Computer Programming

Lab File submitted

in partial fulfilment of the

requirements for the degree of

BACHELORS OF TECHNOLOGY

In

Electrical Engineering

By

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MORE ABOUT PYTHON

Python is a high-level, interpreted programming language known for its simplicity and readability. Python's design philosophy emphasizes code readability with its use of significant indentation, making it easier to understand and write clean code.

Here are some key features and aspects of Python:

1. General-Purpose: Python is a versatile language used for a wide range of applications such as web development, data analysis, artificial intelligence, scientific computing, automation, and more.

2. Interpreted: Python code is executed line by line by the Python interpreter, rather than compiled into machine code. This allows for rapid development and testing.

3. Easy to Learn and Read: Python's syntax is designed to be simple and readable, making it accessible for beginners and enjoyable for experienced programmers.

4. Dynamic Typing: Python uses dynamic typing, meaning you don't need to declare variable types explicitly. Variable types are inferred at runtime.

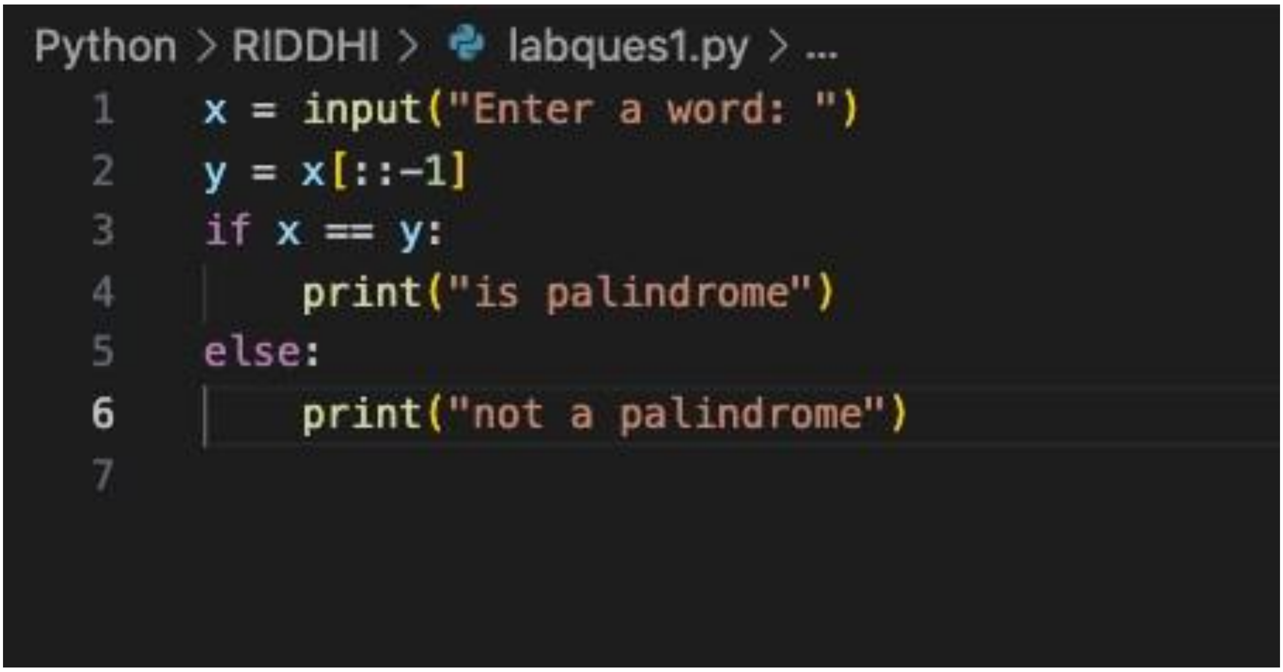
5. Strong Typing: Despite dynamic typing, Python is strongly typed, meaning it won't allow operations between incompatible types.

6. Object-Oriented: Python supports object-oriented programming (OOP) principles, including classes, objects, inheritance, and encapsulation.

7. High-level Data Structures: Python provides built-in high-level data structures such as lists, dictionaries, sets, and tuples, making it efficient for data manipulation and processing.

