

CS 2073-002 Computer Programming

with Engineering Applications

Fall 2009

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Homework 1

Due by Sept 18 (Friday), 2009 (5:00pm)

!!!! NO LATE HOMEWORK WILL BE ACCEPTED !!!

Total 50 points

HW Question:

Suppose two cars (say, A and B) at the same location starts going in different directions as follows.

Car A goes

East	AT1 = 5	seconds at the speed of	AS1 = 40 mph,
North	AT2 = 12	minutes at the speed of	AS2 = 60mph,
East	AT3 = 1	hour at the speed of	AS3 = 50mph,

then stops.

Car B goes

West	BT1 = 30	seconds at the speed of	BS1 = 25 mph,
South-East	BT2 = 20	minutes at the speed of	BS2 = 45 mph,
East	BT3 = 2	hours at the speed of	BS3 = 60 mph,

then stops.

We want to know (a) the straight line distance between the two points where these cars stopped, and (b) average speed of each car.

Solve the problem in terms of AT1, AS1, AT2, AS2, AT3, AS3, BT1, BS1, BT2, BS2, BT3, BS3. Then write a C program that asks user to

enter new values for the above variables, and computes/prints (a) the straight line distance between Car A and car B, and the average speed of each car.

What to return: !!!! NO LATE HOMEWORK WILL BE ACCEPTED !!!

1. Follow the engineering problem solving methodology,

1. **State the problem clearly**
2. **Describe the input/output information**
3. **Work the problem by hand, give example**
- 4.1 **Develop a solution (Algorithm Development)**

Up to this point you can write or draw figures using MS Word or a similar program. Basically, we want to see how you solved the problem. You can name this file as **hw-1-steps1-4.doc**

4.2 **and Convert it to a program (C program)**

Write a C program to implement your solution. You can name your program as **hw1.c**

5. **Test the solution with a variety of data**

Compile and run it. You can copy/paste the output into another file say **output1.txt**.

2. Go to WebCT, and submit your files **hw-1-steps1-4.doc**, **hw1.c**, and **output1.txt** before the deadline.

Note: When you are writing your C program don't forget to include

```
/* A LOT OF COMMENTS */
```