## Programming 2

## LAB 3

**Q1:** Using an arraylist, write a program to create a To-Do list. Here is a sample output:

```
SAMPLE DIALOGUE

 Enter list entries, when prompted.
 Input an entry:
 Practice Dancing.
 More items for the list? yes
 Input an entry:
 Buy tickets.
 More items for the list? yes
 Input an entry:
 Pack clothes.
 More items for the list? no
 The list contains:
 Practice Dancing.
 Buy tickets.
 Pack clothes.
```

**Q2:** Write a program that reads golf scores and shows how much each differs from the average. To implement this question, write method(s) which take an arrayList as the input argument. Here is the sample output:

```
SAMPLE DIALOGUE

 This program reads golf scores and shows
 how much each differs from the average.
 Enter golf scores:
 Enter a list of nonnegative numbers.
 Mark the end of the list with a negative number.
 69  74  68  -1
 Average of the 3 scores = 70.3333
 The scores are:
 69.0 differs from average by -1.33333
 74.0 differs from average by 3.66667
 68.0 differs from average by -2.33333
```

**Q3:** Many Global Positioning Satellite (GPS) units can record waypoints. The waypoint marks the coordinates of a location on a map along with a timestamp. Consider a GPS unit that stores waypoints in terms of an (X,Y) coordinate on a map together with a timestamp t that records the number of seconds that have elapsed since the unit was turned on. Write a program that allows the user to enter as many waypoints as desired, storing each waypoint in an ArrayList, where each waypoint is represented by a class that you design. Each waypoint represents a successive sample point during a hike along some route. The coordinates should be input as doubles, and the timestamp as an integer. Have your program compute the total distance traveled and the average speed in miles per hour. Use the map scaling factor of 1 = 0.1 miles. For example, if the only two waypoints are (X=1,Y=1,T=0) and (X=2,Y=1,T=3600), then the hiker traveled a distance of 0.1 miles in 3,600 seconds, or 0.1 miles per hour.