

Assignment Solutions for Basic C Programming

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GitHub Project: <https://github.com/Het16-prog/HetThacker25BCL062>

Solutions to Assignment Questions

1. Add two numbers

```
1 // addtwonumbers.c
2 #include <stdio.h>
3
4 int main() {
5     int a, b, sum;
6     printf("Enter first number: ");
7     scanf("%d", &a);
8     printf("Enter second number: ");
9     scanf("%d", &b);
10    sum = a + b;
11    printf("The sum is %d\n", sum);
12    return 0;
13 }
```

Sample Output:

Enter first number: 10

Enter second number: 20

The sum is 30

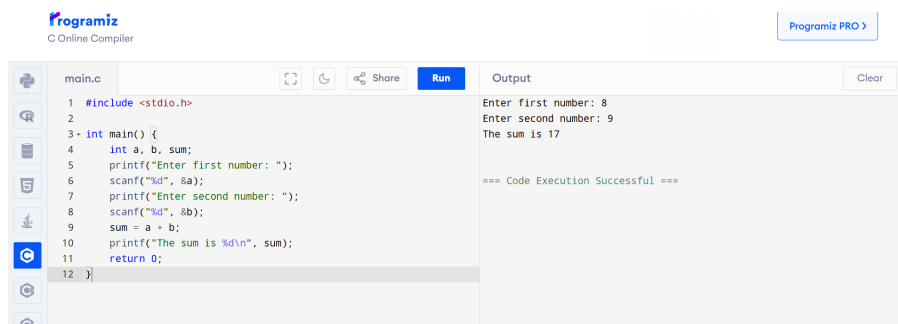


Figure 1: Q1 SAMPLE OUTPUT

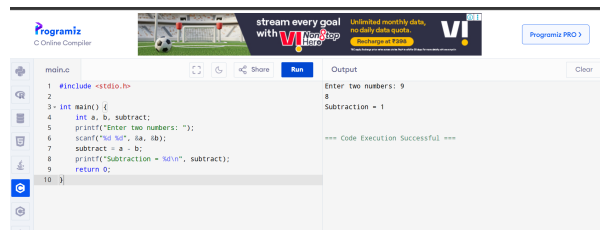


Figure 2: Q2 SAMPLE OUTPUT

2. Subtract two numbers

```

1 // subtracttwonumbers.c
2 #include <stdio.h>
3
4 int main() {
5     int a, b, subtract;
6     printf("Enter two numbers: ");
7     scanf("%d %d", &a, &b);
8     subtract = a - b;
9     printf("Subtraction = %d\n", subtract);
10    return 0;
11 }

```

Sample Output:

```

Enter two numbers: 35 5
Subtraction = 30

```

3. Multiply two numbers

```

1 // multiplytwonumbers.c
2 #include <stdio.h>
3
4 int main() {
5     int a, b, multiply;
6     printf("Enter two numbers: ");
7     scanf("%d %d", &a, &b);
8     multiply = a * b;
9     printf("Answer = %d\n", multiply);
10    return 0;
11 }

