COMP6010 Practical Week 3

1. Declare a variable myVar, assign an integer, a float number, and a string to it respectively. After assigning a value, output its value and data type.

ANS:

```
myVar = 10
print(type(myVar))
print(myVar)
myVar = 10.5
print(type(myVar))
print(myVar)
myVar = 'hello'
print(type(myVar))
print(myVar)
```

2. Declare a variable myVar, assign the following values to it respectively after using function bool().

(), [], {}, '', 0,

Output the variable's value once a value is assigned.

ANS:

```
myVar = True
print(myVar)
myVar = False
print(myVar)
myVar = bool(())
print(myVar)
myVar = bool([])
print(myVar)
myVar = bool({})
print(myVar)
myVar = bool(None)
print(myVar)
myVar = bool('')
print(myVar)
myVar = 0
print(myVar == False)
```

3, Given a positive integer n (say n = 50), use bitwise operators to calculate 100, 200, 25, 12 6.

ANS: 50 << 1 evaluates to 100, 50 << 2 evaluates to 200; 50 >> 1 evaluates to 25.

```
myVar = 50
print (myVar << 1)
print (myVar << 2)
myVar = 50
print (myVar >> 1)
print (myVar >> 2)
```

```
print (myVar >> 3)
```

4. Given a string, e.g., str = 'abcde', output the string 'abcde ' and it reverse 'edcba' using string slicing `str[a:b:c]`.

ANS:

String slicing: `str[a:b:c]` means "count in increments of `c` starting at `a` inclusive, up to `b` exclusive". If `c` is negative you count backwards, if omitted it is 1.

```
str = 'abcde'
print(str[::])
print(str[::-1])
```

5. Input two integers a and b, output
 1 if a is more than b,
 -1 if a is less than b,
 0 if they have the same value.

ANS:

```
a = int(input())
b = int(input())
if a > b:
   print(1)
if a < b:
   print(-1)
if a == b:
    print(0)
```

or

```
if a > b:
  print(1)
elif a < b:
  print(-1)
else:
  print(0)
```

6. Input a year, output if it is a leap year.

ANS:

```
year = int(input())
if (year%4==0 and year%100!=0) or year%400==0:
   print((str)(year) + " is a leap year")
else:
    print((str)(year) + " is NOT a leap year")
```