

# BSIT 1

## SEMESTER

### PYTHON-(.PY)



Prof:Ahmad Nawaz ul Ghani

# Topic wise Programs:

Question no 1: Write a program to input name:

```
1 print("shamama sarwar")
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

[Done] exited with code=0 in 0.086 seconds

[Running] python -u "c:\Users\hp\Desktop\hamna\name.py"

shamama sarwar

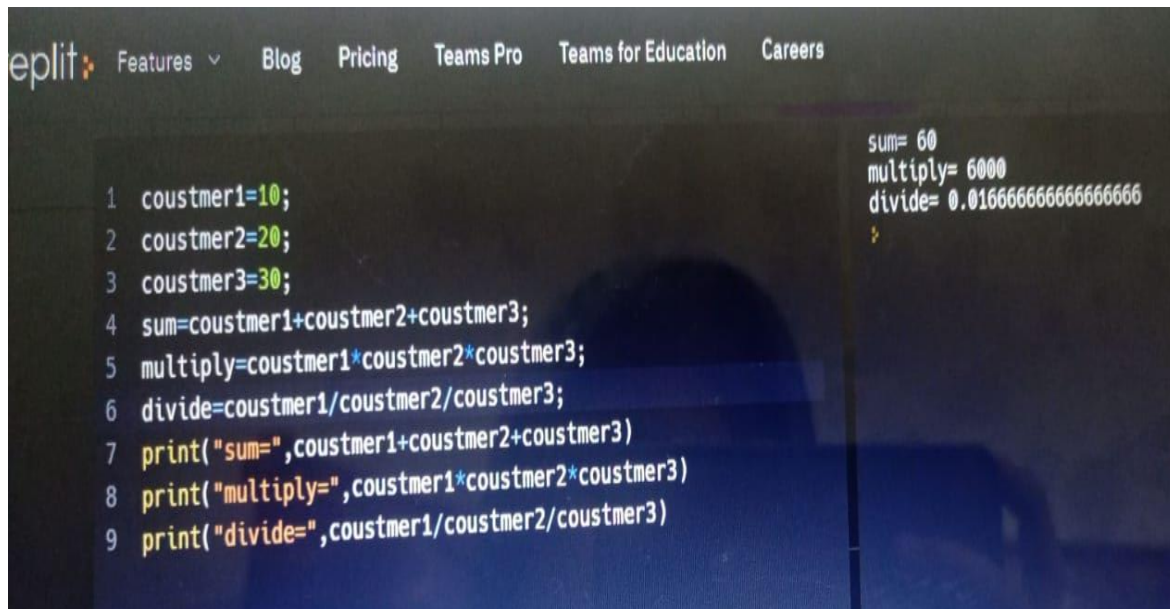
Question no 2: Write a program to take input from user show sum:

Python Run

```
1 a=int(input("enter 1 no:"))
2 b=int(input("enter 2 no:"))
3 print("sum=", (a+b))
4
```

enter 1 no:30  
enter 2 no:45  
sum= 75

Question no 3: Write a program for multiply, divide, sum by taking input from user.

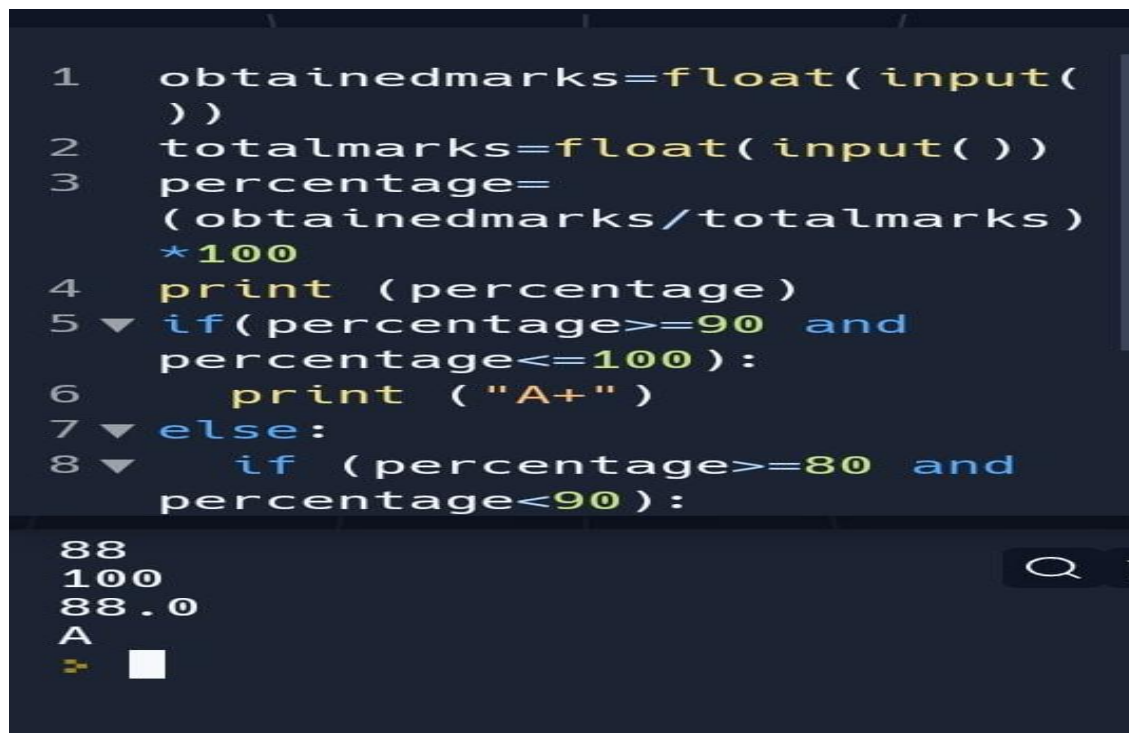


```
eplit: Features ▾ Blog Pricing Teams Pro Teams for Education Careers

1  coustmer1=10;
2  coustmer2=20;
3  coustmer3=30;
4  sum=coustmer1+coustmer2+coustmer3;
5  multiply=coustmer1*coustmer2*coustmer3;
6  divide=coustmer1/coustmer2/coustmer3;
7  print("sum=",coustmer1+coustmer2+coustmer3)
8  print("multiply=",coustmer1*coustmer2*coustmer3)
9  print("divide=",coustmer1/coustmer2/coustmer3)

sum= 60
multiply= 6000
divide= 0.016666666666666666
```

Question no 4: Write a program to take percentage and Grade.