```

Sample Output:

```

Enter two numbers: 3 4
Answer = 12

```

4. Divide two numbers

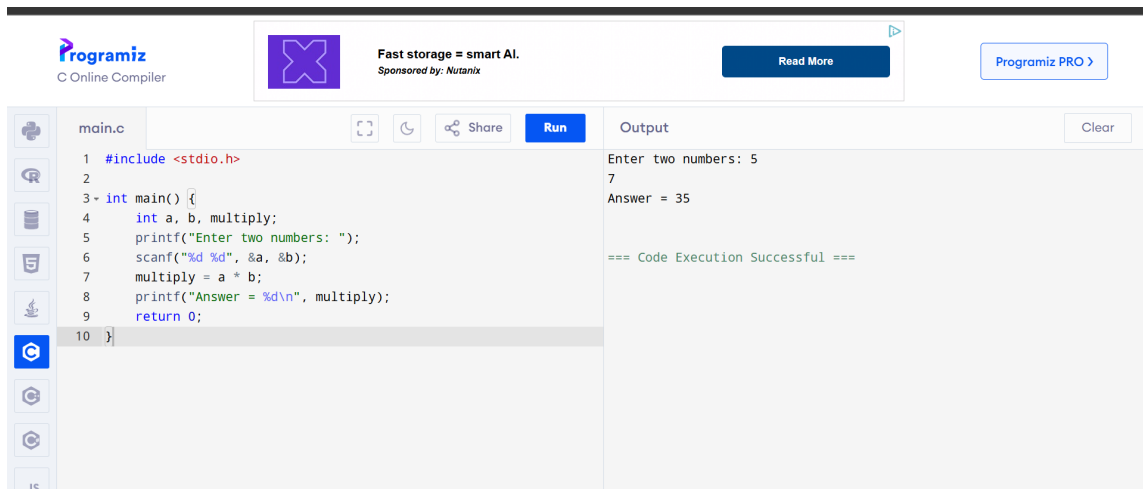


Figure 3: Q3 SAMPLE OUTPUT



Figure 4: Q4 SAMPLE OUTPUT

```

1 // divide.c
2 #include <stdio.h>
3
4 int main() {
5     int a, b;
6     float divide;
7     printf("Enter two numbers: ");
8     scanf("%d %d", &a, &b);
9     divide = (float)a / b;
10    printf("Answer = %.2f\n", divide);
11    return 0;
12 }

```

Sample Output:

```

Enter two numbers: 10 2
Answer = 5

```

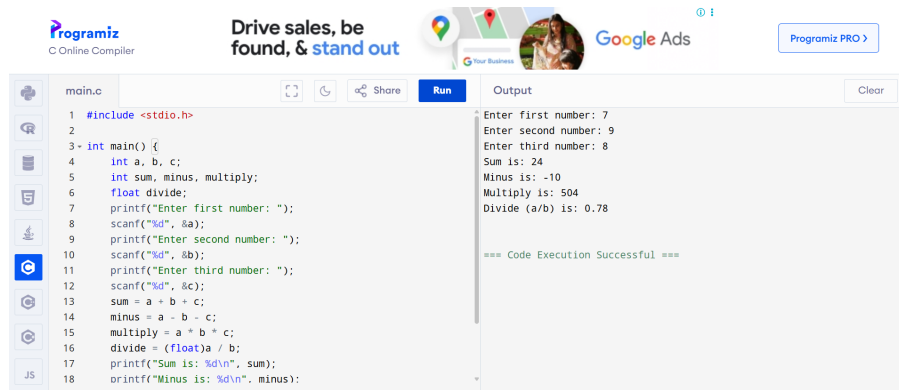


Figure 5: Q 5 SAMPLE OUTPUT

5. Perform all four operations

```

1 // allfour.c
2 #include <stdio.h>
3
4 int main() {
5     int a, b, c;
6     int sum, minus, multiply;
7     float divide;
8     printf("Enter first number: ");
9     scanf("%d", &a);
10    printf("Enter second number: ");
11    scanf("%d", &b);
12    printf("Enter third number: ");
13    scanf("%d", &c);
14    sum = a + b + c;
15    minus = a - b - c;
16    multiply = a * b * c;
17    divide = (float)a / b;
18    printf("Sum is: %d\n", sum);
19    printf("Minus is: %d\n", minus);
20    printf("Multiply is: %d\n", multiply);
21    printf("Divide (a/b) is: %.2f\n", divide);
22    return 0;
23 }

```

Sample Output:

```

Enter first number: 5
Enter second number: 4
Enter third number: 3
Sum is: 12
Minus is: -2
Multiply is: 60
Divide (a/b) is: 1.25

