DAV INTERNATIONAL SCHOOL, KHARGHAR

ACADEMIC YEAR:2021-2022

PYTHON PROGRAM JOURNAL

NAME:_KAVYAM PATEL_____

CLASS:_X_____ SECTION:_A_____ ROLL NO.:_22_____

SUBJECT: ARTIFICIAL INTELLIGENCE_____

SUBJECT TEACHER: MS. KEERTI GAJWANI_____

INDEX

1. PROGRAM TO SIMULATE SIMPLE CALCULATOR

Code Given	Changed Code

print(“Name: Kavyam Patel”)
print(“Class and sec: X A”)
# Simple calculator program 	
num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))
op = int(input("Select operations 1- Addition, 2- Subtraction, 3- Multiplication, 4- Division:"))
if op==1:
  print(num1, "+", num2, "=",num1+num2)
elif op==2:
  print(num1, "-", num2, "=",num1-num2)
elif op==3:
  print(num1, "*", num2, "=",num1*num2)
elif op==4:
  print(num1, "/", num2, "=",num1/num2)
else:
  print("Invalid input")
	print('Name: Kavyam Patel')
	print('Class and Sec: X A')
	print('')
	
	# Simple CALCULATOR PROGRAMS
	
	num1 = int(input('Enter FIRST Number: '))
	num2 = int(input('Enter SECOND Number: '))
	
	# OPERATION Input
	
	print('Input sign for Operator')
	print('+ for Addition')
	print('- for Substraction')
	print('* for Multiplication')
	print('/ for Division')
	
	op = str(input())
	
	if op=='+':
	  print(num1, '+', num2, '=', num1+num2)
	elif op=='-':
	  print(num1, '-', num2, '=', num1-num2)
	elif op=='*':
	  print(num1, "*", num2, "=",num1*num2)
	elif op=='/':
	  print(num1, "/", num2, "=",num1/num2)
	else:
	  print("Invalid input")

Output:

```
Name: Kavyam Patel
Class and Sec: X A

Enter FIRST Number: 10
Enter SECOND Number: 15
Input sign for Operator
+ for Addition
- for Substraction
* for Multiplication
/ for Division
+
10 + 15 = 25
```

```
Name: Kavyam Patel
Class and Sec: X A

Enter FIRST Number: 10
Enter SECOND Number: 15
Input sign for Operator
+ for Addition
- for Substraction
* for Multiplication
/ for Division
-
10 - 15 = -5
```

```
Name: Kavyam Patel
Class and Sec: X A

Enter FIRST Number: 10
Enter SECOND Number: 15
Input sign for Operator
+ for Addition
- for Substraction
* for Multiplication
/ for Division
*
10 * 15 = 150
```

```
Name: Kavyam Patel
Class and Sec: X A

Enter FIRST Number: 10
Enter SECOND Number: 15
Input sign for Operator
+ for Addition
- for Substraction
* for Multiplication
/ for Division
/
10 / 15 = 0.6666666666666666
```

2. PRINT AREA OF CIRCLE, SQUARE AND RECTANGLE ASKING INPUTS FROM USERS

Code Given	Changed Code

print(“Name: Kavyam Patel”)
print(“Class and sec: X A”)
op = int(input("Choose option to calculate area of 1- Circle 2- Square 3- Rectangle"))
if op==1:
  # To calculate area of circle
  r=float(input("Enter radius"))
  a=3.14*r*r
  print("Area of circle is=",a)
 	
elif op==2:
  # To calculate area of Square
  r=float(input("Enter side"))
  a=r*r
  print("Area of circle is=",a)
 	
elif op==3:
  # To calculate area of rectangle
  l=float(input("Enter length"))
  b=float(input("Enter length"))
  a= l*b
  print("Area of rectangle is=",a)
else:
  print("Invalid input")
	print('Name: Kavyam Patel')
	print('Class: X A')
	print('')
	
	print('Which type of shape?')
	print('1 - Circle')
	print('2 - Square')
	print('3 - Rctangle')
	print('Type the respective number for shape')
	op = int(input())
	if op==1:
	  r = float(input('Radius: '))
	  area = r*((3.14)**2)
	  print(f'Area Of Circle with Radius {r}, is {area}.')
	elif op==2:
	  side = float(input('Side: '))
	  area = side**2
	  print(f'Area of Square with Side {side}, is {area}.')
	elif op==3:
	  l = float(input('Lenght: '))
	  b = float(input('Breadth: '))
	  area = l*b
	  print(f'Area of Rectanhgle of Lenght {l} and Breadth {b}, is {area}.')
	else:
	  print('Invalid Input')

