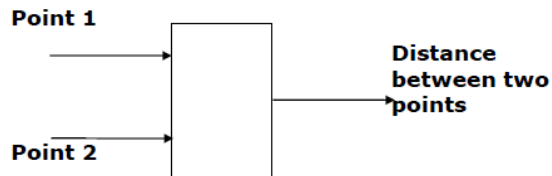# CENG 103
Computer Programming 1
HOMEWORK 1

In this homework, you will apply problem solving methodology for any specific problem that you determine.
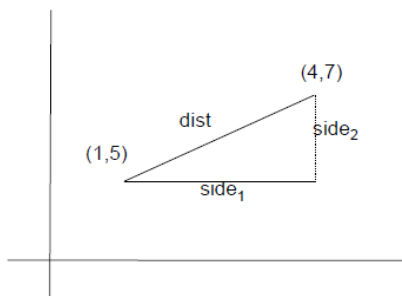
My example:

Step 1: Problem statement
"Compute the distance between two points in a plane."

Step 2: Input/Output Description

Step 3: Hand Example

$$p_1 = (1,5)$$
$$p_2 = (4,7)$$
$$dist = \sqrt{(side_1)^2 + (side_2)^2}$$
$$= \sqrt{(4-1)^2 + (7-5)^2}$$
$$= \sqrt{13}$$
$$= 3.61$$

Step 4.a: Algorithm Development

1. Give values to the points.

2. Compute the lengths of the sides of the right triangle. (side1 and side2).

3. Compute the hypotenuse of the tringle which is also the distance between the two points. (dist)

4. Print the value of distance.

And draw your flowchart!

Step 4.b: Computer Program

```c
/*--This program computes the distance between two points-----*/
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
main()
{
   /*----- Declare and initialize variables----- */
   double x1=1, y1=5, x2=4, y2=7;
   double side1, side2, dist ;

   /*----- Compute sides of the right triangle-- */
   side1=x2-x1;
   side2=y2-y1;
   dist=sqrt(side1*side1+side2*side2);

   /*----- Print distance on the screen--------- */
   printf("The distance between the two points is %5.2f \n",dist);

/*----- Exit program ----------------------- */
return EXIT_SUCCESS;
}
```

Step 5: Testing

```
The distance between the two points is 3.61
```

IMPORTANT:

• Make sure that your files are named in correct format.

- Please make a good design. The code should be properly written such that unnecessary information should be prevented.
- Use pre-defined methods if you need.
- Try to use whatever you learned about C programming until now in your codes.
- All requirements should be met.
- This homework should be done individually.
- Please do it on your own, you can read tutorials and forums, many examples exist on the internet.
- You should be sure to understand whatever you write in your code, we will randomly select and ask you to describe your code.
- For your questions, use mailgroup. Ask to everybody so that everybody sees the answers. No private mails for the homework please.
- Cheating is forbidden, no excuse will be accepted.