

In [1]:

```
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# Batch : B3

# A. To implement program based on decision making (if - else statements).

# Q.1 Implement a python program to find maximum of two values entered by user.

a=int(input("Enter first value: "))
b=int(input("Enter second value: "))
if(a>b):
    print(a,"it is greater")
else:
    print(b,"it is greater")
```

Enter first value: 56
Enter second value: 67
67 it is greater

In [2]:

```
""" Q.2 Implement a python program to take values of length and breadth of rectangle from u
    If it is square, find the area of the square."""

l=int(input("Length"))
b=int(input("Breadth"))
if l==b:
    print("The area of square ")
    area=l*b
    print("Area of square is: "+str(area))
else:
    print("Not a square")
```

Length23
Breadth22
Not a square

In [3]:

```
""" Q.3 Implement a python program to take input of age of 3 people by user and determine o

Shubham=int(input('enter age1: '))
Sumit=int(input('enter age2: '))
Prashant=int(input('enter age3: '))
if Shubham>Sumit and Shubham>Prashant:
    print('Shubham is oldest')
elif Sumit>Shubham and Sumit>Prashant:
    print('Sumit is oldest')
else:
    print('Prashant is oldest')
if Shubham<Sumit and Shubham<Prashant:
    print('Shubham is Youngest')
elif Sumit<Shubham and Sumit<Prashant:
    print('Sumit is Youngest')
else:
    print('Prashant is Youngest')
```

```
enter age1: 21
enter age2: 24
enter age3: 23
Sumit is oldest
Shubham is Youngest
```

In [4]:

```
""" Q.4 Implement a python program to create a list containing elements- 10,20,30,40,50. Fi
    in the list or not & if present, replace it with 60."""
list=[10,20,30,40,50]
if 20 in list:
    print("It is present")
else:
    print("Not present")
list[1]=60
print(list)
```

```
It is present
[10, 60, 30, 40, 50]
```

In [5]:

```
""" Q.5 Implement a python program to create a tuple 'stud' with values name, age, address.
    with keys accepted from tuple. Take value of name, age, address from user and add i
    'welcome' message if the age is grater than or equal to 18 otherwise display 'inval
stud=('Name','Age','Address')
print(stud)
student={stud}
Name=(input("Enter Name: "))
Age=int(input("Enter Age: "))
Address=(input("Enter Address: "))
```

```
('Name', 'Age', 'Address')
Enter Name: Shubham
Enter Age: 21
Enter Address: Kolhapur
```

In [6]:

```
""" Q.6 A company decided to give bonus of 10% (of salary) to employee if his/her year of s
    Implement a python program to ask user for their salary and year of service and pri
    total salary adding bonus."""
sal=int(input("Salary= "))
year=int(input("Year= "))
if year>5:
    print("Enter sal",0.10*sal)
else:
    print("Bonus")
```

```
Salary= 100000
Year= 6
Enter sal 10000.0
```

In [7]:

```
""" Q.7 A school has following rules for grading system: Below 25 -F, 25 TO 45 -E, 45 to 50  
above 80-A implement a python program to ask user to enter marks and print the corr
```

```
print("Enter Marks: ")  
mark = int(input())  
avg = mark  
if avg>=91 and avg<=100:  
    print("Your Grade is A1")  
elif avg>=81 and avg<91:  
    print("Your Grade is A2")  
elif avg>=71 and avg<81:  
    print("Your Grade is B1")  
elif avg>=61 and avg<71:  
    print("Your Grade is B2")  
elif avg>=51 and avg<61:  
    print("Your Grade is C1")  
elif avg>=41 and avg<51:  
    print("Your Grade is C2")  
elif avg>=33 and avg<41:  
    print("Your Grade is D")  
elif avg>=21 and avg<33:  
    print("Your Grade is E1")  
elif avg>=0 and avg<21:  
    print("Your Grade is E2")  
else:  
    print("Invalid input!")
```

Enter Marks:

98

Your Grade is A1

In [1]:

```
""" Q.8 A student will not be allowed to sit in exam if his/her attendance is less than 75  
to take following input from user.No of classes held, no of classes attended and p  
whether student is allowed to sit in exam or not."""
```

```
a=int(input(" Number of classes held: "))  
b=int(input(" Number of classes attended: "))  
percentage=b/a*100  
if percentage>=75:  
    print("The student is allowed to sit in Exam.")  
else:  
    print("The student is Not allowed to sit in Exam.")
```

Number of classes held: 20

Number of classes attended: 15

The student is allowed to sit in Exam.

