

Name : Jessica Gurung

Question : 3

```
// Write a C program to display a personalized greeting message. (Should contain 'hello' or 'welcome' in the message)

#include <stdio.h>

int main() {
    char name[50];

    printf("Enter your name: ");
    scanf("%s", name);

    printf("\nHello %s! Welcome to the world of C programming.\n", name);
    return 0;
}
```

● jessicagurung@Jessicas-MacBook-Air src % gcc q3.c -o q3 && ./q3
Enter your name: Jessica Gurng
Hello Jessica! Welcome to the world of C programming.

Question : 6

```
// Write a C program to calculate the area of a rectangle. Prompt the user to enter the length and width, and display the result.

#include <stdio.h>

int main() {
    float length, width, area;

    printf("Enter the length of the rectangle: ");
    scanf("%f", &length);

    printf("Enter the width of the rectangle: ");
    scanf("%f", &width);

    area = length * width;

    printf("The area of the rectangle is: %.2f\n", area);

    return 0;
}
```

● jessicagurung@Jessicas-MacBook-Air src % gcc q6.c -o q6 && ./q6
Enter the length of the rectangle: 21
Enter the width of the rectangle: 13
The area of the rectangle is: 273.00

Question : 8

```
/* Write a C program to convert temperature from Celsius to Fahrenheit. Prompt the user for a
temperature in Celsius and display the equivalent temperature in Fahrenheit.
(Formula: fahrenheit = (celsius * 9 / 5) + 32) */

#include <stdio.h>

int main() {
    float celsius, fahrenheit;

    printf("Enter temperature in Celsius: ");
    scanf("%f", &celsius);

    fahrenheit = (celsius * 9 / 5) + 32;

    printf("Temperature in Fahrenheit: %.2f\n", fahrenheit);

    return 0;
}
```

```
● jessicagurung@Jessicas-MacBook-Air ~ % gcc q8.c -o q8 && ./q8
Enter temperature in Celsius: 10
Temperature in Fahrenheit: 50.00
```

Question : 9

```
jessicagurung@Jessicas-MacBook-Air ~ % gcc q9.c -o q9 && ./q9
// Input a number representing days and print the equivalent number of weeks and days.
// Example:
// Input = 10
// Output = "1 week and 3 days"

#include <stdio.h>

int main() {
    int days;
    int weeks, remainingDays;

    printf("Enter number of days: ");
    scanf("%d", &days);

    weeks = days / 7;
    remainingDays = days % 7;

    printf("%d week and %d days\n", weeks, remainingDays);

    return 0;
}
```

```
● jessicagurung@Jessicas-MacBook-Air src % gcc q9.c -o q9 && ./q9
Enter number of days: 3
0 week and 3 days
```

Question : 10

```
// Write a C program to swap the values of two variables using a temporary variable.

#include <stdio.h>

int main() {
    int a = 10;
    int b = 20;
    int temp;

    printf("Before swapping:\n");
    printf("a = %d\n", a);
    printf("b = %d\n", b);

    temp = a;
    a = b;
    b = temp;

    printf("\nAfter swapping:\n");
    printf("a = %d\n", a);
    printf("b = %d\n", b);

    return 0;
}
```

```
● jessicagurung@Jessicas-MacBook-Air src % gcc q10.c -o q10 && ./q10
Before swapping:
a = 10
b = 20

After swapping:
a = 20
b = 10
```

Question : 11

```
// Write a C expression that performs the following operations in a single line: increment a variable by 1, multiply it by 3, and su
#include <stdio.h>

int main() {
    int x = 5;
    x = (++x * 3) - 10;
    printf("Final value of x: %d\n", x);
    return 0;
}
```

- jessicagurung@Jessicas-MacBook-Air src % gcc q11.c -o q11 && ./q11
q11.c:9:10: warning: multiple unsequenced modifications to 'x' [-Wunsequenced]
 x = (++x * 3) - 10;
 ~ ^
1 warning generated.
Final value of x: 8

Question : 12

```
// jessicagurung / Desktop / assignment / garingjessica / src / q12.c
// Given three variables a, b, and c, write an expression that checks if a is greater than b and c is not equal to 0.

#include <stdio.h>

int main() {
    int a = 10;
    int b = 5;
    int c = 3;

    int result = (a > b) && (c != 0);

    printf("Result: %d\n", result);

    return 0;
}
```

- jessicagurung@Jessicas-MacBook-Air src % gcc q12.c -o q12 && ./q12
Result: 1

Question : 13

```
jessicagurung@Desktop:assignment\gurungjessica> src> c q13.c
// Write a C expression that evaluates whether a number is divisible by both 2 and 3 (without using the modulus operator).

#include <stdio.h>

int main()
{
    int n = 12;
    int divisible_by_2_and_3 = ((n / 2) * 2 == n) && ((n / 3) * 3 == n);
    printf("%d\n", divisible_by_2_and_3);
    return 0;
}
```

```
● jessicagurung@Jessicas-MacBook-Air src % gcc q13.c -o q13 && ./q13
1
```

Question : 14

```
jessicagurung@Desktop:assignment\gurungjessica> src> c q14.c
// Create an expression that swaps the values of two variables x and y without using a temporary variable.

#include <stdio.h>

int main() {
    int x = 5;
    int y = 10;

    x = x + y; // x becomes 15
    y = x - y; // y becomes 5
    x = x - y; // x becomes 10

    printf("x = %d, y = %d\n", x, y);
    return 0;
}
```

```
● jessicagurung@Jessicas-MacBook-Air src % gcc q14.c -o q14 && ./q14
x = 10, y = 5
● jessicagurung@Jessicas-MacBook-Air src %
```

