = ",avg_marks3 )
print("The student name with highest average is : ", high_avg)
print(failed , " students failed in Marks2 (<40)")
```

```
Input Roll Number of Student-1 : 1
Input Name of Student-1 : 2
Input Gender of Student-1 : 3
Input Marks1 of Student-1 : 4
Input Marks2 of Student-1 : 5
Input Marks3 of Student-1 : 6
Input Roll Number of Student-2 : 78
Input Name of Student-2 : 9
Input Gender of Student-2 : 2
Input Marks1 of Student-2 : 3
Input Marks2 of Student-2 : 4
Input Marks3 of Student-2 : 5
```

```
Input Roll Number of Student-3 : 6
Input Name of Student-3 : 7
Input Gender of Student-3 : 8
Input Marks1 of Student-3 : 1
Input Marks2 of Student-3 : 1
Input Marks3 of Student-3 : 2
Input Roll Number of Student-4 : 3
Input Name of Student-4 : 4
Input Gender of Student-4 : 5
Input Marks1 of Student-4 : 6
Input Marks2 of Student-4 : 7
Input Marks3 of Student-4 : 8
Input Roll Number of Student-5 : 9
Input Name of Student-5 : 1
Input Gender of Student-5 : 2
Input Marks1 of Student-5 : 3
Input Marks2 of Student-5 : 4
Input Marks3 of Student-5 : 5
Input Roll Number of Student-6 : 6
Input Name of Student-6 : 7
Input Gender of Student-6 : 8
Input Marks1 of Student-6 : 1
Input Marks2 of Student-6 : 2
Input Marks3 of Student-6 : 3
Input Roll Number of Student-7 : 4
Input Name of Student-7 : 5
Input Gender of Student-7 : 6
Input Marks1 of Student-7 : 7
Input Marks2 of Student-7 : 8
Input Marks3 of Student-7 : 1
Input Roll Number of Student-8 : 2
Input Name of Student-8 : 3
Input Gender of Student-8 : 4
Input Marks1 of Student-8 : 5
Input Marks2 of Student-8 : 6
Input Marks3 of Student-8 : 76
Input Roll Number of Student-9 : 87
Input Name of Student-9 : 98
Input Gender of Student-9 : 1
Input Marks1 of Student-9 : 2
Input Marks2 of Student-9 : 3
Input Marks3 of Student-9 : 4
Input Roll Number of Student-10 : 5
Input Name of Student-10 : 7
Input Gender of Student-10 : 78
Input Marks1 of Student-10 : 1
Input Marks2 of Student-10 : 2
Input Marks3 of Student-10 : 3
```

	Roll Number	Name	Gender	Marks1	Marks2	Marks3
0	1	2	3	4	5	6
1	78	9	2	3	4	5
2	6	7	8	1	1	2
3	3	4	5	6	7	8
4	9	1	2	3	4	5
5	6	7	8	1	2	3
6	4	5	6	7	8	1
7	2	3	4	5	6	76
8	87	98	1	2	3	4
9	5	7	78	1	2	3

New table with additional column

	Roll Number	Name	Gender	Marks1	Marks2	Marks3	total_marks
0	1	2	3	4	5	6	14
1	78	9	2	3	4	5	11
2	6	7	8	1	1	2	3
3	3	4	5	6	7	8	20
4	9	1	2	3	4	5	11
5	6	7	8	1	2	3	5
6	4	5	6	7	8	1	23
7	2	3	4	5	6	76	17
8	87	98	1	2	3	4	8
9	5	7	78	1	2	3	5

	Roll Number	Name	Gender	Marks1	Marks2	Marks3	total_marks	Average
0	1	2	3	4	5	6	14	5.000000
1	78	9	2	3	4	5	11	4.000000
2	6	7	8	1	1	2	3	1.333333
3	3	4	5	6	7	8	20	7.000000
4	9	1	2	3	4	5	11	4.000000
5	6	7	8	1	2	3	5	2.000000
6	4	5	6	7	8	1	23	5.333333
7	2	3	4	5	6	76	17	29.000000
8	87	98	1	2	3	4	8	3.000000
9	5	7	78	1	2	3	5	2.000000

The lowest marks in Marks1 = 1
The highest marks in Marks2 = 8
The average marks in Marks3 = 11.3
The student name with highest average is : 3
10 students failed in Marks2 (<40)