**PYTHON ASSIGNMENT-1 -----------MANAS SINGH (S-50)**

1. **Python Program for n-th Fibonacci number**

n=int(input("enter"))

a=0

b=1

for i in range(n):

    print(a,end=",")

    c=a+b

    a=b

    b=c

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

n=int(input("enter"))

a=0

b=1

d=0

for i in range(100):

    if(n==a):

        print("number is in fabonacci series")

        break

    c=a+b

    a=b

    b=c

else:

    print("Number not in fabonacci series")

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

n=int(input("enter n multiple"))

a=0

b=1

d=0

for i in range(10):

    print(a\*\*n,end=",")

    c=a+b

    a=b

    b=c

**4. Program to print ASCII Value of a character**

char = input()

print(ord(char))

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

n = int(input())

sum\_of\_squares = sum([i\*i for i in range(1, n+1)])

print(sum\_of\_squares)

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

a = int(input())

b = int(input())

a = a ^ b

b = a ^ b

a = a ^ b

print(f"After swapping: a = {a}, b = {b}")

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

char = input()

if char.isalpha():

    print("Yes, it is an alphabet.")

else:

    print("No, it is not an alphabet.")

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

char = input().lower()

if char.isalpha():

    if char in ['a', 'e', 'i', 'o', 'u']:

        print("It is a vowel.")

    else:

        print("It is a consonant.")

else:

    print("It is not an alphabet.")

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

char = input("Enter a character: ")

if char.isalpha():

    print("The entered character is an alphabet.")

elif char.isdigit():

    print("The entered character is a digit.")

else:

    print("The entered character is a special character.")

**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**

marks\_physics = float(input("Enter marks in Physics: "))

marks\_chemistry = float(input("Enter marks in Chemistry: "))

marks\_biology = float(input("Enter marks in Biology: "))

marks\_mathematics = float(input("Enter marks in Mathematics: "))

marks\_computer = float(input("Enter marks in Computer: "))

total\_marks = 500

obtained\_marks = marks\_physics + marks\_chemistry + marks\_biology + marks\_mathematics + marks\_computer

percentage = (obtained\_marks / total\_marks) \* 100

if percentage >= 90:

    grade = "A"

elif percentage >= 80:

    grade = "B"

elif percentage >= 70:

    grade = "C"

elif percentage >= 60:

    grade = "D"

elif percentage >= 40:

    grade = "E"

else:

    grade = "F"

print("Percentage: ",percentage)

print("Grade: ",grade)

**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%**

basic\_salary = float(input("Enter basic salary: "))

if basic\_salary <= 10000:

    hra = 0.2 \* basic\_salary

    da = 0.8 \* basic\_salary

elif basic\_salary <= 20000:

    hra = 0.25 \* basic\_salary

    da = 0.9 \* basic\_salary

else:

    hra = 0.3 \* basic\_salary

    da = 0.95 \* basic\_salary

gross\_salary = basic\_salary + hra + da

print("HRA: ,hra)

print("DA: ",(da)

print("Gross Salary: ",gross\_salary)

**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**

units = float(input("Enter electricity units consumed: "))

if units <= 50:

    bill = units \* 0.50

elif units <= 150:

    bill = 50 \* 0.50 + (units - 50) \* 0.75

elif units <= 250:

    bill = 50 \* 0.50 + 100 \* 0.75 + (units - 150) \* 1.20

else:

    bill = 50 \* 0.50 + 100 \* 0.75 + 100 \* 1.20 + (units - 250) \* 1.50

surcharge = 0.20 \* bill

total\_bill = bill + surcharge

print("Total Electricity Bill: Rs.",total\_bill)

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

letter = 'a'

while letter <= 'z':

    print(letter, end=" ")

    letter = chr(ord(letter) + 1)

print()

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

num = int(input("Enter a number: "))

first\_digit = num

last\_digit = num % 10

while first\_digit >= 10:

    first\_digit = first\_digit // 10

print("First digit:", first\_digit)

print("Last digit:", last\_digit)

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

num = int(input("Enter a number: "))

sum\_of\_digits = 0

while num > 0:

    sum\_of\_digits += num % 10

    num = num // 10

print("Sum of digits:", sum\_of\_digits)