QUES 1

WRITE A PROGRAM TO CHECKWHETHER A STRING IS A PALINDROMEOR NOT

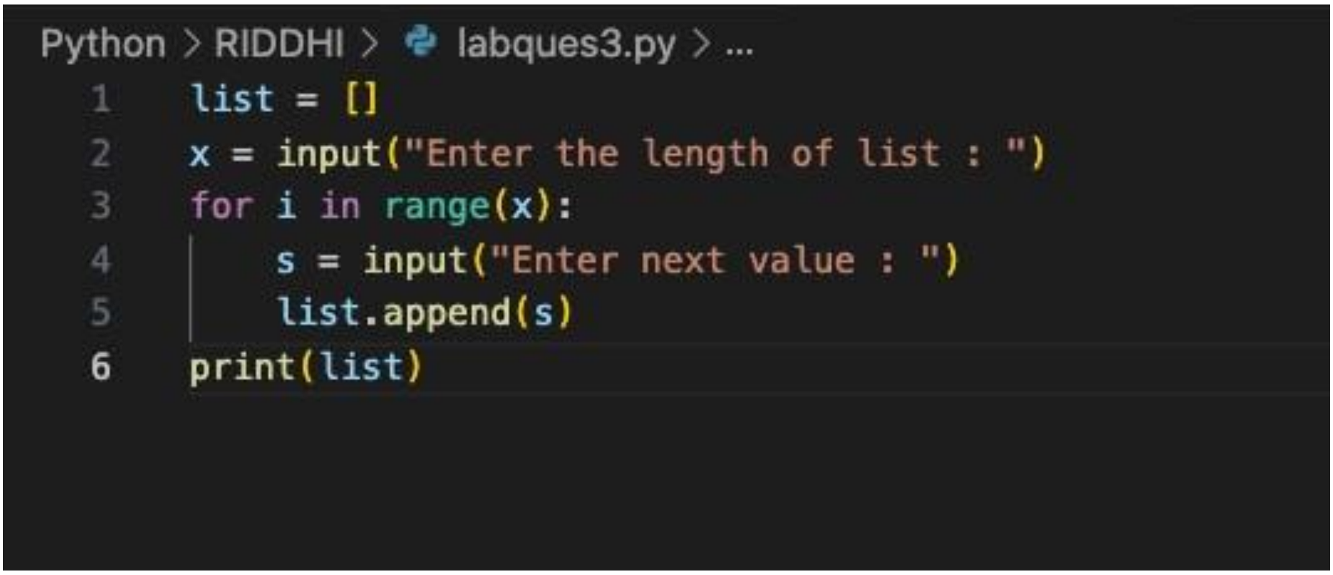


Python > RIDDHI > labques1.py > ...

```
x = input("Enter a word: ")
y = x[::-1]
if x == y:
    print("is palindrome")
else:
    print("not a palindrome")
```

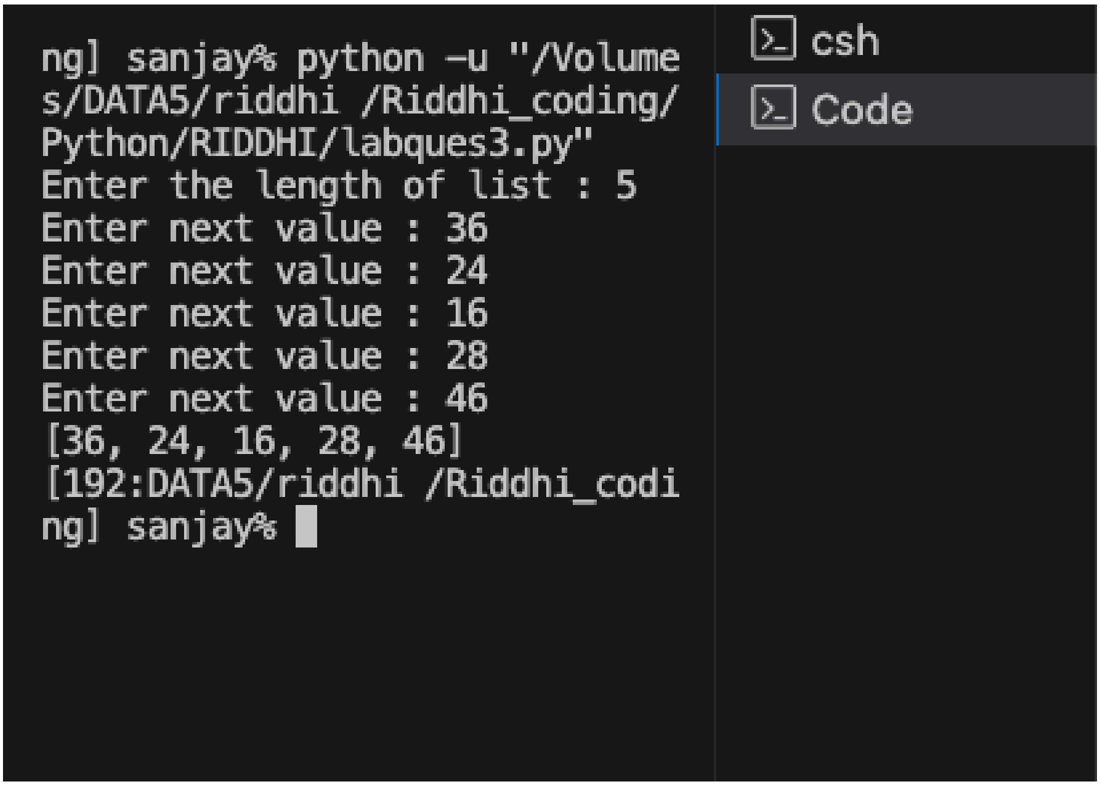
QUES 2

WRITE A PROGRAM FOR MAKING AN EMPTY LIST AND APPENDING VALUES



Python > RIDDHI > labques3.py > ...

