ASSIGNMENT-PYTHON

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1. Python Program for n-th Fibonacci number

```
n=int(input("enter nth:"))
a=1
b=2
print(a)
for i in range(2,n+1,1):
 c=b
 b=a+b
 print(c)
 a=c
```

2. Python Program for How to check if a given number is Fibonacci number?

```
no=int(input("enter number to check wheter"))
a=1
b=2
for i in range(2,no,1):
 c=b
 b=a+b
 if(no==b):
 print("yes")
 a=c
```

3. Python Program for n\'th multiple of a number in Fibonacci Series

```
n=int(input("enter a number:", ))
x=0
y=1
i=1
multi=1
while(i<=n):
z=x+y
temp=x
x=y
y=z
i+=1
multi*=z
print(multi)
```

4. Program to print ASCII Value of a character

```
x=ord(input("enter a character-"))
print(x)
```

5. Python Program for Sum of squares of first n natural numbers

```
x=int(input("enter the value of n:-"))
z=0
```

```
for i in range (1,x+1,1):
 y=i*i
z=z+y
print(z)
```

6. Write a Python program to swap two numbers using bitwise operator.

code:

```
a=int(input("enter the first number:", ))
b=int(input("enter the second number:", ))
print("before swaping:a=%d b=%d"% (a,b))
a=a^b
b=a^b
a=a^b
print("after swaping: a=%d b=%d"% (a,b))
```

7. Write a Python program to check whether a character is alphabet or not.

```
x=input("enter the string to check whether a character is alphabet or not.")
y=x.isalpha()
if (y==True):
 print("yes")
else:
 print("no")
```

8. Write a Python program to input any alphabet and check whether it is vowel or consonant.

```
x=input(" input any alphabet and check whether it is vowel or consonant..")
y=x.isalpha()
z=x.capitalize()
print(z)
if (y==True):
 if(z==('A') or z==('E') or z==('I') or z==('O') or z==('U')):
 print("VOWELS")
 else:
 print("CONSONANTS" )
```

9. Write a Python program to input any character and check whether it is alphabet, digit or special character.

```
x=input("input any character and check whether it is alphabet, digit or special character")
a=x.isalpha()
b=x.isdigit()
c=x.isalnum()
if(a==True):
print("Alphabet")
elif(b==True):
print("Digit")
elif(c==False):
print("special char")
else:
```

```
 print(" ")
```
10. Write a Python program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following: Percentage >= 90% : Grade A Percentage >= 80% : Grade B Percentage >= 70% : Grade C Percentage >= 60% : Grade D Percentage >= 40% : Grade E Percentage < 40% : Grade F.

```
phy=int(input("enter marks of physics"))
che=int(input("enter marks of chemistry"))
bio=int(input("enter marks of biology"))
mat=int(input("enter marks of maths"))
com=int(input("enter marks of computer"))
percentage=(phy+che+bio+mat+com)/5
if(percentage >= 90):
 print("Grade A")
elif(percentage >= 80):
 print("Grade B")
elif(percentage >= 70):
 print("Grade C")
elif(percentage >= 60):
 print("Grade D")
elif(percentage >= 40):
print("Grade E")
elif(percentage < 40):
 print("Grade F")
```

11. Write a Python program to input basic salary of an employee and calculate its Gross salary according to following: Basic Salary <= 10000 : HRA = 20%, DA = 80% Basic Salary <= 20000 : HRA = 25%, DA = 90% Basic Salary > 20000 : HRA = 30%, DA = 95%.

```
sal=int(input("input basic salary of an employee"))
if(sal<= 10000):
 gs=sal+((sal*20)/100)+((sal*80)/100)
print("Gross salary of employee is-",gs)
elif(sal<= 20000):
gs=sal+((sal*25)/100)+((sal*90)/100)
print("Gross salary of employee is-",gs)
elif(sal > 20000):
 gs=sal+((sal*30)/100)+((sal*95)/100)
 print("Gross salary of employee is-",gs)
```

