

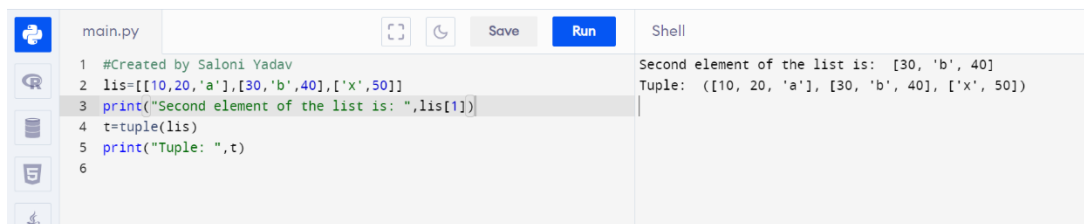
LAB ASSIGNMENT:-3

Q.1 Write a program to retrieve the second element from the list given below `lis = [[10,20,'a'], [30, 'b', 40], ['x',50]]` .convert above list into tuple.

Source Code:-

```
#Created by Saloni Yadav  
lis=[[10,20,'a'],[30,'b',40],['x',50]]  
print("Second element of the list is: ",lis[1])  
t=tuple(lis)  
print("Tuple: ",t)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code in the editor is as follows:

```
1 #Created by Saloni Yadav  
2 lis=[[10,20,'a'],[30,'b',40],['x',50]]  
3 print("Second element of the list is: ",lis[1])  
4 t=tuple(lis)  
5 print("Tuple: ",t)  
6
```

The output in the shell window is:

```
Second element of the list is: [30, 'b', 40]  
Tuple: ([10, 20, 'a'], [30, 'b', 40], ['x', 50])
```

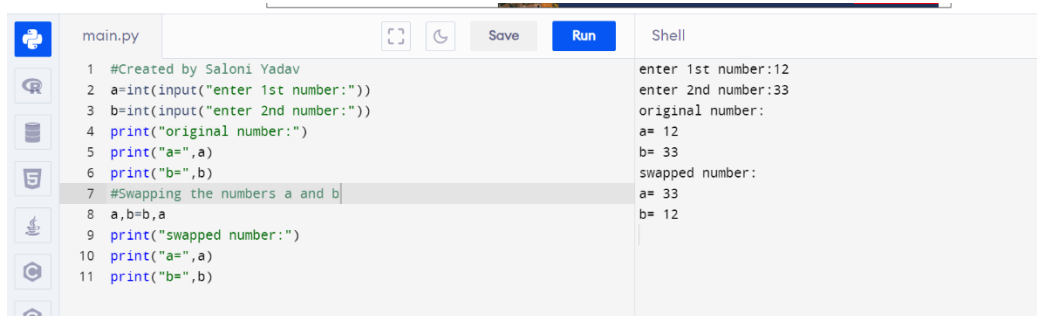
Q.2 Write a program to exchange the values of two numbers (take input from user).

Source Code:-

```
#Created by Saloni Yadav  
a=int(input("enter 1st number:"))  
b=int(input("enter 2nd number:"))  
print("original number:")  
print("a=",a)  
print("b=",b)  
#Swapping the numbers a and b  
a,b=b,a  
print("swapped number:")  
print("a=",a)
```

```
print("b=",b)
```

Output:-



```
main.py
1 #Created by Saloni Yadav
2 a=int(input("enter 1st number:"))
3 b=int(input("enter 2nd number:"))
4 print("original number:")
5 print("a=",a)
6 print("b=",b)
7 #Swapping the numbers a and b
8 a,b=b,a
9 print("swapped number:")
10 print("a=",a)
11 print("b=",b)
```

Shell

```
enter 1st number:12
enter 2nd number:33
original number:
a= 12
b= 33
swapped number:
a= 33
b= 12
```

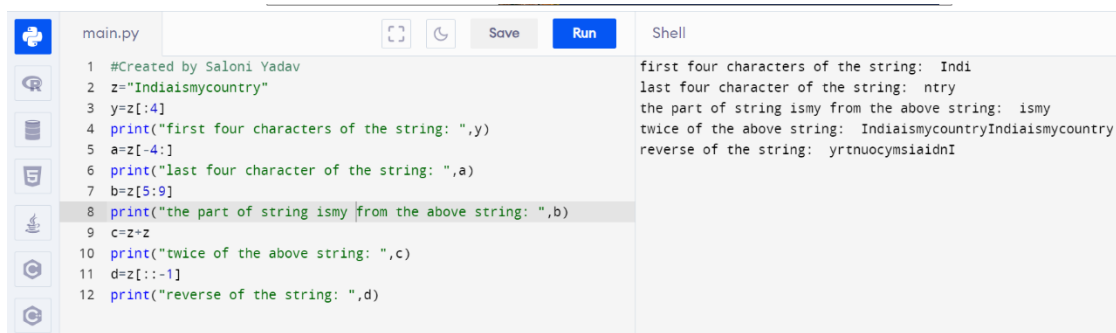
Q.3 The given string is Z = 'Indiaismycountry'

- i) Print first four characters of the string**
- ii) Print last four character of the string**
- iii) Print the part of string 'ismy' from the above string**
- iv) Print twice the above string**
- v) Print reverse of the string**

Source Code:-