Output:

```
Name: Kavyam Patel
Class: X A

Which type of shape?
1 - Circle
2 - Square
3 - Rctangle
Type the respective number for shape
1
Radius: 10
Area Of Circle with Radius 10.0, is 98.596.
```

```
Name: Kavyam Patel
Class: X A

Which type of shape?
1 - Circle
2 - Square
3 - Rctangle
Type the respective number for shape
2
Side: 10
Area of Square with Side 10.0, is 100.0.
```

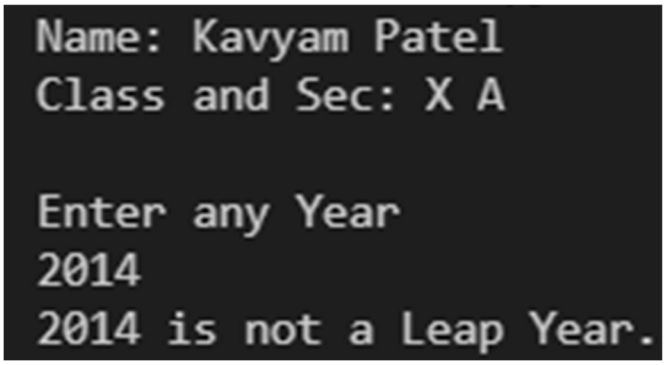
```
Name: Kavyam Patel
Class: X A

Which type of shape?
1 - Circle
2 - Square
3 - Rctangle
Type the respective number for shape
3
Lenght: 10
Breadth: 10
Area of Rectanhgle of Lenght 10.0 and Breadth 10.0, is 100.0.
```

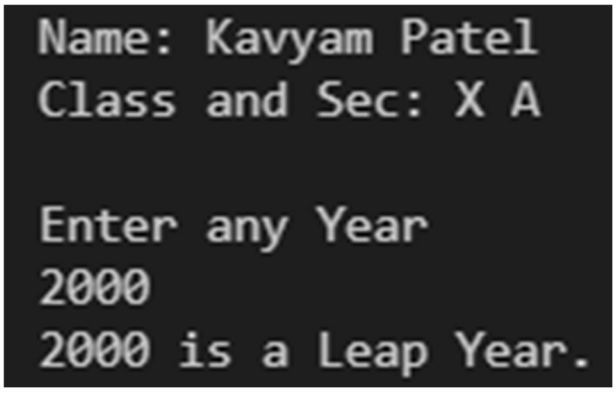
3. CHECK IF YEAR IS LEAP OR NOT

Code Given	Changed Code

print(“Name: Kavyam Patel”)
print(“Class and sec: X A”)
 	
# To check if entered year is leap year or not 	
a = int(input("Enter any Year"))
if a>10000 or a<0 :
  print("Invalid Year; Enter a valid year")
elif a%4==0:
  print("It is a leap year")
else:
  print("It is not a leap year")
	print('Name: Kavyam Patel')
	print('Class and Sec: X A')
	print('')
	
	print('Enter any Year')
	year = int(input())
	
	if year>10000 or year<0:
	  print('Invalid Year')
	elif year%4==0:
	  print(f'{year} is a Leap Year.')
	else:
	  print(f'{year} is not a Leap Year.')

