functions codes

```
1. create a user defined function hello()
   def hello():
     print("heloo from my function")
   hello()
   def heloo(s):
     print("hello from "+s)
   print("hello world")
   heloo("damini")
   a="apeejay"
   heloo(a)
                                                                                    ×
    Python 3.8.2 Shell
    File Edit Shell Debug Options Window Help
   Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In A
    tel)] on win32
   Type "help", "copyright", "credits" or "license()" for more information.
   = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice comp codes\pract
   ice.py
   heloo from my function
   hello world
   hello from damini
   hello from apeejay
   >>>
```

```
2. bubble sort
    def bsort(a):
       for j in range(len(a)-1):
          swap=false
          for i in range(len(a)-j-1):
             if a[i]>a[i+1]:
                a[i],a[i+1]=a[i+1],a[i]
                swap=true
             print("iteration:",j+1,a)
             if swap==false:
                break:
    z=[1,9,11,3,4,5,7]
    bsort(z)
    print("\n\nsorted list:",z)
     Python 3.8.2 Shell
                                                                                                              File Edit Shell Debug Options Window Help
     Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^
     tel)] on win32
     Type "help", "copyright", "credits" or "license()" for more information.
     = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice comp codes\prac4
     .py
     iteration: 1 [1, 9, 11, 3, 4, 5, 7] iteration: 2 [1, 9, 11, 3, 4, 5, 7] iteration: 3 [1, 9, 11, 3, 4, 5, 7] iteration: 4 [1, 9, 11, 3, 4, 5, 7] iteration: 5 [1, 9, 11, 3, 4, 5, 7] iteration: 5 [1, 9, 11, 3, 4, 5, 7]
     iteration: 6 [1, 9, 11, 3, 4, 5, 7]
     SORTED LIST: [1, 9, 11, 3, 4, 5, 7]
     >>>
```

```
3. insertion sort
   def isort(a):
     for i in a:
       j=a.index(i)
       while j>0:
          if a[j-1]>a[j]:
            a[j-1],a[j]=a[j],a[j-1]
          else:
            break
          j=j-1
   z=[1,3,8,54,34,23,78,43,56]
   isort(z)
   print("sorted list:",z)
    Python 3.8.2 Shell
                                                                                      ×
    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    SORTED LIST: [1, 3, 8, 23, 34, 43, 54, 56, 78]
    >>>
```

```
4. fibonacci series
   def fib(n):
     a,b=0,1
     while b<n:
       print(b,end=' ')
       a,b=b,a+b
     print()
   fib(3)
   fib(9)
    Python 3.8.2 Shell
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    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    1 1 2
    1 1 2 3 5 8
    >>>
```

```
5. default argument
   def fun(a='apeejay'): #default argument
     print('i am from '+a)
   fun()
   fun("dps")
                                                                               Х
    Python 3.8.2 Shell
    File Edit Shell Debug Options Window Help
   Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^
   tel)] on win32
   Type "help", "copyright", "credits" or "license()" for more information.
   >>>
   = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
   .py
   i am from apeejay
   i am from dps
   >>>
```

```
6. functions as building blocks
   def mpow(b,p):
     y=b**p
     return y
   def squ(x):
     a=mpow(x,2)
     return a
   n=5
   result=squ(n)+mpow(3,3)
   print(result)
    Python 3.8.2 Shell
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    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    >>>
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    52
    >>>
```

```
7. scope and lifetime variables
   def modify():
     global b;
     x=10
     b=b+10
     x=x+c
     print(x,b,c)
   def read():
     print(x,b,c)
   x=20
   b=40
   c = 30
   modify()
   print("values outside function",x,b,c)
   read()
                                                                                          ×
   Python 3.8.2 Shell
                                                                                   File Edit Shell Debug Options Window Help
   Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
   tel)] on win32
   Type "help", "copyright", "credits" or "license()" for more information.
   >>>
   = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
   .py
   40 50 30
   values outside function 20 50 30
   20 50 30
   >>>
```

```
8. predict the output:
   def calc(num):
     if num >= 5:
       num = num * num
       return num
     else:
       num= num +2
       return num
   def main(a):
     b= calc(a)
     print(" a= ", a)
     print("b=",b)
   main(5)
   main(4)
    Python 3.8.2 Shell
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    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
   Type "help", "copyright", "credits" or "license()" for more information.
   = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice comp codes\prac4
    .py
    a= 5
   b= 25
   b= 6
   >>>
```

```
9. predict the output:
   def magic(n1=1, n2=2):
     n1=n1+n2
     n2+=1
     print(n1,n2)
   magic()
   magic(2,1)
   magic(3)
                                                                                  \times
    Python 3.8.2 Shell
    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    3 3
    3 2
    5 3
    >>>
```