```
#Created by Saloni Yadav
z="Indiaismycountry"
y=z[:4]
print("first four characters of the string: ",y)
a=z[-4:]
print("last four character of the string: ",a)
b=z[5:9]
print("the part of string ismy from the above string: ",b)
c=z+z
print("twice of the above string: ",c)
d=z[::-1]
print("reverse of the string: ",d)
```

Output:-



```
main.py
1 #Created by Saloni Yadav
2 z="Indiaismycountry"
3 y=z[:4]
4 print("first four characters of the string: ",y)
5 a=z[-4:]
6 print("last four character of the string: ",a)
7 b=z[5:9]
8 print("the part of string ismy from the above string: ",b)
9 c=z+z
10 print("twice of the above string: ",c)
11 d=z[::-1]
12 print("reverse of the string: ",d)
```

Shell

```
first four characters of the string: Indi
last four character of the string: ntry
the part of string ismy from the above string: ismy
twice of the above string: IndiaismycountryIndiaismycountry
reverse of the string: yrtnuocysiaidnI
```

Q. 4 Write a program to check whether the number is in the range (0,255)

Source Code:-

```
#Created by Saloni Yadav
```

```
a=int (input("Enter number to be searched:"))
```

```
flag=0
```

```
for i in range(0,255):
```

```
    if i==a:
```

```
        flag=1
```

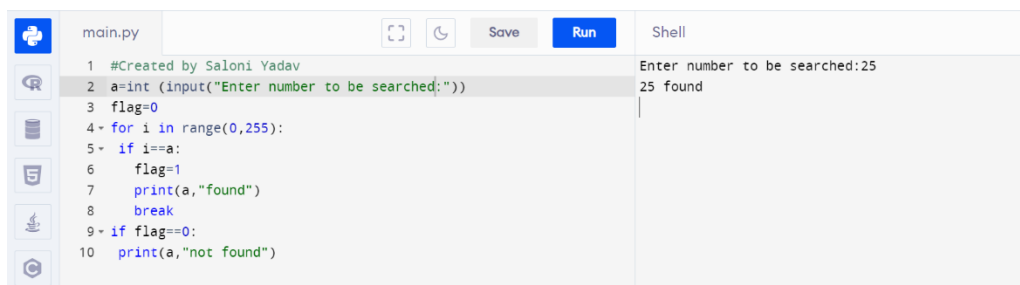
```
        print(a,"found")
```

```
        break
```

```
if flag==0:
```

```
    print(a,"not found")
```

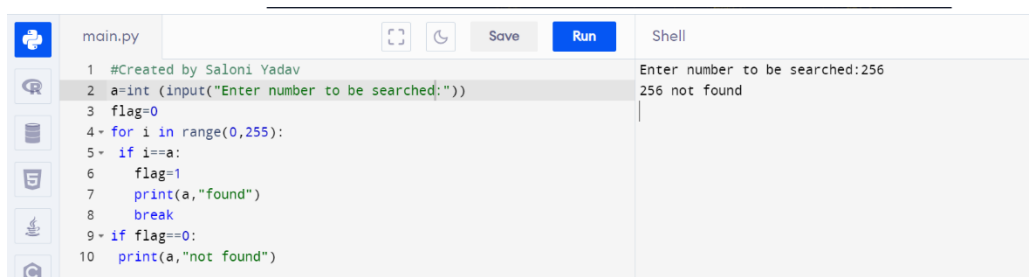
Output:-



```
main.py
1 #Created by Saloni Yadav
2 a=int (input("Enter number to be searched:"))
3 flag=0
4 for i in range(0,255):
5     if i==a:
6         flag=1
7         print(a,"found")
8         break
9 if flag==0:
10    print(a,"not found")
```

Shell

```
Enter number to be searched:25
25 found
```



```
main.py
1 #Created by Saloni Yadav
2 a=int (input("Enter number to be searched:"))
3 flag=0
4 for i in range(0,255):
5     if i==a:
6         flag=1
7         print(a,"found")
8         break
9 if flag==0:
10    print(a,"not found")
```

Shell