12. Write a Python program to input electricity unit charges and calculate total electricity bill according to the given condition: For first 50 units Rs. 0.50/unit For next 100 units Rs. 0.75/unit For next 100 units Rs. 1.20/unit For unit above 250 Rs.1.50/unit An additional surcharge of 20% is added to the bill.

```
uc=float(input("Input electricity unit charges"))
```

```
if(uc<=50):
 print("bill for unit charges %f is %f"%(uc,uc*0.50))
elif(uc>50 and uc<=150):
 bill=((50*0.50)+((uc-50)*0.75))
 print("bill for unit charges %f is %f"%(uc,bill))
elif(uc>150 and uc<=250):
bill=((50*0.5)+(100*0.75)+((uc-150)*1.20))
 print("bill for unit charges %f is %f"%(uc,bill))
elif(uc>250):
bill=(50*0.5)+(100*0.75)+(100*1.20)+((uc-250)*1.50)
 print("bill for unit charges %f is %f"%(uc,bill))
```

13. Write a Python program to print all alphabets from a to z. – using while Loop

```
i=97
while(i<=122):
print(chr(i),end=" ")
i+=1
```

14. Write a Python program to find first and last digit of a number.

```
no=int(input("enter no"))
z=no
num=0
ld=no%10
while(no>0):
 no=no//10
num+=1
fd=z//(10**(num-1))
print("first digit is %d and last digit is %d"%(fd,ld))
```

15. Write a Python program to calculate sum of digits of a number.

```
no=int(input("enter no"))
num=0
while(no>0):
 t=no%10
 no=no//10
 num+=t
print("the sum of the digit of is %d"%num)
```

16. Write a Python program to calculate product of digits of a number.

```
no=int(input("enter no"))
num=1
while(no>0):
 t=no%10
 no=no//10
num=t*num
print("the sum of the digit of is %d"%num)
```

17. Write a Python program to enter a number and

```
print its reverse.
no=int(input("enter no"))
num=1
rev=0
print ("reverse of the %d is-"%no)
while(no>0):
 t=no%10
no=no//10
rev=(rev*10)+t
print(rev)
```

18. Write a Python program to check whether a number is palindrome or not.

```
no=int(input("enter no to check whether it is a palindrome no or not"))
p=no
num=1
rev=0
while(no>0):
 t=no%10
no=no//10
rev=(rev*10)+t
if(p==rev):
print("yes its a palindrome")
else:
 print("No")
```

19. Write a Python program to find all factors of a number.

```
no=int(input("enter a no to find all factors of a number."))
print("the factor of %d are"%no)
for i in range (1,no+1,1):
 if(no%i==0):
 print(i)
```

20. Write a Python program to calculate factorial of a number.

```
no=int(input("enter a no to find all factors of a number."))
z=1
for i in range (1,no+1,1):
 z=z*i
print("the factorial of %d is %d"%(no,z))
```

21. Write a Python program to find HCF (GCD) of two numbers.

```
num1=int(input("ente no1"))
num2=int(input("ente no2"))
for i in range(min(num1,num2),max(num1,num2),1):
 if(num1%i==0 and num2%i==0):
print("hcf is",i)
 break
```

22. Write a Python program to find LCM of two numbers.

```
num1=int(input("ente no1"))
num2=int(input("ente no2"))
for i in range(min(num1,num2),(num1*num2)+1,1):
 if(i%num1==0 and i%num2==0):
 print("lcm is",i)
 break
```

23. Write a Python program to check whether a number is Prime number or not.

```
no=int(input("enter the no to check wheter it is prime no or not"))
num=0
for i in range(1,no+1,1):
 if(no%i==0):
 num+=1
if(num==2):
 print("entered no is a prime no")
else:
 print("it is not a prime no")
```