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

num = int(input("Enter a number: "))

product\_of\_digits = 1

while num > 0:

    product\_of\_digits \*= num % 10

    num = num // 10

print("Product of digits:", product\_of\_digits)

**17. Write a Python program to enter a number and print its reverse.**

num = int(input("Enter a number: "))

reverse\_num = 0

while num > 0:

    reverse\_num = reverse\_num \* 10 + num % 10

    num = num // 10

print("Reverse number:", reverse\_num)

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

num = int(input("Enter a number: "))

original\_num = num

reverse\_num = 0

while num > 0:

    reverse\_num = reverse\_num \* 10 + num % 10

    num = num // 10

if original\_num == reverse\_num:

    print(original\_num, "is a palindrome.")

else:

    print(original\_num, "is not a palindrome.")

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

num = int(input("Enter a number: "))

factors = []

for i in range(1, num + 1):

    if num % i == 0:

        factors.append(i)

print("Factors of", num, ":", factors)

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

num = int(input("Enter a number: "))

factorial = 1

for i in range(1, num + 1):

    factorial \*= i

print("Factorial of", num, ":", factorial)

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

num1 = int(input("Enter first number: "))

num2 = int(input("Enter second number: "))

while num2:

    num1, num2 = num2, num1 % num2

print("HCF of the given numbers:", num1)

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

num1 = int(input("Enter first number: "))

num2 = int(input("Enter second number: "))

max\_num = max(num1, num2)

while True:

    if max\_num % num1 == 0 and max\_num % num2 == 0:

        lcm = max\_num

        break

    max\_num += 1

print("LCM of the given numbers:", lcm)

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

num = int(input("Enter a number: "))

is\_prime = True

if num <= 1:

    is\_prime = False

else:

    for i in range(2, int(num\*\*0.5) + 1):

        if num % i == 0:

            is\_prime = False

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

n = int(input("Enter a number: "))

for num in range(1, n + 1):

    if num > 1:

        for i in range(2, int(num \*\* 0.5) + 1):

            if num % i == 0:

                break

        else:

            print(num)

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

n = int(input("Enter a number: "))

sum\_of\_primes = 0

for num in range(1, n + 1):

    if num > 1:

        for i in range(2, int(num \*\* 0.5) + 1):

            if num % i == 0:

                break

        else:

            sum\_of\_primes += num

print("Sum of all prime numbers between 1 to", n, "is:", sum\_of\_primes)

n = int(input("Enter a number: "))

print("Prime factors of", n, "are:")

for i in range(2, n + 1):

    if n % i == 0:

        for j in range(2, int(i \*\* 0.5) + 1):

            if i % j == 0:

                break

        else:

            print(i)

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

n = int(input("Enter a number: "))

power=int(input(“Enter power”))

num = n

sum = 0

while num > 0:

    digit = num % 10

    sum += digit \*\* power

    num //= 10

if sum == n:

    print(n, "is an Armstrong number.")

else:

    print(n, "is not an Armstrong number.")

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

n = int(input("Enter a number: "))

power=int(input("Enter power"))

for num in range(1, n + 1):

    temp = num

    sum = 0

    while temp > 0:

        digit = temp % 10

        sum += digit \*\*power

        temp //= 10

    if sum == num:

        print(num)

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

n = int(input("Enter a number: "))

sum\_of\_factors = 0

for i in range(1, n):

    if n % i == 0:

        sum\_of\_factors += i

if sum\_of\_factors == n:

    print(n, "is a Perfect number.")

else:

    print(n, "is not a Perfect number.")

**30. Write a Python program to check whether a number is Strong number or not (Also known as**

**Robinson number/ Krishnamurthy Number / Peterson number.)**

n = int(input("Enter a number: "))

num = n

sum\_of\_factorials = 0

while num > 0:

    digit = num % 10

    factorial = 1

    for i in range(1, digit + 1):

        factorial \*= i

    sum\_of\_factorials += factorial

    num //= 10

if sum\_of\_factorials == n:

    print(n, "is a Strong number.")

else:

    print(n, "is not a Strong number.")

