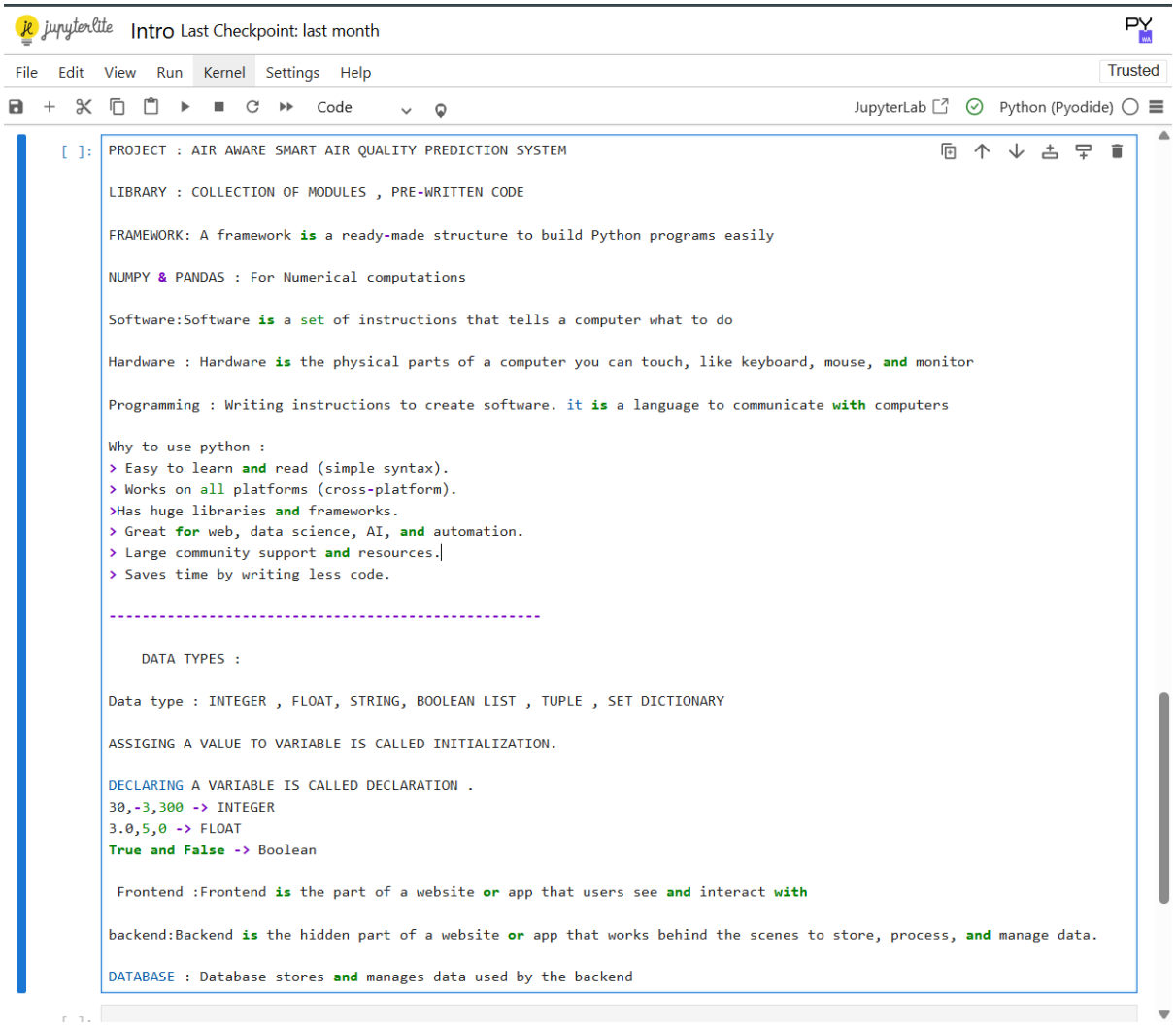
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Code
JupyterLab
Python (Pyodide)
[ ]:
PROJECT : AIR AWARE SMART AIR QUALITY PREDICTION SYSTEM
LIBRARY : COLLECTION OF MODULES , PRE-WRITTEN CODE
FRAMEWORK: A framework is a ready-made structure to build Python programs easily
NUMPY & PANDAS : For Numerical computations
Software:Software is a set of instructions that tells a computer what to do
Hardware : Hardware is the physical parts of a computer you can touch, like keyboard, mouse, and monitor
Programming : Writing instructions to create software. it is a language to communicate with computers
Why to use python :
> Easy to learn and read (simple syntax).
> Works on all platforms (cross-platform).
>Has huge libraries and frameworks.
> Great for web, data science, AI, and automation.
> Large community support and resources.
> Saves time by writing less code.