```

6. Convert hours into minutes

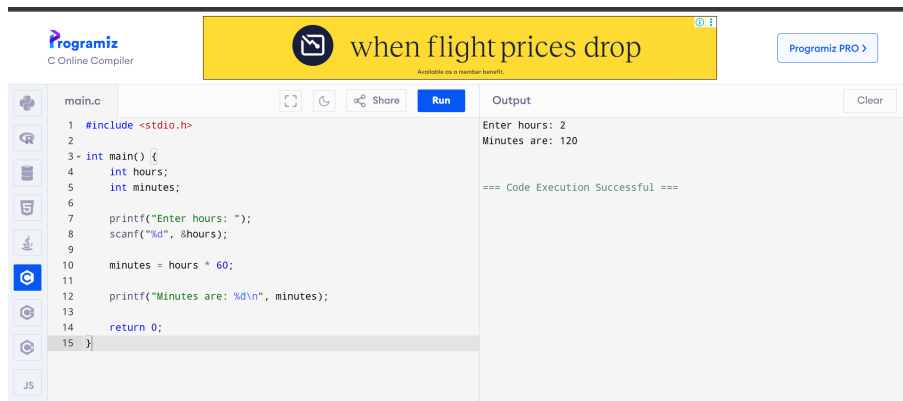


Figure 6: Q6 SAMPLE OUTPUT

```

1 // hours-to-minutes.c
2 #include <stdio.h>
3
4 int main() {
5     int hours;
6     int minutes;
7
8     printf("Enter hours: ");
9     scanf("%d", &hours);
10
11     minutes = hours * 60;
12
13     printf("Minutes are: %d\n", minutes);
14
15     return 0;
16 }

```

Sample Output:

```

Enter hours: 3
Minutes are: 180

```

7. Convert minutes into hours

```

1 // mins-to-hours.c
2 #include <stdio.h>
3
4 int main() {
5     int minutes;
6     int hours;
7
8     printf("Enter minutes: ");
9     scanf("%d", &minutes);
10
11     hours = minutes / 60;
12

```

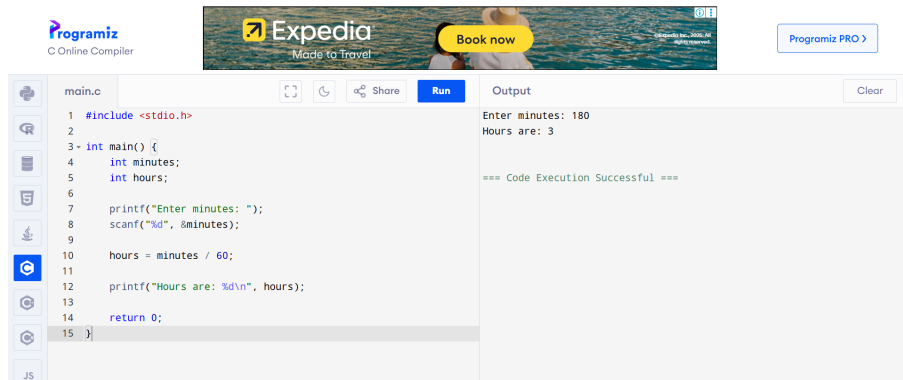


Figure 7: Q7 SAMPLE OUTPUT

```

13     printf("Hours are: %d\n", hours);
14
15     return 0;
16 }

```

Sample Output:

```

Enter minutes: 120
Hours are: 2

```

8. Convert dollars into Rs. (1\$ = 48 Rs)

```

1 // dollars2rs.c
2 #include <stdio.h>
3
4 int main() {
5     int dollars;
6     int rupees;
7
8     printf("Enter dollars: ");
9     scanf("%d", &dollars);
10
11     rupees = dollars * 48;
12
13     printf("Rupees are: %d\n", rupees);
14
15     return 0;
16 }

```

Sample Output:

```

Enter dollars: 10
Rupees are: 480

```

9. Convert Rs. into dollars

```

1 #include <stdio.h>
2
3 int main() {
4     int dollars;
5     int rupees;
6
7     printf("Enter dollars: ");
8     scanf("%d", &dollars);
9
10    rupees = dollars * 48;
11
12    printf("Rupees are: %d\n", rupees);
13
14    return 0;
15 }

```

Output

```

Enter dollars: 6
Rupees are: 288

=== Code Execution Successful ===

```

Figure 8: Q8 sample output

```

1 #include <stdio.h>
2
3 int main() {
4     int rupees;
5     int dollars;
6
7     printf("Enter rupees: ");
8     scanf("%d", &rupees);
9
10    dollars = rupees / 48;
11
12    printf("Dollars are: %d\n", dollars);
13
14    return 0;
15 }

```

Output

```

Enter rupees: 288
Dollars are: 6

=== Code Execution Successful ===

```

Figure 9: Q9 SAMPLE OUTPUT

```

1 // INR2USD.c
2 #include <stdio.h>
3
4 int main() {
5     int rupees;
6     int dollars;
7
8     printf("Enter rupees: ");
9     scanf("%d", &rupees);
10
11    dollars = rupees / 48;
12
13    printf("Dollars are: %d\n", dollars);
14
15    return 0;
16 }

