# **CS 115 - Introduction to Programming in Python**

# **Lab 01**

**Lab Objectives:** Input/output, data, expressions, selection statements.

1. Assume a ball is thrown straight up in the air with an initial velocity (m/s) and an initial height (m). Write a program, Lab01\_Q1.py to calculate and display how high the ball will be after n seconds, where the initial velocity, height and number of seconds, n, are input by the user.

The height after t seconds is calculated with the expression:

*h* = -16*t*2 + *v*0*t* + *h*0 where *v*0 is the initial velocity and *h*0 is the initial height.

**Sample Run:** (User inputs are red)

Enter initial velocity (m/s): 50

Enter initial height (m): 5

Enter number of seconds: 3

The height after 3.0 seconds is 11.0 meters

1. A clothing store has a sale, where if you buy 2 suits you will get a 50% discount on the second. The 50% discount will be applied to the lower priced suit. If the total purchase cost is over 1000TL, an additional 10% discount will be applied. Write a program, Lab01\_Q2.py that inputs the cost of 2 suits, and outputs the total purchase cost.

**Sample Run 1:** (User inputs are red)

Enter the cost of the first suit: 500

Enter the cost of the second suit: 800

Over 1000TL discount applied!

The total cost of your purchase is 945.00TL

**Sample Run 2:**

Enter the cost of the first suit: 300

Enter the cost of the second suit: 500

The total cost of your purchase is 650.00TL

1. Write a Python script, Lab01\_Q3.py that initializes p1 and p2 to 0 and display their value after the below conditions are checked.

|  |  |
| --- | --- |
| **Conditions** | **Operations** |
| sets1 = 3 sets2 < 2 | increase p1 by 3 |
| sets1 = 3 sets2 = 2 | increase p1 by 2, increase p2 by 1 |
| sets1 = 2 sets2 = 3 | increase p1 by 1, increase p2 by 2 |
| sets1 < 2 sets2 = 3 | increase p2 by 3 |
| otherwise | print "Wrong score" |

**Sample Runs:** (User inputs are shown in red.)

Enter sets1 :3

Enter sets2 :2

p1 = 2 p2= 1

Enter sets1 :1

Enter sets2 :4

Wrong score

p1 = 0 p2= 0

Enter sets1 :1

Enter sets2 :3

p1 = 0 p2= 3