DATA TYPES :
Data type : INTEGER , FLOAT, STRING, BOOLEAN LIST , TUPLE , SET DICTIONARY
ASSIGING A VALUE TO VARIABLE IS CALLED INITIALIZATION.
DECLARING A VARIABLE IS CALLED DECLARATION .
30,-3,300 -> INTEGER
3.0,5,0 -> FLOAT
True and False -> Boolean
Frontend :Frontend is the part of a website or app that users see and interact with
backend:Backend is the hidden part of a website or app that works behind the scenes to store, process, and manage data.
DATABASE : Database stores and manages data used by the backend

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Code JupyterLab Python (Pyodide)

[ ]:
```
STRING CONCATENATION
```

[4]:
```
a= "Hello"+ " " +"world "
print(a)
```

```
Hello world
```

[5]:
```
a=3+"world"      # not possible to concatenate integer + string
print(a)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[5], line 1
----> 1 a=3+"world"      # not possible to concatenate integer + string
      2 print(a)

TypeError: unsupported operand type(s) for +: 'int' and 'str'
```

[7]:
```
a="b" * 5;
print(a)
```

```
bbbbb
```

[8]:
```
user = input ();
length = len(user);
print(length)
```

```
 Dheeraj
7
```

[9]:
```
user = input ();
age = input();
print(user + " is " + age + " years old ");
```

```
 Dheeraj
 18
Dheeraj is 18 years old
```

[10]:
```
username = "Raju"
first_nam= username[3];    # string indexing
print(first_nam)
```

```
u
```

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Code JupyterLab Python (Pyodide)

u

[12]:
```
message = 'Hi Raju';
cart = message[2:6];      # String slicing
print(cart);              # print up to n-1 values


message = 'Hi Raju';
cart = message[3:];       # string slicing
print(cart);

message=' Hi Raju';
cart = message[:2];           # string slicing
print(cart);

message =' Hi Raju';
cart= message[:];             # string slicing
print(cart);
```

```
 Raj
Raju
 H
 Hi Raju
```

[13]:
```
print(type(19));            # checking data types
print(type("dheeraj"));
```

```
<class 'int'>
<class 'str'>
```