```

Sample Output:

```

Enter rupees: 960
Dollars are: 20

```

10. Convert dollars into pounds (1\$=48Rs, 1 pound=70Rs)

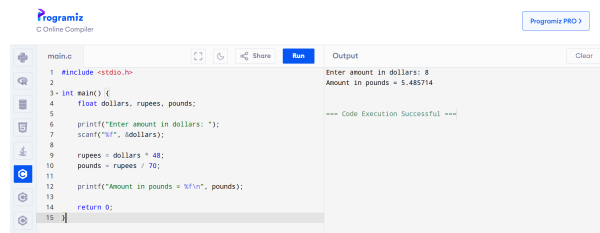


Figure 10: Q10 sample output

```

1 // usd2ukpounds.c
2 #include <stdio.h>
3
4 int main() {
5     float dollars, rupees, pounds;
6
7     printf("Enter amount in dollars: ");
8     scanf("%f", &dollars);
9
10    rupees = dollars * 48;
11    pounds = rupees / 70;
12
13    printf("Amount in pounds = %f\n", pounds);
14
15    return 0;
16 }

```

Sample Output:

```

Enter amount in dollars: 10
Amount in pounds = 6.857143

```

11. Convert grams into kg

```

1 // grams2kg.c
2 #include <stdio.h>
3
4 int main() {
5     float grams, kg;
6
7     printf("Enter weight in grams: ");
8     scanf("%f", &grams);
9
10    kg = grams / 1000;
11
12    printf("Weight in kilograms = %f\n", kg);
13
14    return 0;
15 }

```

Sample Output:


```

1 #include <stdio.h>
2
3 int main() {
4     float grams, kg;
5
6     printf("Enter weight in grams: ");
7     scanf("%f", &grams);
8
9     kg = grams / 1000;
10
11    printf("Weight in kilograms = %f\n", kg);
12
13    return 0;
14 }

```

Output: Enter weight in grams: 900
Weight in kilograms = 0.900000
--- Code Execution Successful ---

Figure 11: Q11 sample output

```

1 #include <stdio.h>
2
3 int main() {
4     float kg, grams;
5
6     printf("Enter weight in kilograms: ");
7     scanf("%f", &kg);
8
9     grams = kg * 1000;
10
11    printf("Weight in grams = %f\n", grams);
12
13    return 0;
14 }

```

Output: Enter weight in kilograms: 2
Weight in grams = 2000.000000
--- Code Execution Successful ---

Figure 12: Q12 sample output

Enter weight in grams: 2000
Weight in kilograms = 2.000000

12. Convert kg into grams

```

1 // kg2grams.c
2 #include <stdio.h>
3
4 int main() {
5     float kg, grams;
6
7     printf("Enter weight in kilograms: ");
8     scanf("%f", &kg);
9
10    grams = kg * 1000;
11
12    printf("Weight in grams = %f\n", grams);
13
14    return 0;
15 }

```

Sample Output:

Enter weight in kilograms: 4.5
Weight in grams = 4500.00

13. Convert bytes into KB, MB, GB

```

1 // bytes2KBMBGB.c
2 #include <stdio.h>
3

```



Figure 13: Q13 sample output

```

4 int main() {
5     float bytes, kb, mb, gb;

6
7     printf("Enter size in bytes: ");
8     scanf("%f", &bytes);

9
10    kb = bytes / 1024;
11    mb = kb / 1024;
12    gb = mb / 1024;

13
14    printf("Size in KB = %f\n", kb);
15    printf("Size in MB = %f\n", mb);
16    printf("Size in GB = %f\n", gb);

17
18    return 0;
19 }

```

Sample Output:

```

Enter size in bytes: 1048576
Size in KB = 1024.000000
Size in MB = 1.000000
Size in GB = 0.000977

