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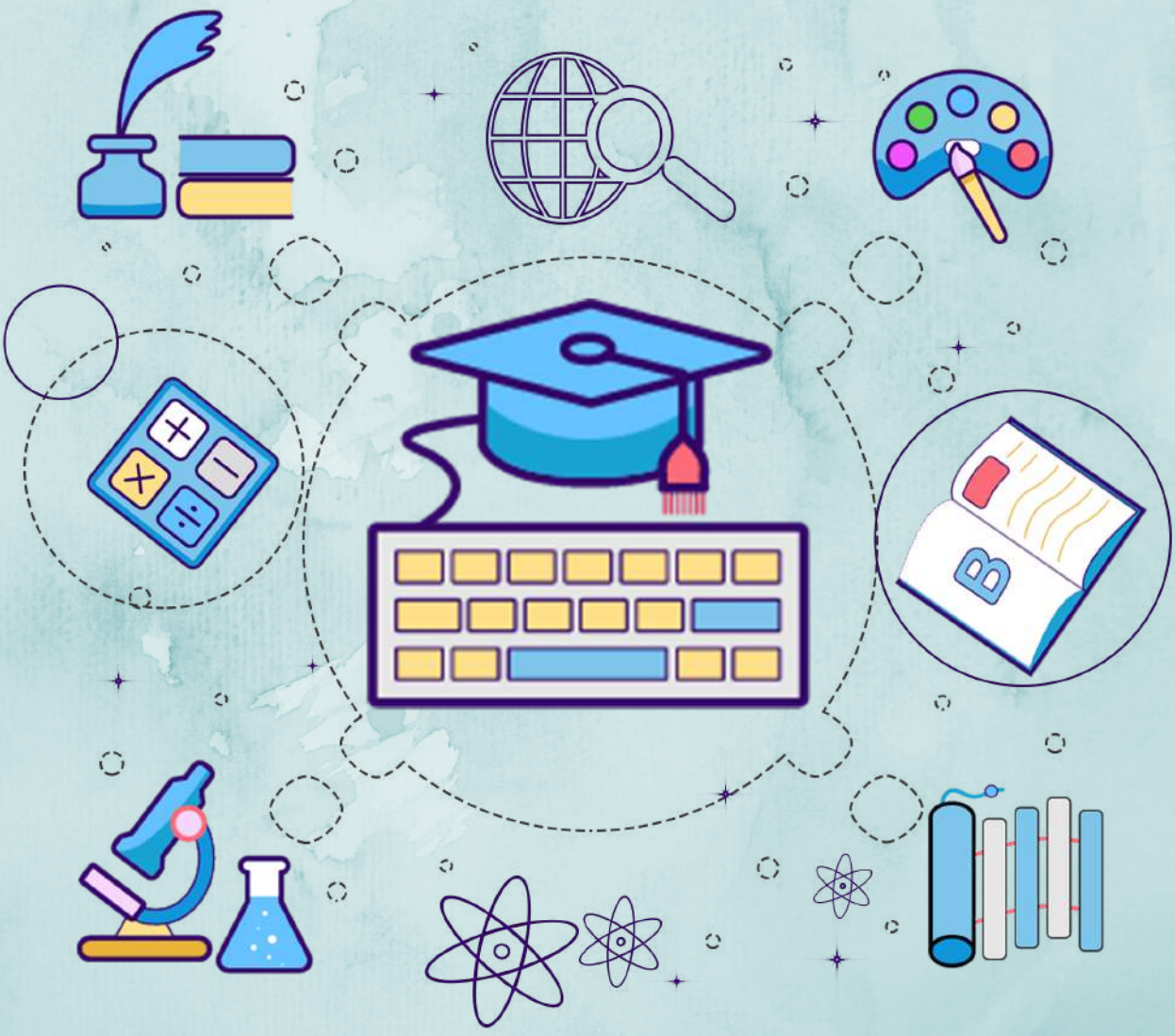

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PROGRAMMING IN PYTHON

CST 362

Module 1

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TUTORIAL QUESTIONS

MODULE-I

1. Write a python program to input a time in seconds and print the time in HH:MM:SS format.
2. Program to find Area and Circumference of a Circle.
3. Write a python program to check whether a number is even or odd.
4. Program to compare two numbers.
5. Program to find the roots of a quadratic equation.
6. Program that accepts the length of three sides of a triangle as input and determine whether or not the triangle is a right angled triangle.
7. Program to input a point and find the quadrant.
8. Program to find the Sum of the digits of a number.
9. Program to check whether the given number is prime or not
10. Python program to find the sum of even numbers from N given numbers.
11. Write a Python program which takes a positive integer n as input and finds the sum of cubes of all positive even numbers less than or equal to the number.
12. Input 4 integers (+ve and −ve). Write a Python code to find the sum of negative numbers, positive numbers, and print them. Also, find the averages of these two groups of numbers and print.
13. Write a Python program to reverse a number. Prompt the user for input.
14. Generate first 10 Fibonacci numbers
15. Print Prime numbers less than 1000

16. Write a Nested loop to print the following pattern

    5 4 3 2 1

    4 3 2 1

    3 2 1

    2 1

    1

17. Program to Print Multiplication table of 1-n numbers.

18. Write a python program to check Armstrong number of n digits.

    Eg:1634= 1**4+6**4+3**4+4**4=1634

TUTORIAL QUESTIONS

MODULE-I

1. Write a python program to input a time in seconds and print the time in HH:MM:SS format.

Ans:

```
#program to convert time in sec to HH:MM:SS format
time=input("Enter time in seconds")
time=int(time)
timeinmin=time//60
timeinsec=time%60
timeinhr=timeinmin//60
timeinmin=timeinmin%60
print("HH:MM::SS----{}:{}:{}".format(timeinhr,timeinmin,timeinsec))
```

2. Program to find Area and Circumference of a Circle.

Ans:

```
#Python Program to find Area and Circumference of a Circle
#Standard formula to calculate the Area of a circle is: a=π r².
#Circumference c=2 π r.
import math
r=input("Enter radius :")
r=int(r)
a=math.pi * r * r
c=2* math.pi * r
```

```
print("Area of the circle",a)
print ("Circumference of the circle",c)
```

3. **Check whether a number is even or odd**

Ans:

```
x=int(input("Enter a number...:"))
if x%2==0:
    print("number is even")
else:
   print("number is odd")
```

4. **Compare two numbers**

Ans:

```
x=int(input("Enter first number.."))
y=int(input("Enter second number.."))
if x>y:
    print("x is greater than y")
elif x<y:
    print ("x is smaller than y")
else:
    print ("x and y are equal")
```

5. **Program to find the roots of a quadratic equation**

Ans:

```
import math
```

```
print("enter a b and c the coefficients line by line")
a=int(input())
b=int(input())
c=int(input())
if a==0:
    print("Not a quadratic eqtn..root is ", -c/b)
else:
    d=b*b-4*a*c
    if d==0:
        print("only one root",-b/(2*a))
    elif d>0:
        print("roots are real")
        print("root1",-b+math.sqrt(d)/(2*a))
        print("root2",-b-math.sqrt(d)/(2*a))
    else:
        print("roots are imaginary")
```

6. **Program that accepts the length of three sides of a triangle as input and determine whether or not the triangle is a right angled triangle**

Ans:

```
a=int(input("enter side a..:"))
b=int(input("enter side b..:"))
c=int(input("enter side c..:"))
if a+b>c and a+c>b and b+c>a:
    if a**2+b**2==c**2:
        print("Right angled triangle")
```

```
        else:
            print("Not a right angled triangle")
    else:
        print("given sides does not form a triangle")
```

7. **Input a point and find the quadrant**

Ans:

```
x=int(input("Enter x:"))
y=int(input("enter y:"))
if x>0 and y >0:
    print("first quadrant")
elif x<0 and y >0:
    print("second quadrant")
elif x<0 and y <0:
    print("third quadrant")
elif x>0 and y <0:
    print("fourth quadrant")
else:
    print("point at origin")
```

8. **Program to find the Sum of the digits of a number**

Ans:

```
sum=0
n=int(input("Enter a number.."))
while n!=0:
    sum=sum+n%10;
```

```
    n=n//10
print("Sum of the digits=",sum)
```

Output:

```
Enter a number..123
Sum of the digits=6
```

9. **Program to check whether the given number is prime or not**

Ans:

```
n=int(input("Enter a number.."))
i=2
prime=True
while i<=n//2:
    if n%i==0:
        prime=False
        break
    i=i+1
if prime==True:
    print('Prime number')
else:
    print('Not a prime number')
```

Output:

```
Enter a number..7
Prime number
Enter a number..4
```

Not a Prime number

10. **Python program to find the sum of even numbers from N given numbers**

Ans:

```
sum=0
N=int(input("enter the number of numbers (N).."))
print("Enter the Numbers")
for i in range(N):
    num=int(input())
    if num%2==0:
        sum=sum+num
print("Sum of even numbers..",sum)
```

Output:

```
Enter the number of numbers (N)..5
Enter the 5 Numbers
4
2
6
8
1
Sum of even numbers.. 20
```

11. **Write a Python program which takes a positive integer n as input and finds the sum of cubes of all positive even numbers less than or equal to the number.**

Ans:

```
sum=0
N=int(input("enter the number"))
for num in range(1,N+1):
        if num%2==0:
                sum=sum+num**3
print("Sum of cubes of even numbers..",sum)
```

output

```
enter the number 5
Sum of cubes of even numbers.. 72
```

12. **Input 4 integers (+ve and −ve). Write a Python code to find the sum of negative numbers, positive numbers, and print them. Also, find the averages of these two groups of numbers and print.**

Ans:

```
psum=0
nsum=0
pc=0
nc=0
print("Enter the 4 Numbers +ve and -ve")
for i in range(4):
   num=int(input())
```

```
    if num>0:
        psum=psum+num
        pc=pc+1
    else:
        nsum=nsum+num
        nc=nc+1
print("Sum of +ve numbers..",psum)
if pc!=0:
        print("Avg of +ve numbers..",psum/pc)
print("Sum of -ve numbers..",nsum)
if nc!=0:
        print("Avg of -ve numbers..",nsum/nc)
```

output

```
Enter the 4 Numbers +ve and -ve
2
3
-4
-1
Sum of +ve numbers.. 5
Avg of +ve numbers.. 2.5
Sum of -ve numbers.. -5
Avg of -ve numbers.. -2.5
```

13. **Write a Python program to reverse a number. Prompt the user for input.**

Ans:

```
rev=0
print("Enter a number")
num=int(input())
while num!=0:
    d=num%10
    rev=rev*10+d
    num=num//10
print("Reverse of the number=",rev)
```

output

```
Enter a number
123
Reverse of the number= 321
```

14. **Generate first 10 Fibonacci numbers**

Ans:

```
a=0
b=1
for i in range(10):
        c=a+b
        a=b
        b=c
        print(c)
```

ouput

1 2 3 5 8 13 21 34 55 89

15. **Print Prime numbers less than 1000**

Ans:

```
print("Prime numbers less than 1000")
for n in range(2,1000):
    i=2
    while i<=n/2:
        if n%i==0:
            break
        i=i+1
    else:
        print (n,end=' ')
```

16. **Write a Nested loop to print the following pattern**

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

Ans:

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

```
for i in range(n,0,-1):
    for j in range(i,0,-1):
        print (j,end=' ')
    print()
```

17. **Print Multiplication table of 1-n numbers**

```
n=int(input("Enter n::"))
for k in range(1,n+1):
    for i in range(1,11):
      print(k ,"X",i,"=",k*i)
    print()
```

18. **Armstrong numbers**

A positive integer is called an Armstrong number of order n if abcd... = a^n + b^n + c^n + d^n + ...

In case of an Armstrong number of 3 digits, the sum of cubes of each digit is equal to the number itself. For example:153 = 1*1*1 + 5*5*5 + 3*3*3 // 153 is an Armstrong number.

Ans:

```
# Python program to check if the given 3 digit number is an Armstrong number or not
# take input from the user
num = int(input("Enter a number: "))
# initialize sum sum = 0
# find the sum of the cube of each digit
```

```
temp = num
while temp > 0:
    digit = temp % 10
    sum += digit ** 3
    temp //= 10
# display the result
if num == sum:
        print(num,"is an Armstrong number")
else:
        print(num,"is not an Armstrong number")
```

Output

```
Enter a number: 663
663 is not an Armstrong number
Enter a number: 407
407 is an Armstrong number
```

19. **Check Armstrong number of n digits**

Eg:1634= 14+6**4+3**4+4**4=1634**

Ans:

```
num =int(input("Enter a number..."))

# Changed num variable to string,  and calculated the length (number of digits)
order = len(str(num))
```

```
# initialize sum
sum = 0

# find the sum of the cube of each digit
temp = num
while temp > 0:
        digit = temp % 10
        sum += digit ** order
        temp //= 10

# display the result
if num == sum:
         print(num,"is an Armstrong number")
else:
         print(num,"is not an Armstrong number")
```

output

```
Enter a number...1634
1634 is an Armstrong number
```