```python
# number is positive or negative
num=int(input("Enter the number"))
if num > 0:
      print("The number is positive",num)
elif num < 0:
    print("The number is negative.",num)
```

Enter the number -8

The number is negative. -8

```python
#identyfy number is odd or even
num=int(input("Enter the number"))
if num % 2== 0:
        print("The number is even",num)
else:
        print("The number is odd",num)
```

Enter the number 45

The number is odd 45

```python
#calculate the power of a number
base=int(input("Enter the base"))
exponent=int(input("Enter the exponent"))
result=base**exponent
print(f"{base} raised to the power of {exponent} is {result}")
```

Enter the base 5
Enter the exponent 2

5 raised to the power of 2 is 25

```python
#compare to numbers
num1=int(input("Enter the number"))
num2=int(input("Enter the number"))
if num1 > num2:
        print(f"The greater number is {num1}")
elif num1 < num2:
        print(f"The lessthan number is {num1}")
```

Enter the number 45
Enter the number 90

The lessthan number is 45

```python
#determine if a  year is a leap year
year = int(input("Enter a year: "))
if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    print(f"{year} is a leap year.")
else:
```

```python
    print(f"{year} is not a leap year.")
```

Enter a year: 2000

2000 is a leap year.

```python
#Grade Calculater
marks = int(input("Enter your marks: "))
if marks >= 90:
    grade = "A+"
elif marks >= 80:
    grade = "A"
elif marks >= 70:
    grade = "B"
elif marks >= 60:
    grade = "C"
elif marks >= 50:
    grade = "D"
else:
    grade = "F"
print("Your grade is:", grade)
```

Enter your marks: 56

Your grade is: D

```python
#age based messages
age=int(input("Enter your age:"))
if age < 16:
    print("You can't drive",age)
elif 16 <= age <= 17:
    print ("You can drive but not vote",age)
elif 18 <= age <=24:
    print("You can vote but not  rent a car",age)
elif age>= 25:
    print("You can do pretty much anything",age)
```

Enter your age: 45

You can do pretty much anything 45

```python
# Print numbers from 1 to 100 with FizzBuzz logic
for i in range(1, 101):
    if i % 3 == 0 and i % 5 == 0:
        print("FizzBuzz")
    elif i % 3 == 0:
        print("Fizz")
    elif i % 5 == 0:
        print("Buzz")
```

```python
    else:
        print(i)
```

```
1
2
Fizz
4
Buzz
Fizz
7
8
Fizz
Buzz
11
Fizz
13
14
FizzBuzz
16
17
Fizz
19
Buzz
Fizz
22
23
Fizz
Buzz
26
Fizz
28
29
FizzBuzz
31
32
Fizz
34
Buzz
Fizz
37
38
Fizz
Buzz
41
Fizz
43
44
FizzBuzz
46
47
```

```
Fizz
49
Buzz
Fizz
52
53
Fizz
Buzz
56
Fizz
58
59
FizzBuzz
61
62
Fizz
64
Buzz
Fizz
67
68
Fizz
Buzz
71
Fizz
73
74
FizzBuzz
76
77
Fizz
79
Buzz
Fizz
82
83
Fizz
Buzz
86
Fizz
88
89
FizzBuzz
91
92
Fizz
94
Buzz
Fizz
```

```
97
98
Fizz
Buzz
```

```python
#leap year conditions
year = int(input("Enter a year: "))
if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    print(year, "is a leap year.")
else:
    print(year, "is not a leap year.")
```

```
Enter a year:  2006
```

```
2006 is not a leap year.
```