

Name: Smriti-Shahi

Question: Q3

```
C q3.c M X
src > C q3.c > main()
1 // Write a C program to display a personalized greeting message. (Should contain 'hello' or 'welcome' in the message)
2
3 #include <stdio.h>
4
5 int main() {
6     char name[50];
7
8     printf("please enter your name: ");
9     scanf("%49s", name);
10
11    printf("\nHello %s, welcome to the C programming world!\n", name);
12
13    return 0;
14 }
```

Output:

```
please enter your name:
```

```
smriti shahi
```

```
Hello smriti, welcome to the C programming world!
```

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src>
```

Question: Q6

```
src > C q6.c > main()
1 // Write a C program to calculate the area of a rectangle. Prompt the user to enter the length and width, and display the result.
2
3 #include <stdio.h>
4
5 int main(){
6     float length, width, area;
7
8     printf("Enter the length of the rectangle: ");
9     scanf("%f", &length);
10
11    printf("Enter the width of the rectangle: ");
12    scanf("%f", &width);
13
14    area = length * width;
15
16    printf("The area of the rectangle is: %.2f\n", area);
17
18    return 0;
19 }
```

Output:

```
Enter the length of the rectangle:
```

```
10
```

```
Enter the width of the rectangle: 11
```

```
The area of the rectangle is: 110.00
```

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> █
```

Question: Q8

```
1  /* Write a C program to convert temperature from Celsius to Fahrenheit. Prompt the user for a
2  temperature in Celsius and display the equivalent temperature in Fahrenheit.
3  (Formula: fahrenheit = (celsius * 9 / 5) + 32) */
4
5 #include <stdio.h>
6
7 int main() {
8     float celsius, fahrenheit;
9
10    printf("Enter temperature in Celsius: ");
11    scanf("%f", &celsius);
12
13    fahrenheit = (celsius * 9.0 / 5.0) + 32;
14
15    printf("%.2f Celsius is equal to %.2f Fahrenheit.\n", celsius,
16           fahrenheit);
17
18    return 0;
19 }
20
```

Output:

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> .\q8.exe
Enter temperature in Celsius: 11
11.00 Celsius is equal to 51.80 Fahrenheit.
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> █
```

Question: Q9

The screenshot shows a code editor interface with a dark theme. At the top, there are tabs for 'q3.c', 'q6.c', 'q8.c', and 'q9.c'. The 'q9.c' tab is currently selected. To the right of the tabs are icons for 'Settings' and a close button. The main area displays the following C code:

```
src > C q9.c > ...
1 // Input a number representing days and print the equivalent number of weeks and days.
2 // Example:
3 // Input = 10
4 // Output = "1 week and 3 days"
5
6 #include <stdio.h>
7
8 int main() {
9     int total_days, weeks, remaining_days;
10
11    printf("Enter the total number of days: ");
12    scanf("%d", &total_days);
13
14    weeks = total_days / 7;
15    remaining_days = total_days % 7;
16
17    printf("%d days = %d week(s) and %d day(s).\n",
18           total_days, weeks, remaining_days);
19
20    return 0;
21 }
22
```

Output:

```
Enter the total number of days:
25
25 days = 3 week(s) and 4 day(s).
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src>
```

Question: Q10

```

C q3.c M C q6.c M C q8.c M C q9.c M C q10.c M X Settings
src > C q10.c > main()
1 // Write a C program to swap the values of two variables using a temporary variable.
2
3 #include <stdio.h>
4
5 int main() {
6     int a = 10, b = 20;
7     int temp;
8
9     printf("Before swapping: a = %d, b = %d\n", a, b);
10
11    temp = a;
12    a = b;
13    b = temp;
14
15    printf("After swapping: a = %d, b = %d\n", a, b);
16
17    return 0;
18 }

```

Output:

```

PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> gcc q10.c -o q10.exe
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> .\q10.exe
Before swapping: a = 10, b = 20
After swapping: a = 20, b = 10
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> []

```

Question: Q11