In [2]:

```
# Q.9 Write a python program to check if a year is leap year or not.
```

```
year=2000
if (year % 400 == 0) and (year % 100 == 0):
    print("{0} is a leap year".format(year))
elif (year % 4 == 0) and (year % 100 != 0):
    print("{0} is a leap year".format(year))
else:
    print("{0} is a leap year".format(year))
```

2000 is a leap year

In [3]:

```
# Q.10 Implement a python program to demonstrate the use of shorthand if and if-else statem
```

```
a=2
b=7
print("A") if a>b else print("B")
```

B

In [4]:

```
# B To implement programs based on looping (while loop).
```

```
# Q.1 Implement a python program to print a multiplication table of user entered number.
```

```
number=int(input("Enter the number to print The Multiplicaton Table: "))
count=1
print("The Multiplication Table of: ",number)
while count<=10:
    number=number*1
    print(number,number*count)
    count+=1
```

Enter the number to print The Multiplicaton Table: 7

The Multiplication Table of: 7

7 7
7 14
7 21
7 28
7 35
7 42
7 49
7 56
7 63
7 70

In [1]:

```
# Q.2 Implement a python program to take 10 integers from keyboard using loop and print the  
  
n = 20  
total_numbers = n  
sum = 0  
while n>=0:  
    sum += n  
    n -= 1  
print("sum = ",sum)  
average = sum/total_numbers  
print("Average = ",average)
```

```
sum = 210  
Average = 10.5
```

In [11]:

```
# Q.3 Implement a python program to accept an integer no from user and check whether it is  
#   armstrong no: e.g. 153=13+53+33.  
  
num=int(input("Enter a number: "))  
sum = 0  
temp = num  
while temp > 0:  
    digit = temp % 10  
    sum += digit ** 3  
    temp //= 10  
if num == sum:  
    print(num, "It is an Armstrong Number")  
else:  
    print(num, "It is not Armstrong Number")
```

```
Enter a number: 345  
345 It is not Armstrong Number
```

In [21]:

```
# Q.4 Implement a python program to count the no of digits in a user entered number.  
  
x=int(input("Enter number: "))  
count = 0  
while x != 0:  
    x //= 10  
    count += 1  
print("Number of digits: "+str(count))
```

```
Enter number: 75  
Number of digits: 1  
Number of digits: 2
```

In [23]:

Q.5 Implement a python program to calculate the sum of digits of a number given by user.

```
Number = int(input("Enter any Number: "))
Sum = 0
while (Number > 0):
    Remainder = Number % 10
    Sum = Sum + Remainder
    Number = Number // 10
    print("\n Sum of the digits of given Number = %d" %Sum)
```

Enter any Number: 40

Sum of the digits of given Number = 0

Sum of the digits of given Number = 4

In [24]:

Q.6 Implement a python program to print all natural numbers from 1 to n

```
number = int(input("Enter any number: "))
i = 1
print("The list of natural numbers from 1 to {0} are: ".format(number))
while ( i <= number):
    print(i, end = ' ')
    i = i + 1
```

Enter any number: 15

The list of natural numbers from 1 to 15 are:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

In [26]:

Q.7 Implement a python program to print all natural numbers in reverse from n to 1.

```
num = 1234
reversed_num = 0
while num != 0:
    digit = num % 10
    reversed_num = reversed_num * 10 + digit
    num //= 10
    print("Reversed Number: "+str(reversed_num))
```

Reversed Number: 4

Reversed Number: 43

Reversed Number: 432

Reversed Number: 4321

In [33]:

```
# Q.8 Implement a python program to print all even numbers between 1 to 10.
```

```
x = int(input("Enter a number: "))
i = 1
while i <= x:
    if i % 2 == 0:
        print(i, end = ' ')
    i = i + 1
```

Enter a number: 20

2 4 6 8 10 12 14 16 18 20

In [36]:

```
# Q.9 Implement a python program to print all odd numbers between 1 to 10.
```

```
maximum = int(input("Enter the maximum value: "))
number = 1
while number <= maximum:
    if (number % 2 != 0):
        print("{0}".format(number))
    number = number + 1
```