```

14. Celsius to Fahrenheit

```

1 // celcius2fahrenheit.c
2 #include <stdio.h>
3
4 int main() {
5     float celsius, fahrenheit;
6
7     printf("Enter temperature in Celsius: ");
8     scanf("%f", &celsius);
9
10    fahrenheit = (9.0 / 5.0) * celsius + 32;
11
12    printf("Temperature in Fahrenheit = %f\n", fahrenheit);
13
14    return 0;
15 }

```

```

1 #include <stdio.h>
2
3 int main() {
4     float celsius, fahrenheit;
5
6     printf("Enter temperature in Celsius: ");
7     scanf("%f", &celsius);
8
9     fahrenheit = (9.0 / 5.0) * celsius + 32;
10
11     printf("Temperature in Fahrenheit = %f\n", fahrenheit);
12
13     return 0;
14 }

```

Output: Enter temperature in Celsius: 89
Temperature in Fahrenheit = 192.199997
=== Code Execution Successful ===

Figure 14: Q14 sample output

```

1 #include <stdio.h>
2
3 int main() {
4     float fahrenheit, celsius;
5
6     printf("Enter temperature in Fahrenheit: ");
7     scanf("%f", &fahrenheit);
8
9     celsius = (5.0 / 9.0) * (fahrenheit - 32);
10
11     printf("Temperature in Celsius = %f\n", celsius);
12
13     return 0;
14 }

```

Output: Enter temperature in Fahrenheit: 98
Temperature in Celsius = 36.666668
=== Code Execution Successful ===

Figure 15: Q15 sample output

Sample Output:

```

Enter temperature in Celsius: 100
Temperature in Fahrenheit = 212.000000

```

15. Fahrenheit to Celsius

```

1 // fahrenheit2celsius.c
2 #include <stdio.h>
3
4 int main() {
5     float fahrenheit, celsius;
6
7     printf("Enter temperature in Fahrenheit: ");
8     scanf("%f", &fahrenheit);
9
10    celsius = (5.0 / 9.0) * (fahrenheit - 32);
11
12    printf("Temperature in Celsius = %f\n", celsius);
13
14    return 0;
15 }

```

Sample Output:

```

Enter temperature in Fahrenheit: 212
Temperature in Celsius = 100.000000

```

16. Calculate interest

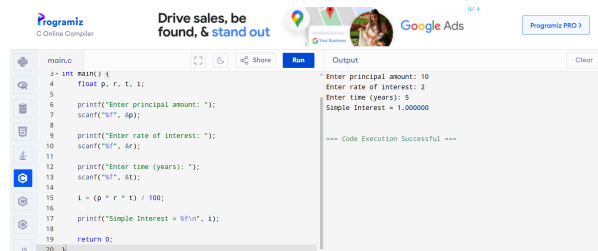


Figure 16: q 16 sample output

```

1 // si_calculator.c
2 #include <stdio.h>
3
4 int main() {
5     float p, r, t, i;
6
7     printf("Enter principal amount: ");
8     scanf("%f", &p);
9
10    printf("Enter rate of interest: ");
11    scanf("%f", &r);
12
13    printf("Enter time (years): ");
14    scanf("%f", &t);
15
16    i = (p * r * t) / 100;
17
18    printf("Simple Interest = %f\n", i);
19
20    return 0;
21 }

```

Sample Output:

```

Enter principal amount: 10000
Enter rate of interest: 5
Enter time (years): 3
Simple Interest = 1500.000000

```

17. Area & perimeter of a square

```

1 // area_and_perimeter_of_square.c
2 #include <stdio.h>
3
4 int main() {
5     float L, area, perimeter;
6
7     printf("Enter side length of square: ");
8     scanf("%f", &L);
9

```

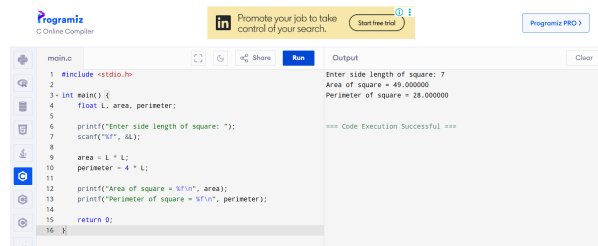


Figure 17: Q17 sample output

```

10     area = L * L;
11     perimeter = 4 * L;
12
13     printf("Area of square = %f\n", area);
14     printf("Perimeter of square = %f\n", perimeter);
15
16     return 0;
17 }

