

## DATA STRUCTURE

### LIST

#### CREATING A LIST

```
numbers=[1,2,3,4,5,]  
print(numbers)
```

```
[1, 2, 3, 4, 5]
```

```
numbers=[1,2,3,4,5,]  
print(numbers)
```

```
[1, 2, 3, 4, 5]
```

```
numbers.append(6)  
numbers
```

```
[1, 2, 3, 4, 5, 6, 6, 6]
```

```
mixed=[3,"bhuvi",7.15]  
print(mixed)
```

```
[3, 'bhuvi', 7.15]
```

#### ACCESSING ITEMS

```
print(numbers[3])
```

```
4
```

```
print(numbers[-2])
```

```
4
```

#### MODIFYING ITEMS

```
numbers[0]  
numbers
```

```
[1, 2, 3, 4, 5]
```

#### ADDING ITEMS

##### INSERT

```
numbers.insert(1,15)  
numbers
```

```
[1, 15, 6, 2, 3, 4, 5, 6, 6, 6]
```

#### REMOVING ITEMS

```
numbers.remove(3)
numbers
```

```
[1, 15, 6, 2, 4, 5, 6, 6, 6]
```

POP

```
numbers.pop(1)
```

```
15
```

len

```
numbers=[3,5,7,8,]
len(numbers)
```

```
4
```

SORT

```
numbers.sort()
numbers
```

```
[3, 6, 7, 8]
```

REVERSE

```
numbers.reverse()
numbers
```

```
[8, 7, 6, 3]
```

ITERATING THROUGH A NUMBER

```
for num in numbers:
    print(num)
```

```
8
7
6
3
```

CREATING A TUPLE

```
a=(10,40,60,20)
```

ACCESSING ITEMS IN A TUPLE

```
print(a[1])
```

```
40
```

## DICTIONARY

```
Student={"name":"meghana","age":2,"marks":100}
```

### ACCESSING

```
print(student["age"])
```

```
2
```

### ADDING

```
print(student["grade"])
```

```
A
```

### REMOVING

```
print(student["marks"])
```

```
100
```

## ITERATING THROUGH DICTIONARY

```
for key,value in student.items():  
    print(key,value)
```

```
name meghana
```

```
age 2
```

```
marks 100
```

```
grade A
```

## SETS

### ADDING ITEMS

```
print(numbers)
```

```
{8, 9, 1, 7}
```

### REMOVING ITEMS

```
numbers={8,9,7,1,}
```

```
numbers.remove(8)
numbers
{1, 7}
```

## SET OPERATORS

### 2.DIFFERENCE

```
a={1,2,3,4,5,}
b={5,7,8,9,2,1,}

(a-b)

{3, 4}
```

### INTERSECTION

```
(a and b)

{1, 2, 5, 7, 8, 9}
```

### 1.MANIPULATING LISTS

```
fruits=["apple","banana","cherry"]
fruits.append("orange")
fruits.remove("banana")
print(fruits)

['apple', 'cherry', 'orange']
```

### CREATING A DICTIONARY

```
book={"title":"python Basics","author":"John Doe","year":2021}
print(book["title"])
book["year"]=2022
print(book)

python Basics
{'title': 'python Basics', 'author': 'John Doe', 'year': 2022}
```

### TO FIND A PALINDROME NUMBER

```
number=int(input("Enter a number: "))
reverse_number=0
temp = number

while temp>0:
    digit = temp % 10
```

```

        reverse_number = reverse_number * 10 + digit
        temp = temp // 10
    if number == reverse_number:
        print(f" {number} pali")
    else:
        print(f"{number} not pali")
Enter a number: 151
151 pali

```

## PALINDROME FOR STRING

```

number=input ("Enter a number :")
if number==number[::-1]:
    print("Palindrome")
else:
    print("Not Palindrome")

Enter a number :MOM
Palindrome

class Solution(object):
    def isPalindrome(self, x):
        """
        :type x: int
        :rtype: bool
        """
        if x < 0 or (x % 10 == 0 and x != 0):
            return False

        reversed_half = 0
        while x > reversed_half:
            reversed_half = reversed_half * 10 + x % 10
            x //= 10

        return x == reversed_half or x == reversed_half // 10

```