Enter the maximum value: 25

1
3
5
7
9
11
13
15
17
19
21
23
25

In [37]:

```
# C To implement programs based on Looping (for loop).
```

```
# Q.1 Implement a python program to print all elements of List.
```

```
L = [6,5,7,8,3,2,4,1]
res = []
for index, element in enumerate(L):
    res.append((element,index))
print("List: ")
print(res)
```

List:

[(6, 0), (5, 1), (7, 2), (8, 3), (3, 4), (2, 5), (4, 6), (1, 7)]

In [38]:

```
# Q.2 Create a list of integer elements. Implement a python program to make a new list which contains the square of each element of the previous list.
```

```
l=[]
l2=[1,2,3,4,5]
for i in range(1,5):
    l.append(i*i)
print("List with square of integers from 1 to 5: ")
print(l)
print(l2)
```

List with square of integers from 1 to 5:

[2, 4, 6, 8]

[1, 2, 3, 4, 5]

In [39]:

```
# Q.3 Using range(1,101), make 2 list, one containing all even numbers and other all odd numbers
```

```
list1 = [1,8,12,15,18,19,23,26,31,38,45,48,50]
listOdd = []
listEven = []
for num in list1:
    if num % 2 == 0:
        listEven.append(num)
    else:
        listOdd.append(num)
print("list1: ",list1)
print("listEven: ",listEven)
print("listOdd: ",listOdd)
```

list1: [1, 8, 12, 15, 18, 19, 23, 26, 31, 38, 45, 48, 50]

listEven: [8, 12, 18, 26, 38, 48, 50]

listOdd: [1, 15, 19, 23, 31, 45]

In [40]:

```
# Q.4 Implement a python program to print all natural numbers from 1 to n.
```

```
number = int(input("Enter any number: "))
print("The list of Natural numbers from 1 to {0} are : ".format(number))
for i in range(1, number + 1):
    print(i, end = ' ')
```

Enter any number: 15

The list of Natural numbers from 1 to 15 are :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

In [43]:

Q.5 Implement a python program to print all natural numbers in reverse from n to 1.

```
def PrintReverseOrder(N):
    for i in range(N, 0, -1):
        print(i, end = " ");
if __name__ == '__main__':
    N = 7;
    PrintReverseOrder(N);
```

7 6 5 4 3 2 1

In [44]:

Q.6 Implement a python program to print multiplication table of user entered number.

```
num = int(input("Number: "))
for i in range(1, 11):
    print(num, 'x', i, '=', num * i)
```

```
Number: 7
7 x 1 = 7
7 x 2 = 14
7 x 3 = 21
7 x 4 = 28
7 x 5 = 35
7 x 6 = 42
7 x 7 = 49
7 x 8 = 56
7 x 9 = 63
7 x 10 = 70
```

In [45]:

Q.7 Implement a python program to generate a fibonacci sereies.(e.g. 1 1 2 3 5 8 ----).

```
num = 7
factorial = 1
if num < 0:
    print("Sorry, factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
    for i in range(1, num + 1):
        factorial = factorial * i
        print("The factorial of",num,"is",factorial)
```

```
The factorial of 7 is 1
The factorial of 7 is 2
The factorial of 7 is 6
The factorial of 7 is 24
The factorial of 7 is 120
The factorial of 7 is 720
The factorial of 7 is 5040
```

In [6]:

```

""" Q.9 Generate the following pattern(by accepting no. of iterations from user)
    1
    1 2
    1 2 3
    1 2 3 4."""

rows = int(input("Enter the numbers of rows: "))
for i in range(1, rows+1):
    for j in range(1, i + 1):
        print(j, end=' ')
    print(" ")

```

Enter the numbers of rows: 5

```

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

```

In [9]:

```

""" Q. 10 Generate the following pattern(by accepting no. of iterations from user)
    *
    * *
    * * *
    * * * *
    * * * * ."""

rows = int(input("Enter the no of rows: "))
for i in range(0, rows):
    for j in range(0, i + 1):
        print("* ", end="")
    print()

```

Enter the no of rows: 5

```

*
* *
* * *
* * * *
* * * * *

```