

Python Basics 1

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Aim: To understand basic concepts of python (operators, conditional statements, built-in and userdefined functions, lamda function, lists, strings, dictionary etc..)

1. Create a lambda function using 3 arguments.

```
In [1]: x = lambda a, b, c : a+b+c
a = int(input("a = "))
b = int(input("b = "))
c = int(input("c = "))
print("Sum is", x(a, b, c))

a = 5
b = 15
c = 20
Sum is 40
```

2. Write a Python function that takes a number as a parameter and checks if the number is prime or not.

```
In [4]: def primecheck(num):
    flag = 1
    for i in range(2, num-1):
        if num%i == 0 :
            flag = 0
    return flag

n = int(input("Enter a number:"))
if primecheck(n):
    print(n, "is a prime")
else:
    print(n, "is not a prime")

Enter a number:73
73 is a prime
```

#3. Write a Python function that checks whether a passed string is palindrome or not.

```
In [5]: def pal(st):
    st = st.upper()
    rev = st[::-1]
    if st == rev :
        print("It is a palindrome")
    else:
        print("It is not palindrome")

s = input("Enter a string:")
pal(s)

Enter a string:hellolleh
It is a palindrome
```

4. Given a string, display only those characters which are present at an even index number.

string="Machine Learning".

```
In [6]: str="Machine Learning"
for i in str:
    n = str.index(i)
    if n%2==0:
        print(str[n])
```

M
C
i
e
L
e
i

5. Given a list of numbers, Iterate it and print only those numbers which are divisible by 5.

[10,20,31,9,50,47]

```
In [7]: listx = [10,20,31,9,50,47]
for i in listx:
    if i%5==0:
        print(i)
```

10
20
50

6. Write a python program for matrix multiplication

```
In [12]: r1 = int(input("Enter no of rows in M1:"))
c1 = int(input("Enter no of column in M1:"))
r2 = int(input("Enter no of rows in M2:"))
c2 = int(input("Enter no of column in M2:"))
m1=[[0 for i in range(c1)] for j in range(r1)]
m2=[[0 for i in range(c2)] for j in range(r2)]
res = [[0 for i in range(c2)] for j in range(r1)]
sum = 0
if c1 == r2 :
    print("Enter elements into M1:")
    for i in range(r1):
        for j in range(c1):
            m1[i][j] = int(input())
    print("Enter elements into M2:")
    for i in range(r2):
        for j in range(c2):
            m2[i][j] = int(input())

    print("\nMatrix 1")
    for i in range(r1):
        print(m1[i])
    print("\nMatrix 2")
    for i in range(r2):
        print(m2[i])
    res = [[0 for i in range(c2)] for j in range(r1)]
    for i in range(r1):
        for j in range(c2):

            for k in range(r2):
```

```

        res[i][j] += m1[i][k] * m2[k][j]
    print("\nProduct:-")
    for i in range(r1):
        print(res[i])

else:
    print("Multiplication impossible. C2")

```

Enter no of rows in M1:2
Enter no of column in M1:3
Enter no of rows in M2:3
Enter no of column in M2:2
Enter elements into M1:

4
5
6
2
1
4

Enter elements into M2:

5
2
1
4
6
8

Matrix 1

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

Matrix 2

[5, 2]
[1, 4]
[6, 8]

Product:-

[61, 76]
[35, 40]

7. Create a simple calculator

```

In [2]: ch=0
while True:
    print("\n\n1 addition \n2 subtraction \n3 multiplication \n4 divission \n5 Exit")
    ch=input("Enter your choice:")
    if ch == "5":
        break
    a=int(input("Enter first no:"))
    b=int(input("Enter second no:"))
    if ch=="1":
        r= a+b
    elif ch=="2":
        r = a-b
    elif ch=="3":
        r= a*b
    elif ch=="4":
        r = a/b
    else:
        print("Invalid input")
    print("The result is ", r)

```

1 addition
2 subtraction

```
3 multiplication
4 divission
5 Exit
Enter your choice:1
Enter first no:56
Enter second no:45
The result is 101
```

```
1 addition
2 subtraction
3 multiplication
4 divission
5 Exit
Enter your choice:2
Enter first no:58
Enter second no:12
The result is 46
```

```
1 addition
2 subtraction
3 multiplication
4 divission
5 Exit
Enter your choice:5
```

8. Python program to print pattern using nested for loop

```
In [3]: n=int(input("Enter limit:"))
        for i in range(n):
            j=1
            for j in range(i+1):
                print("* ",end="")
            print("\n")
```

```
Enter limit:6
```

```
*
```

```
* *
```

```
* * *
```

```
* * * *
```

```
* * * * *
```

```
* * * * * *
```

9. Create a dictionary of student details and access the values

```
In [5]: student=dict()
        n=int(input("Enter the number of students:"))
        for i in range(n):
            print("\nStudent ", i+1, ":-" )
            a=[]
            roll=int(input("Enter the rollno:"))
            name=input("Enter the name:")
            department=input("Enter the department:")
            mark=int(input("Enter the mark:"))
            a.append(name)
            a.append(department)
```

```
a.append(mark)
student[roll]=a

print("\nSTUDENT DETAILS\n_____ \n")
for k in student:
    print("\nRoll:", k , "\nName:", student[k][0], "\nAge:",
          student[k][1], "\nMark:", student[k][2]) 3
```

Enter the number of students:2

Student 1 :-

Enter the rollno:01

Enter the name:Abdu

Enter the department:DCA

Enter the mark:56

Student 2 :-

Enter the rollno:02

Enter the name:Rameez

Enter the department:DCA

Enter the mark:99

STUDENT DETAILS

Roll: 1

Name: Abdu

Age: DCA

Mark: 56

Roll: 2

Name: Rameez

Age: DCA

Mark: 99