Dennis Johnson 180905025 R.no 6

DS Lab CSE-B1

2/3/2021

Lab Exercise Programs:

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

```
print("Find area of a rectangle")
l = int(input('Enter length '))
b = int(input('Enter breadth '))

print("Area = %d * %d = %d" % (l, b, l*b))
```

```
dennis@project-lab:~/ds-lab/lab2$ python3 area.py
Find area of a rectangle
Enter length 12
Enter breadth 4
Area = 12 * 4 = 48
```

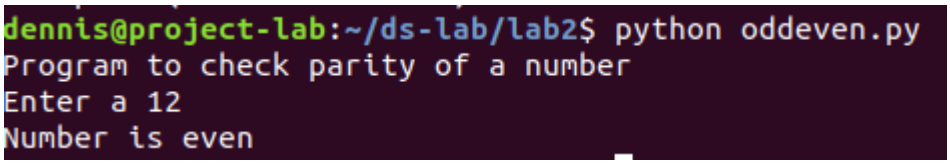
2. **Write a program to swap the values of two variables.**

```
print("Program to swap two variables")
a = int(input('Enter a '))
b = int(input('Enter b '))

a,b = b,a
print("a is now %d , b is now %s" %(a,b))
```

```
dennis@project-lab:~/ds-lab/lab2$ python3 swap.py
Program to swap two variables
Enter a 12
Enter b 16
a is now 16 , b is now 12
```

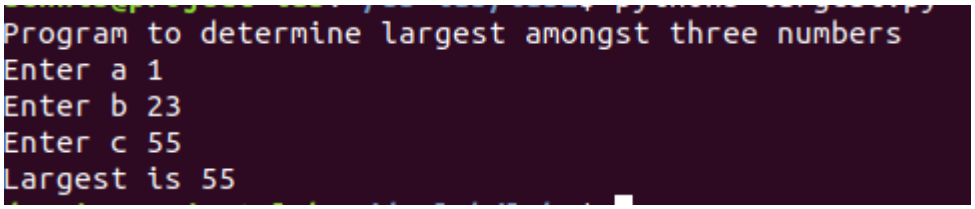
3. **Write a program to find whether a number is even or odd.**

```
print("Program to check parity of a number")
a = int(input('Enter a '))

if a % 2 == 0:
    print("Number is even")
else:
    print("Number is odd")
```



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

```
print("Program to determine largest amongst three numbers")
a = int(input('Enter a '))
b = int(input('Enter b '))
c = int(input('Enter c '))

largest = ((a if a > c else c) if a > b else (b if b > c else c))
print("Largest is %d" %(largest))
```



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

```
counter = 4
```

```
while True:
    if counter >= 0:
        print("Still in the loop, counter = %d" % (counter))
        counter -= 1
    else:
        print("Exit condition reached in else stmt")
        break
```

```
dennis@project-lab:~/ds-lab/lab2$ python whileloop.py
Still in the loop, counter = 4
Still in the loop, counter = 3
Still in the loop, counter = 2
Still in the loop, counter = 1
Still in the loop, counter = 0
Exit condition reached in else stmt
```

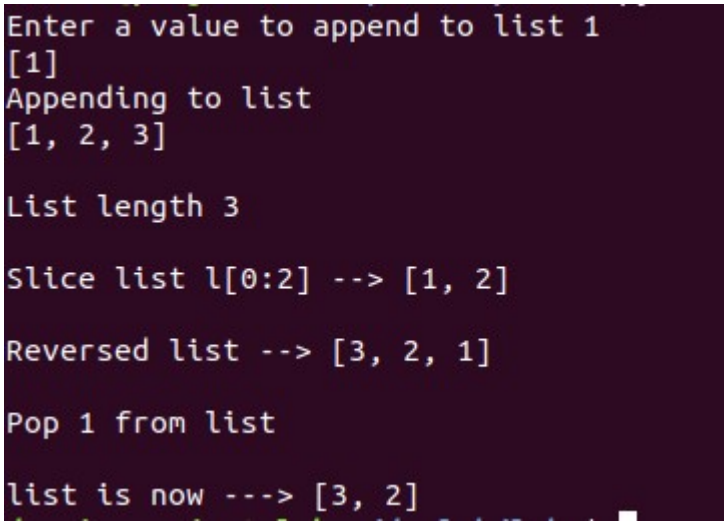
6. **Write a program to print the prime numbers for a user provided range.**

```
def isPrime(num):
    if num <= 1:
        return False

    for i in range(2, num):
        if num % i == 0:
            return False
    return True

lower = int(input("Enter a lower limit "))
upper = int(input("Enter a upper limit "))

for i in range(lower, upper):
    if isPrime(i):
        print(i)
```

```
dennis@project-lab:~/ds-lab/lab2$ python prime.py
Enter a lower limit 2
Enter a upper limit 10
2
3
5
7
```

