Software Development 1

Worksheet/Laboratory 11

Exercise 1

Write a program that allows the user to enter the last names of five candidates in a local election and the votes received by each candidate. The program should then output each candidate's name, the votes received by that candidate and the percentage of the total votes received by the candidate. Your program should also output the winner of the election, the person with the least votes and the average amount of votes:

A sample output is:

Candidate	Votes Received	% of Total Votes
Johnson	5000	25.91
Miller	4000	20.72
Duffy	6000	31.09
Robinson	2500	12.95
Murphy	1800	9.33

Total: 19300
Average: 3860

Winner: Duffy
Lowest Votes: Murphy

Hint: use parallel Lists

```
from statistics import mean

candidates = []
votes = []

for candidate in range(5):
    candidates.append(input("Please enter candidates surname    :"))
    votes.append(int(input("Please enter candidates total votes:")))

total_votes = sum(votes)
max_votes = max(votes)
min_votes = min(votes)
average_votes = mean(votes)

winner_index = votes.index(max_votes)
lowest_index = votes.index(min_votes)

print("\n\n{0:20}".format("Candidate"), "{0:20}".format("Votes Received"),
"{0:20}".format("Percentage of Votes"))

for index, candidate in enumerate(candidates):
    each_percentage = (votes[index] / total_votes) * 100
    each_percentage = round(each_percentage, 2)
    print("{0:20}".format(candidate), "{0:<20}".format(votes[index]),
"{0:<20}".format(each_percentage))

print()
print("Total Votes         :", total_votes)
print("Average Votes       :", average_votes)

print("Winner              :", candidates[winner_index])
print("Lowest Votes        :", candidates[lowest_index])
```

Q2:

A college department has hired a research assistant. The department requires a program that tracks hours worked each week by the research assistant. The number of hours per day of research work performed by the research assistant is to be entered. A research assistant works 5 days and may work between 0 to 9 hours per day. Check that the hours entered are within the permitted range, if not get the user to renter hours until valid data is entered

Store the hours worked in the list.

After all data is input,

Output the hours the assistant worked each day

Calculate and display the average number of hours worked and
The total hours worked by the research assistant.

The program should also calculate and report the number of days where the assistant worked over 6 hours. This result should be printed at the end of the program.

```
from statistics import mean
hours = []
count_over_6 = 0

for day in range(5):
    print("Enter hours worked for day ",(day +1))
    hour = float(input())
    while hour < 0 or hour > 9:
        print("Outside permissible range - re-enter")
        hour = float(input())
    hours.append(hour)
    if hour > 6:
        count_over_6 += 1
average = mean(hours)

for index,hour in enumerate(hours):
    print("Day ", (index +1), "Hours worked:",hour)
print("Total hours worked ", sum(hours))
print("Average hours worked for employee: ",round(average,2))
print("The number of days worked over 6 hours: ",count_over_6)
```