Output:





4. PYTHON PROGRAM TO FIND ROOTS OF QUADRATIC EQUATION

```
# Solve the quadratic equation ax**2 + bx + c = 0

# import complex math module

print( 'Name: Kavyam Patel')

print('Class and sec: X A')


import cmath

a = int(input("enter value of a for b**2-4ac = "))

b = int(input("enter value of b for b**2-4ac= "))

c = int(input("enter value of c for b**2-4ac= "))


# calculate the discriminant

d = (b**2) - (4*a*c)

print("Discriminant is",d)


# find two solutions

root1 = (-b-cmath.sqrt(d))/(2*a)

root2 = (-b+cmath.sqrt(d))/(2*a)

print('The solution are ',(root1,root2))
```

output:

```
Name: Kavyam Patel
Class and sec: X A
enter value of a for b**2-4ac = 5
enter value of b for b**2-4ac= 6
enter value of c for b**2-4ac= 6
Discriminant is -84
The solution are  ((-0.6-0.916515138991168j), (-0.6+0.916515138991168j))
PS C:\Users\Kavyam\Desktop\Kavyam\School\Class 10\Activities\AI\Journal Programs>
```

5. Program to ADD LIST Items and LIST MANIPULATION.

```
print('')
print('Name: Kavyam Patel')
print('Class and sec: X A')
list1 = []                                  # create empty list

n=int(input("How many numbers you want to enter: "))       # enter length of
list

for i in range(0,n):
    num = int(input('Enter number: '))
    list1.append(num)                       # append elements in the list
    print('Created List is :', list1)

while True:
        print("List manipulation")
        print("1. Sort")
        print("2. Max no. in the List")
        print("3. Reverse the List")            #list methods
        print("4. Remove a No.")
        print("5. Exit")
        ch = int(input("Enter the Choice: "))
        print('')
if ch==1:
    print
    print('List before Sort: ', list1)
    list1.sort()
    print('List after Sort: ', list1)
elif ch==2:
    maxno = max(list1)
    print('Greatest no. in List: ', maxno)
elif ch==3:
    print('List before Reverse: ', list1)
    list1.reverse()
    print('Reversed List: ', list1)
elif ch==4:
    print('List before removing a number is ', list1)
    n=int(input('Enter no. to be removed: '))
    list1.remove(n)
    print('List after removing a number is ', list1)
elif ch==5:
    break
```

Output:

```
Name: Kavyam Patel
Class and sec: X A
How many numbers you want to enter: 3
Enter number: 3
Created List is : [3]
Enter number: 1
Created List is : [3, 1]
Enter number: 2
Created List is : [3, 1, 2]
List manipulation
1. Sort
2. Max no. in the List
3. Reverse the List
4. Remove a No.
5. Exit
Enter the Choice: 1

List before Sort:  [3, 1, 2]
List after Sort:  [1, 2, 3]
List manipulation
1. Sort
2. Max no. in the List
3. Reverse the List
4. Remove a No.
5. Exit
Enter the Choice: 2

Greatest no. in List:  3
```

```
List manipulation
1. Sort
2. Max no. in the List
3. Reverse the List
4. Remove a No.
5. Exit
Enter the Choice: 3

List before Reverse:  [1, 2, 3]
Reversed List:  [3, 2, 1]
List manipulation
1. Sort
2. Max no. in the List
3. Reverse the List
4. Remove a No.
5. Exit
Enter the Choice: 4

List before removing a number is  [3, 2, 1]
Enter no. to be removed: 3
List after removing a number is  [2, 1]
List manipulation
1. Sort
2. Max no. in the List
3. Reverse the List
4. Remove a No.
5. Exit
Enter the Choice: 5
```

6. PRINT FIBONACCI SERIES BETWEEN THE RANGE GIVEN USING FOR LOOP

```
print( “Name: Kavyam Patel”)
print(“Class and sec: X A”)

# Program to display Fibonacci series up to nth term
num = int(input("Enter a number of terms to print in Fibonacci series: "))
n1=0
n2=1
print(n1)
print(n2)
for i in range(1,num-1):
        n3=n1+n2
        print(n3)
        n1=n2
        n2=n3
```

Output:

```
Name: Kavyam Patel
Class and sec: X A
Enter a number of terms to print in Fibonacci series: 10
0
1
1
2
3
5
8
13
21
34
```