```

C q3.c M C q6.c M C q8.c M C q9.c M C q10.c M C q11.c M X Settings
src > C q11.c > main()
1 // Write a C expression that performs the following operations in a single line: increment a variable by 1, multiply it by 3, and subtract 10.
2
3 #include <stdio.h>
4
5 int main() {
6     int my_var = 5;
7     int result;
8
9     result = ((my_var + 1) * 3) - 10;
10
11    printf("Original variable: %d\n", my_var);
12    printf("Result of the expression ((var + 1) * 3) - 10: %d\n",
13           result);
14    printf("Calculation: ((5 + 1) * 3) - 10 = (6 * 3) - 10 = 18 - 10 = 8\n");
15
16    return 0;
17 }

```

Output:

```

PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> gcc q11.c -o q11.exe
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> .\q11.exe
Original variable: 5
Result of the expression ((var + 1) * 3) - 10: 8
Calculation: ((5 + 1) * 3) - 10 = (6 * 3) - 10 = 18 - 10 = 8
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> []

```

Question: Q12

```
C q3.c M | C q6.c M | C q8.c M | C q9.c M | C q10.c M | C q11.c M | C q12.c M X | ⚙ Settings
src > C q12.c > main()
1 // 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.
2
3 #include <stdio.h>
4
5 int main() {
6     int a = 15, b = 10, c = 5;
7
8     printf("a = %d, b = %d, c = %d\n", a, b, c);
9
10    if (a > b && c != 0) {
11        printf("Condition is TRUE: a is greater than b AND c is not zero.\n");
12    } else {
13        printf("Condition is FALSE.\n");
14    }
15
16    printf("\nNow changing c to 0...\n");
17    c = 0;
18    printf("a = %d, b = %d, c = %d\n", a, b, c);
19
20    if (a > b && c != 0) {
21        printf("This line will not be printed.\n");
22    } else {
23        printf("Condition is now FALSE because c is zero.\n");
24    }
25
26    return 0;
27 }
```

Output:

```
a = 15, b = 10, c = 5
Condition is TRUE: a is greater than b AND c is not zero.
a = 15, b = 10, c = 5
Condition is TRUE: a is greater than b AND c is not zero.
Condition is TRUE: a is greater than b AND c is not zero.

Now changing c to 0...
a = 15, b = 10, c = 0
Condition is now FALSE because c is zero.
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> 
```

Question: Q13

```

C q3.c M | C q6.c M | C q8.c M | C q9.c M | C q10.c M | C q11.c M | C q12.c M | C q13.c M X | Set
src > C q13.c > main()
1 // Write a C expression that evaluates whether a number is divisible by both 2 and 3 (without using the modulus operator).
2
3 #include <stdio.h>
4
5 int main() {
6     int num = 12;
7
8     printf("Checking if %d is divisible by both 2 and 3 (without modulus):\n", num);
9
10    if ((num / 6) * 6 == num) {
11        printf("%d is divisible by both 2 and 3.\n", num);
12    } else {
13        printf("%d is NOT divisible by both 2 and 3.\n", num);
14    }
15
16    printf("\nChecking if 10 is divisible by both 2 and 3:\n");
17    num = 10;
18    if ((num / 6) * 6 == num) {
19        printf("%d is divisible by both 2 and 3.\n", num);
20    } else {
21        printf("%d is NOT divisible by both 2 and 3.\n", num);
22    }
23
24    return 0;
25 }

```

Output:

```

PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> gcc q13.c -o q13.exe
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> .\q13.exe
Checking if 12 is divisible by both 2 and 3 (without modulus):
12 is divisible by both 2 and 3.

