



# SESSION - 10

## LISTS



# Learning Outcomes:

- **Remember:** The students will list different aspects of a LIST creation and its execution .
- **Understand:** They will focus on understanding the execution and applications of LISTS,
- **Apply:** They will apply the concept of LIST to work on multiple programs
- **Analyze:** They will check their understanding by developing the codes.
- **Create:** They will create the code in EduBlocks

# LISTS

Python offers a range of compound datatypes often referred to as sequences. List is one of the most frequently used and very versatile datatype used in Python.

In Python programming, a list is created by placing all the items (elements) inside a square bracket [ ], separated by commas.

It can have any number of items and they may be of different types (integer, float, string etc.).

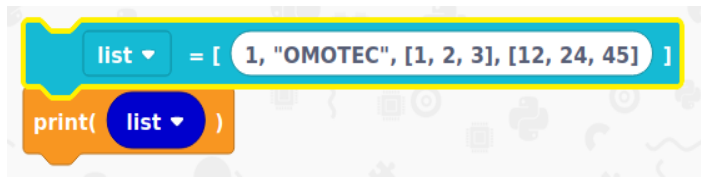


# LIST INDEX

## List Index

We can use the index operator `[]` to access an item in a list. Index starts from 0. So, a list having 5 elements will have index from 0 to 4.

Trying to access an element other than this will raise an `IndexError`. The index must be an integer. We can't use float or other types; this will result into `TypeError`.



```
list2 = [1, "OMOTEC", [1, 2, 3], [12, 24, 45]]
print(list2)
```

**Nested List:** A list can even have another list as an item. This is called nested list

# INDEXING AND NEGATIVE INDEXING

Negative indexing: Python allows negative indexing for its sequences. The index of -1 refers to the last item, -2 to the second last item and so on.

## + INDEXING


```
# Start code here
my_list = [ "Hello", "World", "OMOTEC", "[1,2,3]" ]
print( my_list )
```

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```
['Hello', 'World', 'OMOTEC', '[1,2,3]']
```

## - INDEXING

```
# Start code here
my_list = [ "Hello", "World", "OMOTEC", "[1,2,3]" ]
print( my_list [ -1 ] )
print( my_list [ -2 ] )
```

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```
[1,2,3]
OMOTEC
```

# LIST OPERATIONS

list . append ( 3 )

**Append:** Add the element in the end of the list

list . insert ( 2, 5 )

**Insert:** Add the element at the specific position in the list, E.g. adding 5 at pose 2

list . extend ( [5,2,7] )

**Extend:** Add another list in the list

list . pop ( 3 )

**Pop:** Remove element from specific position

list . remove ( 3 )

**Remove:** Remove element from list at it's 1<sup>st</sup> occurrence.

**Apply & Create**

## **ACTIVITY 01:-**

**</> WRITE THE PROGRAM TO CREATE A LIST  
AND TEST ALL FIVE OPERATIONS**

# Program Step 1:-

Lists

my\_list = [ "Hello" , "World" ]

[ "Hello" , "World" ]

[ 1 , 2 , 3 ]

variable\_name [ 0 ]

# Start code here

my\_list = [ "11" , "45" , "32" , "54" ]

Code

```
1 #Start code here
2 my_list = ["11", "45", "32", "54"]
3
```



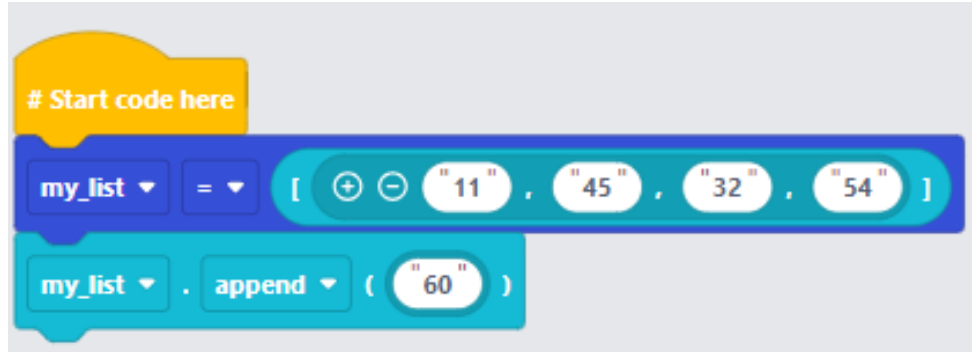
# Program Step 2:-

The image displays the 'Lists' block palette on the left and a workspace on the right. The palette includes icons for Text, Math, Logic, Lists (highlighted), Loops, Definitions, Turtle, and Graphs. The workspace shows a sequence of list-related blocks: 'my\_list' is assigned a list containing 'Hello' and 'World'; a list containing 'Hello' and 'World' is shown; a list containing 1, 2, and 3 is shown; 'variable\_name' is assigned the value 0; 'variable\_name' has its '.reverse()' method called; 'variable\_name' has its '.index("Hello")' method called; and 'variable\_name' has its '.append("Hello")' method called. The final '.append()' block is highlighted with a red rectangle.

