Artificial intelligence

Practical file

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Program 1: Code to store elements in a list

Input code:

```
list = []
n = int(input('Enter the no of elements to be entered in the
list:\n'))
for i in range(0,n):
    print('enter the',i+1,'element')
    temp=input()
    list.append(temp)
print(list)
```

Output:

```
PS H:\digital\python files\code with harry> & C:/Users/User/AppData/Local/Programs/Python/Python310/python.exe "h:/digital/python files/code
with harry/chapter 4/pro1.py"
Enter the no of elements to be entered in the list:
4
enter the 1 element
mango
enter the 2 element
guava
enter the 3 element
apple
enter the 4 element
banana
['mango', 'guava', 'apple', 'banana']
PS H:\digital\python files\code with harry>
```

Program 2: Program to sort the elements of a list

Code:

```
list= []
for i in range(0,6):
    print("Enter the marks of ",i+1,"student")
    temp=int(input())
    list.append(temp)
list.sort()
print(list)
```

Output:

```
Enter the marks of  1 student
25
Enter the marks of  2 student
45
Enter the marks of  3 student
65
Enter the marks of  4 student
10
Enter the marks of  5 student
1
Enter the marks of  6 student
6
[1, 6, 10, 25, 45, 65]
PS H:\digital\python files\code with harry>
```

Program 3: To print the value of the key in dictionaries

Code:

```
dict = {'dog':'kutta','cat':'billi','pig':'suar'}
a = input('Enter the word\n')
print('The meaning of the given word is: ',end="")
print(dict.get(a))
```

Output:

```
PS H:\digital\python files\code with harry> & C:/Users/User/A
with harry/chapter 5/pro1.py"
Enter the word
cat
The meaning of the given word is: billi
PS H:\digital\python files\code with harry>
```

Program 4: To find the greatest no

Code:

```
n1 = int(input('enter the first no '))
n2 = int(input('enter the second no '))
n3 = int(input('enter the third no '))
n4 = int(input('enter the fourth no '))
if (n1 > n2 and n1>n3 and n1>n4):
    print(n1,'is greatest number')
elif (n2 > n1 and n2 > n3 and n2 >n4 ):
    print(n2,'is the greatest number')
elif(n3>n1 and n3>n2 and n3>n4):
    print(n3,'is the greatest no')
else:
    print(n4,' is the greatest no')
```

Output:

```
with harry/chapter6/pro1.py"
enter the first no 56
enter the second no 45
enter the third no 54
enter the fourth no 84
84  is the greatest no
PS H:\digital\python files\code with harry>
```

Program 5: To print what is the grade of a student on the basis of his marks.

Code:

```
marks= int(input('Enter the marks of the student\n'))
if (marks<=100 and marks>90):
    print('grade = extenstion')
elif (marks<=90 and marks>80):
    print('grade = A')
elif (marks<=80 and marks>70):
    print('grade = B')
elif (marks<=70 and marks>60):
    print('grade = C')
elif(marks<=60 and marks>50):
    print('grade = D')
elif(marks<=50 and marks>=0):
    print('fail')
else:
   print('Enter valid marks')
```

Output:

```
with harry/chapter6/pro6.py"
Enter the marks of the student
65
grade = C
PS H:\digital\python files\code with harry> & C:/Users/User/AppData/Local/Programs
with harry/chapter6/pro6.py"
Enter the marks of the student
55
grade = D
PS H:\digital\python files\code with harry> & C:/Users/User/AppData/Local/Programs
with harry/chapter6/pro6.py"
Enter the marks of the student
30
fail
PS H:\digital\python files\code with harry>
```

Program 6: To check whether a number a prime or composit

Code:

```
n = int(input('Enter the no'))
j=0
if (n==1):
    print(n,'is neither prime nor composit')
else:
    for i in range (2,n):
        if n%i == 0:
            j =1
    if j==0:
        print(n,'is prime')
    elif j==1:
        print(n,'is not prime')
```

Output:

```
Enter the no45
45 is not prime
PS H:\digital\python files\code with harry> & C:/Users/U
with harry/chapter7/pro4.py"
Enter the no23
23 is prime
PS H:\digital\python files\code with harry> & C:/Users/U
with harry/chapter7/pro4.py"
Enter the no1
1 is neither prime nor composit
```

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Program 7: Factorial of a number

Code:

```
# factorial of a number using for loop
n = int(input('Enter the no to find its factorial\n'))
fact=1
for i in range (1,n+1):
    fact = fact*i
print('the factorial of the given no is ',fact)
```

Output:

```
Enter the no to find its factorial
6
the factorial of the given no is  720
PS H:\digital\python files\code with harry>
```

Practical 8: Printing the table using function

Code:

```
# to print the multiplication table
def table(a):
    for i in range (10):
        print (a,'*',i+1,'=',a*(i+1))
n = int(input('Enter the number to show the table\n'))
print(table(n))
```

Output:

```
with harry/chapter8/pro8.py"
Enter the number to show the table
5
5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50
None
PS H:\digital\python files\code with harry>
```

Practical 9 : Printing the sum of n natural numbers using recursion

Code:

```
# sum of n natural numbers using recursion
def sum_recursion(n):
    if n==1:
        return 1
    else:
        sum = n + sum_recursion(n-1)
        return sum
s = int(input('Enter the value of n\n'))
print('The value of the sum is',sum_recursion(s))
```

Output:

```
with harry/chapter8/pro4.py"
Enter the value of n
10
The value of the sum is 55
PS H:\digital\python files\code with harry>
```

Practical 10: Greatest of three number using function.

Code:

```
# program to find the greatest of three number
def greater(a,b):
    if a>b:
        return a
    else:
        return b
n1= int(input('Enter the first number\n'))
n2 = int(input('Enter the second number\n'))
n3 = int(input('Enter the third number\n'))
g = greater(n1,n2)
g1 = greater(g,n3)
print(g1,'is the greatest of the given numbers')
```

Output:

```
with harry/chapter8/pro1.py"
Enter the first number
56
Enter the second number
85
Enter the third number
12
85 is the greatest of the given numbers
PS H:\digital\python files\code with harry>
```

Practical 11: To convert from inches to centimeter using function.

Code:

```
# conversion from inches to centimeter
def converter(a):
    return a*2.54
i = int(input('enter the length in inches\n'))
print('the length in centimeter is:',converter(i),'cm')
```

Output:

```
PS H:\digital\python files\code with harry> & C:/Users/User/AppDa
with harry/chapter8/pro6.py"
enter the length in inches
48
the length in centimeter is: 121.92 cm
PS H:\digital\python files\code with harry>
```

Practical 12: square, square root and cube using class object

Code:

```
# class calculator capable of finding square and square root and cube

class calculate:
    def __init__(self,number):
        self.num = number
    def square(self):
        print(f'the square of {self.num} is {self.num**2}')
    def squareroot(self):
        print(f'the squareroot of {self.num} is {self.num**0.5}')
    def cube(self):
        print(f'the cube of {self.num} is {self.num**3}')



a  = calculate(9)
a.square()
a.squareroot()
a.cube()
```

Output:

```
PS H:\digital\python files\code with harry> & C:/User
r10/pro2.py"
the square of 9 is 81
the squareroot of 9 is 3.0
the cube of 9 is 729
PS H:\digital\python files\code with harry>
```