Practice Set: Structures (8 Problems)-v202

<table>
<tr><th>SL</th><th>Problem statement</th><th>Difficulty levels</th></tr>
<tr><td>1.</td><td>Write a program (WAP) to take as input the name, student ID and CGPA of a student, and prints it.

<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>Mr. A
011131144
3.86</td><td>Name: Mr. A
Student ID: 011131144
CGPA: 3.86</td></tr></table></td><td>*</td></tr>
<tr><td>2.</td><td>Take user input N (integer). Take an array of structures Room (three integer members: num, length, width) as input. Determine the room with maximum area and show it as output.

<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>4
101 2 3
102 4 5
133 5 2
233 1 2</td><td>102 4 5</td></tr></table></td><td>*</td></tr>
<tr><td>3.</td><td>WAP to take as input names, student IDs and CGPA of n students, and print them.
Caution: Between the calls to the scanf and gets functions, call getchar() once.

<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>3
Mr. A
011131144
3.86
Mr. B
011131155
3.76
Mr. C
011131166
3.66</td><td>Student 1: Mr. A
Student ID: 011131144
CGPA: 3.86
Student 2: Mr. B
Student ID: 011131155
CGPA: 3.76
Student 3: Mr. C
Student ID: 011131166
CGPA: 3.66</td></tr></table></td><td>**</td></tr>
<tr><td>4.</td><td>WAP to take as input the 2D coordinates (x,y) of two points and calculate the distance between them.<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>0 0
3 4</td><td>The distance is 5.00 unit</td></tr><tr><td>1 2
2 3</td><td>The distance is 1.41 unit</td></tr></table></td><td>*</td></tr>
</table>

5. WAP to take as input the 2D coordinates (x,y) of three points and calculate the area of the triangle with the points taken as vertices. If no such triangle is possible, print "They are in the same line". *

Sample input	Sample output
0 0 0 3 3 4	The area is 6.00 unit
0 0 2 3 8 12	They are in the same line

6. WAP to take as input the real and imaginary parts of a complex number, and print it in a+bi form. *

Sample input	Sample output
5 6	5.00+6.00i
5 -6	5.00-6.00i

7. WAP to take as input two complex numbers, and add and subtract them. *

Sample input	Sample output
3 4 5 -2	(3+4i)+(5-2i)=8+2i (3+4i)-(5-2i)=-2+6i

8. WAP to take as input the meter and centimeter components of a length, and show the length in meter and in centimeter. *

Sample input	Sample output
3 15	Length in meter: 3.15 Length in centimeter: 315