```
Enter number to be searched:256
256 not found
```

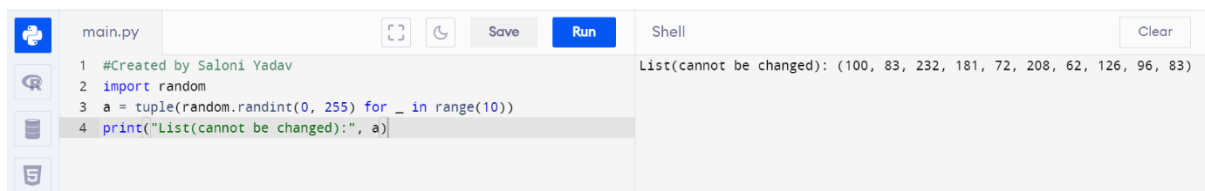
Q.5 Write a program to make a list of 10 numbers lying between 0 to 255. Once the list is created make sure that the content of the list cannot be Changed.

Source Code:-

#Created by Saloni Yadav

```
import random  
  
a = tuple(random.randint(0, 255) for _ in range(10))  
  
print("List(cannot be changed):", a)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code in the editor is:
1 #Created by Saloni Yadav
2 import random
3 a = tuple(random.randint(0, 255) for _ in range(10))
4 print("List(cannot be changed):", a)
The output in the shell is: List(cannot be changed): (100, 83, 232, 181, 72, 208, 62, 126, 96, 83)

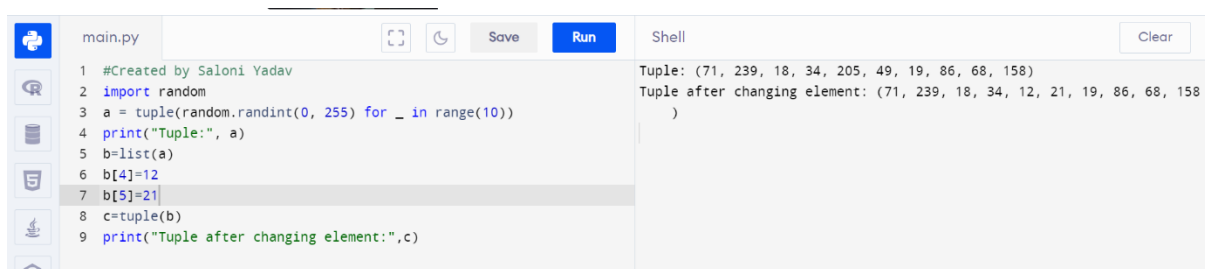
Q.6 Make a change in problem 5 so it is possible to change the 5 th and 6 th element of the list.

Source Code:-

#Created by Saloni Yadav

```
import random  
  
a = tuple(random.randint(0, 255) for _ in range(10))  
  
print("Tuple:", a)  
  
b=list(a)  
  
b[4]=12  
  
b[5]=21  
  
c=tuple(b)  
  
print("Tuple after changing element:",c)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code in the editor is:
1 #Created by Saloni Yadav
2 import random
3 a = tuple(random.randint(0, 255) for _ in range(10))
4 print("Tuple:", a)
5 b=list(a)
6 b[4]=12
7 b[5]=21
8 c=tuple(b)
9 print("Tuple after changing element:",c)
The output in the shell is:
Tuple: (71, 239, 18, 34, 205, 49, 19, 86, 68, 158)
Tuple after changing element: (71, 239, 18, 34, 12, 21, 19, 86, 68, 158)

Q.7 write a Python code to check whether a number is in a range (1000, 10000) or not.

Source Code:-

#Created by Saloni Yadav

```
a=int (input("Enter number to be searched:"))
```

```
flag=0
```

```
for i in range(100,1000):
```

```
    if i==a:
```

```
        flag=1
```

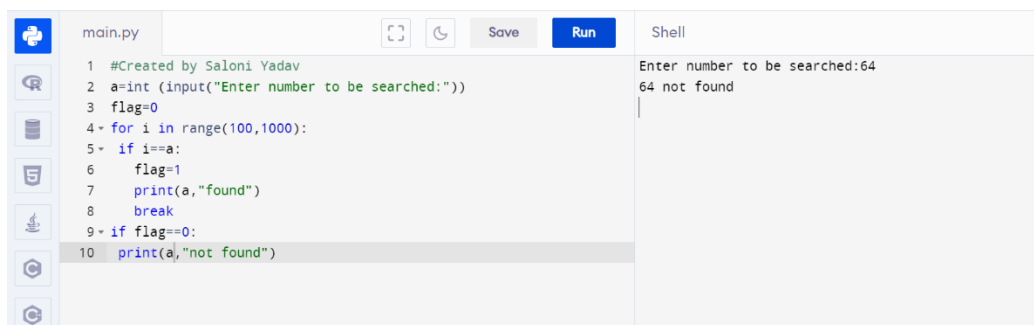
```
        print(a,"found")
```