24. Write a Python program to print all Prime numbers between 1 to n

```
no=int(input("enter the value of n"))
num=0
print(1)
for k in range(1,no+1,1):
 for i in range(1,k+1,1):
 if(k%i==0):
 num+=1
 if(num==2):
 print(k)
 num=0
```

25. Write a Python program to find sum of all prime numbers between 1 to n.

```
no=int(input("enter the value of n"))
num=0
hj=0
for k in range(1,no+1,1):
 for i in range(1,k+1,1):
 if(k%i==0):
 num+=1
 if(num==2):
 hj=hj+k
num=0
print(hj+1)
```

26. Write a Python program to find all prime factors of a number.

```
no=int(input("enter the value of no for find prime factors"))
num=0
print(1)
for k in range(2,no+1,1):
```

```
 if(no%k==0):
 for i in range(1,k+1,1):
 if(k%i==0):
 num+=1
 if(num==2):
 print(k)
 num=0
```

27. Write a Python program to check whether a number is Armstrong number or not.

```
no=int(input("enter no to check whether it is a armstrong no or not"))
no1=no
num=0
y=0
while(no>0):
 no=no//10
num=num+1
no=no1
for i in range(1,num+1,1):
z=no%10
y=y+(z**num)
no=no//10
if(y==no1):
 print("yes it is a armstrong no")
else:
 print("it is not a armstrong no")
```

28. Write a Python program to print all Armstrong numbers between 1 to n

```
n=int(input("enter a range of armstrong series:"))
i=1
while(i<=n):
sum=0
d=i
c=i
j=0
while(c!=0):
j+=1
c//=10
while(d!=0):
r=d%10
sum=sum+pow(r,j)
d//=10
if(sum==i):
print(i)
i+=1
```

29. Write a Python program to check whether a number is Perfect number or not.

```
no=int(input("enter a no to check whether it is a perfect no or not"))
```

```
z=0
for i in range(1,no,1):
if(no%i==0):
 z=z+i
if(z==no):
 print("yes it is a perfect no")
else:
 print("it is not a perfect no")
```

30. Write a Python program to check whether a number is Strong number or not (Also known as Robinson number/ Krishnamurthy Number / Peterson number.)

```
no=int(input("enter a no to check whether it is a strong no or not"))
no1=no
xy=0
while(no>0):
 z=1
 y=no%10
 no=no//10
 for k in range(1,y+1,1):
 z=z*k
xy=xy+z
if(xy==no1):
 print("yes it is a strong")
else:
 print("no")
```

31. Python program to check whether the string is Symmetrical or Palindrome.

```
x=input("entr the string")
z=len(x)
y=""
for i in range(z,0,-1):
 y=y+x[i-1]
if(y==x):
 print("yes entered string is palindrome")
else:
 print("no entered string is not a palindrome")
```

32. Reverse words in a given String in Python.

```
x=input("entr the string")
z=len(x)
y=""
for i in range(z,0,-1):
 y=y+x[i-1]
print("reversed string is",y)
```

33. Ways to remove i’th character from string in Python.

```
x=input("entr the string")
y=int(input("enter the ith position"))
```

```
sk=len(x)
z=""
for s in range(0,y,1):
 z=z+x[s]
for k in range(y+1,sk,1):
 z=z+x[k]
print(z)
```

34. Python program to Check if a Substring is Present in a Given String.

```
x=input("entr the string")
y=input("enter the substring to be find")
sk=len(x)
ks=len(y)
num=0
for s in range(0,sk,1):
 if(x[s]==y[0]):
 num=0
 for k in range(0,ks,1):
 if(x[s+k]==y[k]):
 num+=1
if(num==ks):
 print("yes")
else:
 print("no")
```

35. Python program to count words frequency in String Shorthands

```
str=input("enter the sentence:")
res={key:str.count(key) for key in str.split()}
print("the words frequency:",(res))
```

36. Python program to convert snake case to pascal case

```
str="gla_university_is_the_best_university"
print("original string is:",str)
res=str.replace("_"," ").title().replace(" ", "")
print("string after changing case:"+(res))
```