[14]:
```
a=int(input())
b=int(input())
c=a+b
print(c)
```

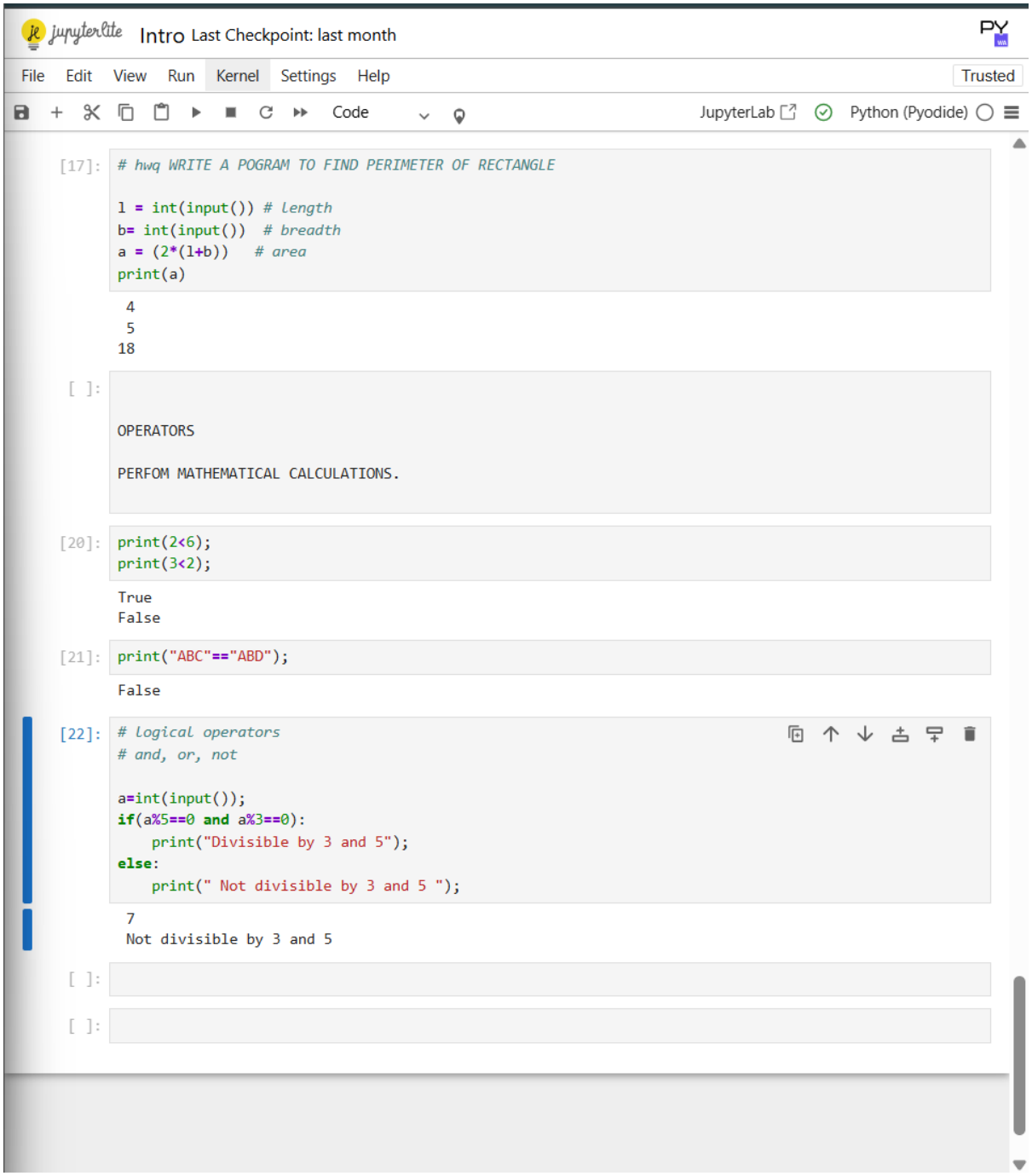
```
 30
 30
60
```

[16]:
```
# hwq WRITE A PROGRAM TO FIND WHEATER A NUMBER IS EVEN OR ODD

n=int(input())
if(n%2==0):
    print(n," is Even")
else:
    print(n," is Odd")
```

```
 5
5  is Odd
```

[ ]: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Code
JupyterLab
Python (Pyodide)
[17]:
# hwq WRITE A POGRAM TO FIND PERIMETER OF RECTANGLE
l = int(input()) # length
b= int(input()) # breadth
a = (2*(l+b)) # area
print(a)
4
5
18
[ ]:
OPERATORS
PERFOM MATHEMATICAL CALCULATIONS.
[20]:
print(2<6);
print(3<2);
True
False
[21]:
print("ABC"=="ABD");
False
[22]:
# logical operators
# and, or, not
a=int(input());
if(a%5==0 and a%3==0):
print("Divisible by 3 and 5");
else:
print(" Not divisible by 3 and 5 ");
7
Not divisible by 3 and 5
[ ]:
[ ]:

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Code JupyterLab Python (Pyodide)

[ ]:
```
CONDITIONAL STATEMENTS
```

[24]:
```
if(True):
    print("yes");
else:
    print("no");



if (False):
    print("yes");
else:
    print("no");

print("win"=="win");
```

```
yes
no
True
```

[25]:
```
india = input();
if(india=="win"):
    print("Trophy is own");
else :
    print("No Trophy");
```

```
 win
Trophy is own
```

