Input title

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```
#include <stdio.h>


int find_greatest(int a, int b, int c) {
    if (a >= b) {
        if (a >= c) {
            return a;
        } else {
            return c;
        }
    } else {
        if (b >= c) {
            return b;
        } else {
            return c;
        }
```

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```
            return c;
        }
    }
}

int main() {
    int num1, num2, num3;

    // Input the three numbers
    printf("Enter the first number: ");
    scanf("%d", &num1);
    printf("Enter the second number: ");
    scanf("%d", &num2);
    printf("Enter the third number: ");
    scanf("%d", &num3);

    // Output the greatest number
    printf("The greatest number is: %d\n",
find_greatest(num1, num2, num3));
```

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```
    // Output the greatest number
    printf("The greatest number is: %d\n",
find_greatest(num1, num2, num3));

    return 0;
}
```

2. Program to Calculate the Final Grade Based on Multiple Criteria

```
#include <stdio.h>
 {
    if (attendance < 75) {
        return "Fail due to low attendance";
    } else {
        if (assignments < 50) {
            return "Fail due to low assignment
score";
        } else {
```

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```
        } else {
            if (exam < 50) {
                return "Fail due to low exam
score";
            } else {
                float final_score = (attendance *
0.2) + (assignments * 0.3) + (exam * 0.5);
                if (final_score >= 90) {
                    return "A";
                } else if (final_score >= 80) {
                    return "B";
                } else if (final_score >= 70) {
                    return "C";
                } else if (final_score >= 60) {
                    return "D";
                } else {
                    return "F";
                }
```

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```
            }
        }
    }
  }
}

int main() {
    float attendance, assignments, exam;

    // Input criteria values
    printf("Enter attendance percentage: ");
    scanf("%f", &attendance);
    printf("Enter average assignment score:
");
    scanf("%f", &assignments);
    printf("Enter exam score: ");
    scanf("%f", &exam);

    // Output final grade
```

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```
");
    scanf("%f", &assignments);
    printf("Enter exam score: ");
    scanf("%f", &exam);

    // Output final grade
    printf("Final grade: %s\n",
calculate_final_grade(attendance,
assignments, exam));

    return 0;
}
```

3. Program to Perform Encryption and Decryption of a Character Using Bitwise Operators

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

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3. Program to Perform Encryption and Decryption of a Character Using Bitwise Operators

```
#include <stdio.h>
 {
   return ch ^ key;  // XOR operation for encryption/decryption
}

int main() {
   char character, encrypted_char, decrypted_char;
   int key = 5;  // Key for encryption and decryption

   // Input the character
   printf("Enter a character to encrypt: ");
   scanf(" %c", &character);
```

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```
    // Input the character
    printf("Enter a character to encrypt: ");
    scanf(" %c", &character);

    // Perform encryption
    encrypted_char =
encrypt_decrypt(character, key);
    printf("Encrypted character: %c\n",
encrypted_char);

    // Perform decryption
    decrypted_char =
encrypt_decrypt(encrypted_char, key);
    printf("Decrypted character: %c\n",
decrypted_char);

    return 0;
}
```

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}

4. Program to Determine Loan Eligibility Using Logical Operators (in C)

```
#include <stdio.h>
 {
    if (age >= 18 && income >= 30000 &&
credit_score >= 650) {
        return "Eligible for a loan";
    } else {
        return "Not eligible for a loan";
    }
}

int main() {
    int age, credit_score;
    float income;
```

Input title

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```
int main() {
    int age, credit_score;
    float income;

    // Input values for loan criteria
    printf("Enter your age: ");
    scanf("%d", &age);
    printf("Enter your annual income: ");
    scanf("%f", &income);
    printf("Enter your credit score: ");
    scanf("%d", &credit_score);

    // Output loan eligibility result
    printf("%s\n",
check_loan_eligibility(age, income,
credit_score));

    return 0;
```