```
        break
```

```
if flag==0:
```

```
    print(a,"not found")
```

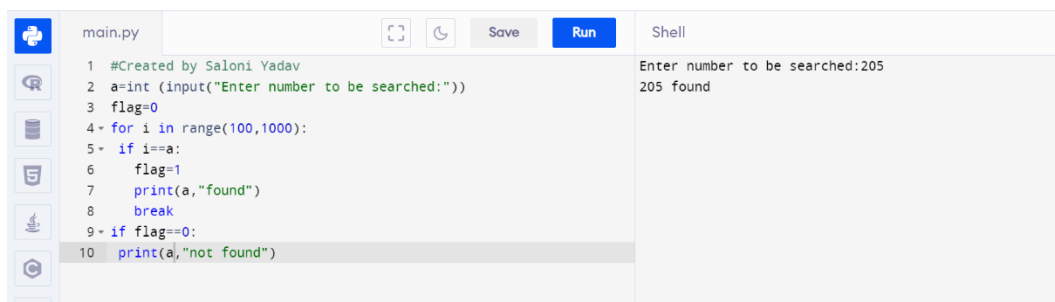
Output:-



```
1 #Created by Saloni Yadav
2 a=int (input("Enter number to be searched:"))
3 flag=0
4 for i in range(100,1000):
5     if i==a:
6         flag=1
7         print(a,"found")
8         break
9 if flag==0:
10    print(a,"not found")
```

Shell

Enter number to be searched:64
64 not found



```
1 #Created by Saloni Yadav
2 a=int (input("Enter number to be searched:"))
3 flag=0
4 for i in range(100,1000):
5     if i==a:
6         flag=1
7         print(a,"found")
8         break
9 if flag==0:
10    print(a,"not found")
```

Shell

Enter number to be searched:205
205 found

Q.8 Write a python code to print pascal triangle upto 5 steps (using List).

Source Code:-

```
num = int(input("Enter the number: "))
```

```
list1 = []  
for i in range(num):  
    list1.append([])  
    list1[i].append(1)  
    for j in range(1, i):  
        list1[i].append(list1[i - 1][j - 1] + list1[i - 1][j])  
    if(num != 0):  
        list1[i].append(1)  
for i in range(num):  
    print(" " * (num - i), end = " ", sep = " ")  
    for j in range(0, i + 1):  
        print('{0:6}'.format(list1[i][j]), end = " ", sep = " ")  
    print()
```

Output:-



```
main.py 1 num = int(input("Enter the number: "))  
2 list1 = []  
3 for i in range(num):  
4     list1.append([])  
5     list1[i].append(1)  
6     for j in range(1, i):  
7         list1[i].append(list1[i - 1][j - 1] + list1[i - 1][j])  
8     if(num != 0):  
9         list1[i].append(1)  
10 for i in range(num):  
11     print(" " * (num - i), end = " ", sep = " ")  
12     for j in range(0, i + 1):  
13         print('{0:6}'.format(list1[i][j]), end = " ", sep = " ")  
14     print()
```

Shell

```
Enter the number: 5  
      1  
    1 1  
   1 2 1  
  1 3 3 1  
 1 4 6 4 1
```

Q.9 Write a program to get square of first five positive integers(use list).

Source Code:-

#Created by Saloni Yadav

```
squares = [x**2 for x in range(1, 6)]  
print("Squares of the first five positive integers:")  
print(squares)
```

Output:-



```
main.py
1 #Created by Saloni Yadav
2 squares = [x**2 for x in range(1, 6)]
3 print("Squares of the first five positive integers:")
4 print(squares)
```

Squares of the first five positive integers:
[1, 4, 9, 16, 25]

Q.10 Write a program to reverse the digits of a positive integer.

Source Code:-

```
#Created by Saloni Yadav

a = int(input("Enter a number: "))

rev = 0

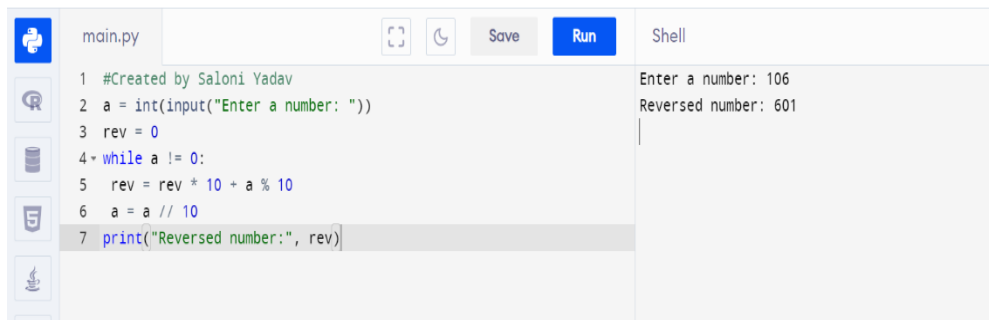
while a != 0:

    rev = rev * 10 + a % 10

    a = a // 10

print("Reversed number:", rev)
```

Output:-



```
main.py
1 #Created by Saloni Yadav
2 a = int(input("Enter a number: "))
3 rev = 0
4 while a != 0:
5     rev = rev * 10 + a % 10
6     a = a // 10
7 print("Reversed number:", rev)
```

Enter a number: 106
Reversed number: 601

Q.13 Create a tuple with single value '5'.

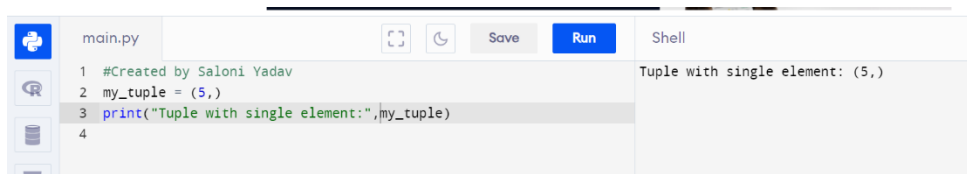
Source Code:-