[26]:
```
# create a variable meghana condition if meghana died it should print (surya weds priya) if meghana not died it shou

meghana = input();
if(meghana=="died"):
    print("surya weds priya");
else:
    print("meghana weds surya ");
```

```
 died
surya weds priya
```

[27]:
```
score = int(input());
if (score<35):
    print("poor student");
elif(score>35 and score<70):
    print("average student");
elif(score>35 and score<100):
    print("Good student");
```

```
 40
average student
```

[ ]:

[ ]:

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Code JupyterLab Python (Pyodide)

[ ]:
```
HOW RO IMPLEMENT WHILE BLOCK

1- INTILIZATION
2- termination
3- updation
```

[28]:
```
a= int(input());
counter =0;
while counter<3:
    a=a+1;
    print(a);
    counter=counter+1;
```

```
 4
5
6
7
```

[29]:
```
word = "program";
for each_char in word:
    print(each_char);
```

```
p
r
o
g
r
a
m
```

[30]:
```
for i in range (5):
    print(i);
```

```
0
1
2
3
4
```

[31]:
```
for i in range (1,14):
    print(i);
```

```
1
2
3
4
5
6
7
8
9
10
11
12
13
```

[ ]:

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Code JupyterLab Python (Pyodide)

[33]:
```
for i in range (1,11):
    print("3 x ",i, " = ",3*i);
```

```
3 x  1  =  3
3 x  2  =  6
3 x  3  =  9
3 x  4  =  12
3 x  5  =  15
3 x  6  =  18
3 x  7  =  21
3 x  8  =  24
3 x  9  =  27
3 x  10  =  30
```

[ ]:
```
# hwq write a program to print sum of 1st five natural numbers
```

[34]:
```
sum=0
for i in range(1,7):
    sum=sum+i;
print("sum of first 5 natural numbers is",sum);
```

```
sum of first 5 natural numbers is 21
```

[35]:
```
m=int(input());
n=int(input());
sum=0;
for each in range(m,n+1):
    if(each%2==1):
        sum=sum+each;
print(sum)
```