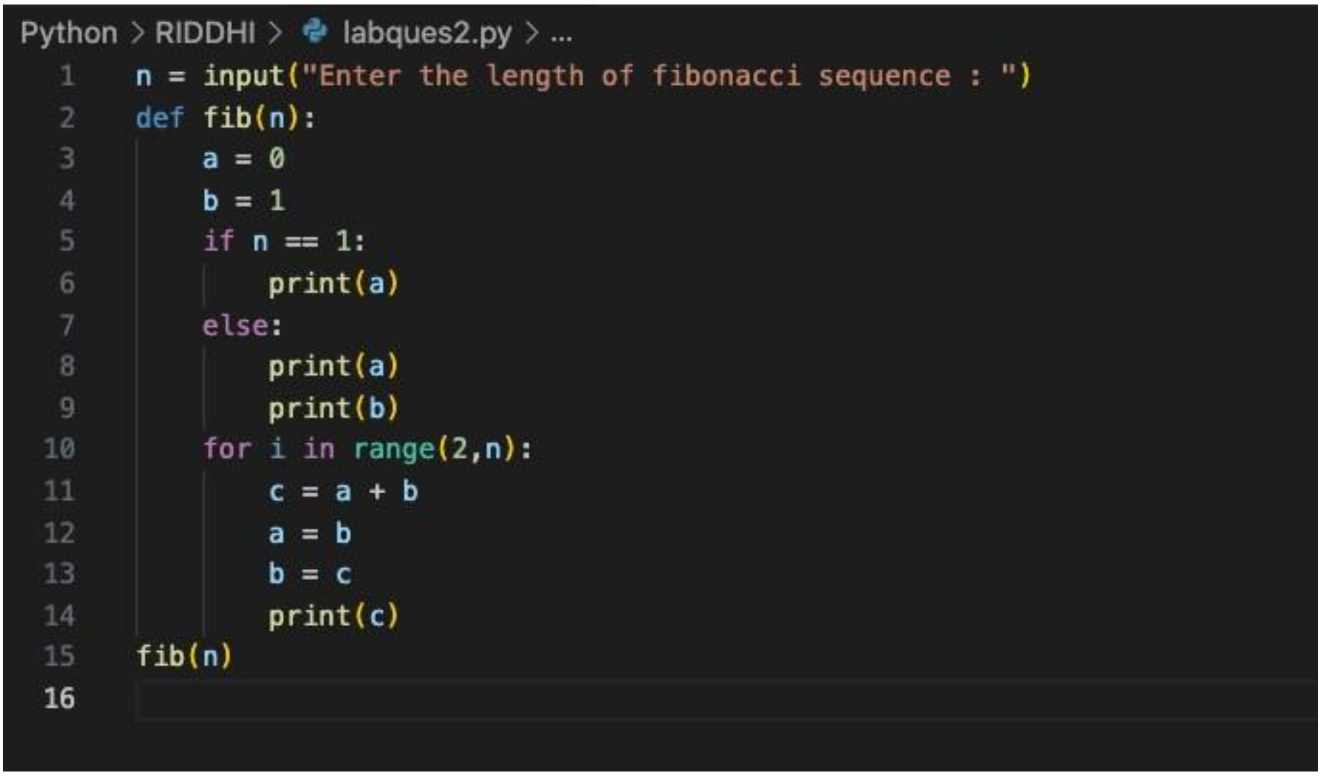
```
list = []
x = input("Enter the length of list : ")
for i in range(x):
    s = input("Enter next value : ")
    list.append(s)
print(list)
```



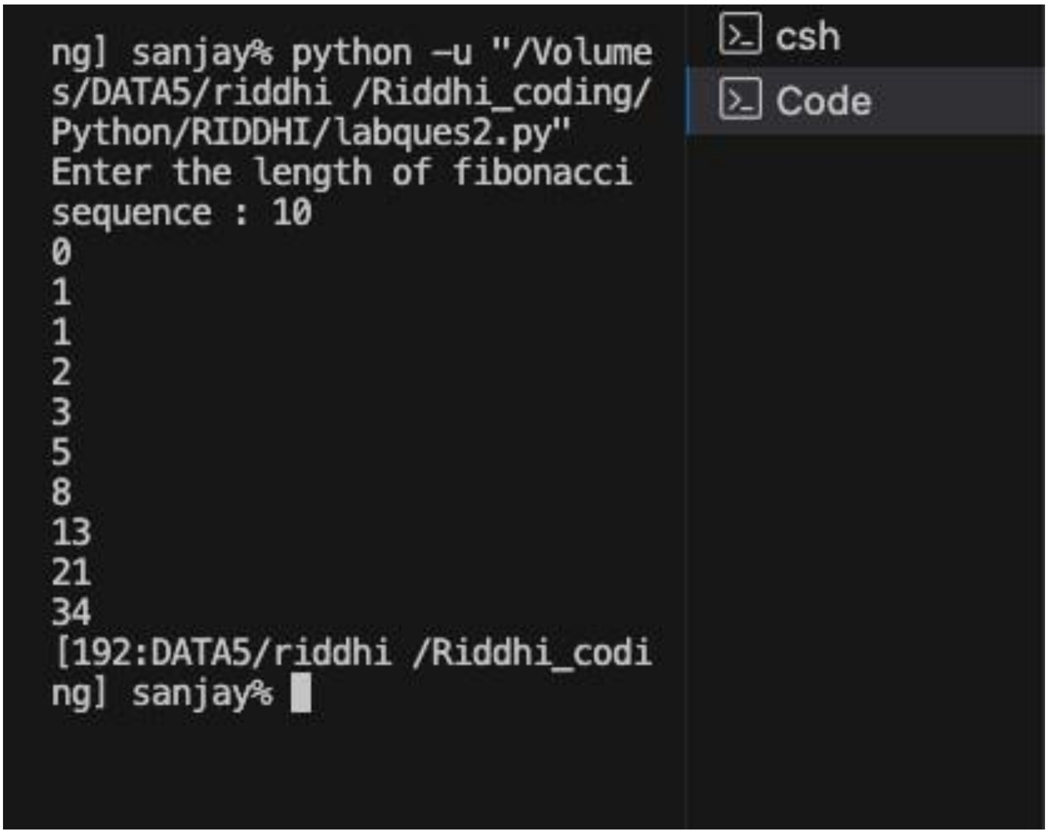
```
ng] sanjay% python -u "/Volume
s/DATA5/riddhi /Riddhi_coding/
Python/RIDDHI/labques3.py"
Enter the length of list : 5
Enter next value : 36
Enter next value : 24
Enter next value : 16
Enter next value : 28
Enter next value : 46
[36, 24, 16, 28, 46]
[192:DATA5/riddhi /Riddhi_codi
ng] sanjay% 
```