Checking if 10 is divisible by both 2 and 3:
10 is NOT divisible by both 2 and 3.
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> []

```

Question: Q14

```

1 // Create an expression that swaps the values of two variables x and y without using a temporary variable.
2
3 #include <stdio.h>
4
5 int main() {
6     int x = 10, y = 20;
7     printf("Before swap: x = %d, y = %d\n", x, y);
8
9     // Swap using XOR
10    x = x ^ y;
11    y = x ^ y;
12    x = x ^ y;
13
14    printf("After swap: x = %d, y = %d\n", x, y);
15
16    return 0;
17 }

```

Output:

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> gcc q14.c -o q14.exe
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> .\q14.exe
Before swap: x = 10, y = 20
After swap: x = 20, y = 10
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> 
```

Question: Q15

```
src > C q15.c > main()
1 // Write an expression that checks if a number is both positive and even.
2
3 #include <stdio.h>
4
5 int main() {
6     int num = 12;
7
8     printf("Checking if %d is both positive and even:\n", num);
9     if (num > 0 && num % 2 == 0) {
10         printf("%d is both positive and even.\n", num);
11     } else {
12         printf("%d is NOT both positive and even.\n", num);
13     }
14
15     printf("\nChecking if -7 is both positive and even:\n");
16     num = -7;
17     if (num > 0 && num % 2 == 0) {
18         printf("%d is both positive and even.\n", num);
19     } else {
20         printf("%d is NOT both positive and even.\n", num);
21     }
22
23     printf("\nChecking if 15 is both positive and even:\n");
24     num = 15;
25     if (num > 0 && num % 2 == 0) {
26         printf("%d is both positive and even.\n", num);
27     } else {
28         printf("%d is NOT both positive and even.\n", num);
29     }
30
31     return 0;
32 }
```

Output:

```
Checking if 12 is both positive and even:  
12 is both positive and even.
```

```
Checking if -7 is both positive and even:  
Checking if 12 is both positive and even:  
12 is both positive and even.
```

```
Checking if -7 is both positive and even:  
12 is both positive and even.
```

```
Checking if -7 is both positive and even:
```

```
Checking if -7 is both positive and even:  
-7 is NOT both positive and even.
```

```
Checking if 15 is both positive and even:  
15 is NOT both positive and even.
```

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> █
```

Question: Q16

```
1 // Given two variables x and y, write an expression that calculates the average of their values.  
2  
3 #include <stdio.h>  
4  
5 int main() {  
6     int x = 10, y = 15;  
7     float average;  
8  
9     average = (x + y) / 2.0;  
10  
11    printf("The average of %d and %d is: %.2f\n", x, y, average);  
12  
13    return 0;  
14 }
```

Output:

```
The average of 10 and 15 is: 12.50  
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> █
```

Question: Q17

```
1 // Create an expression that checks if a given character is an uppercase letter.
2
3 #include <stdio.h>
4
5 int main() {
6     char ch = 'G';
7
8     printf("Checking if '%c' is an uppercase letter:\n", ch);
9     if (ch >= 'A' && ch <= 'Z') {
10         printf("'%c' is an uppercase letter.\n", ch);
11     } else {
12         printf("'%c' is NOT an uppercase letter.\n", ch);
13     }
14
15     printf("\nChecking if 'g' is an uppercase letter:\n");
16     ch = 'g';
17     if (ch >= 'A' && ch <= 'Z') {
18         printf("'%c' is an uppercase letter.\n", ch);
19     } else {
20         printf("'%c' is NOT an uppercase letter.\n", ch);
21     }
22
23     return 0;
24 }
```

Output:

```
Checking if 'G' is an uppercase letter:
'G' is an uppercase letter.
```

```
Checking if 'g' is an uppercase letter:
'g' is NOT an uppercase letter.
```

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> █
```

Question: Q18

```

1 // Write a C expression that calculates the sum of the squares of three different numbers.
2
3 #include <stdio.h>
4
5 int main() {
6     int a = 2, b = 3, c = 4;
7     int sum_of_squares;
8
9     sum_of_squares = (a * a) + (b * b) + (c * c);
10
11    printf("The sum of squares of %d, %d, and %d is: %d\n", a, b, c, sum_of_squares);
12    printf("Calculation: (%d * %d) + (%d * %d) + (%d * %d) = %d + %d + %d = %d\n",
13           a, a, b, b, c, c, a*a, b*b, c*c, sum_of_squares);
14
15    return 0;
16 }

