Lab02

WAP to determine whether a person is eligible to cast vote or not. If he /she was note eligible display how many years left to be eligible.

```
age = int(input("Enter your age"))
if age < 18:
  print(f"No of year left: {18-age}")
else:
  print("You are eligible")
```

```
You are eligible
```

WAP to enter any character. If entered character is in lowercase then convert it into uppercase and vice-versa.

```
def isLetter(letter)-> bool:
  if len(letter) == 0 or len(letter) > 1:
    return False
  if (letter >= 'a' and letter <= 'z') or (letter >= 'A' and letter <=
'Z'):
    return True
  else:
    return False

str = input("enter string")

for i in range(0, len(str)):
  if isLetter(str[i]):
    if str[i].isupper():
      print(f"{str[i]} -> {str[i].lower()}")
    else:
      print(f"{str[i]} -> {str[i].upper()}")
  else:
    print("Internal err")
```

```
d -> D
c -> C
d -> D
s -> S
D -> d
C -> c
H -> h
J -> j
B -> b
S -> s
H -> h
```

An organization decides to give bonus to all its employee. Bonus of 5 % is given to male worker and 10 % to female worker. WAP to enter salary of an employee and gender of the employee. If the salary of person is less than 20000 then the employ gets an extra 5% bonus on salary. Calculate the bonus that has to be given to the employee and display the salary that employee will get.

```
salary = float(input("enter the salary"))
gender = input("enter the gender")

bonus: float = 0.0
if gender == "M":
  bonus = 0.05*salary
else:
  bonus = 0.1*salary

if salary < 20_000:
  bonus += 0.05*salary

print(f"Bonus to receive ${bonus}")
print(f"Salary to receive ${salary+bonus}")
```

```
Bonus to receive $1000.0
Salary to receive $11000.0
```

WAP to find a given year is leap year.

```
year = int(input("Enter the year"))
if year % 400 == 0 or (year % 100 != 0 and year % 4 == 0):
  print("leap year!")
else:
  print("normal year")
```

```
leap year!
```

WAP to calculate tax of an employ as per the present income tax norms.

```
salary = float(input("Enter your salary"))

tax: float = 0.0

if salary > 15_00_000:
  tax = salary*0.3
elif salary > 12_50_000:
  tax = salary*0.25
elif salary > 10_00_000:
  tax = salary*0.2
elif salary > 7_50_000:
  tax = salary*0.15
elif salary > 5_00_000:
  tax = salary*0.1
else:
```

```
  tax = 0.0
print(f"Tax to be payed: {tax}")
```

```
Tax to be payed: 150000.0
```

WAP to find the grade of a students. Put conditions as applied in your university.

```
marks = int(input("Enter the marks"))
grade = ""
if marks >= 90:
  grade = "O"
elif marks >= 80:
  grade = "E"
elif marks >= 70:
  grade = "A"
elif marks >= 60:
  grade = "B"
elif marks >= 50:
  grade = "C"
elif marks >= 40:
  grade = "D"
else:
  grade = "N/A"
print(f"Grade : {grade}")
```

```
Grade : A
```

WAP to read numbers till _1 is encountered. Find the positive and negative numbers entered by user.

```
noOfPositive = 0
noOfNegative = 0

while (True):
  choice = int(input("Enter 1 to exit and anyother to continue..."))
  if choice == 1:
    break
  if choice >= 0:
    noOfPositive += 1
  else:
    noOfNegative += 1
print(f"No of positive {noOfPositive}")
print(f"No of negative {noOfNegative}")
```

```
No of positive 2
No of negative 3
```

WAP to find whether the given number is an Amstrong number or not.

```
import math

def isAmstrong(number: int):
```

```
  temp = number
  count = 0
  while temp > 0:
    count+=1
    temp //= 10
  newN = 0
  org = number
  while number > 0:
    newN += math.pow(number%10, count)
    number //= 10
  if newN == org:
    print("Amstrong number")
  else:
    print("Not amstring number")

isAmstrong(int(input("Enter the number")))
```

```
Not amstring number
```

WAP to enter binary number and convert that to decimal.

```
binary = input("Enter the binary number")

c = 0
no = 0

for i in reversed(range(0, len(binary))):
  if binary[i] == "1":
    no += math.pow(2, c)
  c+=1

print(no)
```

```
15.0
```

WAP to print a number in reverse order.

```
def number(n: int):
  if n == 0:
    return
  print(n%10, end='')
  number(n//10)

no = int(input("Input the number"))
number(no)
```

```
4321
```

WAP to classify a given number is prime or no composite.

```
def isPrime(no: int)-> bool:
  for i in range(2, no):
    if no % i == 0:
```

```
      return False
  return True
no = int(input("Enter the no"))
print(f"IsPrime : {isPrime(no)}")
```

```
IsPrime : False
```

WAP to calculate sum of a series

```
n = int(input("Enter the number"))

ans = n * (n+1) /2
print(f"Ans: {ans}")
```

```
Ans: 55.0
```

WAP to to calculate value of an investment. Input the initial investments and interest rate.

```
p = float(input("Enter the principla amount"))
rate = float(input("Enter the rate of interest"))
time = float(input("Enter the time in years"))

ii = p*rate*time / 100

print(f"Amount: {p+ii}")
```

```
Amount: 12450.0
```

WAP to generate calendar of a month the start day and the number of days in that month.

```
print("Sun\tMon\tTue\tWed\tThu\tFri\tSat")
# 0 for Sun
startDay = int(input("enter 0 to 6 starts with sun"))
noOfDays = int(input("Enter the no of days"))
day = 1
weekDay = -1
isStarted = False
while day <= noOfDays:
  if not isStarted:
    for i in range(0, 7):
      if startDay == i:
        isStarted= True
        print(day, end="\t")
        day += 1
        weekDay = i
        break
      else:
        print(" ", end="\t")
  else:
    # if weekDay == 7:
```

```
    #   print("\n")
    #   continue
    # weekDay+=1
    weekDay = (weekDay + 1)%7
    if weekDay == 0:
      print("\n")
    print(day, end="\t")
    day += 1
```

```
Sun   Mon   Tue   Wed   Thu   Fri   Sat
            1     2     3     4     5

6     7     8     9     10    11    12

13    14    15    16    17    18    19

20    21    22    23    24    25    26

27    28    29
```

Print patterns

```
for i in range(0, 5):
  for j in range(0, i+1):
    print("$", end=" ")
  print("\n")
```

```
$

$ $

$ $ $

$ $ $ $

$ $ $ $ $
```