QUES 3

WRITE A PROGRAM FOR PRINTING FIBONACCI SEQUENCE



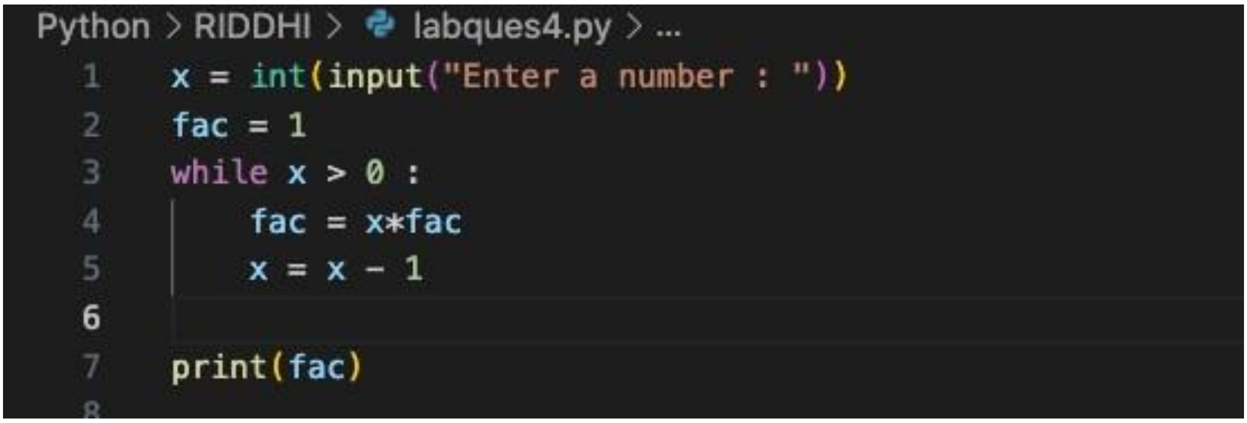
```python
n = input("Enter the length of fibonacci sequence : ")
def fib(n):
    a = 0
    b = 1
    if n == 1:
        print(a)
    else:
        print(a)
        print(b)
    for i in range(2,n):
        c = a + b
        a = b
        b = c
        print(c)
fib(n)

```



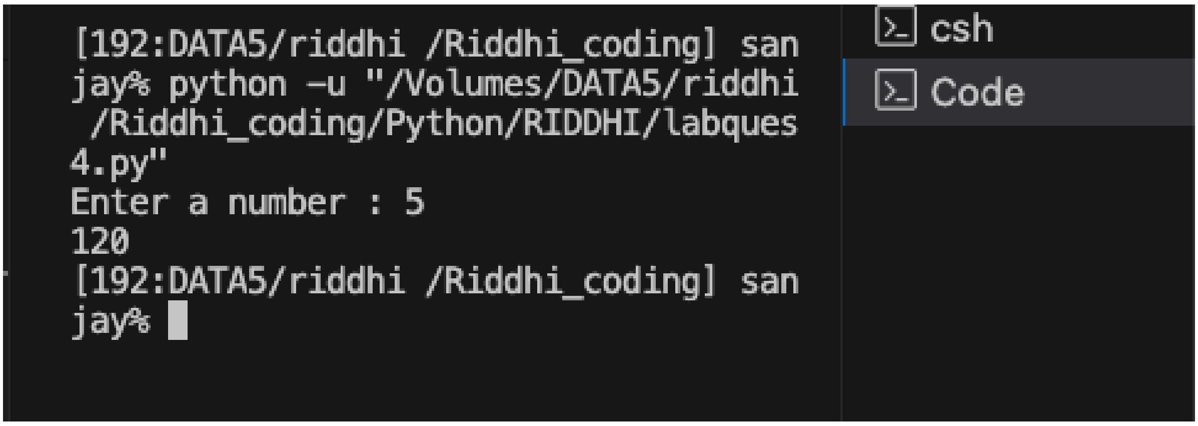
```
ng] sanjay% python -u "/Volume
s/DATA5/riddhi /Riddhi_coding/
Python/RIDDHI/labques2.py"
Enter the length of fibonacci
sequence : 10
0
1
1
2
3
5
8
13
21
34
[192:DATA5/riddhi /Riddhi_codi
ng] sanjay% 
```