7. PRINT FACTORIAL OF A NUMBER USING FOR LOOP

```
print( “Name: Kavyam Patel”)

print(“Class and sec: X A”)


# Python program to find the factorial of a number
      provided by the user.

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

fact = 1

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

     fact = fact*i

print("The factorial of", num ,"is", fact)
```

```
Name: Kavyam Patel
Class and sec: X A
Enter a number of terms to print in Fibonacci series: 10
0
1
1
2
3
5
8
13
21
34
```

8. PYTHON PROGRAM TO REVERSE A STRING USING WHILE LOOP

```
print( “Name: Kavyam Patel”)

print(“Class and sec: X A”)


# Printing reverse of String

txt = input("Enter String : ")

a=txt[ : : -1]

print(“reversed string is :”)

print(a)
```

Output:

```
Name: Kavyam Patel
Class and Sec: X A
Enter String: 1234 Reverse This String
Reversed String is:
gnirtS sihT esreveR 4321
```

9. PRINT TABLE OF ANY NO GIVEN BY USER TILL A SPECIFIED RANGE

```
print( “Name: Kavyam Patel”)
print(“Class and sec: X A”)

# Printing table for a given number
n = int(input("Enter number : "))
        r = int(input("Enter range till which to print : "))

for i in range(1,r+1):
    print(n,' * ',i,'= ',n*i)
```

Output:

```
Name: Kavyam Patel
Class and Sec: X A
Enter a Number: 5
Enter Range till which to print: 10
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
```

10. PRINT STAR PATTERN

```
print( “Name: Kavyam Patel”)
print(“Class and sec: X A”)
# print * pattern
rows = 6
# outer loop
for i in range(rows):
    # nested loop
   for j in range(i):
      # display number
      print(i, end=' ')
   # new line after each row
   print('')
```

```
# PRINT REVERSED PATTERN
rows = 5
b = 0
# reverse for loop from 5 to 0
for i in range(rows, 0, -1):
   b += 1
   for j in range(1, i + 1):
      print(b, end=' ')
   print('\r')
```

Output:

```
Name: Kavyam Patel
Class and Sec: X A

1
22
333
4444
55555
11111
2222
333
44
5
```

11. WRITE A PROGRAM TO FIND THE WHETHER A NUMBER IS PRIME OR NOT USING 'FOR' LOOP.

```
print('')
print('Name: Kavyam Patel')
print('Class and Sec: X A')

# Python Progran to check if given number is prime or not

num = float(input('Enter a Whole Number: '))

num = int(num)

if num==1 or num<=0:
        print('\nInvalid Number!')
        print(f'{num} is niether a Prime nor a Composite number.')
elif num<=0:
    print('\nInvalid Number')
    print('Please Enter a Positive Number.')

else:
    for i in range(2, num):
        if (num%i)==0:
            print(num, ' is not a prime number.')
            break
        else:
            print(num, ' is a prime number.')
            break
print('')
```

Output:

```
Name: Kavyam Patel
Class and Sec: X A
Enter a Whole Number: 1

Invalid Number!
1 is niether a Prime nor a Composite number.
```

```
Name: Kavyam Patel
Class and Sec: X A
Enter a Whole Number: 0

Invalid Number!
0 is niether a Prime nor a Composite number.
```

```
Name: Kavyam Patel
Class and Sec: X A
Enter a Whole Number: -17

Invalid Number!
-17 is niether a Prime nor a Composite number.
```

```
Name: Kavyam Patel
Class and Sec: X A
Enter a Whole Number: 10
10  is not a prime number.
```

```
Name: Kavyam Patel
Class and Sec: X A
Enter a Whole Number: 17
17  is a prime number.
```

12. PYTHON PROGRAM TO PRINT TUPLE ITEMS WITH INDEX AND THAN IN REVERSE ORDER

```
print( 'Name: Kavyam Patel')
print('Class and sec: X A')

tuple = ('a','b','c','d','e','f','g','h')
for i in range(0,8):
    print ('Element=', tuple[i], 'Index=', i)
# Reversing Tuple
new_tup = tuple[ : : -1]
print(new_tup)
```