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

string = input("Enter a string: ")

if string == string[::-1]:

    print("The string is symmetrical or palindrome.")

else

**32. Reverse words in a given String in Python**

s = "Hello World"

words = s.split()

reversed\_words = [word[::-1] for word in words]

reversed\_sentence = " ".join(reversed\_words)

print(reversed\_sentence)

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

s = "Hello"

i = 2

new\_s = s[:i] + s[i+1:]

print(new\_s)

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

s = "Hello, world!"

substring = "world"

if substring in s:

    print("Substring found.")

else:

    print("Substring not found.")

**35. Python program to count words frequency in String Shorthands**

s = "I am a Python programmer. I love Python programming."

words = s.split()

word\_count = {}

for word in words:

    if word in word\_count:

        word\_count[word] += 1

    else:

        word\_count[word] = 1

print(word\_count)

**36. Python program to convert snake case to pascal case**

s = "snake\_case\_string"

words = s.split('\_')

pascal\_case = ''.join(word.capitalize() for word in words)

print(pascal\_case)

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

s = "Hello World"

# Method 1: Using len() function

length1 = len(s)

# Method 2: Using a loop

length2 = 0

for \_ in s:

    length2 += 1

# Method 3: Using recursion

def find\_length(s):

    if s == "":

        return 0

    else:

        return 1 + find\_length(s[1:])

length3 = find\_length(s)

# Method 4: Using a while loop

length4 = 0

while s:

    s = s[1:]

    length4 += 1

print(length1, length2, length3, length4)

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

s = "I am a Python programmer"

words = s.split()

even\_length\_words = [word for word in words if len(word) % 2 == 0]

for word in even\_length\_words:

    print(word)

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

s = input("Enter a string: ")

vowels = "aeiouAEIOU"

if all(char in s for char in vowels):

    print("String contains all vowels.")

else:

    print("String does not contain all vowels.")

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

s1 = "Hello"

s2 = "World"

count = 0

for c1, c2 in zip(s1, s2):

    if c1 == c2:

        count += 1

print(count)

**41. Remove all duplicates from a given string in Python**

s = "Hello World"

unique\_chars = []

for char in s:

    if char not in unique\_chars:

        unique\_chars.append(char)

result = ''.join(unique\_chars)

print(result)

**42. Python programs to count Least Frequent Character in String**

s = "Hello World"

char\_count = {}

for char in s:

    if char in char\_count:

        char\_count[char] += 1

    else:

**43. Python programs to count maximum frequency character in String**

s = "hello"

max\_char = ""

max\_count = 0

for char in s:

    count = s.count(char)

    if count > max\_count:

        max\_count = count

        max\_char = char

print("Maximum frequency character:", max\_char)

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

s = "Hello@123"

special\_char = False

for char in s:

    if not char.isalnum():

        special\_char = True

        break

if special\_char:

    print("String contains special character.")

else:

    print("String does not contain any special character.")

**45. Python program to split and join a string**

s = "Hello World"

splitted = s.split()

joined = "-".join(splitted)

print("Splitted string:", splitted)

print("Joined string:", joined)

**46. Python program to find uncommon words from two Strings**

s1 = "Hello World"

s2 = "World is beautiful"

words1 = set(s1.split())

words2 = set(s2.split())

uncommon\_words = words1.symmetric\_difference(words2)

print("Uncommon words:", list(uncommon\_words))

**47. Python program to replace duplicate occurrence in string**

s = "Hello World"

new\_s = ""

for char in s:

    if s.count(char) > 1:

        new\_s += "$"

    else:

        new\_s += char s

print("Original string:", s)

print("String with replaced duplicates:", new\_s)

**48. String slicing in Python to rotate a string**

s = "Hello World"

rotation = 3

rotated\_s = s[rotation:] + s[:rotation]

print("Original string:", s)

print("Rotated string:", rotated\_s)

**49. Find all duplicate characters in string**

s = "Hello World"

duplicates = set()

for char in s:

    if s.count(char) > 1:

        duplicates.add(char)

print("Duplicate characters:", list(duplicates))

**50. Replace all occurrences of a substring in a string**

s = "Hello World, World"

old\_substring = "World"

new\_substring = "Universe"

s = s.replace(old\_substring, new\_substring)

print("Modified string:", s)