10. positional argument

```
def my_function(fname, lname):
    print(fname + " " + lname)
my_function("mradula", "pandey")
```

```
Python 3.8.2 Shell — X

File Edit Shell Debug Options Window Help

Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In tel)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>> = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4.py

Mradula Pandey
>>> |
```



```
12. to display the factorial of a number
   def fact(n):
     t=1
     for i in range(1,n+1):
       t*=i
     print(t)
   y=int(input("enter a number"))
   fact(y)
                                                                                   ×
    Python 3.8.2 Shell
    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
   Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
   .py
   enter a number6
   720
   >>>
```

```
13. to display sum of number between 1 to n.
   def sumn(n):
     s=0
     for i in range(1,n+1):
       s+=i
     print("sum:",s)
   w=int(input("enter a number"))
   sumn(w)
                                                                               X
    Python 3.8.2 Shell
    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^ a)
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
                                                                                            en:
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    enter a number7
    sum : 28
    >>>
```

14. to display the sum of elements in a list.

```
def suml(n):
    s=0
    if n==[]:
        s=0
    else:
        for i in n:
        s+=i
    print("sum :",s)
suml([1,2,3,4,5,6])
```

```
Python 3.8.2 Shell — X

File Edit Shell Debug Options Window Help

Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In tel)] on win32

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>>>

= RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4.py

sum : 21
>>> |
```

```
15. to display the sum of digits.
   def sumd(n):
     s=0
     for i in str(n):
       s+=int(i)
     print("sum of digit:",s)
   sumd(123387)
    Python 3.8.2 Shell
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    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    sum of digit: 24
    >>>
```

```
16. linear search
   def lsearch(plist,e):
     position=-1
     for i in range(0,len(plist)):
        if (plist[i] == e):
          position=i
          break;
     return position
   mylist=[1,2,3,4,10,40,60,70,100]
   element=4
   pos=lsearch(mylist,element)
   if pos != -1:
     print("element found at index %d"%pos)
   else:
     print("element not found in list collection")
    Python 3.8.2 Shell
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    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    >>>
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    element found at index 3
    >>>
```

```
17. binary search
   def bsearch(plist,x):
     low=found=0
     high=len(plist)
     pos=-1
     while low<=high:
        mid=(low+high)//2
       if plist[mid]==x:
          found=1
          pos=mid
          break
        elif plist[mid]<x:
          low=mid+1
        else:
          high=mid-1
     return(pos)
   mylist=[1,2,3,4,10,40,60,70,100]
   element=4
   pos=bsearch(mylist,element)
   if pos != -1:
     print("element found at index %d"%pos)
   else:
     print("element not found in the list")
     Python 3.8.2 Shell
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    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    element found at index 3
    >>>
```

```
18. to display x y.
   def ppow(x,y):
     t=1
     if y==0:
       print("answer is 1")
     else:
       for i in range(y):
         t*=x
       print("answer is",t)
   m=int(input("enter base number"))
   n=int(input("enter power number"))
   ppow(m,n)
    Python 3.8.2 Shell
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    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    >>>
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    enter base number5
    enter power number6
    answer is 15625
    >>>
```

```
19. wap to compute and print the square of n numbers
   def sq(n):
     for i in range(n+1):
       print("square of ",i,"is ",i**2)
   sq(0)
   print()
   sq(2)
   print()
   sq(6)
   Python 3.8.2 Shell
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   File Edit Shell Debug Options Window Help
   Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
   tel)] on win32
   Type "help", "copyright", "credits" or "license()" for more information.
   >>>
   = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice comp codes\prac4
   square of 0 is 0
   square of 0 is 0
   square of l is l
   square of 2 is 4
   square of 0 is 0
   square of 1 is 1
   square of 2 is 4
   square of 3 is 9
   square of 4 is 16
   square of 5 is 25
   square of 6 is 36
   >>>
```

```
20. update method
   def update(x):
     print(id(x))
     x=5
     print(id(x))
     print("value of x: ",x)
   a=10
   print(id(a))
   update(a)
   print("the value of a:",a)
    Python 3.8.2 Shell
                                                                                   ×
    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    1744238656
    1744238656
    1744238576
    value of x: 5
    the value of a: 10
    >>>
```

```
21. passing list to functions
   def update(lst):
     print(id(lst))
     Ist[1]=8
     print(id(lst))
     print("value of x:",lst)
   lst=[10,12,13]
   print(id(lst))
   update(lst)
   print("value of a :",lst)
                                                                                      ×
    Python 3.8.2 Shell
    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    56425064
    56425064
    56425064
    value of x: [10, 8, 13]
    value of a : [10, 8, 13]
    >>>
```

```
22. postitional argument
   def add(x,y):
     c=x+y
     print(c)
     return c
   add(y=4,x=9)
                                                                                     Х
    Python 3.8.2 Shell
                                                                              File Edit Shell Debug Options Window Help
   Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
   tel)] on win32
   Type "help", "copyright", "credits" or "license()" for more information.
   >>>
   = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
   .py
   13
   >>>
```

```
23. default argument
def fb(name,age=17):
    print(name)
    print(age)
fb("mradula")

Python 3.8.2 Shell

File Edit Shell Debug Options Window Help
```

```
File Edit Shell Debug Options Window Help

Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In tel)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>>

= RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
.py
mradula
17
>>> |
```

```
24. variable length argument
   def add(*b):
     c=0
     for i in b:
       c+=1
     print(c)
     return c
   add(2,3,4,43,34,56,65,765,7532)
    Python 3.8.2 Shell
    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    >>>
```

```
25. a python program to access a function inside a function
   def test(a):
     def add(b):
       nonlocal a
       a+=1
       return a+b
     return add
   func=test(5)
   print(func(5))
    Python 3.8.2 Shell
                                                                                   Х
    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    11
    >>>
```

```
26. to check whether a number is perfect or not
   def perfect(n):
     sum=0
     for x in range(1,n):
       if n%x==0:
         sum+=x
       return sum==n
   print(perfect(6))
    Python 3.8.2 Shell
                                                                                   File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    False
    >>>
```

```
27. a python program to print the even numbers from a given list.
   def even(n):
     enum=[]
     for i in n:
       if i%2==0:
         enum.append(i)
     print(enum)
     return enum
   I=[1,2,5,6,8,10,12,34,54,55,77]
   print(even(I))
                                                                                          ×
    Python 3.8.2 Shell
                                                                                    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    [2, 6, 8, 10, 12, 34, 54]
    [2, 6, 8, 10, 12, 34, 54]
    >>>
```

28. a python program to reverse a string

```
def reverse(n):
    t="
    for i in n[::-1]:
        t+=i
    print(t)
```

reverse("sanjeev")

```
Python 3.8.2 Shell — — X

File Edit Shell Debug Options Window Help

Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^ tel)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>>

= RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
.py

veegnas
>>> |
```

```
29. a python function to find the maximum of three.
   def max1(x,y):
     if x>y:
       return x
     return y
   def max2(x,y,z):
     return max1(x,max1(y,z))
   print(max2(9,10,-15))
    Python 3.8.2 Shell
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    File Edit Shell Debug Options Window Help
    Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In ^
    tel)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
    = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
    .py
    10
    >>>
```

30. to calculate the arithmatic mean of list elements. def aver(lst): I=len(lst) sum=0 for i in lst: sum+=i return sum/l avrg=[1,4,6,4,3,76,8] print(aver(avrg)) Python 3.8.2 Shell × File Edit Shell Debug Options Window Help Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In A tel)] on win32 Type "help", "copyright", "credits" or "license()" for more information. = RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4 .py 14.571428571428571 >>>

31. program to find the roots of a quadratic equation.

```
def qdf(a,b,c):
d=(b**2-4*a*c)**0.5
return (-b-d)/2*a , (-b+d)/2*a
print(qdf(1,-5,6))
```

```
Python 3.8.2 Shell — X

File Edit Shell Debug Options Window Help

Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In tel)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>>

= RESTART: C:\MradulaClass WorkSheet\class 12\computer\practice_comp_codes\prac4
.py
(2.0, 3.0)
>>>
```