QUES 4

WRITE A PROGRAM FOR PRINTING FACTORIAL OF A NUMBER



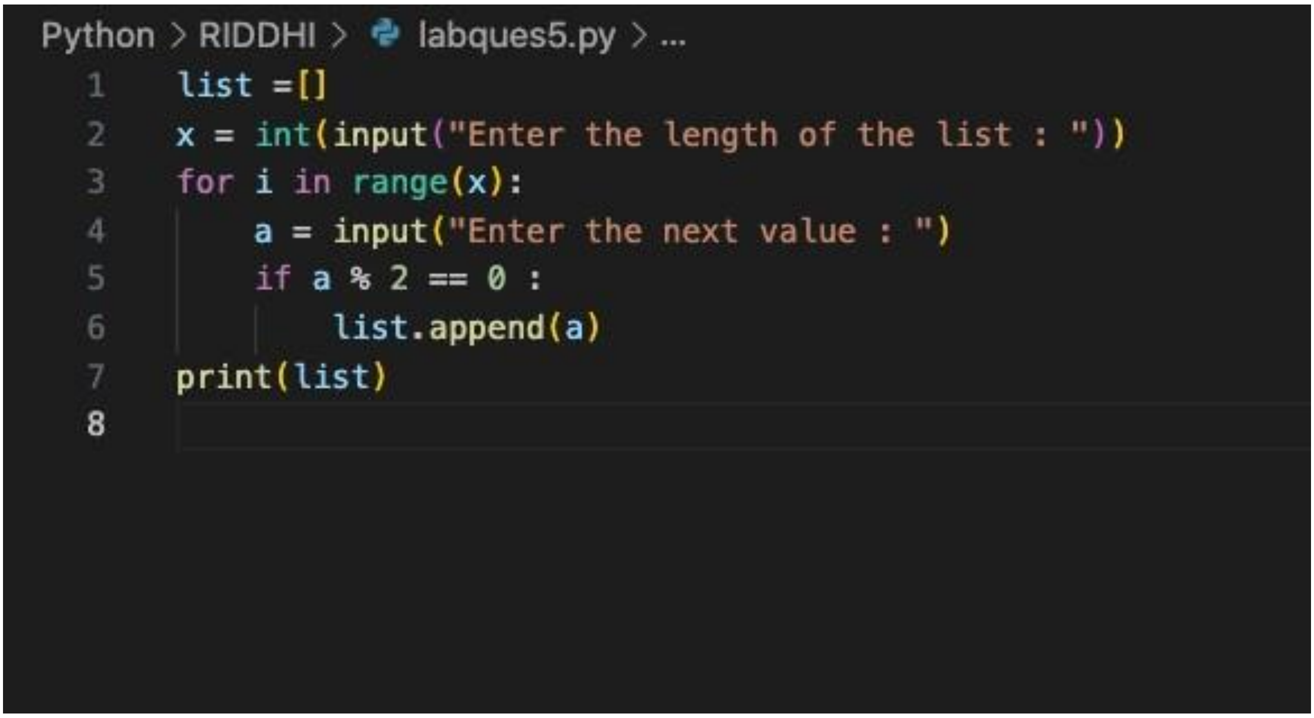
```python
x = int(input("Enter a number : "))
fac = 1
while x > 0 :
    fac = x*fac
    x = x - 1

print(fac)
```



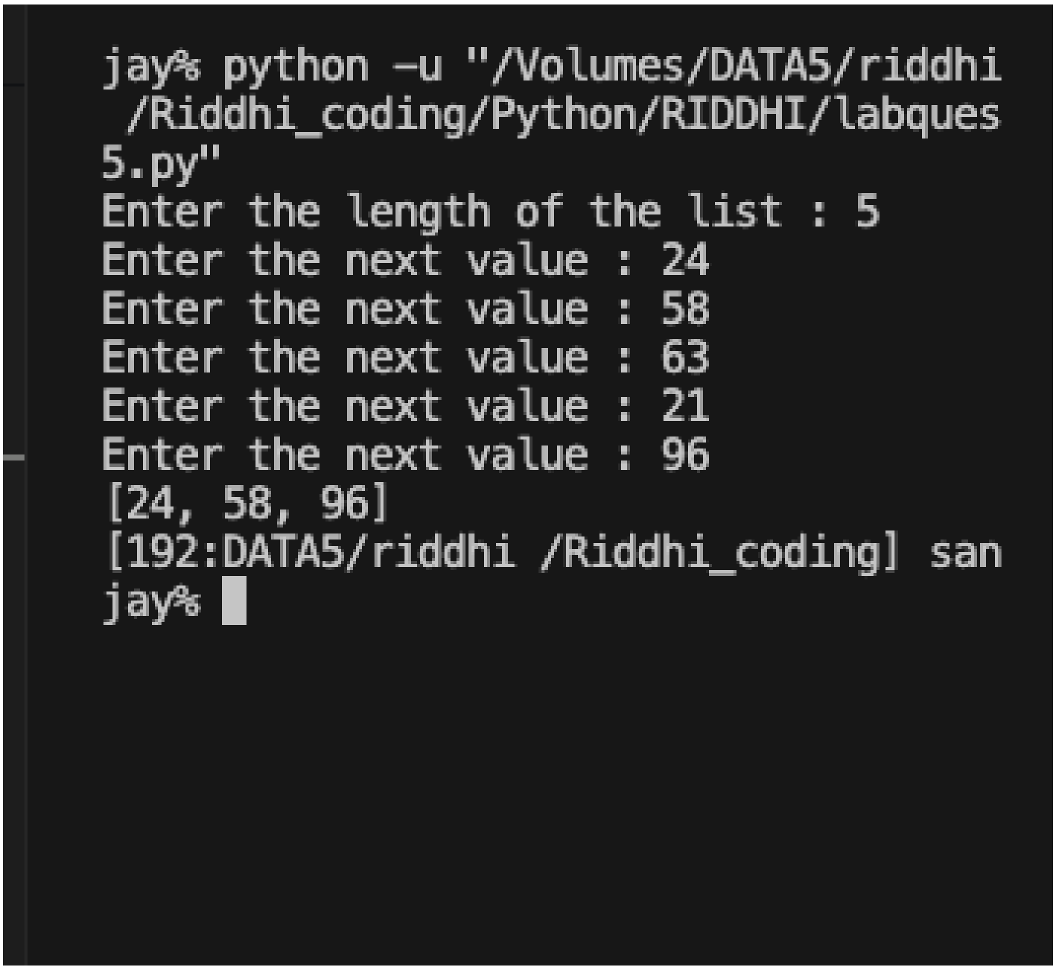
```
[192:DATA5/riddhi /Riddhi_coding] san
jay% python -u "/Volumes/DATA5/riddhi
 /Riddhi_coding/Python/RIDDHI/labques
4.py"
Enter a number : 5
120
[192:DATA5/riddhi /Riddhi_coding] san
jay% 
```