```

Sample Output:

```

Enter side length of square: 6
Area of square = 36.000000
Perimeter of square = 24.000000

```

18. Area & perimeter of a rectangle

```

1 // area_and_perimeter_of_rectangle.c
2 #include <stdio.h>
3
4 int main() {
5     float L, B, area, perimeter;
6
7     printf("Enter length of rectangle: ");
8     scanf("%f", &L);
9
10    printf("Enter breadth of rectangle: ");
11    scanf("%f", &B);
12
13    area = L * B;
14    perimeter = 2 * (L + B);
15
16    printf("Area of rectangle = %f\n", area);
17    printf("Perimeter of rectangle = %f\n", perimeter);
18
19    return 0;
20 }

```

Sample Output:

```

Enter length of rectangle: 6

```

```

1 // area_rect.c
2 #include <stdio.h>
3 int main() {
4     float L, B, area, perimeter;
5     printf("Enter length of rectangle: ");
6     scanf("%f", &L);
7     printf("Enter breadth of rectangle: ");
8     scanf("%f", &B);
9     area = L * B;
10    perimeter = 2 * (L + B);
11    printf("Area of rectangle = %f\n", area);
12    printf("Perimeter of rectangle = %f\n", perimeter);
13    return 0;
14 }

```

Output: Enter length of rectangle: 7
Enter breadth of rectangle: 8
Area of rectangle = 56.000000
Perimeter of rectangle = 30.000000
Code Execution Successful

Figure 18: Q18 sample output

```

1 // area_circle.c
2 #include <stdio.h>
3 int main() {
4     float R, area;
5     printf("Enter radius of circle: ");
6     scanf("%f", &R);
7     area = (22.0 / 7.0) * R * R;
8     printf("Area of circle = %f\n", area);
9     return 0;
10 }

```

Output: Enter radius of circle: 6
Area of circle = 113.142860
Code Execution Successful

Figure 19: Q19 sample output

```

Enter breadth of rectangle: 5
Area of rectangle = 30.000000
Perimeter of rectangle = 22.000000

```

19. Area of a circle

```

1 // area_circle.c
2 #include <stdio.h>
3
4 int main() {
5     float R, area;
6
7     printf("Enter radius of circle: ");
8     scanf("%f", &R);
9
10    area = (22.0 / 7.0) * R * R;
11
12    printf("Area of circle = %f\n", area);
13
14    return 0;
15 }

```

Sample Output:

```

Enter radius of circle: 7
Area of circle = 153.142853

```

20. Area of a triangle

```

1 // area_triangle.c

```

```

1 #include <stdio.h>
2
3 int main() {
4     float H, L, area;
5
6     printf("Enter height of triangle: ");
7     scanf("%f", &H);
8
9     printf("Enter base length of triangle: ");
10    scanf("%f", &L);
11
12    area = (H * L) / 2;
13
14    printf("Area of triangle = %f\n", area);
15
16    return 0;
17 }

```

Output: Enter height of triangle: 3
Enter base length of triangle: 4
Area of triangle = 6.000000
--- Code Execution Successful ---

Figure 20: Q20 sample output

```

2 #include <stdio.h>
3
4 int main() {
5     float H, L, area;
6
7     printf("Enter height of triangle: ");
8     scanf("%f", &H);
9
10    printf("Enter base length of triangle: ");
11    scanf("%f", &L);
12
13    area = (H * L) / 2;
14
15    printf("Area of triangle = %f\n", area);
16
17    return 0;
18 }

```

Sample Output:

```

Enter height of triangle: 5
Enter base length of triangle: 8
Area of triangle = 20.000000

```

21. Net salary (Allowance=10%, Deduction=3%)

```

1 // net_salary_calculation.c
2 #include <stdio.h>
3
4 int main() {
5     float gross, allowance, deduction, net;
6
7     printf("Enter gross salary: ");
8     scanf("%f", &gross);
9
10    allowance = gross * 0.10;
11    deduction = gross * 0.03;
12
13    net = gross + allowance - deduction;
14
15    printf("Net Salary = %f\n", net);

```

```

1 #include <stdio.h>
2 int main() {
3     float gross, discount, net;
4     printf("Enter gross sales: ");
5     scanf("%f", &gross);
6     discount = 0.10 * gross;
7     net = gross - discount;
8     printf("Net Sales = %f\n", net);
9     return 0;
10 }