**Lists**

- my\_list = [ + - "Hello" , "World" ]
- [ + - "Hello" , "World" ]
- [ + - 1 , 2 , 3 ]
- variable\_name [ 0 ]
- variable\_name .reverse()
- variable\_name .index( "Hello" )
- variable\_name . append ( "Hello" )

# Program Step 3:-



```
1 #Start code here
2 my_list = ["11", "45", "32", "54"]
3 my_list.append("60")
4
```

# Program Step 4:-

Imports

Variables

Statements

Output

print( "Hello World" )

print( 1 )

# Start code here

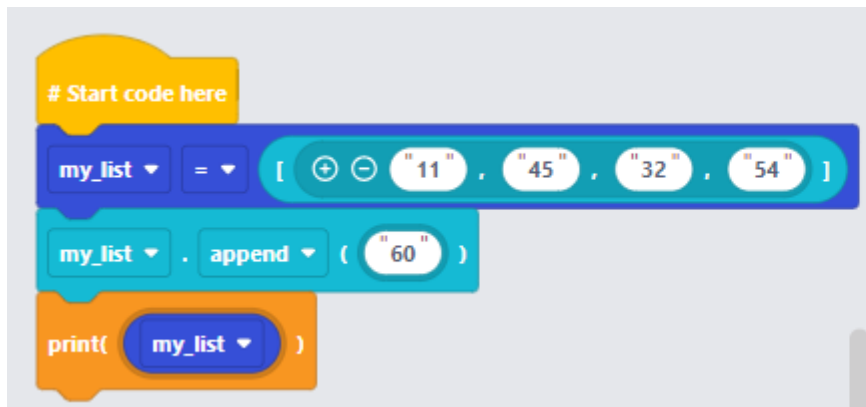
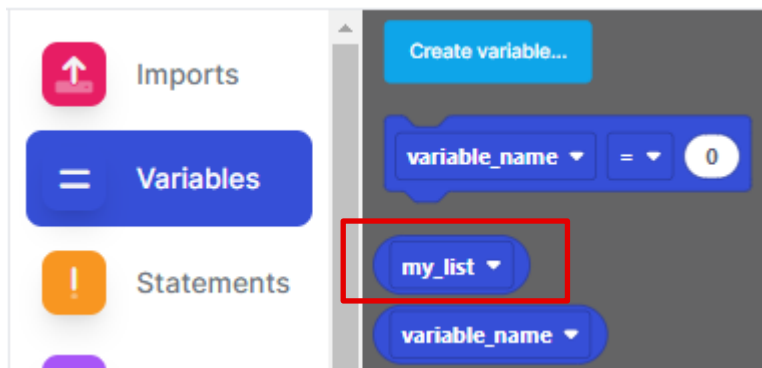
my\_list = [ "11", "45", "32", "54" ]

my\_list.append( "60" )

print( 1 )

```
1 #Start code here
2 my_list = ["11", "45", "32", "54"]
3 my_list.append("60")
4 print(1)
5
```

# Program Step 5:-



```
1 #Start code here
2 my_list = ["11", "45", "32", "54"]
3 my_list.append("60")
4 print(my_list)
5
```

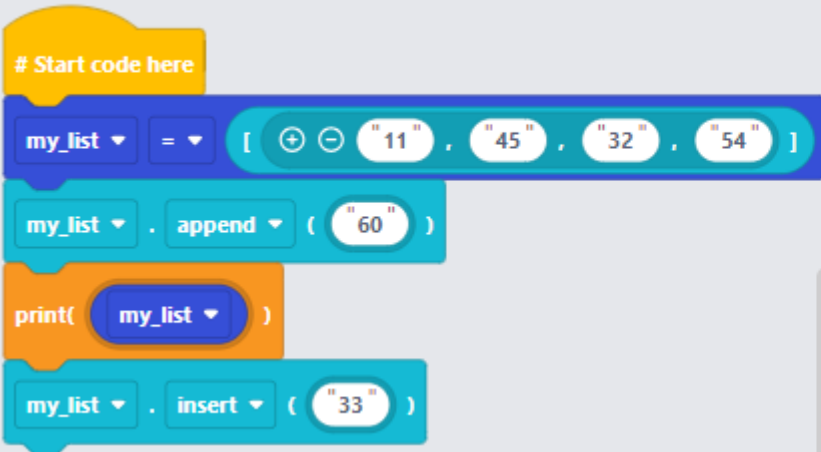
# Program Step 6:-

The image shows the Scratch code editor with the 'Lists' category selected in the left sidebar. The workspace contains several code blocks:

- my\_list** = [ + - "Hello" , "World" ]
- [ + - "Hello" , "World" ]
- [ + - 1 , 2 , 3 ]
- variable\_name** [ 0 ]
- variable\_name** .reverse()
- variable\_name** .index( "Hello" )
- variable\_name** . append ( "Hello" )

The last block, **variable\_name** . append ( "Hello" ), is highlighted with a red rectangular box.

# Program Step 7:-



## Code

```
1 #Start code here
2 my_list = ["11", "45", "32", "54"]
3 my_list.append("60")
4 print(my_list)
5 my_list.insert("33")
6
```

# Program Step 8:-



Imports



Variables



Statements

Output

print( "Hello World" )

print( 1 )

# Start code here

my\_list = [ "11", "45", "32", "54" ]

my\_list . append ( "60" )

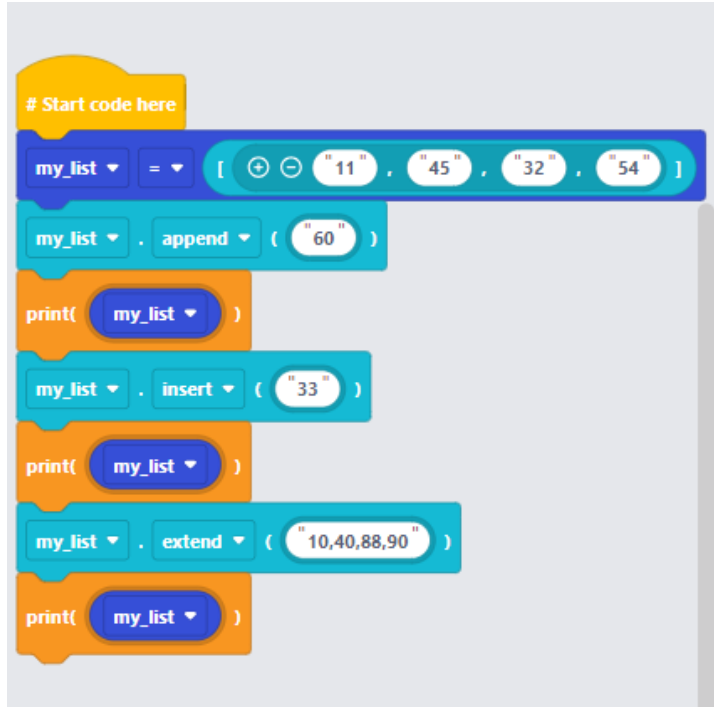
print( my\_list )

my\_list . insert ( "33" )

print( my\_list )

```
1 #Start code here
2 my_list = ["11", "45", "32", "54"]
3 my_list.append("60")
4 print(my_list)
5 my_list.insert("33")
6 print(my_list)
7
```

# Program Step 9:-



Code

```
1 #Start code here
2 my_list = ["11", "45", "32", "54"]
3 my_list.append("60")
4 print(my_list)
5 my_list.insert("33")
6 print(my_list)
7 my_list.extend("10,40,88,90")
8 print(my_list)
9
```



# Program Step 10:-

# Start code here

my\_list = [ "11" , "45" , "32" , "54" ]

my\_list . append ( "60" )

print( my\_list )

my\_list . insert ( "33" )

print( my\_list )

my\_list . extend ( "10,40,88,90" )

print( my\_list )

my\_list . pop ( "3" )

print( my\_list )

Code

```
1 #Start code here
2 my_list = ["11", "45", "32", "54"]
3 my_list.append("60")
4 print(my_list)
5 my_list.insert("33")
6 print(my_list)
7 my_list.extend("10,40,88,90")
8 print(my_list)
9 my_list.pop("3")
10 print(my_list)
11
```

# Program Step 11:-

# Start code here

```

my_list = ["11", "45", "32", "54"]
my_list.append("60")
print(my_list)
my_list.insert("33")
print(my_list)
my_list.extend(["10,40,88,90"])
print(my_list)
my_list.pop("3")
print(my_list)
my_list.remove("45")
print(my_list)

```

Code

```

1 #Start code here
2 my_list = ["11", "45", "32", "54"]
3 my_list.append("60")
4 print(my_list)
5 my_list.insert("33")
6 print(my_list)
7 my_list.extend(["10,40,88,90"])
8 print(my_list)
9 my_list.pop("3")
10 print(my_list)
11 my_list.remove("45")
12 print(my_list)
13

```

# ACTIVITY SHEETS

**Question 1:**  
What is list?

- A. Is set of variables
- B. Is set of integers
- C. Is set of string
- D. Is set of multiple data types

**Question 2:**

How many operations does list have?

