Assignment Solutions for Basic C Programming

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GitHub Project: https://github.com/manthanagarwal2001/Manthan_Agrawal_25BCL012/tree/main/LAB

Solutions to Assignment Questions

1. Add two numbers

```c
// addtwonumbers.c
#include <stdio.h>
int main() {
    int a, b;
    printf("Enter two integers: ");
    scanf("%d %d", &a, &b);
    printf("Sum = %d\n", a + b);
    return 0;
}
```

Sample Output:

```
Enter first number: 5
Enter second number: 7
The sum is 12
```

2. Subtract two numbers

```c
// subtracttwonumbers.c
#include <stdio.h>
int main() {
    int a, b;
    printf("Enter two integers: ");
    scanf("%d %d", &a, &b);
    printf("Difference = %d\n", a - b);
    return 0;
}
```

Sample Output:

```
Enter two numbers: 10 3
Subtraction = 7
```

3. Multiply two numbers

```c
// multiplytwonumbers.c
#include <stdio.h>
int main() {
    int a, b;
    printf("Enter two integers: ");
    scanf("%d %d", &a, &b);
    printf("Product = %d\n", a * b);
    return 0;
}
```

Sample Output:

```
Enter two numbers: 6 4
Answer = 24
```

4. Divide two numbers

```c
// divide.c
#include <stdio.h>
int main() {
    float a, b;
    printf("Enter two numbers: ");
    scanf("%f %f", &a, &b);
    if (b == 0) printf("Division by zero not allowed\n");
    else printf("Quotient = %.2f\n", a / b);
    return 0;
}
```

Sample Output:

```
Enter two numbers: 7 2
Answer = 3.50
```

5. Perform all four operations

```c
// allfour.c
#include <stdio.h>
int main() {
    float a, b;
    printf("Enter two numbers: ");
    scanf("%f %f", &a, &b);
    printf("Sum = %.2f\n", a + b);
    printf("Difference = %.2f\n", a - b);
    printf("Product = %.2f\n", a * b);
    if (b == 0) printf("Quotient = undefined\n");
    else printf("Quotient = %.2f\n", a / b);
    return 0;
}
```

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

```c
// hours-to-minutes.c
#include <stdio.h>
int main() {
    int h;
    printf("Enter hours: ");
    scanf("%d", &h);
    printf("Minutes = %d\n", h * 60);
    return 0;
}
```

Sample Output:

```
Enter hours: 2
Minutes are: 120
```

7. Convert minutes into hours

```c
// mins-to-hours.c
#include <stdio.h>
int main() {
    int m;
    printf("Enter minutes: ");
    scanf("%d", &m);
    printf("Hours = %.2f\n", m / 60.0f);
    return 0;
}
```

Sample Output:

```
Enter minutes: 180
Hours are: 3
```

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

```c
// dollars2rs.c
#include <stdio.h>
int main() {
    float dollars;
```

```c
    printf("Enter dollars: ");
    scanf("%f", &dollars);
    printf("Rupees = %.2f\n", dollars * 48.0f);
    return 0;
}
```

Sample Output:

```
Enter dollars: 10
Rupees are: 480
```

9. Convert Rs. into dollars

```c
// INR2USD.c
#include <stdio.h>
int main() {
    float rs;
    printf("Enter rupees: ");
    scanf("%f", &rs);
    printf("Dollars = %.2f\n", rs / 48.0f);
    return 0;
}
```

Sample Output:

```
Enter rupees: 960
Dollars are: 20
```

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

```c
// usd2ukpounds.c
#include <stdio.h>
int main() {
    float dollars;
    printf("Enter dollars: ");
    scanf("%f", &dollars);
    float pounds = (dollars * 48.0f) / 70.0f;
    printf("Pounds = %.2f\n", pounds);
    return 0;
}
```

Sample Output:

```
Enter amount in dollars: 10
Amount in pounds = 6.857143
```

11. Convert grams into kg

```c
// grams2kg.c
#include <stdio.h>
int main() {
```

```c
    float g;
    printf("Enter grams: ");
    scanf("%f", &g);
    printf("Kilograms = %.3f\n", g / 1000.0f);
    return 0;
}
```

Sample Output:

```
Enter weight in grams: 1500
Weight in kilograms = 1.500000
```

12. Convert kg into grams

```c
// kg2grams.c
#include <stdio.h>
int main() {
    float kg;
    printf("Enter kilograms: ");
    scanf("%f", &kg);
    printf("Grams = %.0f\n", kg * 1000.0f);
    return 0;
}
```