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1. Program to categorize a person's age into different life stages:

```
#include <stdio.h>

int main() {
    int age;

    // Input age
    printf("Enter your age: ");
    scanf("%d", &age);

    // Categorize based on age
    if (age >= 0) {
        if (age <= 12) {
```

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```
        if (age <= 12) {
            printf("You are a Child.\n");
        } else if (age <= 19) {
            printf("You are a Teenager.\n");
        } else if (age <= 59) {
            printf("You are an Adult.\n");
        } else {
            printf("You are a Senior.\n");
        }
    } else {
        printf("Invalid age.\n");
    }

    return 0;
}
```

2. Program to determine if a number is positive, negative, or zero, and check if it's even or odd if positive:

Input title

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2. Program to determine if a number is positive, negative, or zero, and check if it's even or odd if positive:

```
#include <stdio.h>

int main() {
    int number;

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

    // Determine if positive, negative, or zero
    if (number > 0) {
```

Input title

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```
    if (number > 0) {
        printf("The number is positive.\n");

        // Check if the number is even or odd
        if (number % 2 == 0) {
            printf("It is an even number.\n");
        } else {
            printf("It is an odd number.\n");
        }
    } else if (number < 0) {
        printf("The number is negative.\n");
    } else {
        printf("The number is zero.\n");
    }

    return 0;
}
```

Input title

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1. Program to check if a number is divisible by both 3 and 5 using logical operators:

```
#include <stdio.h>

int main() {
    int number;

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

    // Check if the number is divisible by both 3 and 5
    if (number % 3 == 0 && number % 5 ==
```

Input title

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```
    if (number % 3 == 0 && number % 5 == 0) {
        printf("The number %d is divisible by both 3 and 5.\n", number);
    } else {
        printf("The number %d is not divisible by both 3 and 5.\n", number);
    }

    return 0;
}
```

2. Program to check if a person is eligible to vote based on age and citizenship status:

Input title

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```
#include <stdio.h>

int main() {
    int age;
    char citizen;

    // Input the age and citizenship status
    printf("Enter your age: ");
    scanf("%d", &age);

    printf("Are you a citizen? (y/n): ");
    scanf(" %c", &citizen);  // note the
space before %c to capture the newline
character

    // Check if the person is eligible to vote
    if (age >= 18) {
```

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```
    // Check if the person is eligible to vote
    if (age >= 18) {
        if (citizen == 'y' || citizen == 'Y') {
            printf("You are eligible to vote.\n");
        } else {
            printf("You are not eligible to vote
because you are not a citizen.\n");
        }
    } else {
        printf("You are not eligible to vote
because you are under 18.\n");
    }

    return 0;
}
```

1. Program to find the maximum of two numbers using a ternary operator:

Input title

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}

1. Program to find the maximum of two numbers using a ternary operator:

```
#include <stdio.h>

int main() {
    int num1, num2, max;

    // Input two numbers
    printf("Enter two numbers: ");
    scanf("%d %d", &num1, &num2);

    // Find the maximum using a ternary operator
```

Input title

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```
    // Find the maximum using a ternary
operator
    max = (num1 > num2) ? num1 : num2;

    // Output the maximum
    printf("The maximum of %d and %d is
%d.\n", num1, num2, max);

    return 0;
}
```

2. Program to calculate the sum of digits of a number until the result is a single digit:

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

Input title

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```
#include <stdio.h>

int main() {
    int number, sum, digit;

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

    // Initialize sum
    sum = number;

    // Loop until sum is a single digit
    while (sum >= 10) {
        sum = 0;  // Reset sum for new
calculation
        while (number > 0) {
            digit = number % 10;  // Extract the
```

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```
        while (number > 0) {
            digit = number % 10;  // Extract the
last digit
            sum += digit;         // Add the digit to
sum
            number /= 10;         // Remove the
last digit
        }
        number = sum;  // Update number to
be the sum for the next iteration
    }

    // Output the single digit result
    printf("The single digit sum is: %d\n",
sum);

    return 0;
}
```