Output:

```
Name: Kavyam Patel
Class and sec: X A
Element= a Index= 0
Element= b Index= 1
Element= c Index= 2
Element= d Index= 3
Element= e Index= 4
Element= f Index= 5
Element= g Index= 6
Element= h Index= 7
('h', 'g', 'f', 'e', 'd', 'c', 'b', 'a')
```

13. Program to calculate Areas of different Shapes

```
print('\nName: Kavyam Patel')
print('Class and Sec: X A')

while True:
    print('\nCACULATE AREA')
    print('\n1. Circle')
    print('2. Rectangle')
    print('3. Square')
    print('4. Exit')
    print('')

    Choice = float(input('Enter your choice: '))
    print('')
    if Choice == 1:
        Radius = float(input('Enter the RADIUS: '))
        Area = 3.14 * Radius * Radius
        Area = round(Area, 2)
        print('Area of Circle =', Area)
        break

    elif Choice == 2:
        Lenght = float(input('Enter the Lenght: '))
        Breadth = float(input('Enter the Breadth: '))
        Area = Lenght * Breadth
        Area = round(Area, 2)
        print('Area of Rectangle = ', Area)
        break

    elif Choice == 3:
        Side = float(input)
        Area = Side * Side
        Area = round(Side, 2)
        print('Area of Square = ', Area)
        break

    elif Choice == 4:
        print('Bye!!!')
        break

    else:
        print('Oops! Incorrect Choice')
```

Output:

```
Name: Kavyam Patel
Class and Sec: X A

CACULATE AREA

1. Circle
2. Rectangle
3. Square
4. Exit

Enter your choice: 1

Enter the RADIUS: 15.15
Area of Circle = 720.7
```

```
Name: Kavyam Patel
Class and Sec: X A

CACULATE AREA

1. Circle
2. Rectangle
3. Square
4. Exit

Enter your choice: 2

Enter the Lenght: 15.15
Enter the Breadth: 10.10
Area of Rectangle =  153.01
```

```
Name: Kavyam Patel
Class and Sec: X A

CACULATE AREA

1. Circle
2. Rectangle
3. Square
4. Exit

Enter your choice: 5

Oops! Incorrect Choice

CACULATE AREA

1. Circle
2. Rectangle
3. Square
4. Exit

Enter your choice:
```

```
Name: Kavyam Patel
Class and Sec: X A

CACULATE AREA

1. Circle
2. Rectangle
3. Square
4. Exit

Enter your choice: 4

Bye !!!
```

```
Name: Kavyam Patel
Class and Sec: X A

CACULATE AREA

1. Circle
2. Rectangle
3. Square
4. Exit

Enter your choice: 3

Enter lenth of the Side: 15.15
Area of Square =  15.15
```

14. PYTHON PROGRAM TO FIND SUM OF DIGITS OF A NUMBER USING FOR LOOP

```
print('\nName: Kavyam Patel')
print('Class and Sec: X A')

n = int(input('Enter Number: '))
sum = 0
while(n != 0):
    sum = sum + (n % 10)
    n = n // 10

print('\nSum of the digits of the entered number is: ', sum)
```

Output:

```
Name: Kavyam Patel
Class and Sec: X A
Enter Number: 15

Sum of the digits of the entered number is:  6
```

15. PYTHON PROGRAM TO REVERSE A NUMBER AND CHECK IF ITS A PALINDROME

```
print('\nName: Kavyam Patel')
print('Class and Sec: X A')

number = int(input('Enter the integer: '))
temp = number

revs_number = 0
rev = 0

while(number > 0):
    remainder = number % 10
    rev = (rev * 10) + remainder
    number = number // 10

print('\nThe Reverse Number is: ', rev)

if temp == rev:
    print('The Number is Palindrome.')
else:
    print('The Number is not a Palindrome.')
```

Output:

```
Name: Kavyam Patel
Class and Sec: X A
Enter the integer: 124

The Reverse Number is:  421
The Number is not a Palindrome.
```

```
Name: Kavyam Patel
Class and Sec: X A
Enter the integer: 151

The Reverse Number is:  151
The Number is Palindrome.
```