

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

Soln:

```
num = float(input("Enter a number: "))

if num > 0:
    print("The number is positive")
elif num < 0:
    print("The number is negative")
else:
    print("The number is zero")
```

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

Soln:

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

if num % 2 == 0:
    print("The number is even")
else:
    print("The number is odd")
```

3. Write a Python Program to Check Leap Year

Soln:

```
year = int(input("Enter a year: "))

if year % 4 == 0:
    if year % 100 == 0:
        if year % 400 == 0:
            print("{0} is a leap year".format(year))
        else:
            print("{0} is not a leap year".format(year))
    else:
        print("{0} is a leap year".format(year))
else:
    print("{0} is not a leap year".format(year))
```

4. Write a Python Program to Check Prime Number

Soln:

```
num = int(input("Enter a number: "))
if num > 1:

    for i in range(2, num):
        if num % i == 0:
            print(num, "is not a prime number")
            break
    else:
        print(num, "is a prime number")

else:
    print(num, "is not a prime number")
```

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

Soln:

```
# define a function to check whether a number is prime
def is_prime(n):
    if n < 2:
        return False
    for i in range(2, int(n ** 0.5) + 1):
        if n % i == 0:
            return False
    return True

# loop over the interval 1-10000 and print all prime numbers
for i in range(1, 10001):
    if is_prime(i):
        print(i)
```