QUES 5

WRITE A PROGRAM FOR TAKING INPUT AND PRINTING ONLY EVEN VALUES IN A LIST



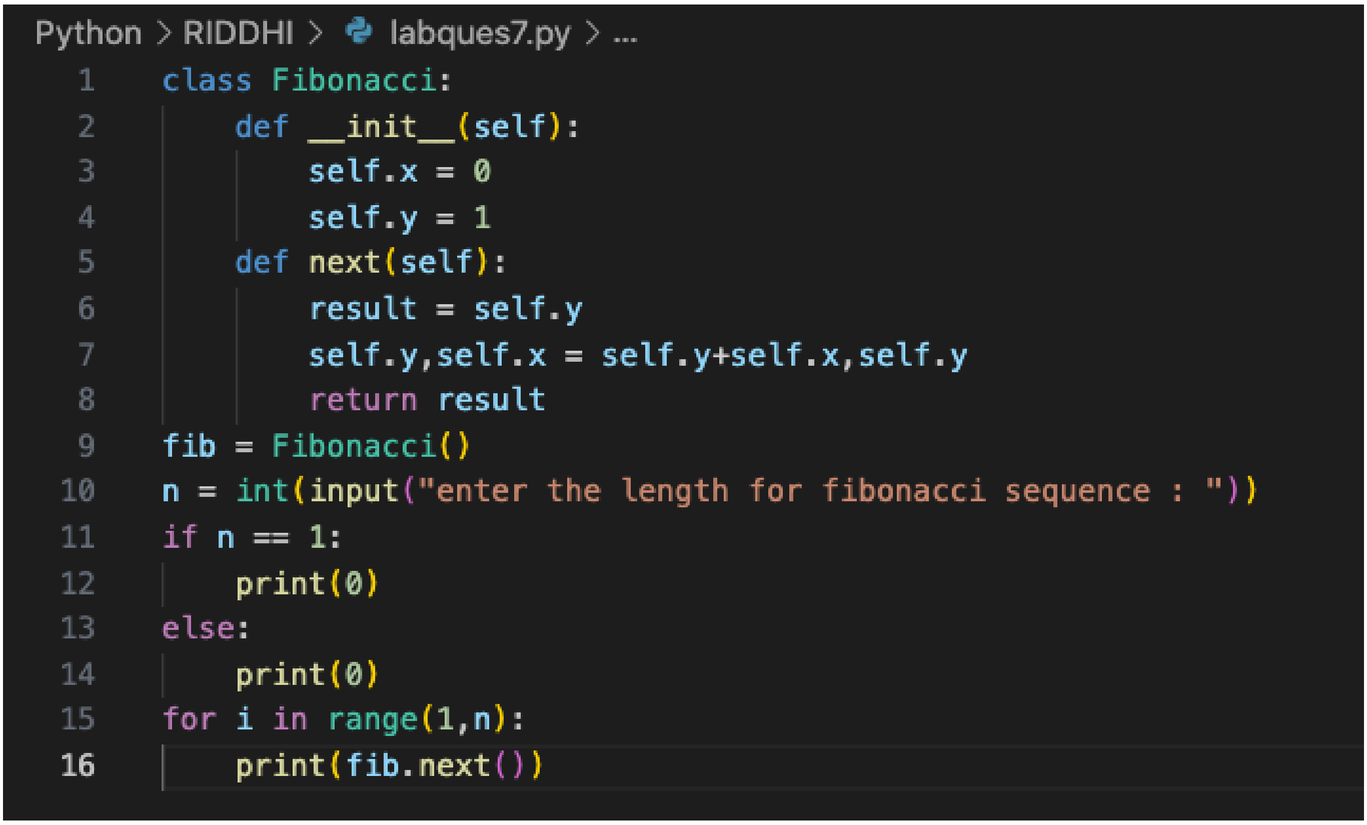
```python
list =[]
x = int(input("Enter the length of the list : "))
for i in range(x):
    a = input("Enter the next value : ")
    if a % 2 == 0 :
        list.append(a)
print(list)

