

8. Practical Examples

8.1 Complete Program Examples

Example 1: Simple Calculator

```
#include <stdio.h>

int main() {
    float num1, num2, result;
    char operator;

    printf("Enter first number: ");
    scanf("%f", &num1);

    printf("Enter operator (+, -, *, /): ");
    scanf(" %c", &operator);

    printf("Enter second number: ");
    scanf("%f", &num2);

    switch (operator) {
        case '+':
            result = num1 + num2;
            break;
        case '-':
            result = num1 - num2;
            break;
        case '*':
            result = num1 * num2;
            break;
        case '/':
            if (num2 != 0) {
                result = num1 / num2;
            } else {
                printf("Error: Division by zero!\n");
            }
        }
    }
```

```

        return 1;
    }
    break;
default:
    printf("Error: Invalid operator!\n");
    return 1;
}

printf("%.2f %c %.2f = %.2f\n", num1, operator, num2, result);
return 0;
}

```

Example 2: Grade Classification

```

#include <stdio.h>

int main() {
    int score;

    printf("Enter your score (0-100): ");
    scanf("%d", &score);

    if (score < 0 || score > 100) {
        printf("Invalid score!\n");
    } else if (score >= 90) {
        printf("Grade: A (Excellent)\n");
    } else if (score >= 80) {
        printf("Grade: B (Very Good)\n");
    } else if (score >= 70) {
        printf("Grade: C (Good)\n");
    } else if (score >= 60) {
        printf("Grade: D (Fair)\n");
    } else {
        printf("Grade: F (Fail)\n");
    }

    return 0;
}

```

8.2 Loop Examples

Example 1: Sum of Numbers

```
#include <stdio.h>

int main() {
    int n, sum = 0;

    printf("Enter a positive integer: ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i++) {
        sum += i;
    }

    printf("Sum of numbers from 1 to %d is: %d\n", n, sum);
    return 0;
}
```

Example 2: Multiplication Table

```
#include <stdio.h>

int main() {
    int num;

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

    printf("Multiplication table for %d:\n", num);
    for (int i = 1; i <= 10; i++) {
        printf("%d x %d = %d\n", num, i, num * i);
    }

    return 0;
}
```

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