In this lab, we will review what we have done so far using python.

1. Working with Numbers:

Write the output of the following program:

```python
a = 15
b = 10
c = a // b
d = b * 2
e = d / 15
f = d % 15
g = 'a'+b+'c'
h = float(a/b)
i = round(e,1)
```

```python
print("a =", a) __________
print("b =", b) __________
print("c =", c) __________
print("d =", d) __________
print("e =", e) __________
print("f =", f) __________
print("g =", g) __________
print("h =", h) __________
print("i =", i) __________
```

2. Working with loops and making decisions

a. What will be the output of the following program?
(Hint: Use a table to keep track of how the values of the variables change over time.)

```python
a=0
b=5
for i in range(5):
    a=i+b
    b=a-i
```

```python
print("a =",a) __________
print("b =",b) __________
```
b. Decision Making:
Following program help commuter make decision about the type of transportation they should use to commute to work.
Program decision is based on following input from the user:
**rain**: If its raining or not (1 = raining, 0 = not raining)
**lateFromMeeting**: If commuter is getting late from meeting (1 = getting late, 0 = not getting late)
**distance**: Distance commuter need to travel to get to work (1 = distance greater than 5 miles, 0 = distance less than 5 miles)

```python
rain = eval(input("Enter 1 if it is raining, 0 otherwise:"));
lateFromMeeting = eval(input("Enter 1 if you are getting late for meeting, 0 otherwise:"));
distance = eval(input("Enter 1 if you commute to work is greater than 5 miles, 0 otherwise:"));
```

```python
if (rain == 1):
    if (lateFromMeeting == 1 and distance == 1):
        print("Use your car!")
    elif (lateFromMeeting == 0 and distance == 1):
        print("Uber!")
    elif (lateFromMeeting == 0 and distance == 0):
        print("Walk!")
    else:
        print("Uber!")
elif (rain == 0):
    if (lateFromMeeting == 1 and distance == 1):
        print("Use your car!")
    elif (lateFromMeeting == 0 and distance == 1):
        print("Bike!")
    elif (lateFromMeeting == 0 and distance == 0):
        print("Walk!")
    else:
        print("Bike!")
```

What will be the output of the program under following scenarios?

- If it is raining (1) and commuter is not getting late from meeting (0) and distance to work is less than 5 miles (0)
  
- If it is not raining (0) and commuter is getting late from meeting (1) and distance to work is less than 5 miles (0)
  
- If it is raining (1) and commuter is not getting late from meeting (0) and distance to work is greater than 5 miles (1)
3. Working with strings and List
a. Strings
What will be output of the following expressions?

university = "Boston University"

university[-5]

university[-5:-7]

university[-7:-5]

university[1:-5]

university[7:]

university.split('U')

university.replace('B','b')

':'.join(university.split())

b. List
Following program should find the maximum and minimum values from any given
list 'Distance'.
(We can assume that maximum value in list is less than 9999999 and minimum
value in list is greater than 0)

Distance = [100, 439, 230, 55, 132]

max = 0;
min = 9999999;
for d in _______:
    if d ___ max:
        ___ = d
    if d ___ min:
        ___ = d

print ("maximum value: ", max)
print ("minimum value: ", min)