37. Find length of a string in python (4 ways)

```
# method 1
str="GLA UNIVERSITY"
print("length using len function:",len(str))
# method 2
str1="GLA UNIVERSITY"
count=0
16
for i in str1:
count+=1
print("length using for loop:",count)
# method 3
str2="GLA UNIVERSITY"
```

```
sum=0
while str2[sum:]:
sum+=1
print("length using while loop:",sum)
# method 4
str="GLA UNIVERSITY"
def count_chars(string):
if not string:
return 0
else:
return 1 + count_chars(string[1:])
count = count_chars(string)
print("Length using recursion:", count)
```

38. Python program to print even length words in a string

```
string = input("Enter a string: ")
words = string.split()
for word in words:
if len(word) % 2 == 0:
print(word)
```

39. Python program to accept the strings which contains all vowels

```
def has_all_vowels(string):
vowels = set('aeiou')
return vowels.issubset(set(string.lower()))
```



```
string = input("Enter a string: ")
if has_all_vowels(string):
print(f"'{string}' contains all vowels")
else:
print(f"'{string}' does not contain all vowels")
```

40. Python program to count the Number of matching characters in a pair of string

```
string1 = input("Enter the first string: ")
string2 = input("Enter the second string: ")
matching_chars = set(string1) & set(string2)
count = len(matching_chars)
print(f"{count} matching characters: {', '.join(matching_chars)}")
```

41. Remove all duplicates from a given string in Python

```
string = input("Enter a string: ")
unique_chars = []
for char in string:
if char not in unique_chars:
unique_chars.append(char)
result = "".join(unique_chars)
print("String with duplicates removed:", result)
```

42. Python programs to count Least Frequent Character in String

```
string = input("Enter a string: ")
unique_chars = []
for char in string:
if char not in unique_chars:
unique_chars.append(char)
result = "".join(unique_chars)
```



```
print("String with duplicates removed:", result)
```

43. Python programs to count maximum frequency character in String

```
string = input("Enter a string: ")
char_count = {}
for char in string:
if char in char_count:
char_count[char] += 1
else:
char_count[char] = 1
max_count = max(char_count.values())
max_freq_chars = [char for char, count in char_count.items() if count ==
max_count]
print("Maximum frequency character(s):", ", ".join(max_freq_chars))
```

44. Python program to check if a string contains any special character

```
special_character='"!@#$%^&*()+-?_=,<>/ '"
str=input("enter the string:")
if any(c in special_character for c in str):
print("Yes")
else:
print("No")
```

45. Python program to split and join a string

```
string = input("Enter a string: ")
words = string.split()
hyphenated_string = "-".join(words)
print("Hyphenated string:", hyphenated_string)
```

46. Python program to find uncommon words from two Strings

```
string1 = input("Enter the first string: ")
string2 = input("Enter the second string: ")
words1 = set(string1.split())
words2 = set(string2.split())
uncommon_words = words1.symmetric_difference(words2)
print("Uncommon words:", ", ".join(uncommon_words))
```

47. Python program to replace duplicate occurrence in string

```
string = input("Enter a string: ")
new_string = ""
```

```
for char in string:
if char not in new_string:
new_string += char
print("String with duplicate occurrences replaced:", new_)
```

48. String slicing in Python to rotate a string

```
string = input("Enter a string: ")
n = int(input("Enter the number of positions to rotate: "))
rotated_string = string[n:] + string[:n]
print("Rotated string:", rotated_string)
```

49. Find all duplicate characters in string

```
string = input("Enter a string: ")
duplicate_chars = set([char for char in string if string.count(char) > 1])
print("Duplicate characters:", ", ".join(duplicate_chars))
```

50. Replace all occurrences of a substring in a string

```
string = input("Enter a string: ")
substring = input("Enter a substring to replace: ")
new_substring = input("Enter the new substring: ")
new_string = string.replace(substring, new_substring)
print(new_string)
```