



Hacettepe University

Computer Engineering Department

Programming in python

BBM103 Introduction to Programming Lab 1
Week 7

Fall 2016

```
file_input= open("input.txt", "r")

last_list=[]
for line in file_input.readlines():
    list1= line.split(':')
    last_list.extend(list1)
```

input.txt
10:15:25:42
4:-5:45:1:56:15

```
inputfile = open("data.txt","r")

database = {}
for line in inputfile:
    line = line.rstrip("\n")
    items=line.split(":")
    database[items[0]] = items[1]

#Accessing values in a dictionary given a specific key
print("Name and Surname:",database["Name"], database["Surname"])
print("Address:",database["Address"])

#Accessing keys in a dictionary
for key in database.keys():
    print (key)

#Accessing values in a dictionary
for value in database.values():
    print (value)

#Accessing both keys and values in a dictionary
for key,value in database.items():
    print (key,"-",value)
```

data.txt

Name:Sherlock

Surname:Holmes

Age:45

Address:221B Baker Street, London

Occupation:Detective

```

inputfile = open("students.txt","r")

students = {}

for student_record in inputfile.readlines():
    student_record = student_record.rstrip("\n")
    student = student_record.split(":")
    student_data = student[1].split(",")
    students[student[0]] = student_data

for key in students.keys():
    print(key+":",students[key])

##Output:
##Leyla: ['Ankara', 'Fizik', '2']
##Emre: ['Hacettepe', 'Bilgisayar', '1']
##Esma: ['Hacettepe', 'Fizik', '3']
##Kerem: ['Gazi', 'Mimarlik', '4']
##Sami: ['Bilkent', 'Felsefe', '4']

##Calculate how many Hacettepe students there are:

hacettepe_students = 0
for value in students.values():
    if value[0] == "Hacettepe":
        hacettepe_students += 1
print("There are",hacettepe_students,"Hacettepe students in total")

##Output:
##There are 2 Hacettepe students in total

##Calculate how many senior students there are:
senior_students = 0
for value in students.values():
    if value[2] == "4":
        senior_students += 1
print("There are",senior_students,"senior students in total")

```

students.txt

Emre:Hacettepe,Bilgisayar,1
Kerem:Gazi,Mimarlik,4
Leyla:Ankara,Fizik,2
Sami:Bilkent,Felsefe,4
Esma:Hacettepe,Fizik,3

```
hours = 0
minutes = 0

def display_time (h,m):
    time = ""
    delimiter = ":"
    if h<10:
        time = time + "0" + str(h)
    else:
        time = time + str(h)
    time = time + delimiter
    if m<10:
        time = time + "0" + str(m)
    else:
        time = time + str(m)
    print(time)

def add_hours (h):
    global hours
    hours = hours + h
    while hours>=24:
        hours = hours - 24

def add_minutes (m):
    global minutes
    minutes = minutes + m
    while minutes>=60:
        minutes = minutes - 60
        add_hours (1)

add_hours (19)
add_minutes (15)
display_time (hours,minutes)
```

```
import sys

def add_function(x,y):
    return x+y

def subtract_function(x,y):
    return x-y

def multi_function(x,y):
    return x*y

def divide_function(x,y):
    return x/y

question=sys.argv[3]
if question == "+":
    out("{} + {} = {}".format(sys.argv[1],sys.argv[2],add_function(int(sys.argv[1]),int(sys.argv[2]))))
    print(out)
elif question == "-":
    out("{} - {} = {}".format(sys.argv[1],sys.argv[2],subtract_function(int(sys.argv[1]),int(sys.argv[2]))))
    print(out)
elif question == "*":
    out("{} * {} = {}".format(sys.argv[1],sys.argv[2],multi_function(int(sys.argv[1]),int(sys.argv[2]))))
    print(out)
elif question == "/":
    out("{} / {} = {}".format(sys.argv[1],sys.argv[2],divide_function(int(sys.argv[1]),int(sys.argv[2]))))
    print(out)
else:
    print("Wrong input.")
```

sys.argv[0]

sys.argv[1]

sys.argv[2]

sys.argv[3]

```
C:\Users\necva\Dropbox\20162017Güz-BBM103\ExercisesHandouts\Week7\necva>py calculator.py 10 15 +
10 + 15 = 25
```

```
C:\Users\necva\Dropbox\20162017Güz-BBM103\ExercisesHandouts\Week7\necva>
```

```
def insertionSort(alist):
    for index in range(1,len(alist)):
        currentvalue=alist[index]
        position= index
        while position> 0 and alist[position-1]>currentvalue :
            alist[position]=alist[position -1]
            position= position -1
        alist[position]= currentvalue

alist =[ 54 ,26 ,93 ,17 ,77 ,31 ,44 ,55 ,20 ]
print (alist)
insertionSort(alist)
print (alist )
```

```
def bubbleSort(alist):
    for passnum in range(len(alist)-1,0,-1):
        for i in range (passnum):
            if alist [i]> alist[i+1]:
                temp= alist[i]
                alist[i]= alist[i+ 1]
                alist[i+1] =temp
        print(alist)
alist =[54 ,26 ,93 ,17 ,77 ,31 ,44 ,55 ,20 ]
print(alist)
bubbleSort(alist)
print(alist)
```