- A. 4
- B. 5
- C. 6
- D. 7

**Question 3:**

“POP” operation need \_\_\_\_\_ to remove value.

- A. Name
- B. Variable Value
- C. Place value
- D. Index

**Question 4:**

Does “Remove” operation need index to remove value?

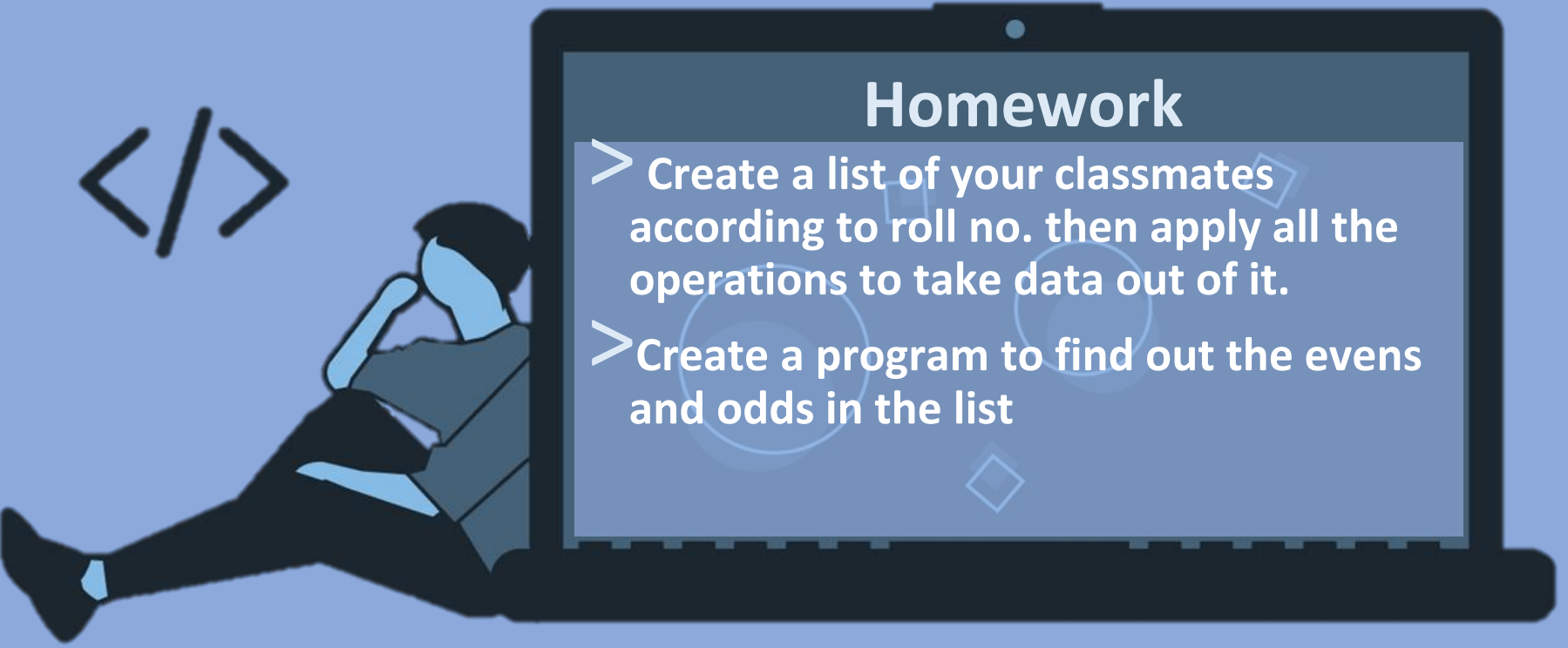
- A. Yes
- B. No

**Question 5:**

Can we subtract 2 strings?

- A. Yes
- B. No





## Homework

- > Create a list of your classmates according to roll no. then apply all the operations to take data out of it.
- > Create a program to find out the evens and odds in the list