



C Programming Lab Report



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Subject: Programming in C



Department: CSE-62



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No

Program Title

- 1 Calculate CGPA from Two Courses
- 2 Employee Salary Calculation
- 3 Bike Fuel Average Consumption
- 4 Calculate Distance Between Two Points
- 5 Calculate Roots Using Bhaskara's Formula
- 6 Print a Triangle Pattern Using Stars

Problem 1: Write a C program that accepts two courses' grades and credit hours of those courses (floating point values) and calculates your CGPA.

Code:

main.c	Output
<pre>1 #include <stdio.h> 2 3 int main() { 4 float grade1 = 3.75, credit1 = 3.0; 5 float grade2 = 3.50, credit2 = 1.5; 6 float cgpa; 7 8 cgpa = (grade1 * credit1 + grade2 * credit2) / (credit1 + credit2); 9 10 printf("CGPA = %.2f\n", cgpa); 11 return 0; 12 } 13</pre>	<pre>CGPA = 3.67 === Code Execution Successful ===</pre>

Problem 2: Write a C program that accepts an employee's ID, total worked hours in a month and the amount he received per hour. Print the ID and salary (with two decimal places) of the employee for a particular month.

Code:

main.c	Output
<pre>1 #include <stdio.h> 2 3 int main() { 4 int emp_id, hours; 5 float rate, salary; 6 7 printf("Input the Employee's ID: "); 8 scanf("%d", &emp_id); 9 10 printf("Input the working hours: "); 11 scanf("%d", &hours); 12 13 printf("Salary amount/hr: "); 14 scanf("%f", &rate); 15 16 salary = hours * rate; 17 18 printf("Employees ID: %04d\n", emp_id); 19 printf("Salary = %.2f BDT\n", salary); 20 return 0; 21 }</pre>	<pre>Input the Employee's ID: 030 Input the working hours: 8 Salary amount/hr: 500 Employees ID: 0030 Salary = 4000.00 BDT === Code Execution Successful ===</pre>

Input :

Input the Employee's ID: 030

Input the working hours: 8

Salary amount/hr: 500

Output:

Employees ID: 0030

Salary = 4000.00 BDT

Problem 3: Write a C program to calculate a bike's average consumption from the given total distance (integer value) traveled (in km) and spent fuel (in liters, float number - 2 decimal points)

Code:

main.c	Output
<pre>1 #include <stdio.h> 2 3 int main() { 4 int distance; 5 float fuel, average; 6 7 printf("Input total distance in km: "); 8 scanf("%d", &distance); 9 printf("Input total fuel spent in liters: "); 10 scanf("%f", &fuel); 11 12 average = distance / fuel; 13 14 printf("Average consumption (km/lt) %.3f\n", average); 15 16 return 0; 17 }</pre>	<pre>Input total distance in km: 54 Input total fuel spent in liters: 3 Average consumption (km/lt) 18.000 === Code Execution Successful ===</pre>

Input :

Input total distance in km: 54

Input total fuel spent in liters: 3

Output:

Average consumption (km/lt) 18.000

Problem 4: Write a C program to calculate the distance between two points.

Code:

main.c	Output
<pre>1 #include <stdio.h> 2 #include <math.h> 3 4 int main() { 5 float x1, y1, x2, y2, distance; 6 7 printf("Input x1: "); 8 scanf("%f", &x1); 9 printf("Input y1: "); 10 scanf("%f", &y1); 11 printf("Input x2: "); 12 scanf("%f", &x2); 13 printf("Input y2: "); 14 scanf("%f", &y2); 15 16 distance = sqrt(pow(x2 - x1, 2) + pow(y2 - y1, 2)); 17 18 printf("Distance between the said points: %.4f\n", distance); 19 20 return 0; 21 }</pre>	<pre>Input x1: 3 Input y1: 4 Input x2: 5 Input y2: 6 Distance between the said points: 2.8284 === Code Execution Successful ===</pre>

Input :

Input x1: 3

Input y1: 4

Input x2: 5

Input y2: 6

Output:

Distance between the said points: 2.8284

Problem 5: Write a C program to print the roots of Bhaskara's formula from the given three floating numbers.

Code:

main.c	Run	Output
<pre>1 #include <stdio.h> 2 #include <math.h> 3 4 int main() { 5 float a, b, c, discriminant, root1, root2; 6 7 printf("Input the first number(a): "); 8 scanf("%f", &a); 9 printf("Input the second number(b): "); 10 scanf("%f", &b); 11 printf("Input the third number(c): "); 12 scanf("%f", &c); 13 14 discriminant = b * b - 4 * a * c; 15 16 if (discriminant >= 0) { 17 root1 = (-b + sqrt(discriminant)) / (2 * a); 18 root2 = (-b - sqrt(discriminant)) / (2 * a); 19 20 printf("Root1 = %.5f\n", root1); 21 printf("Root2 = %.5f\n", root2); 22 } else { 23 printf("No real roots exist.\n"); 24 } 25 26 return 0; 27 }</pre>		<pre>Input the first number(a): 30 Input the second number(b): 20 Input the third number(c): 2 Root1 = -0.12251 Root2 = -0.54415 === Code Execution Successful ===</pre>

Input :

Input the first number(a): 30

Input the second number(b): 20

Input the third number(c): 2

Output:

Root1 = -0.12251

Root2 = -0.54415

Problem 6 :Print the following pattern as it is. Expected Output

Code:

main.c		Output
<pre>1 #include <stdio.h> 2 3 int main() { 4 printf("\n"); 5 printf("* \n"); 6 printf("* * \n"); 7 printf("* * * \n"); 8 printf("* * * * \n"); 9 10 return 0; 11 }</pre>	<pre>* * * * * * * * * * * * * * * === Code Execution Success ===</pre>	