```



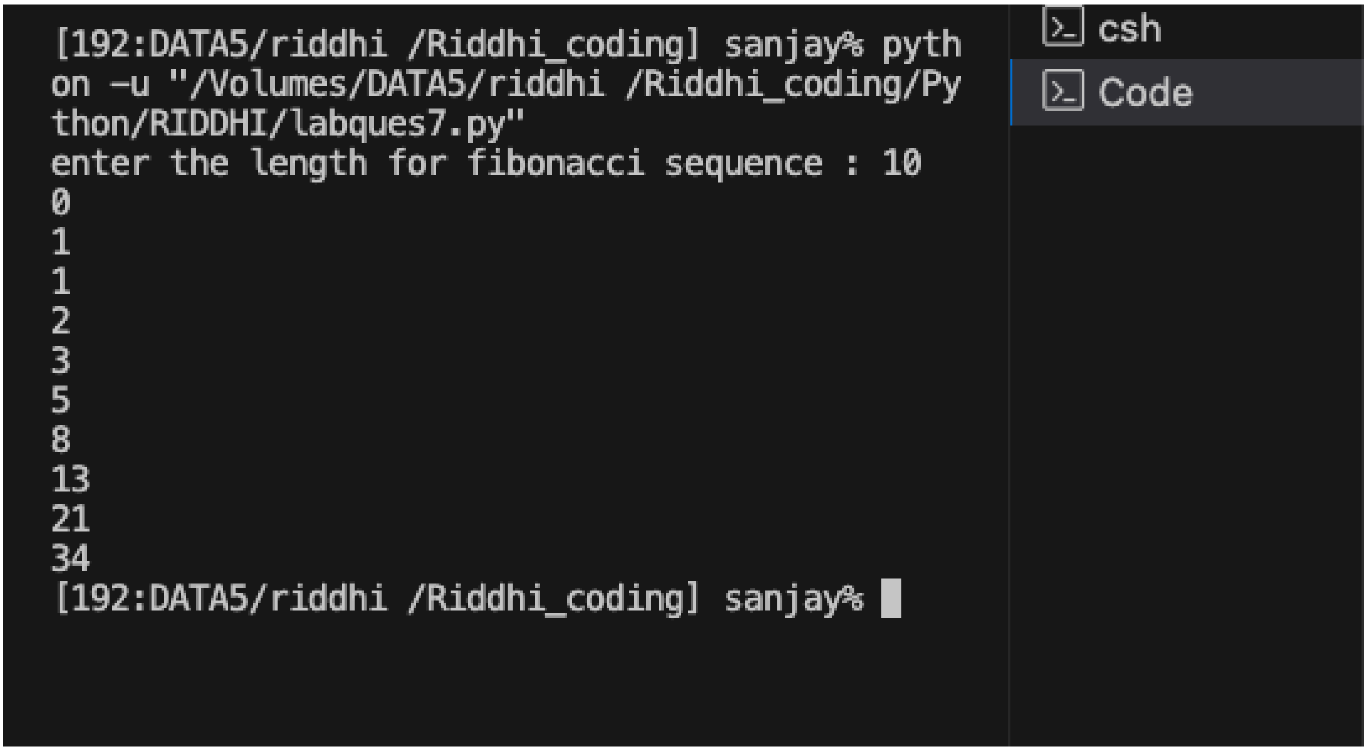
```
jay% python -u "/Volumes/DATA5/riddhi
 /Riddhi_coding/Python/RIDDHI/labques
5.py"
Enter the length of the list : 5
Enter the next value : 24
Enter the next value : 58
Enter the next value : 63
Enter the next value : 21
Enter the next value : 96
[24, 58, 96]
[192:DATA5/riddhi /Riddhi_coding] san
jay% 
```