```

Output: Enter gross sales: 80
Net Sales = 72.000000
=== Code Execution Successful ===

Figure 21: Q21 sample output

```

1 #include <stdio.h>
2 int main() {
3     float gross, discount, net;
4     printf("Enter gross sales: ");
5     scanf("%f", &gross);
6     discount = 0.10 * gross;
7     net = gross - discount;
8     printf("Net Sales = %f\n", net);
9     return 0;
10 }

```

Output: Enter gross sales: 90
Net Sales = 81.000000
=== Code Execution Successful ===

Figure 22: Q22 sample output

```

16
17     return 0;
18 }

```

Sample Output:

Enter gross salary: 20000
Net Salary = 21400.000000

22. Net sales with 10% discount

```

1 // net_sales.c
2 #include <stdio.h>
3
4 int main() {
5     float gross, discount, net;
6
7     printf("Enter gross sales: ");
8     scanf("%f", &gross);
9
10    discount = 0.10 * gross;
11    net = gross - discount;
12
13    printf("Net Sales = %f\n", net);
14
15    return 0;
16 }

```

Sample Output:

Enter gross sales: 50000
Net Sales = 45000.000000

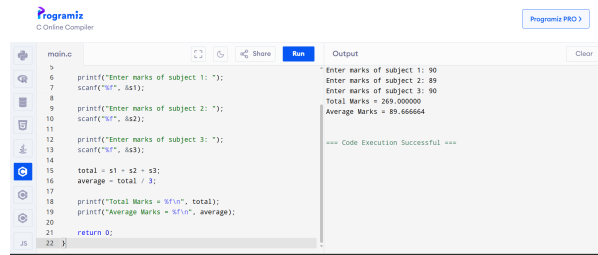


Figure 23: Q23 sample output

23. Average & total of three subjects

```

1 // avg_of_3subjects.c
2 #include <stdio.h>
3
4 int main() {
5     float s1, s2, s3, total, average;
6
7     printf("Enter marks of subject 1: ");
8     scanf("%f", &s1);
9
10    printf("Enter marks of subject 2: ");
11    scanf("%f", &s2);
12
13    printf("Enter marks of subject 3: ");
14    scanf("%f", &s3);
15
16    total = s1 + s2 + s3;
17    average = total / 3;
18
19    printf("Total Marks = %f\n", total);
20    printf("Average Marks = %f\n", average);
21
22    return 0;
23 }

```

Sample Output:

```

Enter marks of subject 1: 70
Enter marks of subject 2: 80
Enter marks of subject 3: 90
Total Marks = 240.000000
Average Marks = 80.000000

```

24. Swap two values

```

1 // swap_2_values.c
2 #include <stdio.h>
3
4 int main() {

```

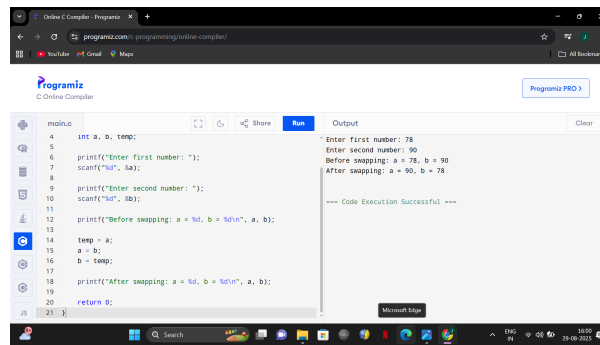


Figure 24: Q24 SAMPLE OUTPUT

```

5      int a, b, temp;
6
7      printf("Enter first number: ");
8      scanf("%d", &a);
9
10     printf("Enter second number: ");
11     scanf("%d", &b);
12
13     printf("Before swapping: a = %d, b = %d\n", a, b);
14
15     temp = a;
16     a = b;
17     b = temp;
18
19     printf("After swapping: a = %d, b = %d\n", a, b);
20
21     return 0;
22 }

```

Sample Output:

```

Enter first number: 10
Enter second number: 20
Before swapping: a = 10, b = 20
After swapping: a = 20, b = 10

```