Question : 15

```
// Write an expression that checks if a number is both positive and even.

#include <stdio.h>

int main() {
    int number = 8;

    int isPositiveAndEven = (number > 0) && (number % 2 == 0);

    printf("%d\n", isPositiveAndEven);

    return 0;
}
```

```
● jessicagurung@Jessicas-MacBook-Air src % gcc q15.c -o q15 && ./q15
1
```

Question : 16

```
// Given two variables x and y, write an expression that calculates the average of their values.

#include <stdio.h>

int main() {
    float x, y, average;

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

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

    average = (x + y) / 2.0;

    printf("The average of %.2f and %.2f is %.2f\n", x, y, average);

    return 0;
}
```

```
● jessicagurung@Jessicas-MacBook-Air src % gcc q16.c -o q16 && ./q16
Enter the first number: 8
Enter the second number: 7
The average of 8.00 and 7.00 is 7.50
```

Question : 17

```
// Create an expression that checks if a given character is an uppercase letter.

#include <stdio.h>

int main() {
    char ch = 'G';

    int is_uppercase = (ch >= 'A') && (ch <= 'Z');

    printf("%c is uppercase? %d\n", ch, is_uppercase);

    return 0;
}
```

```
● jessicagurung@Jessicas-MacBook-Air src % gcc q17.c -o q17 && ./q17
G is uppercase? 1
```

Question : 18

```
// Write a C expression that calculates the sum of the squares of three different numbers.

#include <stdio.h>

int main() {
    int a = 2, b = 3, c = 4;
    int sum_of_squares = a * a + b * b + c * c;

    printf("Sum of squares: %d\n", sum_of_squares);

    return 0;
}
```

```
jessicagurung@Jessicas-MacBook-Air src % gcc q18.c -o q18 && ./q18
Sum of squares: 29
```

Question : 19

```
// Given three variables a, b, and c, write an expression that checks if a is equal to b and b is not equal to c.

#include <stdio.h>

int main() {
    int a = 5;
    int b = 5;
    int c = 3;

    int result = (a == b) && (b != c);

    printf("Result: %d\n", result);

    return 0;
}
```

```
jessicagurung@Jessicas-MacBook-Air src % gcc q19.c -o q19 && ./q19
Result: 1
```

Question : 20

```
// Write an expression that checks if a number is a multiple of either 3 or 5.

#include <stdio.h>

int main() {
    int number = 15;
    int isMultiple = (number % 3 == 0) || (number % 5 == 0);

    printf("%d is %sa multiple of 3 or 5.\n", number, isMultiple ? "" : "not ");

    return 0;
}
```

```
jessicagurung@Jessicas-MacBook-Air src % gcc q20.c -o q20 && ./q20
15 is a multiple of 3 or 5.
jessicagurung@Jessicas-MacBook-Air src %
```

Question : 21

```
// Create an expression that swaps the values of three variables x, y, and z in a cyclic order (i.e., x becomes y, y becomes z, and z becomes x)

#include <stdio.h>

int main() {
    int x = 1, y = 2, z = 3;
    int temp;

    temp = x;
    x = y;
    y = z;
    z = temp;

    printf("x = %d, y = %d, z = %d\n", x, y, z);
    return 0;
}
```

- jessicagurung@Jessicas-MacBook-Air src % gcc q21.c -o q21 && ./q21
x = 2, y = 3, z = 1
jessicagurung@Jessicas-MacBook-Air src %

Question : 22

```
// Write a C expression that calculates the square root of the sum of two numbers, rounded to the nearest integer.
// You can you math header file for this (eg: #include <math.h>)

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

int main() {
    double a = 10.5, b = 5.2;
    int result = (int)round(sqrt(a + b));
    printf("Result: %d\n", result);
    return 0;
}
```

- jessicagurung@Jessicas-MacBook-Air src % gcc q22.c -o q22 && ./q22
Result: 4
jessicagurung@Jessicas-MacBook-Air src %

Question : 23

```
// Given a variable num, write an expression that checks if it is a power of 2.  
// You can you math header file for this (eg: #include <math.h>)  
  
#include <stdio.h>  
#include <math.h>  
  
int main() {  
    int num;  
  
    printf("Enter a number: ");  
    scanf("%d", &num);  
  
    int isPowerOf2 = (num > 0) && (floor(log2(num)) == ceil(log2(num)));  
  
    printf("%d\n", isPowerOf2);  
  
    return 0;  
}
```

```
jessicagurung@Jessicas-MacBook-Air src % gcc q23.c -o q23 && ./q23  
Enter a number: 1  
1
```

Question : 24

```
// Create an expression that checks if a given number is a perfect square.  
// You can you math header file for this (eg: #include <math.h>)  
  
#include <stdio.h>  
#include <math.h>  
  
int main() {  
    int num;  
    printf("Enter a number: ");  
    scanf("%d", &num);  
  
    int isPerfectSquare = (sqrt(num) == floor(sqrt(num)));  
  
    printf("%d\n", isPerfectSquare);  
  
    return 0;  
}
```

```
jessicagurung@Jessicas-MacBook-Air src % gcc q24.c -o q24 && ./q24
Enter a number: 99
0
```