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CSE D Roll 62

Distributed Systems Week 2: Lab 2: Python Basic Practice-II

Lab Exercise Programs for Week 1 & 2:

1. Write a program to find the area of rectangle. Take input from user.

```
l = int(input('Enter length: '))
b = int(input('Enter breadth: '))
a = l*b
print('Area of rectangle is: '+ str(a))
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques1.py
Enter length: 5
Enter breadth: 10
Area of rectangle is: 50
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

2. Write a program to swap the values of two variables.

```
a = int(input('Enter value of a: '))
b = int(input('Enter value of b: '))
a,b = b,a
print('Value of a is {0}\nValue of b is {1}'.format(a,b))
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques2.py
Enter value of a: 5
Enter value of b: 10
Value of a is 10
Value of b is 5
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

3. Write a program to find whether a number is even or odd.

```
a = int(input('Enter any number: '))
if(a%2 == 0):
        print('Even')
else:
        print('Odd')
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques3.py
Enter any number: 3
Odd
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques3.py
Enter any number: 6
Even
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

4. Write a program to check the largest among the given three numbers.

```
x = [int(i) for i in input("Enter 3 user inputs: ").split()]

max = x[0]
for i in range(len(x)):
        if max < x[i]:
                max = x[i]
print('The largest number is ', str(max))
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques4.py
Enter 3 user inputs: 56 2 63
The largest number is  63
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

5. Write a program to demonstrate while loop with else.

```
x = [int(i) for i in input("Enter 3 user inputs: ").split()]
i = 0
while i<len(x) :
        if x[i]%2 == 0:
                print('Even')
        else:
                print('Odd')
        i+=1
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques5.py
Enter 3 user inputs: 43 2 12
Odd
Even
Even
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

6. Write a program to demonstrate List functions and operations.

```
x = [int(i) for i in input("Enter 3 user inputs: ").split()]
print(x)
print('Appending 5')
x.append(5)
print(x)
print('Reversing list')
x.reverse()
print(x)
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques6.py
Enter 3 user inputs: 2 3 4
[2, 3, 4]
Appending 5
[2, 3, 4, 5]
Reversing list
[5, 4, 3, 2]
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

7. Consider the tuple [1,3,5,7,9,2,4,6,8,10]. Write a program to print half its values in one line and the other half in the next line.

```
x = [1,3,5,7,9,2,4,6,8,10]
print(x[:5])
print(x[5:])
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques7.py
[1, 3, 5, 7, 9]
[2, 4, 6, 8, 10]
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

8. Consider the tuple [12,7,38,56,78]. Write a program to print another tuple whose values are even number in the given tuple.

```
x = [12,7,38,56,78]
y = []
for i in x:
        if i%2 == 0:
                y.append(i)
print(y)
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques8.py
[12, 38, 56, 78]
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

9. Write a Python program to print negative numbers in a List using for loop. Eg. [11,-21,0,45,66,-93].

```
x = [11,-21,0,45,66,-93]
for i in x:
        if i<0 :
                print(i)
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques9.py
-21
-93
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

10. Write a program to print negative numbers in a list using while loop.

```
x = [11,-21,0,45,66,-93]
i=0
while i<len(x) :
        a = x[i]
        if a<0 :
                print(a)
        i+=1
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques10.py
-21
-93
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

11. Write a python program to count positive and negative numbers in a list.

```
x = [11,-21,0,45,66,-93]
p,n = 0,0
for i in x:
        if i>=0 :
                p+=1
        else:
                n+=1
print('There are {0} positive numbers and {1} negative numbers'.format(p,n))
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques11.py
There are 4 positive numbers and 2 negative numbers
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

12. Write a python program to remove all even elements from a list.

```
x = [int(i) for i in input().split()]
x = list(filter(lambda i: i%2 != 0, x))
print(x)
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques12.py
23 21 12 45 32 10
[23, 21, 45]
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

13. Define a dictionary containing Students data (Name, Height, Qualification),

a. Convert the dictionary into DataFrame

b. Declare a list that is to be converted into a new column(Address)

c. Using 'Address' as the column name and equate it to the list and display the result.

```
import pandas as pd

Students = {"Name": ["Ayush Goyal", "Dipesh Singh", "Shiv Baratam"], "Height": ["6'3",
"4'5", "5'11"],"Qualifications": ["BTECH", "Mid-School", "12th Pass"]}

new = pd.DataFrame.from_dict(Students)
print(new)
address = ["Kolkata", "Delhi", "Bengaluru"]
new["Address"] = address
print(new)
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques13.py
           Name Height Qualifications
0   Ayush Goyal    6'3          BTECH
1  Dipesh Singh    4'5     Mid-School
2  Shiv Baratam   5'11      12th Pass
           Name Height Qualifications    Address
0   Ayush Goyal    6'3          BTECH    Kolkata
1  Dipesh Singh    4'5     Mid-School      Delhi
2  Shiv Baratam   5'11      12th Pass  Bengaluru
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

14. Define a dictionary containing Students data (Name, Height, Qualification),

a. Convert the dictionary into DataFrame

b. Use DataFrame.insert() to add a column and display the result.

```
import pandas as pd
```

```
Students = {"Name": ["Ayush Goyal", "Dipesh Singh", "Shiv Baratam"], "Height": ["6'3",
"4'5", "5'11"],"Qualifications": ["BTECH", "Mid-School", "12th Pass"]}

new = pd.DataFrame.from_dict(Students)
print(new)
address = ["Kolkata", "Delhi", "Bengaluru"]
new.insert(1,"Address",address)
print(new)
```

Output:

```
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$ python3 ques14.py
           Name Height Qualifications
0   Ayush Goyal    6'3          BTECH
1  Dipesh Singh    4'5     Mid-School
2  Shiv Baratam   5'11      12th Pass
           Name    Address Height Qualifications
0   Ayush Goyal    Kolkata    6'3          BTECH
1  Dipesh Singh      Delhi    4'5     Mid-School
2  Shiv Baratam  Bengaluru   5'11      12th Pass
student@dslab-12:~/Desktop/DSLab/AyushGoyal190905522/Week_2$
```

THE END