```
#Created by Saloni Yadav

my_tuple = (5,)

print("Tuple with single element:", my_tuple)
```

Output:-



```
main.py
1 #Created by Saloni Yadav
2 my_tuple = (5,)
3 print("Tuple with single element:", my_tuple)
4
```

Tuple with single element: (5,)


Q.14 Write a code to calculate the perimeter of a square.

Source Code:-

#Created by Saloni Yadav

```
def sq_per(x):  
    print("Perimeter of square:",4*x)  
a=float(input("enter length of side of square:"))  
sq_per(a)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code defines a function 'sq_per(x)' that prints the perimeter of a square (4 times the side length). It then takes user input for the side length and calls the function. The output in the shell shows the user entering '12' and the program outputting 'Perimeter of square: 48.0'.

```
main.py  
1 #Created by Saloni Yadav  
2 def sq_per(x):  
3     print("Perimeter of square:",4*x)  
4 a=float(input("enter length of side of square:"))  
5 sq_per(a)  
  
Shell  
enter length of side of square:12  
Perimeter of square: 48.0
```

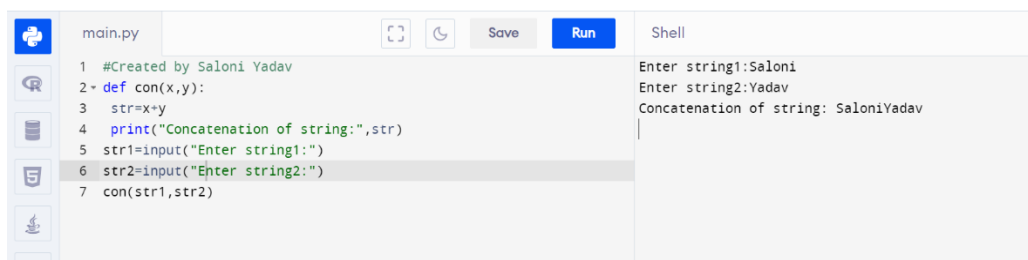
Q.15 Write a program to concatenate two strings.

Source Code:-

#Created by Saloni Yadav

```
def con(x,y):  
    str=x+y  
    print("Concatenation of string:",str)  
str1=input("Enter string1:")  
str2=input("Enter string2:")  
con(str1,str2)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code defines a function 'con(x,y)' that concatenates two strings and prints the result. It then takes user input for two strings and calls the function. The output in the shell shows the user entering 'Saloni' and 'Yadav', and the program outputting 'Concatenation of string: SaloniYadav'.

```
main.py  
1 #Created by Saloni Yadav  
2 def con(x,y):  
3     str=x+y  
4     print("Concatenation of string:",str)  
5 str1=input("Enter string1:")  
6 str2=input("Enter string2:")  
7 con(str1,str2)  
  
Shell  
Enter string1:Saloni  
Enter string2:Yadav  
Concatenation of string: SaloniYadav
```

Q.16 Write a program to count the number of even and odd numbers from a given range of numbers.

Source Code:-

#Created by Saloni Yadav

```
a = int(input("Enter lower range: "))
```

```
b = int(input("Enter upper range: "))
```

```
lis1 = []
```

```
lis2 = []
```

```
for i in range(a, b + 1):
```

```
    if i % 2 == 0:
```

```
        lis1.append(i)
```

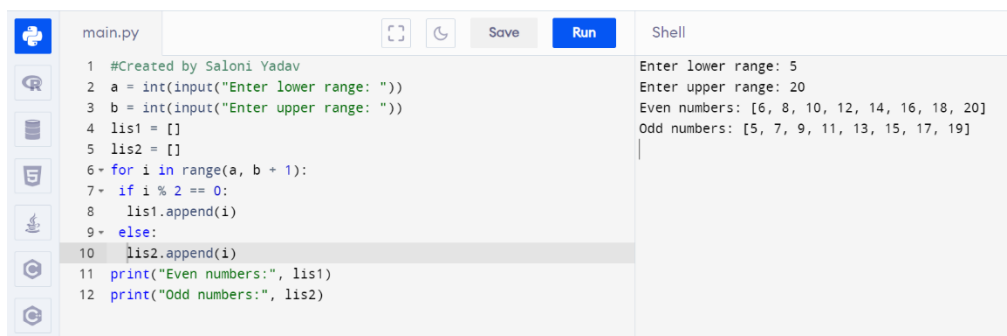
```
    else:
```

