

1. Write a Python Program to Check if a Number is Positive, Negative or Zero?

```
In [127]: def number(a):  
           if a > 0:  
               print("Its positive")  
           elif a < 0:  
               print("Its negative")  
           else:  
               print("It's zero")  
  
           number(60)
```

Its positive

2. Write a Python Program to Check if a Number is Odd or Even?

```
In [131]: def number(a):  
           if a % 2 == 0:  
               print("It's even")  
           else:  
               print("It's odd")  
  
           number(51)
```

It's odd

3. Write a Python Program to Check Leap Year?

```
In [132]: year = 2000  
  
           # divided by 100 means century year (ending with 00)  
           # century year divided by 400 is leap year  
           if (year % 400 == 0) and (year % 100 == 0):  
               print("{0} is a leap year".format(year))  
  
           # not divided by 100 means not a century year  
           # year divided by 4 is a leap year  
           elif (year % 4 == 0) and (year % 100 != 0):  
               print("{0} is a leap year".format(year))  
  
           # if not divided by both 400 (century year) and 4 (not century year)  
           # year is not leap year  
           else:  
               print("{0} is not a leap year".format(year))
```

2000 is a leap year

4. Write a Python Program to Check Prime Number?

```
In [146]: num = 13

# define a flag variable
flag = False

if num > 1:
    # check for factors
    for i in range(2, num):
        if (num % i) == 0:
            # if factor is found, set flag to True
            flag = True
            break

# check if flag is True
if flag:
    print(num, "is not a prime number")
else:
    print(num, "is a prime number")

13 is a prime number
```

5. Write a Python Program to Print all Prime Numbers in an Interval of 1-10000?

```
In [147]: lower = 0
upper = 10000

print("Prime numbers between", lower, "and", upper, "are:")

for num in range(lower, upper + 1):
    # all prime numbers are greater than 1
    if num > 1:
        for i in range(2, num):
            if (num % i) == 0:
                break
        else:
            print(num)
```

```
Prime numbers between 0 and 10000 are:
2
3
5
7
11
13
17
19
23
29
31
37
41
43
47
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61
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```