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

```
l = []

x = int(input('Enter a value to append to list '))
l.append(x)
print(l)

print('Appending to list ')
l.append(2)
l.append(3)
print(l)

print("\nList length %d" % (len(l)))

print("\nSlice list l[0:2] --> " + str(l[0:2]))

l.reverse()
print("\nReversed list --> " + str(l))
print("\nPop %d from list" % (l[-1]))

l.pop()

print("\nlist is now ---> " + str(l))
```



8. **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.**

```
tup = (1,3,5,7,9,2,4,6,8,10)

half = int(len(tup) / 2)

for i in range(half):
    print(tup[i], end = " ")

print("")
for i in range(half, len(tup)):
    print(tup[i], end = ' ')
print("")
```

```
dennis@project-lab:~/ds-lab/lab2$ python3 tuplePrint.py
1 3 5 7 9
2 4 6 8 10
```

9. **Consider the tuple (12, 7, 38, 56, 78). Write a program to print another tuple whose values are even number in the given tuple.**

```
tup = (12, 7, 38, 56, 78 )

even = [x for x in tup if x % 2 == 0]
new_tup = tuple(even)
print("Tuple with even numbers is --> " + str(new_tup))
```

```
dennis@project-lab:~/ds-lab/lab2$ python3 evenTuple.py
Tuple with even numbers is --> (12, 38, 56, 78)
```

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

```
l = [11, -21, 0, 45, 66, -93]

print("Program to print negative numbers in the given list --> " + str(l))

for i in l:
    if i < 0:
        print(i)
```

```
dennis@project-lab:~/ds-lab/lab2$ python3 printNegative.py
Program to print negative numbers in the given list --> [11, -21, 0, 45, 66, -93]
-21
-93
```

11. Write a program to print negative Numbers in a List using while loop.

```
l = [11, -21, 0, 45, 66, -93]

print("Program to print negative numbers in the list using a while loop")
print("Original list --> " + str(l))

counter = 0

while True:
    if counter >= len(l):
```

```
        break

    if l[counter] < 0:
        print(l[counter])
    counter += 1
```

```
Program to print negative numbers in the given list --> [11, -21, 0, 45, 66, -93]
-21
-93
```

12. Write a Python program to count positive and negative numbers in a List.

```
l = [11, -21, 0, 45, 66, -93]

print("Program to count positive and negative numbers in a given list")
print("Original list --> " + str(l))

pos = len([x for x in l if x > 0])
neg = len([x for x in l if x < 0])

print("Positives = %d, Negatives = %d" % (pos,neg))
```

```
Program to count positive and negative numbers in a given list
Original list --> [11, -21, 0, 45, 66, -93]
Positives = 3, Negatives = 2
```

13. Write a Python program to remove all even elements from a list .

```
l = [11, -21, 0, 45, 66, -93]

print("Program to remove even elements from the list of given numbers")
print("Original list --> " + str(l))

l = filter(lambda x: x % 2 != 0, l)
print("List -> " + str(list(l)))
```

```
dennis@project-lab:~/ds-lab/lab2$ python3 filterEven.py
Program to remove even elements from the list of given numbers
Original list --> [11, -21, 0, 45, 66, -93]
List -> [11, -21, 45, -93]
```

14. 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.**

```
diction = {"Name":["Student 1","Student 2","Student 3"],"Height":
[165,122,593],"Qualification":["MBA","B.Tech", “PUC”]}
df = pd.DataFrame.from_dict(diction)

address = ["Parkala","Manipal","Udupi"]
df.insert(loc=len(df.columns),column = "address",value = address)
print(df)
```

	Name	Height	Qualification	address
0	Student 1	165	MBA	Karkala
1	Student 2	122	B Tech	Malpe
2	Student 3	593	PUC	Udupi

15. 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.

```
diction = {"Name":["Student 1","Student 2","Student 3"],"Height":
[173,182,103],"Qualification":["CFA","MD","B.Tech"]}
df = pd.DataFrame.from_dict(diction)
```

```
df.insert(loc=len(df.columns),column = "Job",value=["Doctor",”Lawyer”,"Engineer"])
print(df)
```

	Name	Height	Qualification	address	Job
0	Student 1	165	MBA	Karkala	Doctor
1	Student 2	122	B Tech	Malpe	Engineer
2	Student 3	593	PUC	Udupi	Lawyer