```
        lis2.append(i)
```

```
print("Even numbers:", lis1)
```

```
print("Odd numbers:", lis2)
```

Output:-

A screenshot of a Python IDE interface. On the left, there's a sidebar with icons for file explorer, search, and other tools. The main area is split into two panes. The left pane shows the source code for a file named 'main.py'. The code is as follows:

```
1 #Created by Saloni Yadav
2 a = int(input("Enter lower range: "))
3 b = int(input("Enter upper range: "))
4 lis1 = []
5 lis2 = []
6 for i in range(a, b + 1):
7     if i % 2 == 0:
8         lis1.append(i)
9     else:
10        lis2.append(i)
11 print("Even numbers:", lis1)
12 print("Odd numbers:", lis2)
```

The right pane shows the output of the program in a shell. The output is:

```
Enter lower range: 5
Enter upper range: 20
Even numbers: [6, 8, 10, 12, 14, 16, 18, 20]
Odd numbers: [5, 7, 9, 11, 13, 15, 17, 19]
```

Q.17 Write a program to calculate square of number from 0 to 99.

Source Code:-

#Created by Saloni Yadav

```
squares = []
```

```
for i in range(100):
```

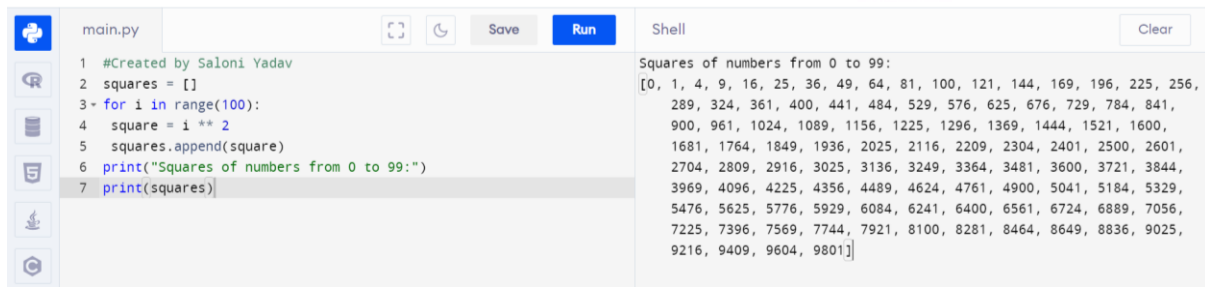
```
    square = i ** 2
```

```
    squares.append(square)
```

```
print("Squares of numbers from 0 to 99:")
```

```
print(squares)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code in the editor is as follows:

```
1 #Created by Saloni Yadav
2 squares = []
3 for i in range(100):
4     square = i ** 2
5     squares.append(square)
6 print("Squares of numbers from 0 to 99:")
7 print(squares)
```

The output in the Shell window is:

```
Squares of numbers from 0 to 99:
[0, 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256,
289, 324, 361, 400, 441, 484, 529, 576, 625, 676, 729, 784, 841,
900, 961, 1024, 1089, 1156, 1225, 1296, 1369, 1444, 1521, 1600,
1681, 1764, 1849, 1936, 2025, 2116, 2209, 2304, 2401, 2500, 2601,
2704, 2809, 2916, 3025, 3136, 3249, 3364, 3481, 3600, 3721, 3844,
3969, 4096, 4225, 4356, 4489, 4624, 4761, 4900, 5041, 5184, 5329,
5476, 5625, 5776, 5929, 6084, 6241, 6400, 6561, 6724, 6889, 7056,
7225, 7396, 7569, 7744, 7921, 8100, 8281, 8464, 8649, 8836, 9025,
9216, 9409, 9604, 9801]
```

Q.18 write a program to get sum of all elements in the list.

Source Code:-

#Created by Saloni Yadav

```
def sum_of_list(lst):

    total = 0

    for num in lst:

        total += num

    return total

list= [100, 25, 30, 25, 50]

result = sum_of_list(list)

print("Sum of all elements in the list:", result)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code in the editor is as follows:

```
1 #Created by Saloni Yadav
2 def sum_of_list(lst):
3     total = 0
4     for num in lst:
5         total += num
6     return total
7 list= [100, 25, 30, 25, 50]
8 result = sum_of_list(list)
9 print("Sum of all elements in the list:", result)
```

The output in the Shell window is:

```
Sum of all elements in the list: 230
```

Q.19 write a code to multiply two given lists Use the lists below:

A = [1,4,5,7,3]

B = [2,0,8,-3]

Source Code:-

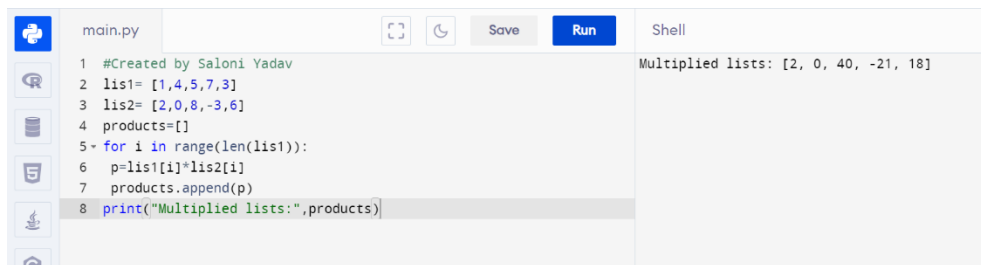
#Created by Saloni Yadav

lis1= [1,4,5,7,3]

lis2= [2,0,8,-3,6]

```
products=[]  
for i in range(len(lis1)):  
    p=lis1[i]*lis2[i]  
    products.append(p)  
print("Multiplied lists:",products)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code in the editor is as follows:

```
1 #Created by Saloni Yadav  
2 lis1= [1,4,5,7,3]  
3 lis2= [2,0,8,-3,6]  
4 products=[]  
5 for i in range(len(lis1)):  
6     p=lis1[i]*lis2[i]  
7     products.append(p)  
8 print("Multiplied lists:",products)
```

The 'Run' button is highlighted. The 'Shell' output pane on the right displays the result: 'Multiplied lists: [2, 0, 40, -21, 18]'.

Q.20 What will be the output of the following code?

```
List = [26621, 228727, 32727872, (4182982)]
```

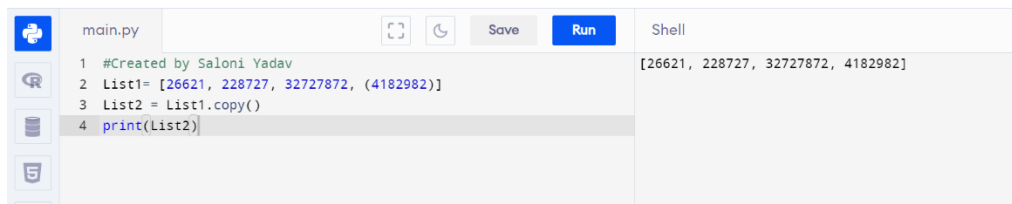
```
List2 = list1.copy()
```

List2

Source Code:-

```
#Created by Saloni Yadav  
List1= [26621, 228727, 32727872, (4182982)]  
List2 = List1.copy()  
print(List2)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code in the editor is as follows:

```
1 #Created by Saloni Yadav  
2 List1= [26621, 228727, 32727872, (4182982)]  
3 List2 = List1.copy()  
4 print(List2)
```

The 'Run' button is highlighted. The 'Shell' output pane on the right displays the result: '[26621, 228727, 32727872, 4182982]'.

Q.21 Write a function to create a list of 5 numbers and find the largest number in that list (Take input form user).

Source Code:-

```
#Created by Saloni Yadav
```

```
numbers = []  
for i in range(5):  
    num = float(input("Enter number {}: ".format(i + 1)))  
    numbers.append(num)  
a = max(numbers)  
print("The largest number is:", a)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code in the editor is as follows:

```
1 #Created by Saloni Yadav  
2 numbers = []  
3 for i in range(5):  
4     num = float(input("Enter number {}: ".format(i + 1)))  
5     numbers.append(num)  
6 a = max(numbers)  
7 print("The largest number is:", a)
```

The 'Shell' output on the right shows the program's execution:

```
Enter number 1: 12  
Enter number 2: 4  
Enter number 3: 22  
Enter number 4: 78  
Enter number 5: 5  
The largest number is: 78.0
```

Q.22 Write the program to replace list values inside a tuple.

Source Code:-

```
#Created by Saloni Yadav  
#Original tuple  
t = (1, [3, 9], 4, [5, 15])  
#index to be replaced  
i = 2  
new_list = [8, 21, 11, 9]  
updated_tuple = t[:i] + (new_list,) + t[i+ 1:]  
print("Original Tuple:", t)  
print("Updated Tuple:", updated_tuple)
```

Output:-



The screenshot shows a Python IDE with a file named 'main.py'. The code in the editor is as follows:

```
1 #Created by Saloni Yadav  
2 #Original tuple  
3 t = (1, [3, 9], 4, [5, 15])  
4 #index to be replaced  
5 i = 2  
6 new_list = [8, 21, 11, 9]  
7 updated_tuple = t[:i] + (new_list,) + t[i+ 1:]  
8 print("Original Tuple:", t)  
9 print("Updated Tuple:", updated_tuple)
```