QUES 6

WRITE A PROGRAM FOR WRITING A CLASS FOR FIBONACCI SEQUENCE



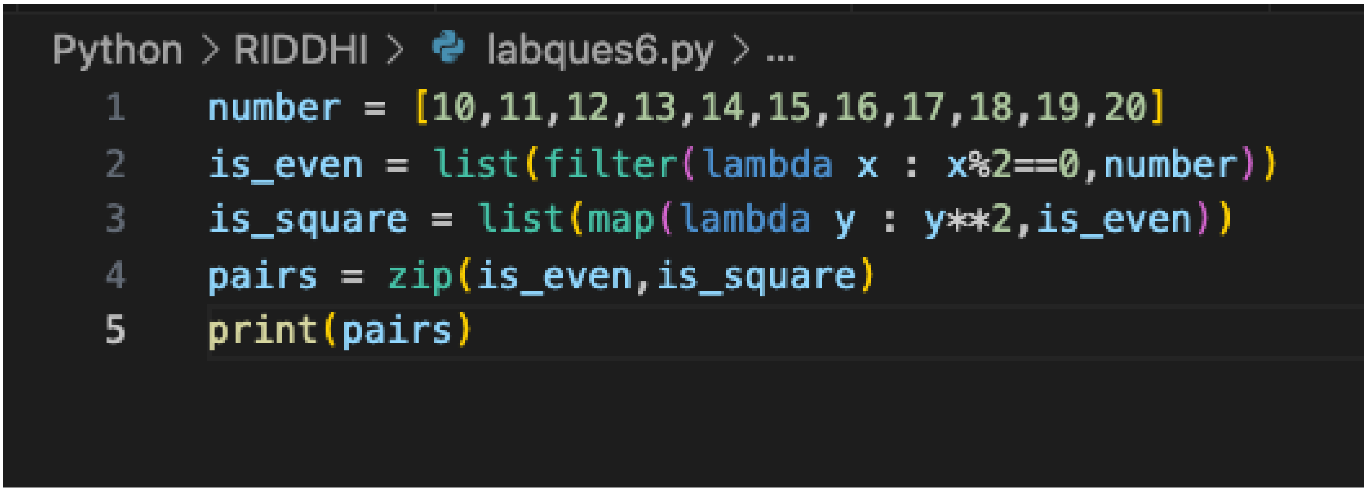
```python
class Fibonacci:
    def __init__(self):
        self.x = 0
        self.y = 1
    def next(self):
        result = self.y
        self.y,self.x = self.y+self.x,self.y
        return result
fib = Fibonacci()
n = int(input("enter the length for fibonacci sequence : "))
if n == 1:
    print(0)
else:
    print(0)
for i in range(1,n):
    print(fib.next())
```



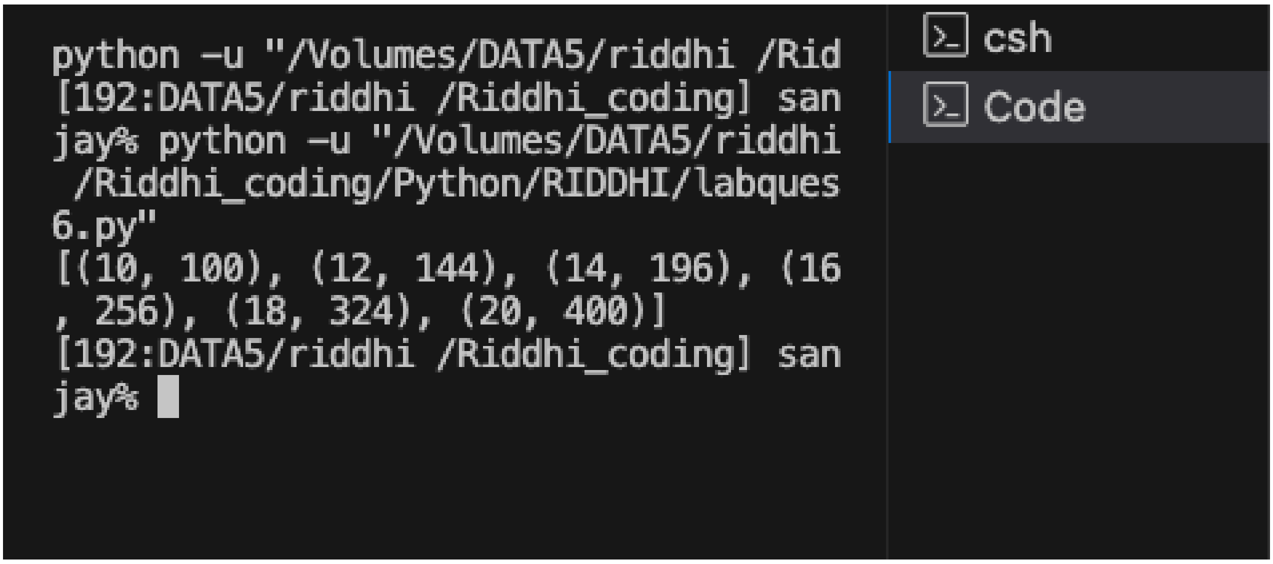
```
[192:DATA5/riddhi /Riddhi_coding] sanjay% pyth
on -u "/Volumes/DATA5/riddhi /Riddhi_coding/Py
thon/RIDDHI/labques7.py"
enter the length for fibonacci sequence : 10
0
1
1
2
3
5
8
13
21
34
[192:DATA5/riddhi /Riddhi_coding] sanjay% 
```

QUES 7

WRITE A PROGRAM USING MAP , FILTER , LAMBDA AND ZIP FUNCTIONS



```python
number = [10,11,12,13,14,15,16,17,18,19,20]
is_even = list(filter(lambda x : x%2==0,number))
is_square = list(map(lambda y : y**2,is_even))
pairs = zip(is_even,is_square)
print(pairs)
```



```
python -u "/Volumes/DATA5/riddhi /Rid
[192:DATA5/riddhi /Riddhi_coding] san
jay% python -u "/Volumes/DATA5/riddhi
 /Riddhi_coding/Python/RIDDHI/labques
6.py"
[(10, 100), (12, 144), (14, 196), (16
, 256), (18, 324), (20, 400)]
[192:DATA5/riddhi /Riddhi_coding] san
jay% 
```