Sample Output:

```
Enter weight in kilograms: 2.5
Weight in grams = 2500.00
```

13. Convert bytes into KB, MB, GB

```c
// bytes2KBMBGB.c
#include <stdio.h>
int main() {
    double bytes;
    printf("Enter bytes: ");
    scanf("%lf", &bytes);
    double kb = bytes / 1024.0;
    double mb = kb / 1024.0;
    double gb = mb / 1024.0;
    printf("KB = %.4f\nMB = %.4f\nGB = %.6f\n", kb, mb, gb);
    return 0;
}
```

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

```c
// celcius2farenheit.c
#include <stdio.h>
int main() {
    float c;
    printf("Enter Celsius: ");
    scanf("%f", &c);
    printf("Fahrenheit = %.2f\n", (9.0f/5.0f) * c + 32.0f);
    return 0;
}
```

Sample Output:

```
Enter temperature in Celsius: 100
Temperature in Fahrenheit = 212.000000
```

15. Fahrenheit to Celsius

```c
// farenheit2celcius.c
#include <stdio.h>
int main() {
    float f;
    printf("Enter Fahrenheit: ");
    scanf("%f", &f);
    printf("Celsius = %.2f\n", (5.0f/9.0f) * (f - 32.0f));
    return 0;
}
```

Sample Output:

```
Enter temperature in Fahrenheit: 212
Temperature in Celsius = 100.000000
```

16. Calculate interest

```c
// si_calculator.c
#include <stdio.h>
int main() {
    float P, R, N;
    printf("Enter Principal, Rate, Time: ");
    scanf("%f %f %f", &P, &R, &N);
    printf("Interest = %.2f\n", P * R * N / 100.0f);
    return 0;
}
```

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

```c
// area_and_perimeter_of_square.c
#include <stdio.h>
int main() {
    float L;
    printf("Enter side length: ");
    scanf("%f", &L);
    printf("Area = %.2f\nPerimeter = %.2f\n", L*L, 4*L);
    return 0;
}
```

Sample Output:

```
Enter side length of square: 5
Area of square = 25.000000
Perimeter of square = 20.000000
```

18. Area & perimeter of a rectangle

```c
// area_and_perimeter_of_rectangle.c
#include <stdio.h>
int main() {
    float L, B;
    printf("Enter length and breadth: ");
    scanf("%f %f", &L, &B);
    printf("Area = %.2f\nPerimeter = %.2f\n", L*B, 2*(L+B));
    return 0;
}
```

Sample Output:

```
Enter length of rectangle: 6
Enter breadth of rectangle: 4
Area of rectangle = 24.000000
Perimeter of rectangle = 20.000000
```

19. Area of a circle

```c
// area_circle.c
#include <stdio.h>
int main() {
    float r;
    printf("Enter radius: ");
    scanf("%f", &r);
    float area = (22.0f/7.0f) * r * r;
    printf("Area = %.2f\n", area);
    return 0;
}
```

Sample Output:

```
Enter radius of circle: 7
Area of circle = 153.142853
```

20. Area of a triangle

```c
// area_triangle.c
#include <stdio.h>
int main() {
    float base, height;
    printf("Enter base and height: ");
    scanf("%f %f", &base, &height);
    printf("Area = %.2f\n", (base * height) / 2.0f);
    return 0;
}
```

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%)

```c
// net_salary_calculation.c
#include <stdio.h>
int main() {
    float gross;
    printf("Enter gross salary: ");
    scanf("%f", &gross);
    float allowance = 0.10f * gross;
    float deduction = 0.03f * gross;
    float net = gross + allowance - deduction;
    printf("Net salary = %.2f\n", net);
    return 0;
}
```

Sample Output:

```
Enter gross salary: 20000
Net Salary = 21400.000000
```

22. Net sales with 10% discount

```c
// net_sales.c
#include <stdio.h>
int main() {
    float gross;
    printf("Enter gross amount: ");
    scanf("%f", &gross);
    float net = gross - 0.10f * gross;
```

```
    printf("Net amount = %.2f\n", net);
    return 0;
}
```

Sample Output:

```
Enter gross sales: 50000
Net Sales = 45000.000000
```

23. Average & total of three subjects

```
// avg_of_3subjects.c
#include <stdio.h>
int main() {
    float s1, s2, s3;
    printf("Enter three marks: ");
    scanf("%f %f %f", &s1, &s2, &s3);
    float total = s1 + s2 + s3;
    float avg = total / 3.0f;
    printf("Total = %.2f\nAverage = %.2f\n", total, avg);
    return 0;
}
```

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

```
// swap_2_values.c
#include <stdio.h>
int main() {
    int a, b, temp;
    printf("Enter two integers: ");
    scanf("%d %d", &a, &b);
    temp = a; a = b; b = temp;
    printf("After swap: a = %d, b = %d\n", a, b);
    return 0;
}
```

Sample Output:

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