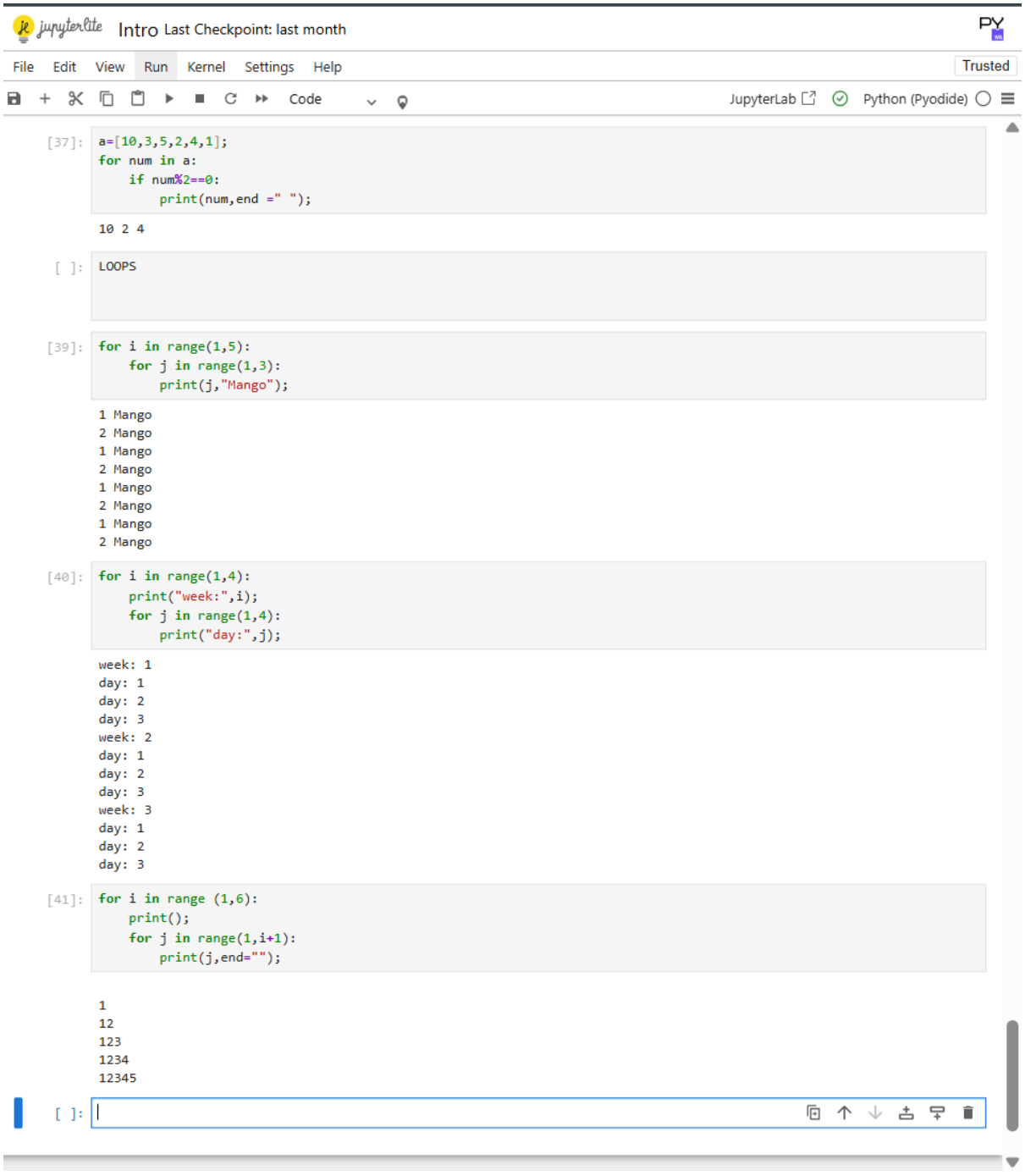
```
 4
 10
21
```

[36]:
```
a=[1,2,3,4,5,6,7,8,9]
for i in a:
    print(i);
```

```
1
2
3
4
5
6
7
8
9
```

[ ]:

[ ]: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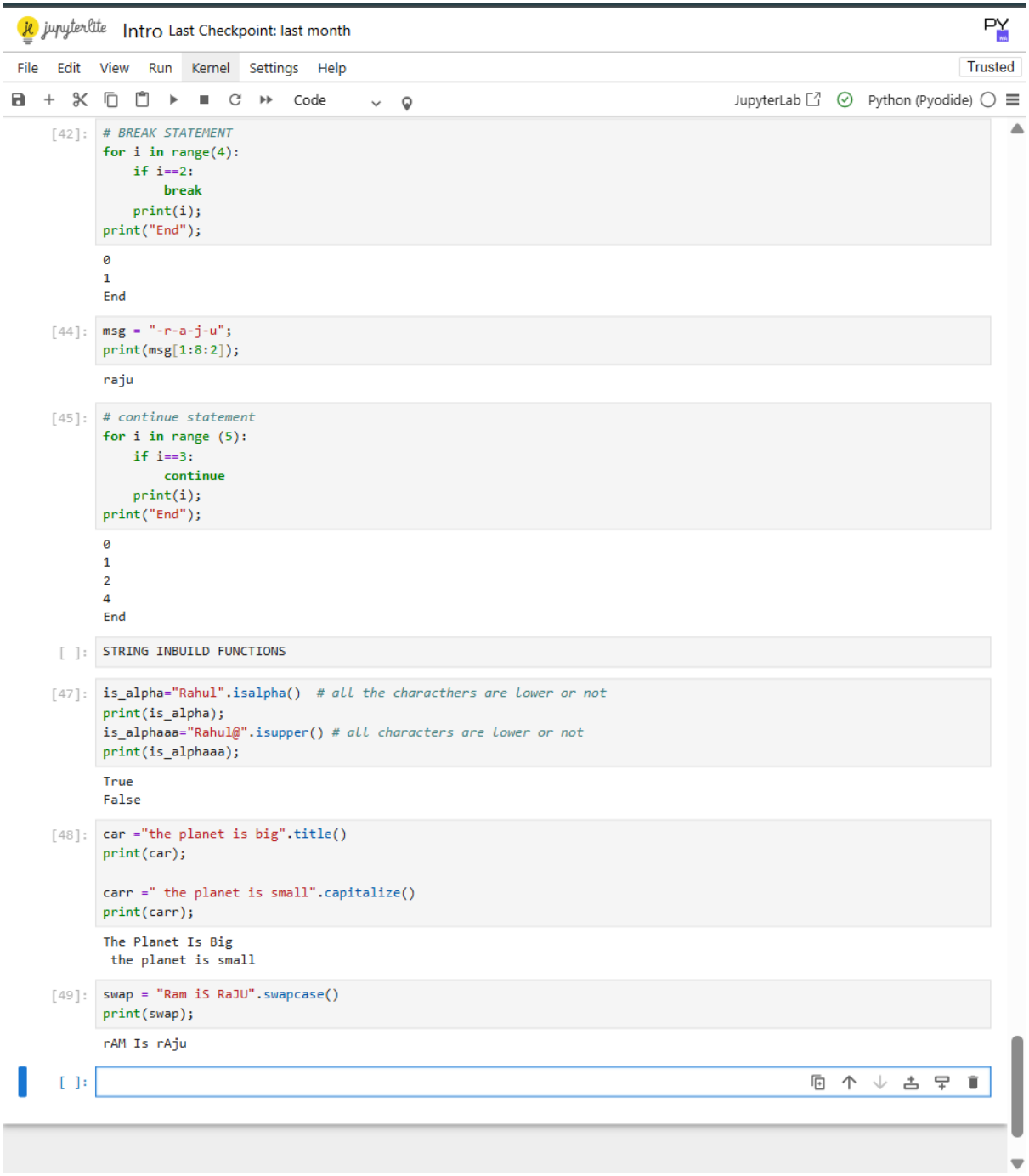
Code
JupyterLab
Python (Pyodide)
[37]:
a=[10,3,5,2,4,1];
for num in a:
if num%2==0:
print(num,end =" ");
10 2 4
[ ]:
LOOPS
[39]:
for i in range(1,5):
for j in range(1,3):
print(j,"Mango");
1 Mango
2 Mango
1 Mango
2 Mango
1 Mango
2 Mango
1 Mango
2 Mango
[40]:
for i in range(1,4):
print("week:",i);
for j in range(1,4):
print("day:",j);
week: 1
day: 1
day: 2
day: 3
week: 2
day: 1
day: 2
day: 3
week: 3
day: 1
day: 2
day: 3
[41]:
for i in range (1,6):
print();
for j in range(1,i+1):
print(j,end="");
1
12
123
1234
12345
[ ]: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Code
JupyterLab
Python (Pyodide)
[42]:
# BREAK STATEMENT
for i in range(4):
if i==2:
break
print(i);
print("End");
0
1
End
[44]:
msg = "-r-a-j-u";
print(msg[1:8:2]);
raju
[45]:
# continue statement
for i in range (5):
if i==3:
continue
print(i);
print("End");
0
1
2
4
End
[ ]:
STRING INBUILD FUNCTIONS
[47]:
is_alpha="Rahul".isalpha() # all the characthers are lower or not
print(is_alpha);
is_alphaaa="Rahul@".isupper() # all characters are lower or not
print(is_alphaaa);
True
False
[48]:
car ="the planet is big".title()
print(car);
carr =" the planet is small".capitalize()
print(carr);
The Planet Is Big
the planet is small
[49]:
swap = "Ram iS RaJU".swapcase()
print(swap);
rAM Is rAju
[ ]:

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Code JupyterLab Python (Pyodide)

```
# counting and searching method
text = " hello, world!"    # count the characthers how many times repeated
count =text.count("1")
print(count)

text = "hello,world!"  # count the characthers how many times reapeated
count=text.count("1",2,10)
print(count)
```

```
0
0
```

[2]:

```
text =" i have a spare key, if i lose my key"
count = text.index("key")
print(count)
```

```
16
```

[3]:

```
text="i have a spare key, if i lose my lock"
count=text.rindex("key")
print(count)
```

```
15
```