```
1  obtainedmarks=float(input(
   ))
2  totalmarks=float(input())
3  percentage=
   (obtainedmarks/totalmarks)
   *100
4  print (percentage)
5  ▼ if (percentage>=90 and
   percentage<=100):
6      print ("A+")
7  ▼ else:
8  ▼     if (percentage>=80 and
   percentage<90):

88
100
88.0
A
➤
```

```
5 ▼ if (percentage >= 90 and
    percentage <= 100):
6     print ("A+")
7 ▼ else:
8 ▼     if (percentage >= 80 and
    percentage < 90):
9         print ("A")
10 ▼     else:
11 ▼         if (percentage >= 70 and
    percentage < 80):
12             print ("B")
13 ▼         else:
14             print ("F")

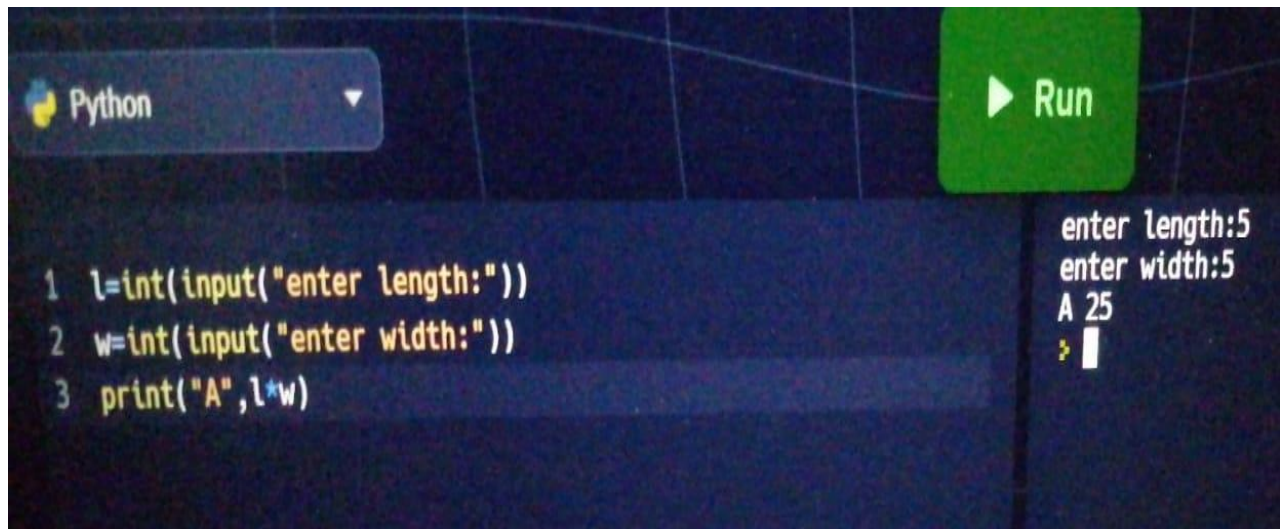
88
100
88.0
A
>
```

Question no 5: Program for square root:

```
IdenticalSilentVisitor
main.py
1 client=int(input())
2 print("square root=",client**3)
```

```
replit.com
IdenticalSilentVisitor
25
square root= 15625
>
```

Question no 6: program for Area:

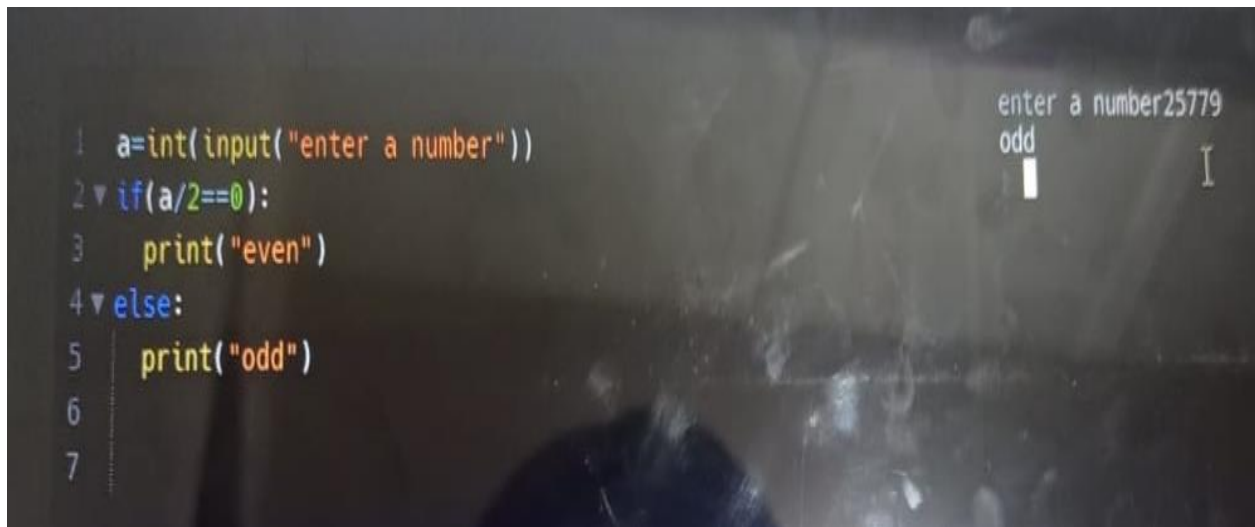


```
Python ▶ Run

1 l=int(input("enter length:"))
2 w=int(input("enter width:"))
3 print("A",l*w)

enter length:5
enter width:5
A 25
```

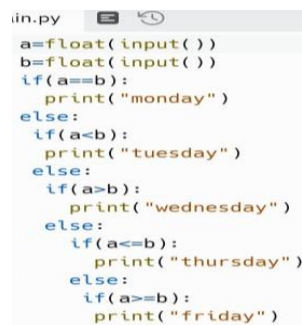
Question no 7: Program for Even or odd:



```
1 a=int(input("enter a number"))
2 if(a/2==0):
3     print("even")
4 else:
5     print("odd")
6
7

enter a number25779
odd
```

Question no 8: Print days of week using if else:



```
iin.py
a=float(input())
b=float(input())
if(a==b):
    print("monday")
else:
    if(a<b):
        print("tuesday")
    else:
        if(a>b):
            print("wednesday")
        else:
            if(a==b):
                print("thursday")
            else:
                if(a>=b):
                    print("friday")
```

```
1 start=int(input("enter a value:"))
2 for number in range(2,11):
3     if(number,"*",start,"="):
4         print(start,"*",number,"=",number*start)
5         number=number+1
```

enter a value:3

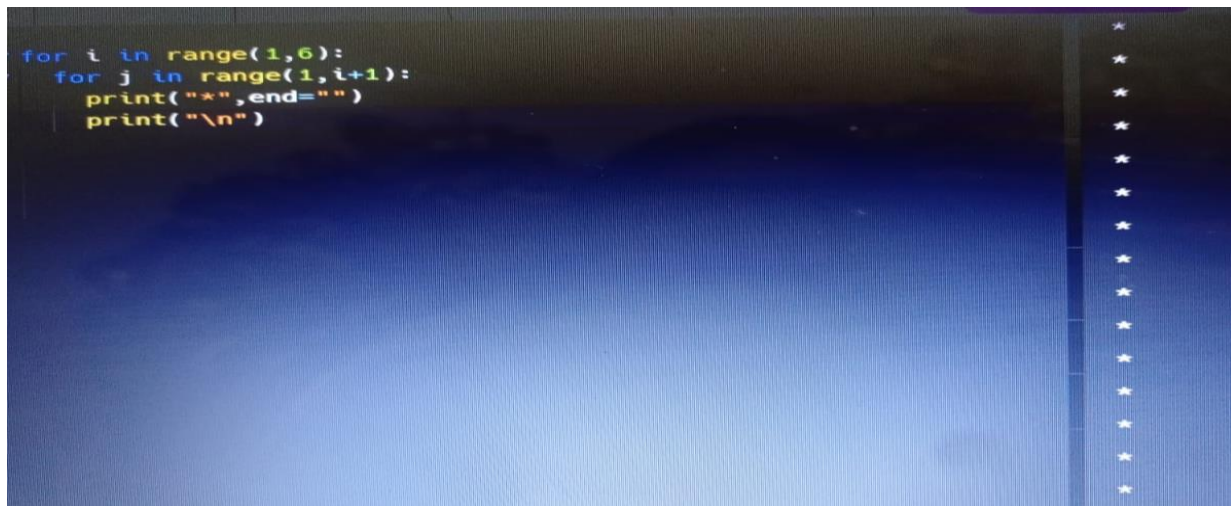
3 \* 2 = 6  
 3 \* 3 = 9  
 3 \* 4 = 12  
 3 \* 5 = 15  
 3 \* 6 = 18  
 3 \* 7 = 21  
 3 \* 8 = 24  
 3 \* 9 = 27  
 3 \* 10 = 30

[illegible]



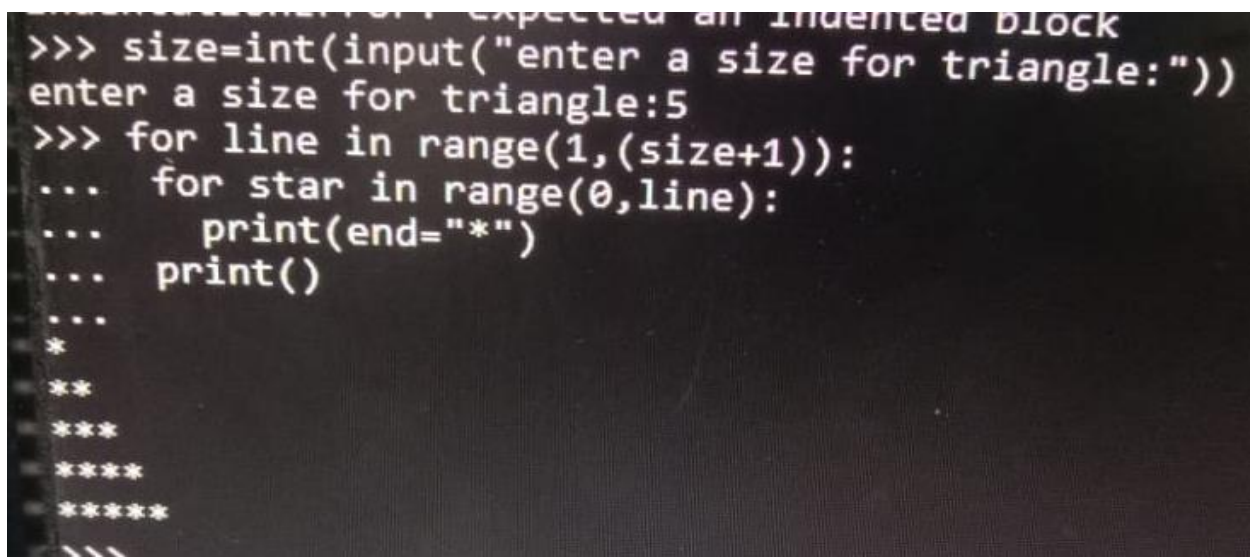
Question no 11: program for print stars in one line.

```
for i in range(1,6):
    for j in range(1,i+1):
        print("*",end="")
    print("\n")
```



Question no 11: program for right triangle using loop .

```
>>> size=int(input("enter a size for triangle:"))
enter a size for triangle:5
>>> for line in range(1,(size+1)):
...     for star in range(0,line):
...         print(end="*")
...     print()
...
*
**
***
****
*****
>>>
```



```
>>> size=int(input("enter a size for triangle:"))
enter a size for triangle:7
>>> for line in range(1,(size+1)):
...     for space in range(0,((size+1)-line)):
...         print(end=" ")
...     for space in range(0,line):
...         print(end="*")
...     print()
...
...     *
...     **
...     ***
...     ****
...     *****
...     ******
...     *******
...     ******
...     *****
...     ****
...     ***
...     **
...     *
```

Question no 12: program for calendar.

```
1 #program to display calendar
2 import calendar
3 year=2022
4 month=7
5 print(calendar.month(year,month))
6 print('10 is my birth date')
```

July 2022						
Mo	Tu	We	Th	Fr	Sa	Su
					1	2
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

10 is my birth date

Question no 13: program for game rock paper scissor.

```
1 #program for Rock Paper Scissor game by using if-else if
  statement.
2 party1=int(input("enter a value:"))
3 party2=int(input("enter a value:"))
4 if(party1==party2):
5     print("tie")
6 elif(party1=="rock"):
7     if(party2=="scissor"):
8         print("rock smashes scissor!you win!")
9 elif(party1=="paper"):
10    if(party2=="rock"):
11        print("scissor cuts paper!you loss!")
12 elif(party1=="paper"):
13    if(party2=="scissor"):
14        print("Scissor cuts paper!You win!")
15 else:
16    print("Rock smashes scissor! you lose!")
```

enter a value:45  
enter a value:64  
Rock smashes scissor! you lose!



Question no 14: program to check type of variable.

```
#program to check type of variable  
a=7.5  
print(type(a))
```

```
<class 'float'>  
>
```

Question no 15: program to check the length of variable.

```
1 #check length of variable  
2 b= [1,2,3,4,5,6,7,8,9,10]  
3 print(len(b))
```

```
10  
=> □
```

Question no 16: use of slicer in program.

```
1 #python code to slicing value
2 #by using slicer we able to skip value
3 a="hamna"
4 c=a[0:4:1]
5 print(c)
```



hamn

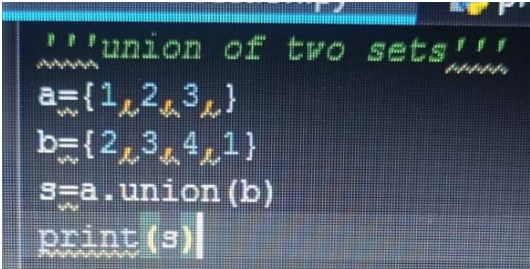
Question no 17: python code slicing with double ratio.

```
main.py
1 #python code to slice with double ratio
  sign
2 a="hamna"
3 #0 specify the 1 number
4 #and 3 number can be taken after taking
  previous value
5 c=a[0::3]
6 print(c)
7
```



hn

Question no 18: Python code for union of two sets.



```
'''union of two sets'''
a={1,2,3}
b={2,3,4,1}
s=a.union(b)
print(s)
```

union and interse  
C:\Users\star\PycharmProjects\he  
{1, 2, 3, 4}  
Process finished with exit code 0

Question no 19: program for diamond.

```
main.py
1  n=5
2  for i in range(n-1):
3      for j in range(i,n):
4          print(" ",end=" ")
5      for j in range(i):
6          print("*",end=" ")
7      for j in range(i+1):
8          print("*",end=" ")
9      print()
10 for i in range(n):
11     for j in range(i+1):
12         print(" ",end=" ")
13     for j in range(i,n-1):
14         print("*",end=" ")
15     for j in range(i,n):
16         print("*",end=" ")
17     print()
```

```

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

Question no 20: Program for half diamond.

```
1 n=int(input("enter size of trinagle:"))
2 for i in range (n):
3     for j in range (i+1):
4         print("*",end=" ")
5     for j in range (i,n):
6         print(" ",end=" ")
7     print()
8 for i in range(n):
9     for j in range(i,n):
10        print("*",end=" ")
11    for j in range(i+1):
12        print(" ",end=" ")
13    print()
```

enter size of trinagle:7

```
*
* *
* * *
* * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * *
* * *
* *
*
> |
```

Question no 21: Program for vertical rectangle.

```
1 size=int(input("enter a size for box:"))
2 for line in range (1,(size+1)):
3     if((line == 1)or(line == size)):
4         for star in range (1,size+1):
5             print(end="*")
6         print()
7     else:
8         print(end="*")
9         for space in range(1,(size-1)):
10            print(end=" ")
11        print("*")
```

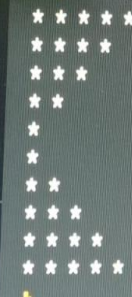
enter a size for box:7

```
*****
*      *
*      *
*      *
*      *
*      *
*****
> |
```




Question no 22: program for half Outer half diamond.

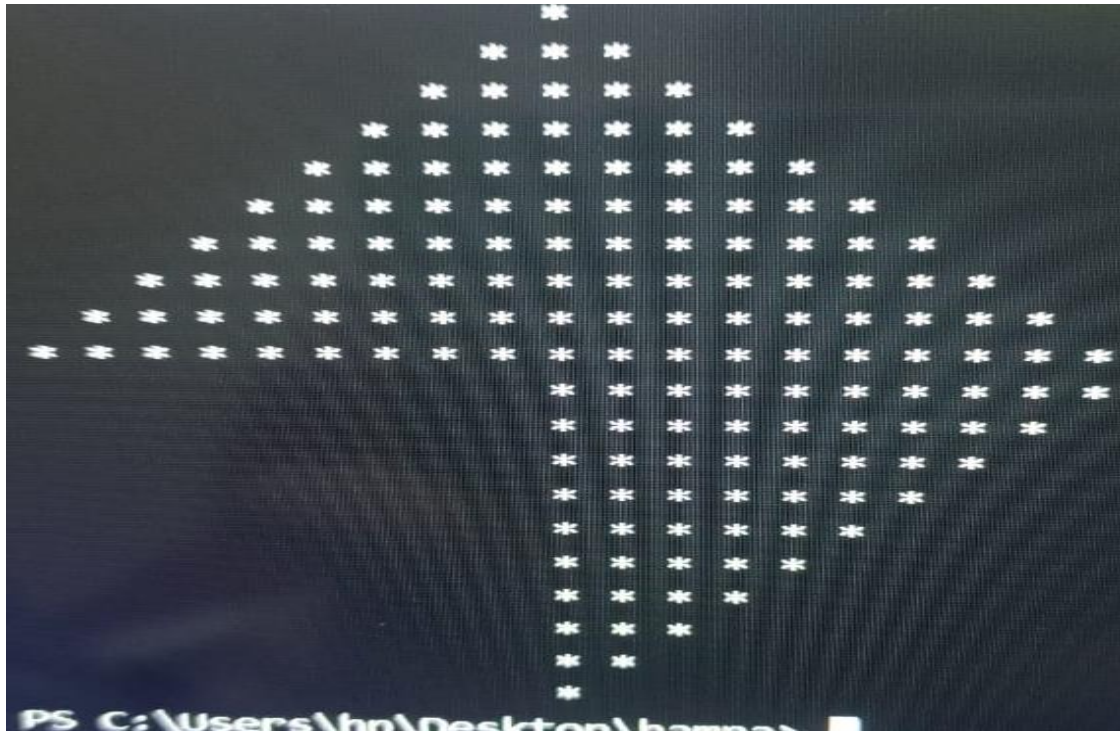
```
1 n=5
2 for i in range(n):
3     for j in range(i,n):
4         print("*",end=" ")
5     for j in range(i):
6         print(" ",end=" ")
7     for j in range(i+1):
8         print("",end=" ")
9     print()
10 for i in range(n):
11     for j in range(i+1):
12         print("*",end=" ")
13     for j in range(i,n-1):
14         print(" ",end=" ")
15     for j in range(i,n):
16         print(" ",end=" ")
17     print()
```



Question no 23: program for 1/3 diamond.

```
n=10
for i in range(n):
    # for upper hill station.
    for j in range(i,n):
        print(" ",end=" ")
    for j in range(i):
        print("*",end=" ")
    for j in range(i+1):
        print("*",end=" ")
    print()
1 for i in range(n):
2     for j in range(i+1):
3         print(" ",end=" ")
4     for j in range(i,n-1):
5         print(" ",end=" ")
6     for j in range(i,n):
7         print("*",end=" ")
8     print()
```





Question no 24: Program right triangle with counting.

```
1  a=5
2  ▼ for i in range (1,a+1):
3  ▼     for j in range (1,i+1):
4         print(j,end=" ")
5         print()
```

```
1
12
123
1234
12345
➤
```

Question no 25: Program for numbers diamond.

```
n=10
for i in range(n-1):
    # code for outer hill station first (i-n) then apply increment in line.
    for j in range(i,n):
        print(" ",end=" ")
    for j in range(i):
        print(j,end=" ")
    for j in range(i+1):
        print(j,end=" ")
    print()
# code for lower hill station first increment then decrement then(i-n)
#in line
for i in range(n):
    for j in range(i+1):
        print(" ",end=" ")
    for j in range(i,n-1):
        print(j,end=" ")
    for j in range(i,n):
        print(j,end=" ")
    print()
```

A black and white photograph of a 10x10 grid of numbers, likely a multiplication table, displayed on a dark background. The numbers are arranged in a triangular pattern, with the top row containing a single '0' and the bottom row containing a single '9'. The numbers are white and the background is dark.



Question no 26: Program for take input from user store in index then tell even or odd.

```
1 size = int(input("Enter the size of the array: "))
2 array = [0,0,0,0,0,0,0,0,0,...]
3 for index in range(0, size):
4     print("Enter the value of ", index, " of yhe array:",
        end = " ")
5     array[index] = int(input())
6 for index in range(0, size):
7     if(array[index] % 2 == 0):
8         print("the value of the ", index, "of the array is
        even and the value is: ", array[index])
9     else:
10        print("the value on the ", index, "of the array is
        odd and the value is:", array[index])
```

Enter the size of the array: 5  
Enter the value of 0 of yhe array: 1  
Enter the value of 1 of yhe array: 2  
Enter the value of 2 of yhe array: 3  
Enter the value of 3 of yhe array: 4  
Enter the value of 4 of yhe array: 5  
the value on the 0 of the array is odd and the value is: 1  
the value of the 1 of the array is even and the value is: 2  
the value on the 2 of the array is odd and the value is: 3  
the value of the 3 of the array is even and the value is: 4  
the value on the 4 of the array is odd and the value is: 5

Question no 27: Program use of append in array.

```
1 myArray = [0,0,0,0,0,0,0,0,0,0]
2 for index in range(0, 10):
3     myArray[index]= (index + 1)* 2
4     myArray.append("PF")
5     myArray.append("Array")
6 for element in myArray:
7     print(element)
8
```

2  
4  
6  
8  
10  
12  
14  
16  
18  
20  
PF  
Array



Question no 28: program use of pop in code.

```
1  myArray = [0,0,0,0,0,0,0,0,0,0]
2  ▼ for index in range(0, 10):
3      myArray[index]= (index + 1)* 2
4      myArray.append("PF")
5      myArray.append("Array")
6      removedItem = myArray.pop(0)
7      print("Removed Item:",
            removedItem)
8  ▼ for element in myArray:
9      print(element)
10
```

Removed Item: 2  
4  
6  
8  
10  
12  
14  
16  
18  
20  
PF  
Array

Question no 29: code for sorting.

```
1  array=[2,22,24,26,28,4,6,8,10,12,14,16,18,20]
2  array.sort()
3  print(array)
```

[2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28]

Question no 30: code for reverse.

```
1 array=[2,22,24,26,28,4,6,8,10,12,14,16,18,20]
2 array.sort()
3 array.reverse()
4 print(array)
```

[28, 26, 24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2]

Question no 31:code for clear.

```
1 array=[2,22,24,26,28,4,6,8,10,12,14,16,18,20]
2 array.sort()
3 array.reverse()
4 array.clear()
5 print(array)
```

[]

Question no 32: 2 dimensional array.

```
Arrays.py > 2 dimensional array.py > ...
1 from array import *
2 arr=[[1,2,3],[4,5,6]]
3 for i in arr:
4     print(i,end=" ")
5 print()
```

PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL

PS C:\Users\hp\Desktop\hamna> & C:/Python311/python.exe "c:/Users/hp/Desktop/hamna/Arrays.py/2 dimensional array.py"

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

PS C:\Users\hp\Desktop\hamna>

Question no 32: code for velocity, distance.

```
1 def calculatevelocity(distance,time):
2     return distance/time
3 def calculatedistance(velocity,time):
4     return velocity*time
5 def calculatetime(velocity,distance):
6     return distance/velocity
7 option=input().lower()
8 if option=="velocity":
9     distance=float(input())
10    time=float(input())
11    print("velocity=",calculatevelocity(distance,time))
12 elif option=="distance":
13    velocity=float(input())
14    time=float(input())
15    print("distance=",calculatedistance(velocity,time))
16 elif option=="time":
17    distance=float(input())
18    velocity=float(input())
19    print("time=",calculatetime(distance,velocity))
20 else:
21    print("you have entered an invalid option")
```

34/5  
you have entered an invalid option

Question no 33: code for even or odd using function.

```
Python
def evenorodd(number):
    if number%2==0:
        print("the number is even:",number)
    else:
        print("the number is odd:",number)
evenorodd(33)
evenorodd(2)
evenorodd(7)
```

the number is odd: 33  
the number is even: 2  
the number is odd: 7  
>

Question no 34: number is negative or positive using function.

```
1 def positiveornegative(number):
2     if(number>0):
3         print("number is positive",number)
4     else:
5         print("number is negative",number)
6 integer=int(input("entr the value"))
7 positiveornegative(integer)
8 number=int(input("enter the value"))
9 positiveornegative(number)
10
11
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

PS C:\Users\hp\Desktop\hamna> & C:/Python311/python.exe "c:/Users/hp/Desktop/hamna/Arra  
entr the value-1  
number is negative -1  
enter the value2  
number is positive 2  
PS C:\Users\hp\Desktop\hamna>

Question no 35: display day in month using function.

```

1 def numberofdaysinmonth(monthname):
2     if( monthname == "jan" or monthname == "march" or monthname == "may"
3         or monthname == "july" or monthname == "aug" or monthname == "oct" or
4         monthname == "dec"):
5         return 31
6     elif monthname == "feb":
7         return 28
8     elif monthname == "apr" or monthname == "june" or monthname == "sep" or monthname == "
9         return 30
10    else:
11        return 0
12    monthname=(str(input("enter the value:")))
13    days=numberofdaysinmonth(monthname)
14    if days == 0:
15        print("you have entered an invalid month")
16    else:
17        print(monthname,"has",days,"days")

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

PS C:\Users\hp\Desktop\hamna> & c:/Python311/python.exe "c:/Users/hp/Desktop/hamna/Arrays.py/funtion program.py/funtion 7.py"  
enter the value:dec  
dec has 31 days  
PS C:\Users\hp\Desktop\hamna> |

Question no 36: show sum using Function.

```
1 def sum (a,b):
2     print(' Sum of {a} and {b}',(a+b))
3     return a+b
4 a=float(input("enter the value:"))
5 b=float(input("enter the value:"))
6 sum(a,b)
```

PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL

```
PS C:\Users\hp\Desktop\hamna> & C:/Python311/python.exe "c:/Users/hp/Desktop/hamna/Arrays.py/function program.py/function 10 .py"
enter the value:4.5
enter the value:6.8
Sum of {a} and {b} 11.3
PS C:\Users\hp\Desktop\hamna> █
```



Question no 37: percentage using function.

```
Arrays.py > function program.py > function 12.py > ...  
1 def percentage (obtain,total):  
2     print("percentage of argument=", (obtain/total*100))  
3     return obtain/total*100  
4 obtain=int(input("enter the value:"))  
5 total=int(input("enter the value:"))  
6 percentage(obtain,total)  
_ |  
PROBLEMS 5 OUTPUT DEBUG CONSOLE TERMINAL  
PS C:\Users\hp\Desktop\hamna> & C:/Python311/python.exe "c:/Users/hp/Desktop/hamna/Arrays.py/function program.py/function 12.py"  
enter the value:150  
enter the value:200  
percentage of argument= 75.0  
PS C:\Users\hp\Desktop\hamna> []
```

Question no 38: Average and multiplication using function.

```
1 def average (obtain,total):  
2     print("average of argument=", (obtain/total))  
3     return obtain/total  
4 obtain=int(input("enter the value:"))  
5 total=int(input("enter the value:"))  
6 average(obtain,total)  
7 def multiplication (a,b):  
8     print("multiplication of {a} and {b}=", (a*b))  
9     return a*b  
10 a=int(input("enter the value:"))  
11 b=int(input("enter the value:"))  
12 multiplication (a,b)  
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL  
enter the value:120  
enter the value:150  
average of argument= 0.8  
enter the value:12  
enter the value:13  
multiplication of {a} and {b}= 156  
PS C:\Users\hp\Desktop\hamna> []
```

Question no 39: Reverse of stored array 1 in second array.

```
File Edit Selection View Go Run Terminal Help
array4.py - hamna - Visual Studio Code

function 3.py 2 dimension array 2.py array4.py
Arrays.py > array4.py > ...
1 # Dry Run of Question no 2
2 forward= [None]*5
3 reverse= [None]*5
4 #first forward used for define or initialization
5 # reverse used for define or initialization
6 backward=4
7 for start in range(5):
8     forward[start]=int(input("enter the value:"))
9     reverse[backward]=forward[start]
10    #reverse[backward]=this show coder want to say show reverse of that value that user input
11    backward=backward-1
12    #backward-1 is similiar like we increment for go to new line
13 print()
14 print( "first array values:")
15 # 13 line print used to show first array value
16 for start in range(5):
17     # line 19 range used to show how many rows
18     print(forward[start])
19 print()
20 print("second array values")
21
22 for start in range(5):
23     print(reverse[start])
24 print()
25
```

Question no 40: Display ph value is acidic is basic or acidic.

```
1 start=int(input("enter the value:"))
2 end=int(input("enter the value:"))
3 for ph in range(start,end+1):
4     if(ph<7):
5         print("acidic")
6     elif(ph>7):
7         print("basic")
8     elif(ph==7):
9         print("neutral")
10    else:
11        print("invalid")

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS C:\Users\hp\Desktop\hamna> & C:/Python311/python.exe "c:/Users/hp/Desktop/hamna/Arrays.py/funtion program.py/funtion 4.py"
enter the value:1
enter the value:10
acidic
acidic
acidic
acidic
acidic
acidic
neutral
basic
basic
basic
PS C:\Users\hp\Desktop\hamna>
```

Question no 41: Use of class for set age.

```
1 class student:
2     def setage(self,age):
3         if age>0:
4             self. age=age
5         else:
6             self. age =1
7     def getage(self):
8         return self.age
9 objectstudent=student()
10 objectstudent.setage(int(input("enter the age:")))
11 print("age",objectstudent.getage())
12
```

PROBLEMS DEBUG CONSOLE TERMINAL

PS C:\Users\hp\Desktop\hamna> & C:/Python311/python.exe "c:/Users/hp/Desktop/hamna/class and object/classes 1.py"  
enter the age:18  
age 18  
PS C:\Users\hp\Desktop\hamna> |

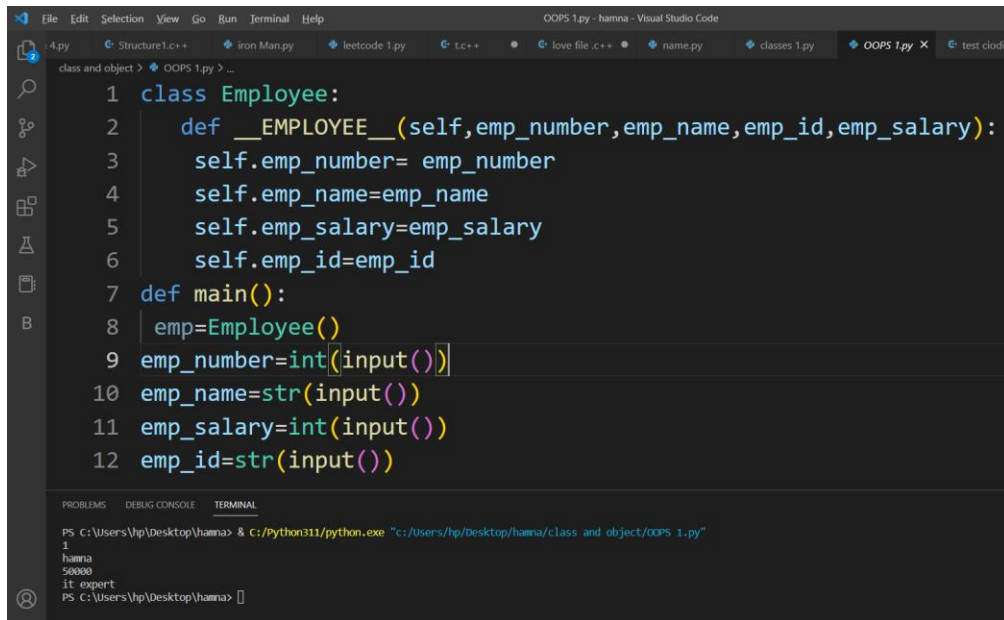
Question no 42: Table using function.

```
1 def table(number = 2,start = 1,end = 11):
2     for multiplier in range(1,11):
3         print(number,"*",multiplier,"=", (number*multiplier))
4 table()
5 table(4)
6 table(6)
7 table(10)
8 table(15)
```

PROBLEMS DEBUG CONSOLE TERMINAL

PS C:\Users\hp\Desktop\hamna> & C:/Python311/python.exe "c:/Users/hp/Desktop/hamna/class and object/classes 2.py"  
2 \* 1 = 2  
2 \* 2 = 4  
2 \* 3 = 6  
2 \* 4 = 8  
2 \* 5 = 10  
2 \* 6 = 12  
2 \* 7 = 14  
2 \* 8 = 16  
2 \* 9 = 18  
2 \* 10 = 20  
4 \* 1 = 4  
4 \* 2 = 8  
4 \* 3 = 12

Question no 43: program for classes name employee.



The screenshot shows a Visual Studio Code editor with a Python file named 'OOPS 1.py'. The code defines an 'Employee' class with attributes 'emp\_number', 'emp\_name', 'emp\_salary', and 'emp\_id'. A 'main' function takes user input for these attributes and creates an 'Employee' object. The terminal shows the execution of the program, displaying the input values: 'hamna', '50000', 'it expert', and '50000'.

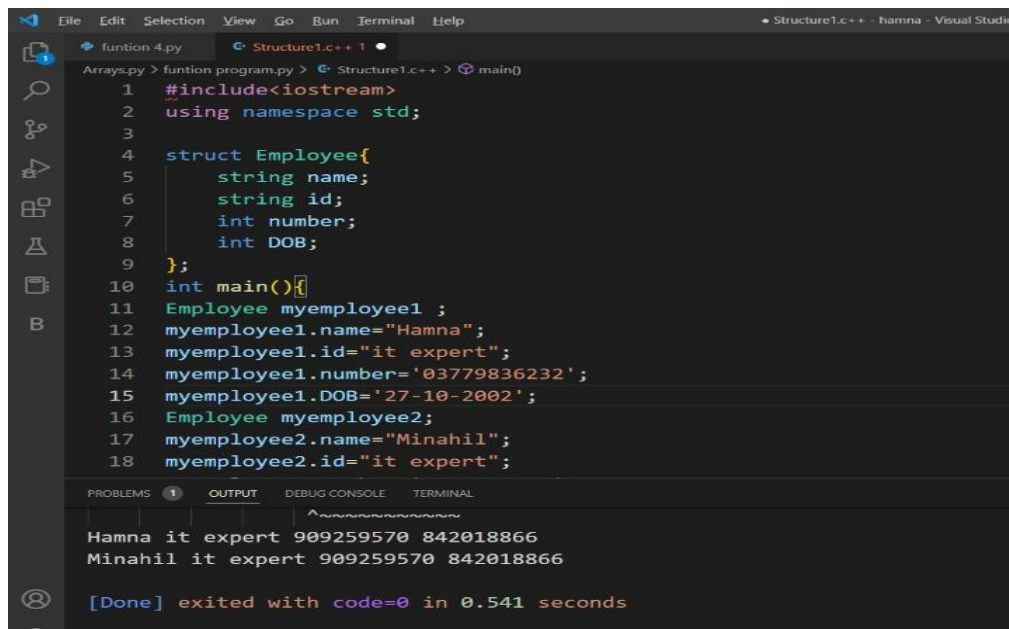
```
1 class Employee:
2     def __EMPLOYEE__(self, emp_number, emp_name, emp_id, emp_salary):
3         self.emp_number= emp_number
4         self.emp_name=emp_name
5         self.emp_salary=emp_salary
6         self.emp_id=emp_id
7 def main():
8     emp=Employee()
9     emp_number=int(input())
10    emp_name=str(input())
11    emp_salary=int(input())
12    emp_id=str(input())
```

PROBLEMS DEBUG CONSOLE TERMINAL

PS C:\Users\hp\Desktop\hamna> & C:\Python311\python.exe "C:\Users\hp\Desktop\hamna\class and object\OOPS 1.py"

1  
hamna  
50000  
it expert  
50000  
PS C:\Users\hp\Desktop\hamna>

Question no 44: Program for Structures.



The screenshot shows a Visual Studio Code editor with a C++ file named 'Structure1.c++'. The code defines a 'struct Employee' with attributes 'name', 'id', 'number', and 'DOB'. The 'main' function creates two 'Employee' objects, 'myemployee1' and 'myemployee2', and assigns values to their attributes. The terminal shows the execution of the program, displaying the output: 'Hamna it expert 909259570 842018866' and 'Minahil it expert 909259570 842018866'.

```
1 #include<iostream>
2 using namespace std;
3
4 struct Employee{
5     string name;
6     string id;
7     int number;
8     int DOB;
9 };
10 int main(){
11     Employee myemployee1 ;
12     myemployee1.name="Hamna";
13     myemployee1.id="it expert";
14     myemployee1.number='03779836232';
15     myemployee1.DOB='27-10-2002';
16     Employee myemployee2;
17     myemployee2.name="Minahil";
18     myemployee2.id="it expert";
```

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL

Hamna it expert 909259570 842018866  
Minahil it expert 909259570 842018866

[Done] exited with code=0 in 0.541 seconds