```

Output:

```

The sum of squares of 2, 3, and 4 is: 29
Calculation: (2 * 2) + (3 * 3) + (4 * 4) = 4 + 9 + 16 = 29
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src>

```

Question: Q19

```

1 // 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.
2 #include <stdio.h>
3
4 #include <stdio.h>
5
6 int main() {
7     int a = 10, b = 10, c = 5;
8
9     printf("a = %d, b = %d, c = %d\n", a, b, c);
10
11    if (a == b && b != c) {
12        printf("Condition is TRUE: a equals b, and b does not equal c.\n");
13    } else {
14        printf("Condition is FALSE.\n");
15    }
16
17    printf("\nNow changing c to 10...\n");
18    c = 10;
19    printf("a = %d, b = %d, c = %d\n", a, b, c);
20
21    if (a == b && b != c) {
22        printf("This line will not be printed.\n");
23    } else {
24        printf("Condition is now FALSE because b equals c.\n");
25    }
26
27    return 0;
28 }

```

Output:

```
a = 10, b = 10, c = 5
Condition is TRUE: a equals b, and b does not equal c.
```

Now changing c to 10...

```
a = 10, b = 10, c = 10
Condition is now FALSE because b equals c.
```

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> █
```

Question: Q20

```
1 // Write an expression that checks if a number is a multiple of either 3 or 5.
2
3 #include <stdio.h>
4
5 int main() {
6     int num = 15;
7
8     printf("Checking if %d is a multiple of 3 or 5:\n", num);
9     if (num % 3 == 0 || num % 5 == 0) {
10         printf("%d is a multiple of 3 or 5.\n", num);
11     } else {
12         printf("%d is NOT a multiple of 3 or 5.\n", num);
13     }
14
15     printf("\nChecking if 9 is a multiple of 3 or 5:\n");
16     num = 9;
17     if (num % 3 == 0 || num % 5 == 0) {
18         printf("%d is a multiple of 3 or 5.\n", num);
19     } else {
20         printf("%d is NOT a multiple of 3 or 5.\n", num);
21     }
22
23     printf("\nChecking if 7 is a multiple of 3 or 5:\n");
24     num = 7;
25     if (num % 3 == 0 || num % 5 == 0) {
26         printf("%d is a multiple of 3 or 5.\n", num);
27     } else {
28         printf("%d is NOT a multiple of 3 or 5.\n", num);
29     }
30
31     return 0;
32 }
```

Output:

```
Checking if 15 is a multiple of 3 or 5:  
15 is a multiple of 3 or 5.
```

```
Checking if 9 is a multiple of 3 or 5:  
9 is a multiple of 3 or 5.
```

```
Checking if 7 is a multiple of 3 or 5:  
7 is NOT a multiple of 3 or 5.  
7 is NOT a multiple of 3 or 5.  
7 is NOT a multiple of 3 or 5.
```

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> █
```

### Question: Q21

```
1 // 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)  
2  
3 #include <stdio.h>  
4  
5 int main() {  
6     int x = 10, y = 20, z = 30;  
7     int temp;  
8  
9     printf("Before cyclic swap: x=%d, y=%d, z=%d\n", x, y, z);  
10  
11    temp = z;  
12    z = y;  
13    y = x;  
14    x = temp;  
15  
16    printf("After cyclic swap: x=%d, y=%d, z=%d\n", x, y, z);  
17    printf("(x became y, y became z, z became x)\n");  
18  
19    return 0;  
20 }
```

### Output:

```
Before cyclic swap: x=10, y=20, z=30  
After cyclic swap: x=30, y=10, z=20  
(x became y, y became z, z became x)  
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> █
```

### Question: Q22

```
1 // Write a C expression that calculates the square root of the sum of two numbers, rounded to the nearest integer.
2 // You can you math header file for this (eg: #include <math.h>)
3
4 #include <stdio.h>
5 #include <math.h>
6
7 int main() {
8     double a = 10.5, b = 15.5;
9     int result;
10
11     result = (int)round(sqrt(a + b));
12
13     printf("a = %.1f, b = %.1f\n", a, b);
14     printf("Sum: %.1f\n", a + b);
15     printf("Square root of sum: %.3f\n", sqrt(a + b));
16     printf("Rounded to nearest integer: %d\n", result);
17
18     return 0;
19 }
```

Output:

```
a = 10.5, b = 15.5
Sum: 26.0
Square root of sum: 5.099
Rounded to nearest integer: 5
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src>
```

Question: Q23

```

1 // Given a variable num, write an expression that checks if it is a power of 2.
2 // You can you math header file for this (eg: #include <math.h>
3
4 #include <stdio.h>
5
6 int main() {
7     int num = 16;
8
9     printf("Checking if %d is a power of 2:\n", num);
10    if (num > 0 && (num & (num - 1)) == 0) {
11        printf("%d is a power of 2.\n", num);
12    } else {
13        printf("%d is NOT a power of 2.\n", num);
14    }
15
16    printf("\nChecking if 12 is a power of 2:\n");
17    num = 12;
18    if (num > 0 && (num & (num - 1)) == 0) {
19        printf("%d is a power of 2.\n", num);
20    } else {
21        printf("%d is NOT a power of 2.\n", num);
22    }
23
24    printf("\nChecking if 32 is a power of 2:\n");
25    num = 32;
26    if (num > 0 && (num & (num - 1)) == 0) {
27        printf("%d is a power of 2.\n", num);
28    } else {
29        printf("%d is NOT a power of 2.\n", num);
30    }
31
32    return 0;
33 }
```

Output:

```
Checking if 16 is a power of 2:
16 is a power of 2.
```

```
Checking if 12 is a power of 2:
12 is NOT a power of 2.
```

```
Checking if 32 is a power of 2:
32 is a power of 2.
```

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src>
```

Question: Q24

```
src > C q24.c > main()
1 // Create an expression that checks if a given number is a perfect square.
2 // You can you math header file for this (eg: #include <math.h>)
3
4 #include <stdio.h>
5 #include <math.h>
6
7 int main() {
8     int num = 49;
9     int integer_sqrt = (int)sqrt(num);
10
11    printf("Checking if %d is a perfect square:\n", num);
12    if (integer_sqrt * integer_sqrt == num) {
13        printf("%d is a perfect square (sqrt = %d).\n", num, integer_sqrt);
14    } else {
15        printf("%d is NOT a perfect square.\n", num);
16    }
17
18    printf("\nChecking if 50 is a perfect square:\n");
19    num = 50;
20    integer_sqrt = (int)sqrt(num);
21    if (integer_sqrt * integer_sqrt == num) {
22        printf("%d is a perfect square (sqrt = %d).\n", num, integer_sqrt);
23    } else {
24        printf("%d is NOT a perfect square.\n", num);
25    }
26
27    printf("\nChecking if 64 is a perfect square:\n");
28    num = 64;
29    integer_sqrt = (int)sqrt(num);
30    if (integer_sqrt * integer_sqrt == num) {
31        printf("%d is a perfect square (sqrt = %d).\n", num, integer_sqrt);
32    } else {
33        printf("%d is NOT a perfect square.\n", num);
34    }
35
36    return 0;
37 }
```

Output:

```
Checking if 49 is a perfect square:  
49 is a perfect square (sqrt = 7).
```

```
Checking if 50 is a perfect square:  
50 is NOT a perfect square.
```

```
Checking if 64 is a perfect square:  
64 is a perfect square (sqrt = 8).
```

```
PS C:\Users\Hp\Desktop\hello world\assignment-1-sshahi7417-blip\src> █
```