[4]:

```
text=" i have a spare key, if i lose my key"
count=text.find("key")
print(count)

text="i have a spare key, if i lose my key"
count=text.find("hsg")
print(count)

text="i have a spare key, if i lose my key"
count=text.rfind
```

```
16
-1
```

[5]:

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Code JupyterLab Python (Pyodide)

[8]:
```
# write a program that reads a number N and prints two right angled triangles of n rows, using starting

n=int(input("enter a number n:"))

# find the largest number to decide spacing
max_num =n*(n+2)//2
width =len(str(max_num)) +2

# first triangle (left aligned)
print("first triangle:")
num=1
for i in range(1,n+1):
    for j in range(i):
        print(f"{num:{width}}",end=" ")
        num+=1
    print()

# second triangle (rigth aligned)
print("second triangle:")
num=1
for i in range(1,n+1):
    print(" " * ((n-i)*width),end="")
    for j in range (i):
        print(f"{num:{width}}",end=" ")
        num+=1
    print()
```

```
enter a number n: 6
first triangle:
   1
   2    3
   4    5    6
   7    8    9   10
  11   12   13   14   15
  16   17   18   19   20   21
second triangle:
                     1
                   2    3
                 4    5    6
               7    8    9   10
            11   12   13   14   15
  16   17   18   19   20   21
```

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Code JupyterLab Python (Pyodide)

[9]:
```
# write a program to print the factorial of n factorial is the product of all positive integers less than or equal to n

n=int(input("enter a num: "))

fac=1
for i in range(1,n+2):
    fac *=i

print(f"factorial of {n} is: {fac}")
```

```
enter a num:  4
factorial of 4 is: 120
```

[ ]:

[10]:
```
# write a program that reds a string and prints the count of vowels in the string

text = input("enter a string:")

vowels ="aeiouAEIOU"
count=0

for to in text:
    if to in vowels:
        count+=1

print("number of vowels in the string is", count)
```

```
enter a string: Dheeraj@Diya
number of vowels in the string is 5
```

[ ]:

[11]:
```
# given two numbers x and n, write a program to print the sum of n terms in the given series .

# sseries:(x)^2,(xx)^2,(xxx)^2, n terms

x = int(input("enter the number x:"))
n = int(input("enter the number of terms n:"))

term =""
total =0

for i in range (1,n+2):
    term +=str(x)
    num = int(term)
    total+=num*num
print("sum of series is",total)
```

```
enter the number x: 4
enter the number of terms n: 5
sum of series is 199525686496
```

[ ]:

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Code JupyterLab Python (Pyodide)

[12]:

```
# given a string , write program to print only alphabets in the given string

text = input("given the string :")
result =""
for ch in text:
    if ch.isalpha():
        result+=ch
print("alphabets in the string:", result);
```

```
given the string : dheeraj@5885
alphabets in the string: dheeraj
```

[14]:

```
# guven string write program that prints all the uppercase letters of the string
text = input("given the string :")
result =""
for dh in text:
    if dh.isupper():
        result+=ch
print("alphabets in the string:", result);
```

```
given the string : DHeeraj@diYA
alphabets in the string: 5555
```

[ ]:

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Code

[21]:
```
# Simple Calculator using Python

num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))

print("Select operation:")
print("1. Addition (+)")
print("2. Subtraction (-)")
print("3. Multiplication (*)")
print("4. Division (/)")

choice = input("Enter choice (1/2/3/4): ")

if choice == '1' or choice == '+':
    print("Result:", num1 + num2)
elif choice == '2' or choice == '-':
    print("Result:", num1 - num2)
elif choice == '3' or choice == '*':
    print("Result:", num1 * num2)
elif choice == '4' or choice == '/':
    if num2 != 0:
        print("Result:", num1 / num2)
    else:
        print("Error: Division by zero not allowed!")
else:
    print("Invalid input!")
```

```
Enter first number:  8
Enter second number:  9
Select operation:
1. Addition (+)
2. Subtraction (-)
3. Multiplication (*)
4. Division (/)
Enter choice (1/2/3/4):  2
Result: -1.0
```

[ ]: