```python
#1. Check if a number is even or odd
a=int(input("Enter the number: "))
if a%2==0:
    print("Even")
else:
    print("Odd")
```

```
Enter the number:  52
```

```
Even
```

```python
#2. Check if a person is eligible to vote (age 18 or above)
a=int(input("Enter the age: "))
if a>=18:
    print("Eligible")
else:
    print("Not Eligible")
```

```
Enter the age:  8
```

```
Not Eligible
```

```python
#3. Determine if a given year is a leap year or not
a=int(input("Enter the year: "))
if (a%4==0 and a%100!=0) or (a%400==0):
    print("Leap Year")
else:
    print("Not a Leap Year")
```

```
Enter the year:  2026
```

```
Not a Leap Year
```

```python
#4. Check if a number is positive, negative, or zero
a=int(input("Enter the number: "))
if a>0:
    print("Positive")
else:
    print("Negative")
```

```
Enter the number:  -45
```

```
Negative
```

```python
#5. Write a program to find the greatest of two numbers
a=int(input("Enter the number: "))
b=int(input("Enter the number: "))
if a>b:
    print("Greatest:",a)
else:
    print("Greatest:",b)
```

```
Enter the number:  45
Enter the number:  23

Greatest: 45
```

```
#6. Determine if a number is a multiple of 5
a=int(input("Enter the number: "))
if a%5==0:
    print(a,"is a multiple of 5")
else:
    print(a,"is not a multiple of 5")
```

```
Enter the number:  10

10 is a multiple of 5
```

```
#7. Check if a character is a vowel or consonant
char=input("Enter a character: ").lower()
if char in 'aeiou':
    print("Vowel")
else:
    print("consonant")
```

```
Enter a character:  Q

consonant
```

```
#8. Determine if a person is eligible for a senior citizen discount
(age 60+)
a=int(input("Enter the age: "))
if a>=60:
    print(a,"is eligible for a senior citizen discount")
else:
    print(a,"is not eligible for a senior citizen discount")
```

```
Enter the age:  81

81 is eligible for a senior citizen discount
```

```
#9. Check if a number is a single-digit number
a=int(input("Enter the number: "))
if a<10:
    print(a,"is a single digit number")
else:
    print(a,"is not a single digit number")
```

```
Enter the number:  25

25 is not a single digit number
```

```
#10. Print "Good Morning" if the time is before 12 PM, otherwise print
"Good Afternoon"
```

```python
hour=int(input("Enter hour (24-hour format): "))
if hour<12:
    print("GM")
else:
    print("GA")
```

```
Enter hour (24-hour format):  15
```

```
GA
```

```python
#11. Check if a string is empty or not
s=input("Enter string: ")
if not s:
    print("Empty")
else:
    print("Not Empty")
```

```
Enter string:
```

```
Empty
```

```python
#12. Verify if a number is a perfect square
import math
a=int(input("Enter the number: "))
if math.isqrt(a)**2==a:
    print("Perfect Square")
else:
    print("Not a perfect Square")
```

```
Enter the number:  25
```

```
Perfect Square
```

```python
#13. Determine if a number is between 1 and 100
a=int(input("Enter the number: "))
if 1<=a<=100:
    print("Yes it is")
else:
    print("No its not")
```

```
Enter the number:  25
```

```
Yes it is
```

```python
#14. Print "Weekend" if the day is Saturday or Sunday; otherwise,
print "Weekday"
a=input("Enter the day: ")
if a in ["Saturday","Sunday"]:
    print('Weekend')
else:
    print("Weekday")
```

```
Enter the day:  monday

Weekday
```

```
#15. Find if a given number is exactly divisible by both 3 and 7
a=int(input("Enter the number: "))
if a%3==0 and a%7==0:
    print(a, "is exactly divisible by both 3 and 7")

else:
    print(a, "is not exactly divisible by both 3 and 7")
```

```
Enter the number:  21

21 is exactly divisible by both 3 and 7
```

```
#16. Check if the sum of two numbers is greater than 100
a=int(input("Enter the number: "))
b=int(input("Enter the number: "))
if a+b>100:
    print("Yes")
else:
    print("No")
```

```
Enter the number:  596
Enter the number:  4

Yes
```

```
#17. Write a program to find the minimum of two numbers
a=int(input("Enter the number: "))
b=int(input("Enter the number: "))
if a<b:
    print(a, "is minimum number")
else:
    print(b, "is minimum number")
```

```
Enter the number:  45
Enter the number:  22

22 is minimum number
```

```
#18. Check if a number is divisible by 2 but not by 3
a=int(input("Enter the number: "))
if a%2==0 and a%3!=0:
    print(a,"is divisible by 2 but not by 3")
else:
    print(a,"invalid ")
```

```
Enter the number:  433

433 invalid
```

```python
#19. Determine if a given alphabet is uppercase or lowercase
a=input("Enter the number: ")
if a.isupper():
    print("Uppercase")

else:
    print("Lowercase")
```

```
Enter the number:  aa

Lowercase
```

```python
#20. Check if a triangle is valid given three side lengths
a=int(input("Enter the side1: "))
b=int(input("Enter the side2: "))
c=int(input("Enter the side2: "))
if a+b>c and a+c>b and b+c>a:
    print("Valid")
else:
    print("Invalid")
```

```
Enter the side1:  5
Enter the side2:  2
Enter the side2:  5

Valid
```

#MEDIUM LEVEL

```python
#21. Find the largest of three numbers
a=int(input("Enter the number: "))
b=int(input("Enter the number: "))
c=int(input("Enter the number: "))
if a>b and a>c:
    print(a,"is largest number")
elif b>a and b>c:
    print(b,"is largest number")
else:
    print(c,"is largest number")
```

```
Enter the number:  5
Enter the number:  4
Enter the number:  9

9 is largest number
```

```python
#22. Determine if a number is a prime number
num = int(input("Enter a number: "))
if num > 1:
 for i in range(2, int(num**0.5) + 1):
```

```
     if num % i == 0:
         print("Not a prime number")
         break
     else:
         print("Prime number")
else:
 print("Not a prime number")
```

```
Enter a number:  26
```

```
Not a prime number
```

```
#23. Check if a person is eligible for a driving license
a = int(input("Enter a age: "))
if a>=18:
    test=input("Enter result (yes or no): ").lower()
    if test=="yes":
        print("Eligible")
else:
    print("Not eligible")
```

```
Enter a age:  19
Enter result (yes or no):  yes
```

```
Eligible
```

```
#24. Determine if a triangle is equilateral, isosceles, or scalene
a=int(input("Enter the side1: "))
b=int(input("Enter the side2: "))
c=int(input("Enter the side2: "))
if a==b==c:
    print("Triangle is equilateral")
elif a==b or b==c or a==c:
    print("Triangle is isosceles")
else:
    print("Triangle is scalene")
```

```
Enter the side1:  4
Enter the side2:  5
Enter the side2:  5
```

```
Triangle is isosceles
```

```
#25. Determine if a student passes or fails
b=int(input("Enter the marks: "))
if b>=40:
    print("Pass")
else:
    print("Fail")
```

```
Enter the marks:  45
```

```
Pass
```

```
#26. Check if a number is a palindrome
#(which means the number or string is same when read from backward)
a=input("Enter the number: ")
if a==a[::-1]: #[start:stop:step]
    print("palindrome")
else:
    print("Not palindrome")
```

```
Enter the number:  1551
```

```
palindrome
```

```
#27. Calculate electricity bill
units = int(input("Enter electricity units consumed: "))
if units<=100:
    bill=units*5
elif units<=300:
    bill=(100*5)+(units-100)*10
else:
    bill=(100*5)+(200*10)+(units-300)*10
print("Total bill is ",bill)
```

```
Enter electricity units consumed:  120
```

```
Total bill is  700
```

```
#28. Find the grade of a student
a=int(input("Enter the marks: "))
if a>=90:
    print("Grade A")
elif a>=80:
    print("Grade B")
elif a>=70:
    print("Grade C")
elif a>=60:
    print("Grade D")
else:
    print("Grade E")
```

```
Enter the marks:  65
```

```
Grade D
```

```
#29. Determine if a given date is valid
import calendar
day=int(input("Enter day: "))
month=int(input("Enter month: "))
year=int(input("Enter year: "))
if 1<=month<=12 and 1<=day<=calendar.monthrange(year,month)[1]:
```

```
    print("Valid date")
else:
    print("Invalid date")
```

```
Enter day:  12
Enter month:  03
Enter year:  21
```

```
Valid date
```

```
#30. Check if a given time is AM or PM
hour=int(input("Enter hour (24hrs format): "))
if hour<=12:
    print("AM")
else:
    print("PM")
```

```
Enter hour (24hrs format):  22
```

```
PM
```

```
#31. Check if a number is an Armstrong number
num = input("Enter a number: ")
power = len(num)
if sum(int(digit) ** power for digit in num) == int(num):
 print("Armstrong Number")
else:
 print("Not an Armstrong Number")
```

```
Enter a number:  153
```

```
Armstrong Number
```

```
#32. Determine the type of quadrilateral
a=int(input("Enter the side1: "))
b=int(input("Enter the side2: "))
c=int(input("Enter the side3: "))
d=int(input("Enter the side4: "))
if a==b==c==d:
    print("Square")
elif a==b and c==d:
    print("Rectangle")
else:
    print("Other Quadrilateral")
```

```
Enter the side1:  12
Enter the side2:  12
Enter the side3:  45
Enter the side4:  45
```

```
Rectangle
```

```python
#33. Implement a basic calculator
a = float(input("Enter first number: "))
b = float(input("Enter second number: "))
op=input("Enter operation (+,-,/,*)")
if op=="+":
    print("Result: ",a+b)
elif op=="-":
    print("Result: ",a-b)
elif op=="*":
    print("Result: ",a*b)
else:
    print("Result: ",a/b)
```

```
Enter first number:  7
Enter second number:  2
Enter operation (+,-,/,*) /

Result:  3.5
```

```python
#34. Check if a bank account balance is sufficient for withdrawal
blc=int(input("Enter the amt: "))
withdraw=int(input("Enter the amt: "))
if blc>=withdraw:
    print("Successful")
else:
    print("No blc")
```

```
Enter the amt:  45000
Enter the amt:  12000

Successful
```

```python
#35. Implement a temperature converter
temp=float(input('Enter the temp: '))
unit=input("Enter the unit (C/F): ")
if unit=='C':
    print("Celsius:",(temp*9/5)+32)
elif unit=='F':
    print('Fahrenheit: ',(temp-32)*5/9)
else:
    print("invalid unit")
```

```
Enter the temp:  45
Enter the unit (C/F):  C

Celsius: 113.0
```

```python
#36. Check if a number lies within a range (50-100)
a=int(input("Enter the num: "))
if 50<=a<=100:
    print("Yes")
```

```
else:
    print("No")
```

```
Enter the num:  45
```

```
No
```

```
#37. Determine if a year is a century year
year=int(input("Enter the year: "))
if year%100==0:
    print("Century")
else:
    print("Not century")
```

```
Enter the year:  2000
```

```
Century
```

```
#38. Check if a number is a power of 2
a=int(input("Enter the num: "))
if a>0 and (a & (a-1))==0:
    print("Power of 2")
else:
    print("Not power of 2")
```

```
Enter the num:  24
```

```
Not power of 2
```

```
#39. Determine how many days a month has
month = int(input("Enter month (1-12): "))
year = int(input("Enter year: "))
days = [31, 28 + (1 if (year % 4 == 0 and year % 100 != 0) or (year %
400 == 0) else 0), 31,
30, 31, 30, 31, 31, 30, 31, 30, 31]
print("Days:", days[month - 1])
```

```
Enter month (1-12):  2
Enter year:  2002
```

```
Days: 28
```

```
#40. Validate a password
import re
password=input("Enter password: ")
if len(password)>=8 and re.search(r"[A-Za-z]",password) and
re.search(r"\d",password):
    print("Valid")
else:
    print("Invalid")
```

```
Enter password:  HelloMrunal1
```

```
Valid
```

HARD LEVEL

```
#41. Implement a ticket pricing system
a=int(input("Enter the age: "))
if a<=5:
    print("Free Ticket")
elif a<=60:
    print("Price: 50RS")
else:
    print("Price: 100Rs")
```

```
Enter the age:  66
```

```
Price: 100Rs
```

```
#42. Check if three numbers form a Pythagorean triplet
a, b, c = sorted(map(int, input("Enter three numbers: ").split()))
if a**2 + b**2 == c**2:
 print("Pythagorean Triplet")
else:
 print("Not a Pythagorean Triplet")
```

```
Enter three numbers:  2 5 6
```

```
Not a Pythagorean Triplet
```