The 'Shell' output on the right shows the program's execution:

```
Original Tuple: (1, [3, 9], 4, [5, 15])  
Updated Tuple: (1, [3, 9], [8, 21, 11, 9], [5, 15])
```

Q.23 What will be the output of the following code?

```
list1 = [2,3,[4,5]]
```

```
list2 = list1.copy()
```

```
list2[0] = 88
```

Source Code:-

```
#Created by Saloni Yadav
```

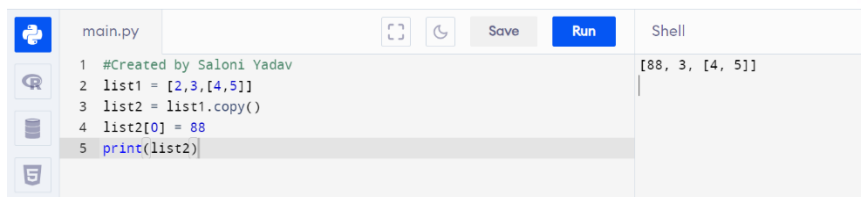
```
list1 = [2,3,[4,5]]
```

```
list2 = list1.copy()
```

```
list2[0] = 88
```

```
print(list2)
```

Output:-

A screenshot of a Python IDE interface. On the left, a file named 'main.py' is open, showing five lines of code: a comment '#Created by Saloni Yadav', 'list1 = [2,3,[4,5]]', 'list2 = list1.copy()', 'list2[0] = 88', and 'print(list2)'. The code is syntax-highlighted. On the right, the 'Shell' pane displays the output of the code: '[88, 3, [4, 5]]'. Above the shell pane are buttons for 'Save' and 'Run'.

Q.24 Suppose a tuple 'x' contains 15 elements. How can you set the 3 rd element to 'Python'?

Source Code:-

```
#Created by Saloni Yadav
```

```
x = (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15)
```

```
print("Original tuple:",x)
```

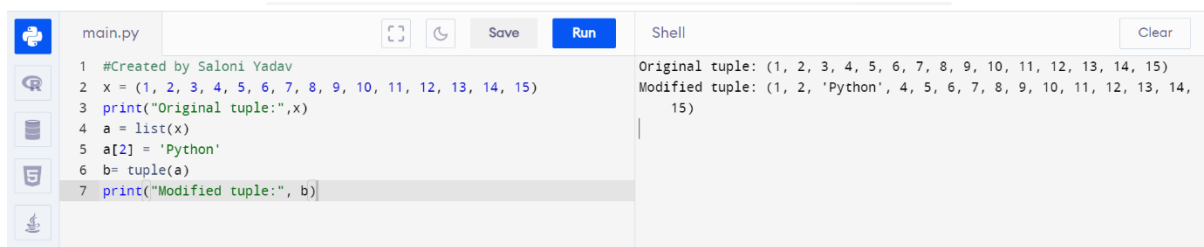
```
a = list(x)
```

```
a[2] = 'Python'
```

```
b= tuple(a)
```

```
print("Modified tuple:", b)
```

Output:-



```
main.py
1 #Created by Saloni Yadav
2 x = (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15)
3 print("Original tuple:",x)
4 a = list(x)
5 a[2] = 'Python'
6 b= tuple(a)
7 print("Modified tuple:", b)
```

Shell

```
Original tuple: (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15)
Modified tuple: (1, 2, 'Python', 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15)
```

Q.25 Create a new list by multiplying each element of the given list by 2 Use the list given below: Given_list = [10,2,7,4,5,12].

Source Code:-

#Created by Saloni Yadav

```
x = [10, 2, 7, 4, 5, 12]
```

```
print("Original list:", x)
```

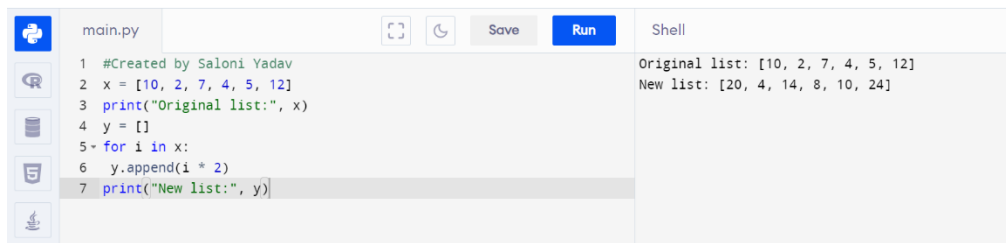
```
y = []
```

```
for i in x:
```

```
    y.append(i * 2)
```

```
print("New list:", y)
```

Output:-



```
main.py
1 #Created by Saloni Yadav
2 x = [10, 2, 7, 4, 5, 12]
3 print("Original list:", x)
4 y = []
5 for i in x:
6     y.append(i * 2)
7 print("New list:", y)
```

Shell

```
Original list: [10, 2, 7, 4, 5, 12]
New list: [20, 4, 14, 8, 10, 24]
```