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PYTHON CODES ON RECURSION

Part-1

@the_programming_girl
Telegram id - @coders_place

① Power of a Numbers using Recursion:-

CODE :-

```
def power(a,b):
    if b!=0:
        return a * power(a, b-1)
    else:
        return 1

a=2
b=3
print(a, "to the power", b, "is", power(a,b))
```

OUTPUT

```
2 to the power 3 is 8
```

② Prime Number Using Recursion:-

CODE :-

```
def Prime_Number(n, i=2):
    if n==1:
        return True
```

```
    elif n % i == 0:
        return False
    return Prime_Number(n, i+1)
n = 971
if Prime-Number(n):
    print("Yes", n, "is prime")
else:
    print("No", n, "is not prime")
```

OUTPUT

Yes, 971 is a prime.

3] Largest Element in an array using Recursion in Python.

CODE:

```
def findMaxRec(A,n):
    if (n==1):
        return A[0]
    return max(A[N-1], findMaxRec(A,N-1))
if __name__ == "__main__":
    A = [1, 4, 45, 6, -50, 10, 2]
    n = len(A)
    print(findMaxRec(A, n))
```

OUTPUT

45

4] Smallest Element in an Array

CODE:

```
def findMinRec(A, n):
    if (n==1):
        return A[0]=
```

```
    return min(A[n-1], findMinRec(A, n-1))
if __name__=="__main__":
    A = [1, 4, 45, 6, -50, 10, 2]
    n = len(A)
    print(findMinRec(A,n))
```

OUTPUT
-50

5] HCF of Number Using Recursion

CODE

```
def hcf(a,b):
    if b==0:
        return a
    else:
        return hcf(b, a%b)
first = 23
second = 69
print("HCF of",first,'and',second,'is',
      hcf(first, second))
```


OUTPUT
HCF of 23 and 69 is 23

6] LCM of a Number using Recursion.

CODE

```
def hcf(a,b):
    if b==0:
        return a
    else:
        return hcf(b, a%b)
```

```
def lcm(a,b):
    return (a*b)
first = 23
second = 69
print("Lcm of",first,second,"is",
          lcm(first,second))
```

OUTPUT

Lcm of 23 and 69 is 69

7] Calculate Length of the String using recursion

CODE

```
def length(str):
    if str == "":
        return 0
    return 1 + length(str[1:])
Str = "Prepinprep"
print("length of ",str,"is",length(str))
```


OUTPUT

length of prepinprep is 10

8] Factorial of the number using Recursion.

CODE:

```
def factorial(n):
    if n==0:
        return 1
    return n * factorial(n-1)
num =5
print("Factorial of",num,"is",factorial(num))
```

OUTPUT

Factorial of 5 is 120

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IN
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@the_programming_girl

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Tel id :- @Coders_place