Lab 5 submissions

Question 1:

Write a program that categorizes a person's age into different life stages: Child, Teenager, Adult, and Senior, using nested if-else statements.

Output:

```
G:\Lab_5>gcc child_teenager_adult_senior.c -o child_teenager_adult_senior.exe

G:\Lab_5>child_teenager_adult_senior.exe
Enter age:25
adult
```

Question 2:

Create a program that determines if a number is positive, negative, or zero, and if it’s positive, checks if it’s an even or odd number.

Output:

```
G:\Lab_5>gcc positve_negative_zero_odd_even_if_else.c -o positve_negative_zero_odd_even_if_else.exe

G:\Lab_5>positve_negative_zero_odd_even_if_else.exe
Enter a number:-10
-10 is a negative number
```

Question 3:

Write a program that checks if a number is divisible by both 3 and 5 using logical operators.

Output:

```
G:\Lab_5>gcc divisible_By_3_and_5.c -o divisible_By_3_and_5.exe

G:\Lab_5>divisible_By_3_and_5.exe
Enter a number:15
15 is divisible by both 3 and 5
```

Question 4:

Create a program that checks if a person is eligible to vote based on their age and citizenship status.

Output:

```
G:\Lab_5>gcc Eligible_to_vote.c -o Eligible_to_vote.exe

G:\Lab_5>Eligible_to_vote.exe
Enter age:25
Enter citizenship:Pakistan
Eligible for voting
```

Question 5:

Write a program using a ternary operator to find the maximum of two numbers.

Output:

```
G:\Lab_5>gcc max_num_ternary.c -o max_num_ternary.exe

G:\Lab_5>max_num_ternary.exe
enter two number:10 9
10 is the greatest number
```

Question 6:

Use the ternary operator to check if a number is positive, negative, or zero.

Output:

```
G:\Lab_5>gcc zero_negative_positive_ternary.c -o zero_negative_positive_ternary.exe

G:\Lab_5>zero_negative_positive_ternary.exe
enter a number:10
10 is a positive number
```

Question 7:

Write a program to swap two numbers using bitwise XOR.

Output:

```
G:\Lab_5>gcc Swap_XOR.c -o Swap_XOR.exe

G:\Lab_5>Swap_XOR.exe
Enter the first number:20
Enter the second number:25
After swapping:
First number:25
Second number:20
```

Question 8:

Create a program that counts the number of 1s in the binary representation of a number.

Output:

```
G:\Lab_5>gcc Binary_1_counter.c -o Binary_1_counter.exe

G:\Lab_5>Binary_1_counter.exe
Enter a number in decimal:87
Binary:1010111
number of 1s Binary form of 87 is 5
```

Question 9:

Write a program that checks if a year is a leap year using the modulus operator.

Output:

```
G:\Lab_5>gcc Leap_Year_Or_Not.c -o Leap_Year_Or_Not.exe

G:\Lab_5>Leap_Year_Or_Not.exe
Enter year:2024
2024 is a leap year.
```

Question 10:

Create a program that calculates the sum of digits of a number until the result is a single digit (e.g., 123 -> 6).

Output:

```
G:\Lab_5>gcc Sum_digits.c -o Sum_digits.exe

G:\Lab_5>Sum_digits.exe
Enter a number:1782
Sum of the digits is 18
```

Question 11:

Write a program to find the greatest of three numbers using nested if-else statements.

Output:

```
G:\Lab_5>gcc max_num_nested.c -o max_num_nested.exe

G:\Lab_5>max_num_nested.exe
Enter three numbers:20 10 13
20 is greatest
```

Question 12:

Create a program that calculates the final grade of a student based on multiple criteria, including attendance, assignment scores, and exam results, using nested decision structures.

Output:

```
G:\Lab_5>gcc Grading_nested_if.c -o Grading_nested_if.exe

G:\Lab_5>Grading_nested_if.exe
Enter attendance percentage:75
Enter exam score:90
Enter assignment marks:7
A- Grade
```

Question 13:

Write a program that uses bitwise operators to perform encryption and decryption of a character.

Output:

```
G:\Lab_5>gcc Encryption_Decryption_char.c -o Encryption_Decryption_char.exe

G:\Lab_5>Encryption_Decryption_char.exe
Enter a character:E
Encrypted:
Decrypted:E
```

Question 14:

Develop a program that uses logical operators to determine if a person is eligible for a loan based on age, income, and credit score.

Output:

```
G:\Lab_5>gcc loan_eligibility_logical.c -o loan_eligibility_logical.exe

G:\Lab_5>loan_eligibility_logical.exe
Enter Age:18
Enter income:50000
Enter credit score:70
Eligible for loan
```