

Chapter 11 Book Example Programs

Example 1: Calculate Square root of a positive number

```
#include <stdio.h>
#include <math.h>

int main() {
    int number;

    // Input positive number
    printf("Enter a positive number: ");
    scanf("%d", &number);

    // Check if the number is positive
    if (number < 0) {
        printf("Please enter a positive number.\n");
        return 1; // Exit with an error code
    }

    // Calculate and display the square root
    float squareRoot = sqrt(number);
    printf("Square root of %d: %.2f \n", number, squareRoot);
}
```

Example 2: Accepts three numbers and display largest number.

```
#include <stdio.h>
int main() {
    // Input three numbers
    float num1, num2, num3;
    printf("Enter three numbers: ");
    scanf("%f %f %f", &num1, &num2, &num3);

    // Check and display the largest number
    if (num1 >= num2 && num1 >= num3) {
        printf("The largest number is %.2f\n", num1);
    } else if (num2 >= num1 && num2 >= num3) {
        printf("The largest number is %.2f\n", num2);
    } else {
        printf("The largest number is %.2f\n", num3);
    }
}
```

Example 3: Accepts a number from user and determine whether positive, negative or zero.

```
#include <stdio.h>

int main() {
    int num;

    printf("Enter a number: ");
    scanf("%d", &num);

    if (num > 0) {
        printf("The number is Positive.\n");
    }
    else if (num < 0) {
        printf("The number is Negative.\n");
    }
    else {
        printf("The number is Zero.\n");
    }
}
```

Example 4: Accepts a character from user and determine whether it is vowel or not.

```
int main() {
    // Input a character
    char ch;
    printf("Enter a character: ");
    scanf(" %c", &ch);
    // Check and display whether the character is a vowel or not
    switch (ch) {
        case 'a':
        case 'A':
        case 'e':
        case 'E':
        case 'i':
        case 'I':
        case 'o':
        case 'O':
        case 'u':
        case 'U':
            printf("The character '%c' is a vowel.\n", ch);
            break;
        default:
            printf("The character '%c' is not a vowel.\n", ch);
    }
}
```

Chapter 11 Exercise Solved Programs

Question 8: write a program that Compute the area of a square or a triangle (Ask user to enter S for square and T for Triangle)

```
#include <stdio.h>
int main() {
    char figureType;
    printf("Enter the first character of the figure name (S or T): ");
    scanf(" %c", &figureType);

    if (figureType == 'S' || figureType == 's') {
        float side, area;
        printf("Enter the side length of the square: ");
        scanf("%f", &side);
        area = side * side;
        printf("Area of the square: %f\n", area);
    } else if (figureType == 'T' || figureType == 't') {
        float base, height, area;
        printf("Enter the base length of the triangle: ");
        scanf("%f", &base);
        printf("Enter the height of the triangle: ");
        scanf("%f", &height);
        area = 0.5 * base * height;
        printf("Area of the triangle: %f\n", area);
    } else {
        printf("Invalid figure type.\n");
    }
}
```

// Question 9: Check if a year is a leap year

```
#include <stdio.h>
int main() {
    int year;
    printf("\nEnter a year: ");
    scanf("%d", &year);

    if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
        printf("Leap year\n");
    } else {
        printf("Not a leap year\n");
    }
}
```

// Question 10: Display a message based on temperature

```
#include <stdio.h>
int main() {
    float temperature;
    printf("\nEnter temperature: ");
    scanf("%f", &temperature);

    if (temperature > 35) {
        printf("Hot day\n");
    } else if (temperature >= 25 && temperature <= 35) {
        printf("Pleasant day\n");
    } else {
        printf("Cool day\n");
    }
}
```

// Question 11: Calculate percentage and display grade

```
#include <stdio.h>
int main() {
    int obtainedMarks;
    printf("\nEnter obtained marks (out of 1100): ");
    scanf("%d", &obtainedMarks);

    float percentage = (float)obtainedMarks / 1100 * 100;

    if (percentage >= 80) {
        printf("Grade: A+\n");
    } else if (percentage >= 70) {
        printf("Grade: A\n");
    } else if (percentage >= 60) {
        printf("Grade: B\n");
    } else if (percentage >= 50) {
        printf("Grade: C\n");
    } else if (percentage >= 40) {
        printf("Grade: D\n");
    } else {
        printf("Grade: F\n");
    }
}
```

// Question 12: Perform arithmetic operation based on user choice

```
#include <stdio.h>
int main() {
    int choice;
    float num1, num2, result;
    printf("\nEnter two numbers: ");
    scanf("%f %f", &num1, &num2);

    printf("Enter your choice (1: Sum, 2: Subtract, 3: Multiply, 4: Divide): ");
    scanf("%d", &choice);

    switch (choice) {
        case 1:
            result = num1 + num2;
            printf("Sum: %f\n", result);
            break;
        case 2:
            result = num1 - num2;
            printf("Difference: %f\n", result);
            break;
        case 3:
            result = num1 * num2;
            printf("Product: %f\n", result);
            break;
        case 4:
            if (num2 != 0) {
                result = num1 / num2;
                printf("Quotient: %f\n", result);
            } else {
                printf("Error: Division by zero\n");
            }
            break;
        default:
            printf("Wrong choice\n");
    }
}
```